



Back to Basics

by **RON TORELL**, *University of Nevada, Cooperative extension livestock specialist*

Mineral: A necessary input cost

The primary production question crossing my desk this fall deals with areas where input costs can be cut without economically sacrificing production. Many cattlemen are considering cutting out the complete mineral package from their beef cow management program. Complete mineral packages that were priced at \$600 per ton just one year ago are now fetching twice that. What once cost \$20 per pair to annually supplement is now costing \$40.

“Grandpa got by feeding just plain white salt, so why shouldn’t we go back to that? We have to cut somewhere.”

Herd health and vaccination programs are always at the top of the management list and generally receive most of the attention. But mineral nutrition has an important role in herd health as well.

Heifers and cows need special attention through the fall and winter to ensure a healthy calf crop and better breed back next spring. Calves need minerals so their immune system will mount a response to expensive vaccines. Additionally, calves need minerals to

help overcome the stresses of weaning and shipping.

Montana Extension Beef Specialist John Paterson offers the following advice relative to mineral supplementation.

Minerals for calves

Proper calthood vaccinations and mineral nutrition at the ranch go hand in hand. Paterson often cites a Colorado study that showed among calves that were preconditioned, about one-third were still getting sick at the feedlot. Paterson attributes that to poor mineral supplementation.

“The reason we often see sickness in feedlots is probably due to lack of mineral management starting in the cow herd,” he says. “Trace minerals can have a significant carryover effect on feedlot performance and health of calves.”

Thus, he says, mineral supplementation is an important focus at the cow-calf level to enhance fertility, fetal development and the calf’s future resistance to disease.

“A nutrition program is important from conception through the feedyard

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— *John Paterson*

so the animal’s genetics can be fully expressed,” Paterson adds. “For trace minerals, copper (Cu), zinc (Zn) and phosphorus (P) are the big three. During drought vitamins A, D and E may also need to be supplemented.”

Because some of these minerals can have secondary interactions that limit nutrient uptake or interact with soil micronutrients that cause toxicity, Paterson advises working with a nutritionist to develop a balanced nutrition program that optimizes production.

“Trace minerals by themselves won’t cure all morbidity problems. Producers still need to consider vaccination

programs, genetics and environmental factors as well,” he says. “Additionally, parasites can ... suppress appetite and the immune system, so be certain parasite control is part of the health program at the ranch.”

Cow needs

For cows and heifers, minerals play a key role in enhancing fertility. Although beef cows only require 3 to 4 ounces (oz.) of trace minerals in their daily diet, that little bit of supplement helps ensure proper nutrition so that cows will rebreed and produce a healthy calf every 365 days.

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Mineral interaction

There is nothing more vexing than trying to figure out a mineral problem. Fig. 1 shows the interactions between minerals. There are a bunch of them, which underscores a fundamental problem. We might think we have a deficiency of a certain mineral, yet, in reality, it is a borderline deficiency of another.

That brings up another point. It is tempting to not supplement mineral because there may be no overt signs of an advantage. The real damage is with borderline deficiencies with no overt symptoms. But there are symptoms; you just won’t see them until you try to balance your checkbook.

Improperly supplemented animals may never show obvious symptoms, but their performance is not as good as it could be, they are more apt to get sick and they have other problems that may not stand out. It is particularly important in tough times to keep the mineral supplementation up to get maximum performance.

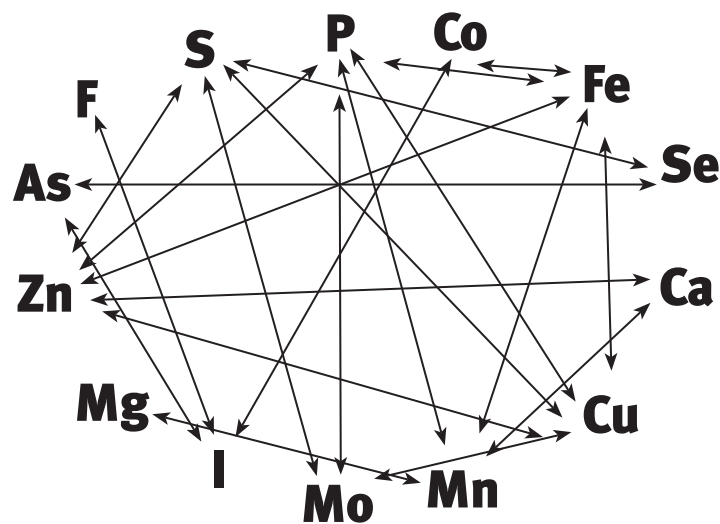
I am a firm believer in supplementing mineral in a salt mix or as a trace-mineral salt block. Don’t offer any other sources of salt or mineral. This does two things. It makes all animals get some mineral, and it regulates consumption. The drawback is that not all animals are going to get exactly the amount they need, but I believe the other points outweigh that.

When feeding a loose salt mix (and block, too) it is best to offer the mineral in a feeder with a cover. A little bit of weather can destroy a lot of mineral.

Another trick is to use things for double-duty. If you need to supplement protein, too (now is not the time to skimp on that either), use one that will help with your mineral problems. An example is distillers’ dried grain (DDG), which is high in phosphorus — a continual problem in the West.

Remember, with DDG there can be some problems. Not only is this ethanol by-product high in phosphorus, it is also high in sulfur. Too much DDG can result in a

Fig. 1: Mineral interactions



copper deficiency and other problems because of the excess sulfur. Under our conditions, I would consider 15% of dry-matter intake (DMI) of DDG as a maximum.

There are other protein supplements that are good in minerals such as alfalfa. Use these to your advantage and keep the minerals going into your cows.

— *Ben Bruce*,

University of Nevada Cooperative Extension livestock specialist

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“The availability of free-choice minerals is especially critical in the three months leading up to calving and then immediately after calving, when the cow has increased energy and protein requirements,” Paterson states.

For instance, a spring-calving cow’s phosphorus and calcium (Ca)

requirements are high during the winter due to fetal development. Zinc and copper have also been shown to be an important part of the cow’s diet just prior to and after calving. Thus, trace minerals are especially important during the last 90 days before calving and then through the breeding season. Providing trace

minerals prior to weaning can also help produce a better immune response and weaning weights among calves.”

Paterson suggests that to provide minerals cost-effectively and to the best benefit of the cow-calf pair, mineral supplements need to be utilized in a well-balanced program that matches the forage

base, which varies in nutritional content during the growing season. Thus, an occasional forage analysis should be conducted on your ranch for the major minerals — calcium, phosphorus and magnesium (Mg) — and the trace minerals, copper, zinc, sulfur (S) and manganese (Mn). Getting a water quality analysis is also a good idea.

Phosphorus, the primary reason mineral supplementation has recently increased in cost, will likely be the primary mineral needed because its content in forages varies greatly during the year. For example, a higher-phosphorus mineral is needed in the winter because phosphorus is generally lower in dried winter forages. Paterson also suggests including a vitamin supplement because forages are often deficient in vitamins A and E.

There is much research available supporting Paterson’s view on mineral supplementation. Additionally, in my travels as Nevada livestock specialist, I have seen a huge difference in production and economic survivability when comparing those operations that have a sound mineral program and those that do not. It is for these reasons that I advocate, as the title of this article states, mineral supplementation is a necessary input.

Different times, different measures

An interesting question was posed



in the opening paragraph of this article, “Grandpa got by feeding just plain white salt, so why shouldn’t we go back to that? We have to cut somewhere.”

In answer to that question I offer the following. We live and manage our cattle in a different time than when our grandfathers ranched. We have a different cow genetically than what our grandfathers raised. Through research we have a better understanding of the ruminant animal and how nutrition, reproduction, genetics and minerals interact. During our grandfathers’ time, a 70% to 80% calf crop and weaning weights of 350 pounds (lb.) were normal. Can you live with those production levels in today’s economic environment?

As a sidebar to this article (see page 50), Ben Bruce, University of Nevada Cooperative Extension beef specialist, discusses the interactions of minerals, methods of feeding minerals to minimize waste and how mineral supplementation can be optimized through feeding byproduct feeds.

As always, if you would like to discuss this article or simply would like to talk cows, do not hesitate to contact me at 775-738-1721 or torellr@unce.unr.edu.



Editor’s Note: Portions of this article reprinted with permission from “Prime Cuts,” August 2008. Ron Torell is a University of Nevada Cooperative Extension livestock specialist.



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