

Minerals and Immune Health

Not all eggs and sperm cells are alike, but if they are the best possible that each parent can produce then the resulting offspring will express that quality with good physical form and vibrant health.

Most birth deformities are unnecessary. Good bones, good muscles, attractive skin, normal endocrines, a healthy liver, reproductive capacity, good intelligence and looks depend upon good food. *Weston A Price*

I add that this holds true for cattle as well as people.

In my 50 years as a cattleman I have never had anyone explain to me the need for wisdom when selecting animals for my breeding program. No one explained to me that I should be selecting for health, functionality, body type, and reproduction capacity: for animals that can thrive and reproduce in my environment and on what my pastures are able to provide.

Old books that were written in the 1660s to the 1920s have enlightened me. I have gained valuable insight from a few old men who didn't follow the status quo towards the feedlot style of genetics. They were truly wise and didn't let the bigger is better storm distort their reality of how a ruminant animal was suppose to function.

I personally have educated more cattlemen/women about grass genetics over the past 12 years through farm visits, schools, lectures and phone calls than a major university. Unfortunately the knowledge of selection during the past 50 years has been reduced to choosing which ones to cull. Culling takes from the bottom, selection is adding to the top.

Many cows get a one-way ticket off the farm simply because they didn't settle. The vast majority of these cows are open at weaning as a result of one or two management practices. Either the bull used was low in fertility or the cow herself was starved for minerals. Very few cows are left open from a lack of adequate quantities of grass or forage.

Lack of proper nutrition (essential amino acids, sugars, clean fiber, minerals, etc.) is the greatest management deficiency in the cattle industry, both dairy and beef, that I see today. The dairy industry suffers the highest economic losses due to poor feeding management in raising the replacement heifers. The sickness, diseases, loss of production and reproduction and the short life spans would be significantly reduced if one would only get educated about the role of minerals in animal health.

Nutrition through the grain feed bucket is not the answer. Research has shown that replacement heifers that received grain during the first 160 days of life had a 2-3 pound per day decrease in milk production compared to heifers that didn't receive any grain during this critical development period. Unfortunately the effects were permanent.

This article is not meant to blast the companies that manufacture minerals. The problem is we march into the feed store and if we don't buy the cheapest, we buy whatever the salesperson tells us what they think we need. If we don't

understand why our animals need minerals or which ones may be deficient in their diet than how can we expect a salesperson to know?

When problems appear the automatic response is to run to the veterinarian or drug cupboard and then run back to the pasture and inject some high-powered drug into the symptomatic animal without ever addressing the root problem. These problems often reoccur during stressful times such as calving when the initial cause was never addressed. Often the nutrition in a cow's milk is insufficient for creating a healthy immune system in her calf and the calf will suffer the same health issues year after year.

So how does a person go about providing adequate mineral nutrition to their animals? First of all, the chances of buying a bag of minerals that contains the right amount of all the essential minerals to combat immune dysfunction are almost nonexistent. Minerals are expensive and we should receive a return, a benefit for our investment. For the most part, one will buy a bag of minerals with the same ingredients whether they buy in Washington State, in Florida or Texas.

Basic mineral requirements for animals have been thoroughly researched and established. But what are often overlooked are all the circumstances that affect an animal's ability to meet these requirements. Stress, environment, genetic predisposition, and management determine nutritional and mineral needs for optimum health and performance and these factors are unique to each operation.

Nutrition governs health. Nutrition starts in the soil. And just like the first statement about eggs and sperms cells, not all soils are alike. Just because a field looks green and dense with high grass doesn't mean that grass contains all the important elements for good health in your livestock. I realize that we all try our best to make good hay, but if you can't get your hay cured right and you are starting out with inferior forages before you even cut them then how can you expect not to have health/performance issues when you feed that stuff? Observe for yourself the relationship of how much mineral your cows consume compared to the quality of hay they are eating. We have been entrusted with the care of these creatures to provide us with meat, milk, leather, and even draft power and we are obliged to provide them with the best nutrition possible – we are the final benefactors with good healthful food. When one fails to understand soil fertility and how their own soil ecosystems function, they are bound to encounter animal health issues plus they cannot produce quality beef consistently.

It is that basic and no salesperson, professor, veterinarian or agent can tell you what minerals your specific animals need for optimum immune function without knowing all the details of your farm and operation. It is up to each of us to know the details of our soils and our farms capabilities.

To have healthy livestock with good immune function requires the following:

1. The wisdom of knowing how to select animals that have the genetic predisposition for a strong constitution. These animals have specific physical characteristics that show they have a healthy immune system.

- They thrive with minimal management and don't need propped up with grain.
2. The knowledge of how to build soil fertility so that your grass will provide the proper mineral, protein, and carbohydrate (energy) nutrition to support full and complete genetic expression.
 3. The knowledge of what minerals your animals require for their particular circumstance and job (growing calf, brood cow, bull, finishing steer, etc.) and how to provide those until the soils are capable of supplying them in the forage.

I create my own complete mineral mix while I continue to work on building my soils. First I send a plant tissue sample to a private laboratory for analysis – this test should provide comprehensive report showing what amounts of several minerals are available in that forage. I know from those results what my animals are actually consuming. Knowing what my cows are suppose to have, I take the values I have from the tissue samples and subtract them from the requirement numbers and provide the balance in my mineral mix.

There are many ingredients found in a bag of manufactured minerals that my cows are already receiving through the grass. To spend money on them gives me no return. What I want to do is to provide for them via the mineral box what is lacking or deficient in the grass. I can put together a 50 lb. bag of mineral for less than \$10 and my cows get what they need.

There are many circumstances that are taxing to the immune system. Hot or dry weather, extreme cold, changing environments, weaning, calving, pushed production, the list goes on - are all stressful to your cattle and if their immune systems aren't on high alert and able to adequately respond, sickness and disease occur. Shipping fever, foot rot, pinkeye, retained placentas, failure to shed hair, ecoli scours in calves, mastitis and reproductive imbalances are all too common and these 8 conditions cost American cattlemen more money each year than all other illnesses combined.

When animals are moved to different environments (climates) they also must adapt to a change in nutrition i.e. the minerals in the grass. In these situations I always recommend that they basically be force fed higher than normal mineral levels so that their immune systems are fully equipped to stay active to protect them from the sickness caused by the associated stress. These extra minerals can be easily supplied as a soluble form added to the water trough. This is preferred over other methods such as injectables, drenches or paste that require running the animals through the handling facilities which adds more stress.

The following is what my veterinarian and I put together to restore health to animals that were showing signs of stress. The combination of ingredients is very effective at offsetting mineral deficiencies and boosting the immune system to ward off those consequences of stress. The cows get the added minerals when they drink from the treated trough without any additional stress.

For cows add the following to one gallon of water:

- a. 9 oz. Copper sulfate
- b. 3 oz. .02% selenium
- c. 12 oz. of 2% iodine solution

Shake until all is dissolved and add to the trough. You'll need to figure out how many animals are drinking from that trough and how much each is estimated to consume so that each one gets one ounce/head/ day of the solution. You can administer this as a drench, which has been very helpful for my cows over the years. Again it is 1 oz. (30cc)/head/day.

An injection of AD&E is very helpful and sometimes an injection of B12 is warranted.

For smaller animals I have successfully used the same basic mixture using smaller amounts of ingredients and administering as a drench.

In a quart jar put the following then add water to fill the jar:

- a. 1/2 ounce copper sulfate
- b. 1/2 ounce .02% selenium
- c. 1 ounce 2% iodine solution

Drench goats & sheep with 25cc/head/ day.

An injection of AD&E is very helpful and sometimes a B12 injection too.

When an animal is in crisis I have seen great improvement after a week of daily dosing. To really get the immune system functioning I have dosed for 30 days, taken a brief break and then repeated the 30-day treatment. When the immune system is restored then health will be restored. I have seen progress made with the above remedy in many instances, but there are other things a person can have in their arsenal such as Mu-Se. If you have questions or concerns about a particular problem it would be best if we talked person to person.

When an animal is stressed the body can be robbed of vitamins, minerals and other nutrition in response to the stress. Being nutritionally deficient is a form of stress by itself. So you can see how a matter can compound quickly and overtax the immune system. If the immune system is already underfed when stress occurs the stage is set for the above-mentioned sicknesses.

A good researched and planned mineral program that works in conjunction with your soils and forages will keep your cows healthy and productive. But when that occasional cow is problematic or even if she appears fine but has sickly calves, than she should be seriously looked at. You should not change your mineral program for one cow. She probably has some sort of problem every year. Don't keep a cow that regularly gets mastitis, pinkeye, or has foot problems etc. even though her calves are beautiful. For whatever reason these types of cows are not designed to be consistent or profitable and you surely don't want to keep their heifer calves as replacements.

If cattle breeders would simply select seed stock animals (beef & dairy) that have wide shoulders, many of the management problems they experience would just go away. Those of you who are familiar with linear measuring understand how one can select good seed stock when calves are as young as 8-10 months old. Selections should be made based on the correlation between the rump length and shoulder width. Whatever the rump length measures, the shoulders should match or be the same number. In bulls, it is preferred if the shoulder number is larger. It is my experience that cattle with a good set of wide shoulders have healthy immune systems and thrive with minimal management.