

Mineral Sense

Manage the cost of mineral supplementation.

Story by
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Producers hear repeatedly about the importance of minerals in beef cattle diets. Veterinarians, Extension educators and feed company “reps” harp on it all the time. Minerals are components of body tissues and fluids, and a balance of mineral elements is essential to normal metabolism. They work at the cellular level, playing roles in enzyme and hormone action, as well as immune system function. Yep, minerals are important.

Health problems can result from specific mineral deficiencies and imbalances. Grass tetany, characterized by low blood serum levels of magnesium (Mg), is one that readily comes to mind. The consequences with that mineral-related malady and a few others can be dramatic and deadly. It’s not always that way, of course. Consequences of dietary mineral imbalances hinge on the specific elements involved and how long the diet may have been “out of whack.” In many cases, the signs are subtle, and may include reduced disease resistance, reduced reproductive performance or reduced growth and feed efficiency.

Taking the mineral message to heart, many conscientious cow folks have adopted mineral supplementation programs. Well, some producers have a “program” and others might put out some mineral — whatever a local supplier keeps on hand — when they happen to think about it. In either case, producers may or may not know how closely the chosen mineral supplement meets the mineral requirements of their cattle.

Most cow-calf producers probably do know that mineral supplements can be expensive. Spending \$15-\$20 per 50-pound (lb.) bag (\$600-\$800 per ton) for a commercially available mineral supplement is not uncommon. Fed year-round at the rate of 3-4 ounces (oz.) per day, the cost per cow might range from \$20 to \$36. That’s somewhere between a nickel and a dime per day.

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A lot of well-meaning people have suggested that, with annual per cow production costs of \$400-\$500, mineral supplementation represents a relatively small investment. That might be true, but the purpose of a mineral supplement is to make up for elements lacking in the herd’s base diet. However, if the base diet and mineral supplement collectively deliver minerals at levels that significantly exceed animal requirements, health and performance might be negatively affected. At the very least, money is wasted.

In some instances, says University of Nebraska Extension Educator Dennis Bauer, a whole lot of money is wasted due to excessive

supplementation. It happens because producers don’t know what levels of minerals are available in their herds’ base diets.

“If you are spending over \$15 to \$20 (per head) per year on mineral, you might want to get a second opinion,” Bauer advises. “It’s possible to meet cow requirements and keep mineral costs as low as \$5 per head. It depends on the mineral content of your feed supply — the forage and any protein supplements.”

Forage-supplied minerals

Forages alone may supply adequate amounts of certain minerals to satisfy National Research Council (NRC) requirements for beef cows, and especially for dry cows. Phosphorous (P) typically is the highest-cost ingredient of any mineral formulation, but Bauer says phosphorous requirements may be met or nearly met by forages — even some grass hays.

Depending on mature size

and stage of lactation, NRC cow requirements for phosphorus range from 0.12% to 0.21% of a cow’s diet on a dry-matter basis. Levels of phosphorus present in alfalfa and native hays may satisfy requirements at the upper end of that range, and often meet lower-end requirements of dry cows. Summer annuals cut for hay, such as Sudan grass, sorghum-sudan or millets, also may contain enough phosphorous to satisfy dry cow requirements. Phosphorus levels generally exceed cow requirements if the hay crop was irrigated. Spring-planted forage crops like oats, triticale and barley generally contain adequate levels of phosphorus as well.

“Data from several states over the last 20 years shows phosphorous levels in most forages are adequate for the dry cow. Requirements for calcium (Ca), potassium (K), sulfur (Su), iron (Fe) and manganese (Mn) are met 90% to 100% of the

(Continued on page 56)



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Mineral Sense *(from page 54)*

time, based on the forages that have been tested,” Bauer says.

“Often, producers do need to focus their attention on supplementing copper (Cu) and zinc (Zn). In most forages, concentration of those trace minerals is not adequate to meet beef cow requirements. On average, only about 50% of the

requirement for copper, and 50% to 65% of the requirement for zinc is supplied by forages.”

Supplements contribute

Bauer says producers should not assume that harvested forages are poor sources of minerals. Rather, they should

have forage samples tested to determine whether deficiencies exist and for what elements. And don't forget to consider the contribution of other feed supplements.

For example, Bauer notes how cornstalks are commonly used as winter cow forage in north central Nebraska, where he lives. Corn coproducts, such as

range cubes based on dried distillers' grains, have become popular as protein supplements for cows grazing cornstalks. Typically, says Bauer, corn coproducts contain relatively high levels of phosphorous.

“A base forage — even cornstalks — plus 1 or 2 pounds [per day] of cake (range cubes) may meet cow requirements. Any base forage that tests at least 0.13% for phosphorous and is supplemented with cake or alfalfa hay will probably more than meet requirements. But again, that diet may be a little short on copper and zinc,” Bauer states.

“Producers that have their cake custom-made might want to consider having copper sulfate and zinc oxide added to the formulation. Then, just feed straight salt free choice. It might be possible to get mineral supplemented through the cake and still keep the price under \$200 per ton. The mineral supplement part of it could cost as little as 1¢ per day, per cow.”

Bauer says forage tests typically cost less than \$15 per sample, and the results can help producers save real money by fine-tuning their feeding regimens, including mineral supplementation programs. A low- or no-phosphorous mineral mix may be adequate, and some feed and supplement suppliers offer such products. In some situations, producers may find that ordering a custom-mixed mineral supplement is cost-effective.

“I advise producers going that route to take bids from different suppliers and compare prices. It often pays to shop around,” Bauer says. “You can also save money by feeding mineral supplements only when needed. That might be just late summer through the winter. While cattle are on good green grass, they may need only trace mineralized salt. It depends on what minerals are already present in the diet.”

Bauer notes that soils in certain areas can have specific mineral deficiencies. Selenium (Se), for example, is an element that is lacking in certain locations, and deficiencies should be addressed when adopting a mineral supplementation program. Blanket recommendations seldom work, so producers need to find out what minerals are available through feed supplies and which minerals should be supplemented.

Bauer says the costs of supplementation can be managed with common sense. Another commonsense measure that saves money is to avoid overconsumption. Perhaps the most popular method is to mix mineral supplement with plain salt to maintain intake at a desired level.

“If the mineral is supposed to be consumed at the rate of 3 ounces a day, don't let cattle eat more than that,” Bauer emphasizes. “It's a waste, and it can just kill your budget.”