

# VETERINARY CALL

by Bob Larson, Kansas State University

## Cow Herd Mineral Supplementation

*Providing appropriate amounts of minerals is an important aspect of meeting the nutritional needs of cattle. The minerals available from grazed and harvested forages and feed depend greatly on soil and plant factors. Because of the importance that soil plays in the availability of many minerals, supplementation needs can vary greatly across North America.*

Minerals needed in relatively large amounts to maintain optimum health, reproduction and growth are described as major or macro minerals; while minerals needed in small amounts are usually called micro or trace minerals.

The mineral needed in the greatest amount in beef diets is salt (sodium chloride). Because salt is deficient in most natural feeds, it should be supplemented in all situations.

The level of salt needed can vary depending on the diet, type of cattle, and environmental conditions; but a general rule is to supply 1 to 2 ounces (oz.) per day.

Calcium and phosphorus are often considered together. Calcium content of grass decreases somewhat as forage matures, but even dormant grass can provide sufficient calcium in some situations.

Phosphorus, however, is much lower in dormant forage than in growing forage. Cattle consuming standing dormant forage or hay cut in the dormant phase of growth may need additional phosphorus.

Grains and many byproduct feeds used to supplement cows on dormant forage have high phosphorus content, which may make additional phosphorus

supplementation unnecessary.

Deficiency of magnesium is identified as a condition known as grass tetany. This results from the consumption of lush spring forage, which has low levels of magnesium and sodium and excess potassium.

In addition to plant factors, grass tetany is associated with late pregnancy and early lactation due to the movement of calcium, phosphorus, and magnesium out of blood circulation and into the udder for milk production. During periods when grass tetany is a danger, a mineral mix with at least 18% magnesium needs to be offered.

Minerals needed in small amounts are called trace minerals. Deficiencies or imbalances of these can occur when cattle graze plants growing in soils that are either deficient in some important trace minerals or have excessive amounts of minerals that will prevent the proper utilization of other minerals.

If trace mineral antagonists are identified in the diet, changing water sources, rotating pastures, or changing harvested forage sources may be necessary before an appropriate mineral supplement can be formulated.

Commercial mineral supplements

to meet the needs of most classes of cattle are widely available. However, in some situations, the available commercial supplements are not able to meet a herd's mineral needs. In these situations, custom mixes can be created with the mineral-supplement supplier working with the producer to provide the proper level of minerals based on analysis of the animal's diet.

*Editor's note: Bob Larson is a professor of production medicine at Kansas State University in Manhattan, Kan.*

### Minerals

Major minerals: sodium (salt), calcium, and phosphorus. Magnesium and potassium are major minerals that require supplementation, under certain circumstances of course.

Trace minerals that may be deficient in forage-based diets are copper, cobalt, iodine, selenium, zinc and manganese. In addition, mineral needs (particularly calcium and phosphorus) are higher in lactating cows compared to non-lactating cattle (heifers, dry cows, bulls).