Southeast Minnesota

Grazing Gazette

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ATTENTION!

Beginning 2019, the Gazette will no longer be printed. If you wish to continue receiving the Gazette, send an email to ruesi001@umn.edu

Mineral Nutrition for the Cow Herd: Is Supplementation Necessary?

Eric Mousel, U of M Extension Beef Team

Minerals and vitamins account for a very small proportion of daily intake in cow diets and can be overlooked due to misunderstanding of the importance of adequate mineral nutrition and because of the cost of supplementation. Beef cattle require at least 17 different minerals in their diets. Required minerals are classified as either macrominerals or microminerals based on the quantity required in the cows' diet.

Mineral requirements vary depending on animal age, weight, stage of production, breed, and stress level. As a general principle, when beef cows are grazing green forage during the summer months; unless a specific problem has been identified, a basic mineral supplementation strategy is more than adequate to meet mineral needs. However, once summer grazing begins to get excessively mature or pastures begin to run out and cows are moved to winter feed, adequate mineral nutrition becomes more important. The importance of mineral nutrition during the critical stages of calving and breeding are due to the fact that not only are cows going through critical body composition changes due to calf development, lactation, and preparing to return to estrus, but they do all of this while generally being fed harvested forages of variable quality.

The biggest issue that practical nutrition for beef cows must address is mineral interactions. Minerals interact with each other in the body which can result in tying up or making other mineral elements unavailable. The interaction between calcium and phosphorous is a classic example of mineral interaction.

MACROMINERALS:

Calcium: is the most abundant mineral in the body. Although calcium itself is rarely limiting in cow diets; maintaining an optimal 1.6:1 ratio of calcium to phosphorous in the diet may necessitate the need for supplemental calcium is some situations. Additionally, the lactation phase will increase calcium requirements of beef cows significantly, dictating the need for calcium supplementation if roughages do not supply enough.

Phosphorous: needs in beef cow diets are often presented in terms of calcium to phosphorous ratio described earlier. Roughages are typically pretty low in phosphorous content, although they generally supply enough for most classes of beef cow. Drought conditions and very mature forages however, may have very low phosphorous concentrations suggesting the need for supplemental phosphorous in these situations.

Magnesium: magnesium toxicity is generally not a problem in beef cattle, however deficiencies are much more common and the results can be fatal, as with grass tetany. Heavy lactating cows on green, lush grass in the spring are most susceptible to magnesium deficiencies. Forage magnesium concentrations depend on species, soil, growth stage, season, and temperature. Legumes usually contain higher concentrations than grasses. While magnesium deficiencies in beef cattle are not common in Minnesota many producers do make a high-magnesium mineral available to cows early in the grazing season; presumably to help prevent tetany.

Potassium: is a critical mineral to the beef cow. Forages are good sources, often ranging from 1 to 4 percent potassium. Potassium content can be very high in lush pasture, potentially contributing to grass tetany. Mature and stockpiled forage contain lowered concentrations of potassium. In general, potassium supplementation of beef cows is not necessary beyond the basic oral mineral supplement.

Sodium and Chlorine (salt): are critical for beef cattle year-round. Cattle crave sodium and will consume more salt than needed when it is supplied free-choice. Some excess salt intake is fine so long as adequate water is available. Salt content of a preformulated mineral supplement is usually 10-25% of the supplement.

Sulfur: Sulfur in feedstuffs is found largely as a component of protein. In diets containing high levels of sorghum forage, mature forage, forages produced in sulfur-deficient soils, corn silage, rumen-bypass proteins, or if urea is used as a replacement for plant proteins; dietary sulfur supplementation may be increased.

MICROMINERALS:

Copper: deficiency is best known in the cattle business for its effects on reproduction, particularly estrous cycle disruption. Copper is very susceptible to being tied up with a number of other elements in the body, rendering it unavailable for use by the body; the status of these elements in the body may affect copper requirements of the animal. Breed composition also affects copper requirements. Simmental and Charolais require more copper in the diet than do Angus. Copper supplementation may need to be increased by 25-50% in these breeds. Forages vary widely in copper concentrations as well as concentrations of molybdenum, sulfur, iron, and zinc. Legumes typically contain higher copper concentrations than grasses. Copper is generally supplemented at 1250 ppm on a 4 oz. per day oral mineral.

Iron: is a critical component of the mineral strata in beef cattle. Iron generally is not lacking in beef cattle diets, however, excessive iron can present problems. Iron depletes copper in beef cattle and can contribute to copper deficiency if copper supplementation levels are not adjusted to compensate for copper losses to iron.

Manganese: is generally not a limited mineral as most forages contain adequate manganese concentrations. However, corn silage tends to be relatively low in manganese. Therefore, cows consuming corn silage as a high percentage of the diet on a dry matter basis may need to be supplemented manganese. Manganese is generally supplemented at 2000 ppm on a 4 oz. per day oral mineral.

Zinc: plays an important role in immune system development and function. Zinc toxicities are not common but zinc deficiencies may impact reproductive performance and susceptibility to foot rot in some areas. Zinc concentrations in forages are very variable but generally speaking, zinc supplementation is recommended to maintain immune function. Zinc is generally supplemented at 4000 ppm on a 4 oz. per day oral mineral.

I must state that nothing is more important than having roughages tested at fairly regular intervals throughout the winter to determine mineral availability in the diet and to ensure that your mineral package is meeting the cows' needs. A good supplement program costs between $30-$55/head/year; and with the average cost of running a cow in Minnesota nearing $900/cow/year, the mineral program is a relatively small investment. Additionally, strategic supplementation of the oral mineral program with an injectable mineral supplement may be advantageous at these very critical stages of production, consulting with a nutritionist to ensure you have the right mineral program for the cow herd will pay big dividends.

Are you thinking about calving, kidding or lambing on pasture?

By Michael Cruse, Local Extension Educator

Livestock production systems that birth on pasture in May, June or July are not widely used in our area. But their popularity has increased as of late, especially among smaller producers. The reasons for this renewed interest are pretty straight forward: the weather is typically warmer, animals tend to have fewer complications during birth, forage is readily available, and there is the potential to access nontraditional markets. While birthing on pasture does have its benefits it also comes with some challenges.

How will you separate your herd or flock if needed?

No matter if you are birthing in a pen or on pasture, you are going to have to deal with complications like scours at some point. The offending agents that cause scours – rotavirus, coronavirus, etc. – tend to multiply in birthing areas, increasing infection rates as you move through the season. How do we prevent this type of spread? In a barn setting the first steps might be to remove bedding and to sanitize walls, gates and floors. How do we apply those same principles to pasture? We can look to the Sandhills Calving System for some ideas.

The Sandhills Calving System uses multiple paddocks to systematically move and separate cattle throughout the birthing season. This reduces the prevalence of infectious diseases because cows are giving birth on fresh pastures. While southeast Minnesota may not have the expansive pasture areas that allow for the full application of the Sandhills system for hundreds of head of cattle, the principles of separation still apply.

A young calf, lamb or kid will have reduced chances of catching viruses and other diseases if they are born in an area that has not seen other livestock for some time. If you do not have enough pasture to move animals every seven days you might decide to only move your animals to new paddocks after you observe an illness. You also might consider having an area dedicated to isolating your sick animals. Any way you look at it you need to plan for pasture birthing in the fall, making sure that you let enough pasture rest early in the fall that all of your potential birthing paddocks have good growth next year.

How do you plan to assist when needed?

Relative to conventional birthing systems, a pasture approach to birthing has been shown to require less observation – lower numbers of assists, heathier animals. But that does not mean you do not need to keep an eye on your animals. How do you make sure that you can observe your animals when you need to? Do you keep them out of pastures that have places to hide? Or do you purposefully put them in pastures where they can hide because that gives them access to shelter? You should consider these types of questions when selecting a birthing area for next year.

At some point you are going to have to assist an animal while it is giving birth. The question becomes, when you are not in a barn setting – with quick access to head gates, isolated pens, etc. – how do you plan to provide the support that those animals need? Are your birthing pastures close enough to the barn that you can walk animals there? Should you consider purchasing/building a mobile birthing pen with head gate to move between pastures?

How will you keep things clean?

Sanitation is a key component of a successful livestock birthing season. Whether you are in the barn or pasture you have to be ready with the basics. If you use obstetrical chains to pull cattle, how do you keep those chains clean before use and sanitize them again after their use? Where do you keep your supply of clean gloves? Can the veterinarian easily reach your animals when needed? While these complications are not impossible to overcome you should be considering them well ahead of next May.

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