

“MINERALS -For Man and Beasts, and Plants Notwithstanding”

- PART I of a 3 PART series on minerals for livestock

by William G. Winter, DVM

MINERALS are in the news. There are the common ones that most of us know about, macro-minerals you might say, like calcium, magnesium, phosphorus and iron. Then there are the trace minerals such as copper, iodine, and selenium; toxic if given to excess but oh so necessary for almost every function in the body. Going even more extreme, are the more exotic ones, take for example, boron, molybdenum, and cobalt; deadly if given beyond a microscopic amount, but also deadly if missing, you will be hearing much more about these. And, believe it or not, you will need to know, sooner than you think perhaps, about the extra-exotic ones like scandium and yttrium. YTTTRIUM? Yes, yttrium. Your genes need it to prevent themselves from going haywire or cancerous. More about that one later, trust me, you will want to have some yttrium in your life.

CAVE MAN DAYS

So, why is everyone talking about minerals these days, Cave Man never knew about them, much less talked about them? Well, for one, Cave Man, like the wild deer and boar back then, got PLENTY of minerals, in fact it was pretty hard to find any food that was mineral-poor back when Allan Nation was a boy and people were hunting and gathering for all their food. As recently as the 1930's when Dr. Weston A. Price made his classic studies about nutrition (get his famous book “Nutrition and Physical Degeneration”) he noted that every single indigenous population that he studied, and he traveled around the globe to find plenty of them, were, unless there was a famine or other natural disaster, far healthier than we are. Why? They were getting on average 100 times or 1000 times as much of every essential dietary mineral and vitamin as compared to humans today. It's all in the book. It's a complicated picture but one that is not impossible to dissect apart.

WHO TOOK MY MINERALS?

What it boils down to is that over-farmed soils become severely depleted in minerals with time, UNLESS the farming technology factors in re-fertilization as part of the nutrient cycle. Additionally, processing of foods such as those that remove the hulls, fiber, germ and other parts devitalize the food making white flour, white sugar junk food that is seriously mineral depleted. Even excessive cleansing of food, like we do today washes off nutritious dirt from the food. Kids today are raised without enough “dirt” on the food to educate the digestive system to recognize right from wrong, hence the big problems with food allergies and asthma. The list goes on and on.

Dr. William Albrecht, the father of modern soil science, was able to map out exactly where all the mineral-rich soil was in the US as well as where all the deficient or depleted soil was found. How did he do this in an era before good chemical testing was common? His research illuminated what one can do by combining sheer genius with scientific aptitude..(he must have had a good diet!). Dr. Albrecht looked at all the draft records for WW1. As it turns out the physical exam of new recruits of that day was similar to how you evaluate a horse, you check the teeth and the feet. If the young soldier draftee has rotten teeth or fallen arches, it shows he probably does not have the physical fiber to hold up under battle stress. The areas of the US where there was a high level of 4-F rejections was in the rocky, mineral-poor soil areas of Appalachia, and in the hilly areas of the Ozarks. The physically strong and healthy boys came from areas like Kansas, Nebraska, and Iowa, regions with calciferous soils, mineral-dense foods and thus good health and structure. These studies could not be done in this day and age because nowadays our food is shipped to us from everywhere, an average of 1500 food miles on each item. Incidentally, these studies paralleled Dr. Price's findings exactly. Note also that livestock must eat virtually all their feed from where they live.

Dr. Albrecht went on to explain a model of soil science predicated on base saturation of soil substrate. The material that creates mineral richness and that determines holding capacity of soil is the SOIL COLLOID, basically proteinaceous, gelatinous blobs of organic material found in the soil. Soil colloid carries a negative charge and attracts the positively-charged minerals, also called CATIONS which, *if available*, are virtually glued to every bit of surface on the colloid, ready for the plant to steal. The most important, and also the most likely to be deficient soil cations include calcium, magnesium, sodium, copper, zinc, cobalt and others. If the heavy minerals just mentioned are missing, hydrogen, also a positively-charged cation will stick to the colloid potentially causing the soil to be too acid, The negatively-charged minerals, also called ANIONS, are repelled by the soil colloid and will wash out of the soil if there is excessive rainfall or lack of proper covering (Nature abhors open soil, a rule all farmers should try to obey). The most important anions, and also the ones most likely to be deficient, include iodine, selenium, boron, phosphorus, molybdenum, sulfur and others.

LIFE WITHOUT MINERALS?

Plants, livestock, and people need minerals for two things: structure, like the calcium-magnesium matrix that gives all bones their latticework, and for function like the atom of iron that is in the epicenter of every molecule of hemoglobin, or the atom of manganese that is the epicenter of every molecule of chlorophyll, the plant's chemical identical twin to hemoglobin. If a plant is lacking in silica, not only will it not withstand wind and weather, it will have no cuticle, the thin outer coating that protects from invasive viruses, fungi and other parasites.

And what is the "immune system" without minerals? When you break this system down into it's segments, it includes lymph nodes, the skin, thymus gland, epithelial cilia, pineal gland, Peyer's patches (70% of the immune system is in the digestive system!), tears, sweat, blood, mucus secretions, lymph and many other components. Inside these

components are the worker bees, the stem cells, the white blood cells such as lymphocytes and phagocytes and many others. Inside the cell one finds organelles such as the ER and ribosomes. It goes on and on, but, the important thing to remember is that all these units use one thing as their operative force: ENZYMES. Digging one layer further, there is no such thing as an enzyme that does not have a mineral at its very core. There it is again, minerals. This is why you can't live without them.

Minerals come to us either via the soil, water or air. We breathe them in, ingest them or absorb them through the skin. Skin absorption is often overlooked, a classic example is all the iodine-killing halogens we get from either drinking or bathing in chlorinated water. Whenever animals or people take in toxic halogens such as chlorine, bromine or fluoride, we take the chance of displacing life-giving iodine for our thyroid gland. If iodine is deficient, which for most of us living in the US, it is (ever hear of the Goiter Belt?), the other halides fill the spot, thus lowering the thyroid's ability to make thyroxine. Thyroxine is a hormone needed for regulation of the basal metabolic rate, skin, hair and oil gland health, and reproductive ability. An individual with low thyroid function is fat and lazy, has a dull, dead haircoat and is sterile. Bad news. Most often because of a low level of one itty-bitsy mineral.

EVEN WEIRD MINERALS NEED LOVE AND ATTENTION

Oh, and before we take a break leading up to Part 2, I said I would tell you something about why you might want to know about yttrium. New research by amateur scientist and geneticist Dr. Richard Olree, a chiropractor in Michigan has determined that toxic chemicals that come to us from industry or pollution via the air, food or water can deplete us of essential minerals. Cigarette smoke, for example, contains minute amounts of polonium 210, yes, the radioactive isotope that killed the British spy recently. That polonium can be removed from the body but only by consuming large amounts of our precious supply of selenium. It gets worse. Aluminum toxicity, yes, aluminum is everywhere, slowly depletes the body's tiny supply of yttrium and, with time, this rare mineral, the one that DNA strands need to stop rampant replication goes missing. In the next episode we will discuss the best sources of minerals, but as a clue, we now know that the body keeps its little supply of yttrium in the lowly bacteria of the gut. In the meantime, you can read the exciting news about these newly discovered minerals in the book "Minerals for the Genetic Code" by Charles Waters and Richard Olree

HOMEWORK ASSIGNMENT

This is for next time- Get out all your past soil mineral tests for a review. What? You haven't done any? Well, this is your new assignment then: every farmer these days can make more money, and can make the farm and livestock happier by understanding the underpinnings of all else, the mineral analysis of the soil. Send in those samples now. You will need them for the next part.

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Part 1 - Why is everyone likely to find missing minerals in our nutrition these days, and where did they go?

Part 2 - What does each important mineral do for us and our livestock?

Part 3 - What are the best sources of mineral supplementation and what is the most effective, simple and inexpensive way to give them?

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