

Mineral Needs Change Throughout the Year

Management tips to help producers maintain and potentially increase production in the cow herd.

by **Connor Orrock**, K-State Research and Extension

PHOTO BY SHAUNA ROSE HERMEL

Minerals are important building blocks of functional life. They aid in countless body processes. When the body in question is a 1,500-pound (lb.) beef cow whose purpose is to produce income, she may need supplemental minerals during several crucial periods throughout the year.

“Speaking specifically about the beef cow herd and production beef cows, they require macro minerals such as calcium (Ca), phosphorous (P), sodium (Na), chlorine (Cl), potassium (K) and magnesium (Mg),” said Chris Reinhardt, Kansas State University (K-State) Research and Extension beef specialist, “but, they also have requirements for trace elements.”

These trace elements include, for example, copper (Cu), zinc (Zn), selenium (Se), manganese (Mn) and cobalt (Co), in parts per million (ppm) rather than percentages like the macro minerals, Reinhardt said. Some of these minerals are stored in the liver or other tissues during times of plenty for use during times of deficiency.

“We need to be aware of the mineral balance in the forages a cow might be consuming, and we have to be aware of the demand that cow has for those minerals,” he said.

He outlined a scenario where a cow may have different needs.

“Calcium is being drawn out in milk during lactation,” he explained. “Copper and zinc are used heavily for reproduction, during the gestation and during immune challenges. The needs of the cow change throughout the

year, and the supply of minerals available changes tremendously throughout the year, as well. Our job as producers is to make sure we are matching what the cow has access to with what her needs are.”

Clinical deficiencies of minerals occur when a required mineral has been deficient in the diet for an extended period of time, Reinhardt said. Producers can see these deficiencies in obvious outward symptoms showing the animal is lacking a mineral or minerals.

He cited a classic example: “In the 1930s, we didn’t always supplement phosphorus to cows in the western range states. When cows become extremely phosphorus-deficient, they will chew bones.”

One of the clinical signs that indicates a cow is extremely deficient of phosphorus is she will not breed or have a calf. A cow cannot reproduce without adequate phosphorus.

“However, in between adequate status and clinical deficiency is what we call subclinical deficiencies,” Reinhardt said. “These are

where most of the deficiencies occur in the U.S. beef industry.”

For example, he said cows could be marginally copper deficient when they seem to produce well, but maybe their fertility doesn’t quite match up to the producer’s

expectations. In this case, the herd overall may be calving on time, but one cow didn’t calve as expected. The cow in question may have looked fine and had access to the same food sources as the rest of the herd. This is why subclinical deficiencies are often difficult to detect and require a close watch.

Management tips to help producers

“The first step is to assess the needs of the animal,” Reinhardt said. “For instance, a gestating cow requires different levels of calcium and phosphorus than does a lactating cow. When that cow is in the peak of lactation, we have to ensure the cow has

access to adequate macro and trace minerals.”

“The second step of developing a strategy is assessing what is available to the animal,” he continued. “For example, we’ve had abundant rains throughout Kansas and much of the western United States. In the spring when we have adequate rainfall to produce abundant, lush forage, the forage alone is adequate in

phosphorus to meet most of the needs of a lactating cow. However, as that forage matures into summer months, phosphorus content will decline to well below the needs of a lactating cow.”

This is where producers need to intervene

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— **Chris Reinhardt**

and ensure adequate provisions are made for calcium, phosphorus and many of the trace minerals.

To determine the mineral content in the available forage, producers may initially want to have forages analyzed for mineral content, he said. Then, producers can work with their veterinarians or beef nutritionists to determine a supplement that fills the gap.

One mineral concept

According to Reinhardt, many producers use the “one mineral concept,” where they buy a mineral that meets most of the animals’ needs most of the time. When the cattle eat it adequately and predictably, the producer simply leaves the mineral out year-round. During times of the year where the cattle’s needs may be lower, such as spring when there is ample high-quality forage available, they may eat only a little or none of that one mineral.

“As the grass quality declines, you will notice an increase in the consumption of that mineral,” Reinhardt said. “In the fall or winter when we are supplying supplemental feeds, such as soybean meal, distillers’ grain and good-quality hay, the cattle may go back to a period where they may not be eating a tremendous amount of mineral.”

Another option is using different mineral formulations during different times of the year.

“If you’re feeding wet distillers’ grains and high-quality hay, you may have a need for calcium and trace minerals, but not a tremendous need for supplemental phosphorus,” he said.

There may be a better option when doing a mix feed with a force-feeding situation. During the summer, a producer needs a mineral that works with the forage. Also, it is highly important that the cattle will eat independently in a predictable manner.

Deciphering mineral labels

Mineral labels are subject to a law that states if a mineral ingredient is included in a product, there are certain items that must be included on the tag, which is the first place producers should check, Reinhardt said. Pay close attention to levels of phosphorus, calcium, salt, potassium, copper and selenium.

Adequate selenium is important in beef cattle diets, but it is highly regulated by the federal government, as it is toxic to humans and livestock at high levels. Because soils and forages in parts of the United States have low levels of selenium, it is important that producers make sure cattle are getting adequate selenium.

If copper is included in the product, it must be at a guaranteed minimum level on the label. There are many areas of the United

States during various times of year where copper is deficient in the soil and in the forages, so Reinhardt said make sure to have a formula that works well with the geography.

Don’t put off the minerals

Cattle producers are often extremely busy, but a good mineral program should remain important. The beef specialist added, “A rancher always has about a hundred different things to do daily. Occasionally, the mineral formula works its way toward the top of the list.”

Even then, determining how much cattle are consuming is often overlooked.

Information on the mineral tag sometimes includes a recommended range of consumption. Depending on the animals’ needs, geography and pasture conditions, cattle may not eat the predicted amount of the mineral. In that case, it’s possible their mineral needs are not being met.

“We want to ensure that we have the right formula for the cattle,” Reinhardt said. “If they’re not eating the mineral, we have to go back to the drawing board and find a product the cattle will eat.”



Editor’s Note: This article is provided by K-State Research and Extension.

Range Beef Cow Symposium Heads to Colorado

Angus Media will provide online
coverage from the event hosted Nov. 17-19.

Colorado State University’s Department of Animal Sciences is proud to host the Range Beef Cow Symposium XXIV Nov. 17-19 at The Ranch in Loveland, Colo. Registration is available online at <http://bit.ly/1MJ4WE1>.

The biennial symposium sponsored by the Cooperative Extension Service and Animal Science Departments of Colorado State University, South Dakota State University, the University of Nebraska and the University of Wyoming offers an exclusive program of practical production-management information specific to the region’s cattle producers.

This year’s program will highlight a variety of industry speakers delivering valuable, cutting-edge information on beef cattle management strategies ranging from consumer preferences to grazing schemes. Additionally, sessions will incorporate speakers and events geared toward young and up-and-coming producers, including a Young Producers’ Professional Networking Social and a producer panel focusing on how to enter the cattle business as a first-generation cattle producer.

An always-popular feature of the Range Beef Cow Symposium is the evening “Bull Pen Sessions.” Speakers will be present for questions and discussion of their topics, offering attendees an opportunity to acquire more in-depth and applied knowledge from presentations earlier in the program.

The symposium also boasts a top-notch trade show, showcasing a variety of commercial displays from more than 75 allied industry vendors. A presymposium Beef Quality Assurance training will also be provided on Monday, Nov. 16, featuring Curt Pate.

Cattle producers across the Great Plains region are encouraged to join Colorado State University’s Department of Animal Sciences in Loveland to take advantage of the educational and profit-building seminars at this year’s Range Beef Cow Symposium. The early registration deadline is Oct. 26, after which registration prices will increase.

For a full schedule of events and speakers, hotel accommodations and online registration, visit the *Angus Journal’s* event coverage site at www.rangebeefcow.com, or contact Jason Ahola (970-491-3312; jason.ahola@colostate.edu) or Libby Bigler (970-491-2333; libby.bigler@colostate.edu).



► Angus Media provides online coverage of the 2015 Range Beef Cow Symposium at www.rangebeefcow.com. Visit the site now for schedule, registration and travel information. Visit the site after the symposium for summaries written by Angus Journal staff, accompanied by proceedings papers, PowerPoints and audios of the sessions.

