

Choosing a Mineral Supplement

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With so many options available to offer a mineral supplement, many cattle producers often get overwhelmed at the feed counter. Most cattle producers recognize that while minerals and vitamins only account for a small portion of a cow's intake, they are vital proper animal functions such as growth, immune function, reproduction, and even nervous system function. While there are many options available, it is important to remember that not all supplements are created equal, and studying mineral tags is important before purchasing a new mineral supplement.

Beef cattle require at least 17 different mineral elements in their diets, and these are classified as either macrominerals or microminerals based on the quantity required in the diet. An animal's requirements for a specific mineral will vary based on its age, weight, stage of production, lactation status, breed, stress, and even the bioavailability of the mineral itself. Publication 2484 titled “Mineral and Vitamin Nutrition for Beef Cattle” offers a more detailed description of these requirements, and a discussion of the purpose of each individual mineral.

When selecting a mineral supplement, it is important to remember that the bulk of the diet for many cattle is pasture, and the mineral content of feeds and forages can and will vary. As a general rule of thumb, the calcium to phosphorus ratio of a mineral supplement should be between 1.5:1 and 4:1. During the later summer and fall, most forages are low in phosphorus, and in turn, many cattle are likely to be deficient in phosphorus during the winter and early spring when their diet consists primarily of stored forages. Most grains and corn co-products are poor sources of calcium. Therefore, carefully studying the calcium and phosphorus levels on any mineral supplement are critically important.

Salt is often heavily discussed when considering a mineral supplement. To add salt or not add salt? To mix salt in with a loose mineral or not? These are often common questions asked by beef producers. Cattle crave salt, and it is not stored in the animal's body so it should be made available at all times. However, many minerals sold today are considered “complete” minerals in that they already contain salt. Pay careful attention to the mineral tag. Most completely minerals have a line that says do not add salt. Products that contain 10% salt or more do not need additional salt added. If a mineral is not complete, salt should be added to, not provided separately, as this may cause the mineral intake to be too low because cattle crave only the salt.

Bioavailability of mineral sources is an important consideration when analyzing a mineral tag. Bioavailability refers to how much of a mineral that is fed is actually absorbed. For example: if we feed 1 lb of a mineral source that is only 15% bioavailable, the animal is only able to utilize 0.15 lbs of the mineral source instead of the entire lb. Generally, sulfates and chloride forms have greater bioavailability than oxide forms. The exception to this rule is magnesium oxide. In general, minerals containing lower bioavailable forms will be cheaper per bag than a mineral containing greater availability

Organic mineral sources have become more and more popular in recent years. When a mineral is bound to an amino acid or protein, this is an organic form, and typically referred to as complexes, chelates, or proteinate. The most common organic minerals are copper, zinc, cobalt,

and manganese. With the higher bioavailability of these organic forms, comes a higher price tag. Therefore, it is recommended that these forms be fed from 2 months prior to calving through breeding for the cowherd, and for calves to feed these during weaning and preconditioning time.

Supplement form and intake levels should also be carefully considered. For most beef cattle on pasture, a free-choice loose mineral is most desirable. Pay close attention to the recommended intake on the mineral tag. Most of these supplements recommend 4 oz, which is equal to a ¼ lb per day per cow. This means that a 30-cow herd would be a little over a 50 lb bag per week. It is important to monitor the herd's mineral consumption, and management practices such as placement of the feeder can be applied if the herd is over- or under-consuming. Mineral supplements or blocks also offer a free choice option. It is important to note that a trace mineralized salt block will not meet an animal's requirements, as consumption is typically too low, and these are not recommended as a sole mineral source. Some mineral tubs are molasses based, and are useful to encourage consumption in weaned or stressed calves. If cattle are being fed a total mixed ration, mineral should be thoroughly and uniformly mixed into the ration. If it is not possible to achieve a thorough mix, the mineral may be offered as a top dress or free choice.

Navigating the many options available for a mineral supplement can be a challenge, however mineral and vitamin nutrition is a critical part of herd performance and health. Take a few minutes to study the mineral tag of your current mineral, and give your mineral a performance review!

For more information about beef cattle production, contact an office of the Mississippi State University Extension Service, and visit extension.msstate.edu/beef.