

Strategic mineral supplementation for summer grazing

Gone are the days where a 12-12-12 mineral year-round is the most economical option. Here are some things to think through before deciding your mineral supplements this summer.

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Soon, perhaps already, cow-calf pairs and stockers will be turned out on summer grass. Traditionally, many beef producers supplement summer grass with minerals to ensure the cattle receive adequate nutrition.

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Different parts of the country and different soils have differing mineral content. That makes mineral nutrition perhaps the least understood component of ruminant nutrition, especially in grazing animals.

A couple of reasons for this are that mineral content of forages constantly changes throughout the year and free-choice mineral supplement intake of cattle is highly variable. Insufficient mineral can result in losses in performance and can cause clinical deficiencies. More commonly though, subclinical deficiencies occur manifested as reduced pregnancy rates, rough hair coats, hoof issues, retained placenta, low libido and poor calf performance.

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To make sure sufficient mineral is provided, ranchers should consider the various sources and forms available and the best feeding strategy.

Where is that mineral coming from?

Mineral requirements can be met via feed, water and supplemental sources. Often, we think about free-choice minerals as the only source for cattle, but there are many other options.

Understanding the type of forage and supplemental feed offered can allow producers to make changes in their mineral program. For example, offering dried distillers' grains (DDG) at 2 pounds per head per day may meet some classes of cattle's phosphorus requirements. Gone are the days where a 12-12-12 mineral year-round is the most economical option.

Mineral needs will be different based on forage type. On tame pastures such as fescue, fertilization plays a major role in the amount of macrominerals supplied by grass. In non-fertilized fescue pasture, calcium and phosphorus levels are too low to meet cattle requirements. With appropriate fertilization and good growing conditions, however, calcium and phosphorus levels might be adequate.

In other cool-season grasses, researchers have found that copper, selenium, cobalt and salt are deficient for all cattle; phosphorus, magnesium and zinc are marginally deficient; and iron, manganese and potassium are adequate.

Warm-season native range has the highest phosphorus levels in the spring, but they decrease from there, becoming completely deficient in the winter. Much like the cool-season grasses, salt, copper, selenium and cobalt are deficient in warm-season pastures. Calcium, zinc and phosphorus are marginally deficient, and potassium, magnesium, iron and manganese are adequate.

Water can provide quite a few of these minerals, especially salt and sulfur. It is recommended to measure water mineral concentrations to determine mineral contribution, especially if free-choice intake of a complete mineral is much lower than label recommendations

In general, grains offer more phosphorus than calcium; forages are higher in calcium than phosphorus; and by-product feeds such as DDGs offer high values of phosphorus and sulfur.

What form is that mineral in?

To further complicate the mineral discussion, there are multiple forms of each mineral type, including inorganic, organic or injectable. Each chemical form of the mineral responds differently in the animal and should be a consideration in mineral supplement decisions.

Oxide forms are the lowest in bioavailability, while sulfates and chlorides are more bioavailable. Bioavailability indicates how well the mineral is absorbed. Organic forms are more bioavailable than inorganic and are often more expensive.

Some minerals have positive interactions, where both need to be provided to maximize absorption. Others have negative interactions that can reduce absorption. The most commonly discussed minerals that have negative interactions include copper, molybdenum and sulfur. Those that have positive interactions are selenium and vitamin E.

Producers can determine what types of minerals are in their feed by reading the label. By law, the type and form must be included in the ingredient list, which is itemized from greatest inclusion to lowest.

Scenarios when organic trace minerals may be an option include:

- Areas where mineral is deficient: For example, selenium deficiency is an issue in many areas of the country. The Food and Drug Administration regulates the amount of selenium that can be fed to cattle, so a source that is more highly absorbable should be offered to meet cattle requirements within government regulations.
- High-stress cattle including weaned calves, long-distance hauled calves.
- Breeding season to aid in conception rates, especially in AI scenarios.

- Breeding bulls to provide a high-quality trace mineral at least 60 days prior to breeding season to help with semen quality.
- Embryo work.
- Issues with foot rot, scours, grass tetany.

Injectable trace minerals are easy to administer, provide a specific amount and producers know every animal receives it. Due to the highly variable intake of free-choice minerals, using an injectable allows those animals that do not consume mineral to meet recommended levels.

However, research has not consistently found this form of mineral supplementation will result in improvements in health or reproduction. This is especially true if cattle already have been receiving diets that meet mineral requirements.

Feeding strategies

Salt and most of the trace minerals are deficient for cattle regardless of forage type. Therefore, a supplemental mineral always should be offered. There are three common supplementation strategies that can be considered:

- **Same free-choice mineral:** This is the most common management practice employed in cow-calf operations. The concept behind this method is that regardless of forage and water mineral levels, a free-choice mineral can supply close to 100% of animal requirements.

This is a safe method of mineral supplementation, although it might not be the most economical as there are times of the year a producer might be feeding a much higher phosphorus mineral that is more expensive.

- **Two free-choice minerals:** There are similarities in both minerals offered throughout the year, as both need to meet salt and minimal trace mineral recommendations. The differences are that during times when the grass base is high in phosphorus, low-phosphorus mineral (3 to 6 months) can be offered. As soon as the forage begins losing quality heading into dormancy, then higher-phosphorus mineral can be supplied.

In addition, using this two-mineral option allows for easier addition of approved antibiotics and insect growth repellents for strategic animal health management.

- **Free-choice mineral part of the year and “force-fed” the rest:** When including mineral in a feed that is offered daily, the intake is more consistent. In large warm-season summer pastures where cattle are observed infrequently, a free-choice mineral that is low in phosphorus can be offered. When cattle are being fed a daily grain supplement, mineral can be added into the supplement.

Those grazing short-season stocker cattle need to utilize the above cow-calf mineral supplementation options to determine which fits with their forage type and season of grazing. Consult with a nutritionist or Extension professional for help.