



IMAGE AWARENESS WELLNESS INSTITUTE

Minerals

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WHY MINERALS ARE IMPORTANT

The process of the manufacture of nutrients begins with minerals. Plants utilize minerals, water, and sunlight to manufacture carbohydrates, fats and proteins. All nutrient availability is dependent upon minerals and the process of photosynthesis. The importance of *balanced and complete* mineral availability has been neglected and ignored by modern agriculture.

FOUR FERTILIZER MENTALITY

The tendency is to fertilize with lime, nitrogen, phosphorus, and potassium. Trace minerals are often ignored. Overapplication of these fertilizers can cause an upset in the balance of soil nutrients. Excess lime reduces the availability of all the trace minerals except for molybdenum. Heavy application of phosphates can induce marked deficiencies of zinc and copper.

Schutte makes the following comment about the four fertilizer mentality, “How is it possible, when it is generally recognized that at least thirteen elements are essential for plant growth and development, that most agricultural practices still continue to base their fertilizer applications on the assumption that three, or maybe four, elements are all that is necessary in practical agriculture?”

REFERENCE:

Schutte, Karl H., and Myers, John A., *Metabolic Aspects of Health*, Kentfield, CA: Discovery Press, 1979, 57-58, 177.

TASTE

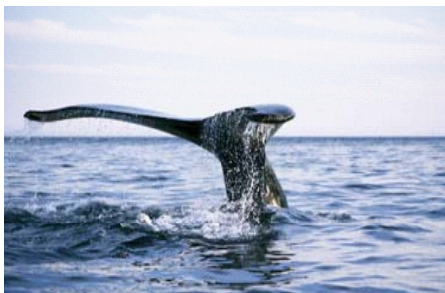
Mineral deficiencies affect the taste of foods. Schutte writes, “No matter how pleasant a fruit or vegetable may appear, if its taste is not what it should be it is of poor quality.” He observes that manganese deficiency gives a very unpleasant taste to potatoes. Boron deficiency gives a bad taste to turnips and they will not soften when boiled with the deficiency. Apples with boron deficiency get a roughened skin and gritty particles in the flesh. Shutte says, “...quality is a difficult concept to define accurately, and it is seldom used in scientific work.”

REFERENCE:

Schutte, Karl H., and Myers, John A., *Metabolic Aspects of Health*, Kentfield, CA: Discovery Press, 1979, 62.

VITAMINS & MINERALS

The availability of trace minerals in the soil directly influences vita-



min levels. Increasing copper levels increases both vitamin C and carotenoids in barley. Copper increases carotenoids in spinach, wheat, oats, and carrots as well. *Manganese deficiency decreases the carotenoid content of a number of plants.* Applications of nitrogen, phosphorus, and potassium actually decrease carotenoid content of soybean leaves, probably by decreasing availability or balance of trace elements.

Trace minerals also impact the protein content of plants. Schutte observes, “It has been shown conclusively that fertilizers do influence both the protein content and the protein composition of plants.”

Animals can taste the difference in plants fertilized in different ways. Field experimentalists “have known for a long time that rabbits and other animals can discriminate between vegetation receiving different fertilizer treatments and tend to feed on the best nourished vegetation.”

REFERENCE:

Schutte, Karl H., and Myers, John A., *Metabolic Aspects of Health*, Kentfield, CA: Discovery Press, 1979, 66-67, 70-71.

COMPOUNDING THE PROBLEM

Compounding the problem of trace mineral deficiencies is the use of weed killers such as Roundup® which contain glyphosate. Don Huber who spent 35 years as a plant pathologist

is alarmed by the use of these weed killers. He writes, "Glyphosate...is a strong metal chelator and was first patented as such by Stauffer Chemical Co. in 1964....glyphosate is a broad-spectrum chelator with both macro and micronutrients (Ca, Mg, Cu, Fe, Mn, Ni, Zn). It is this strong, broad-spectrum chelating ability that also makes glyphosate a broad-spectrum herbicide and a potent antimicrobial agent since the function of numerous essential enzymes is affected..."

Glyphosate kills weeds by binding minerals so strongly that weeds cannot use them. The loss of manganese is particularly detrimental to plants because it enables and activates enzyme systems responsible for plant responses to stress and defense against pathogens. A weakened immune system causes the weeds to become highly susceptible to pathogens present in the soil.

Glyphosate is not readily degraded or broken down and accumulates in the soil year after year. Degradation products damage both Roundup Ready® and non-Roundup Ready® crops.

Accumulation of glyphosate in the soil increases susceptibility of crops to drought and disease. Increases in fungal toxins have been observed in stems, straw, grain, and fruit. The accumulation of these toxins in the food chain raises issues of the safety of the food for animals and humans.

Accumulation of glyphosate results in decreased mineral availability in crops. Uptake and movement of iron, manganese, and zinc have been reduced up to 80% as a result of commonly observed "drift" of glyphosate (less than 1/40 of the herbicidal rate).

Chelation of the minerals in plants undoubtedly reduces mineral availability to humans and animals. This is not the primary concern to growers, however. Growers experience 'yield drag' when growing crops treated

with glyphosate. The plant uses energy to survive the glyphosate which would otherwise have been used to increase yield. In other words, weeding is easier, but production is down. The greater the accumulation of glyphosate in the soil, the greater the 'yield drag' will tend to be.

The use of glyphosate also decreases the ability of plants to use water efficiently. They become much more susceptible to drought.

Glyphosate is also toxic to earthworms and beneficial fungi which improve the ability of plants to utilize minerals. Nitrogen-fixing organisms are also killed.

The widespread use of weed killers could well be contributing to nutrient deficiencies and disease in humans. The disease would result from weakened immune function due to trace mineral deficiencies as well as due to the accumulation of toxins in the food we eat.

There are other causes of mineral deficiencies including composition of soils and processing of foods including canning, refining of sugar, and milling of grains.

REFERENCE:

Huber, Don M., Ag Chemical and Crop Nutrient Interactions--Current Update, *Proceedings Fluid Fertilizer Forum*, Scottsdale, AZ, February 14-16, 2010. Vol. 27. Fluid Fertilizer Foundation, Manhattan, KS.

BENEFITS OF MINERALS

Dr. Maynard Murray researched the benefits of minerals for plant and



animal life for 35 years. He wrote, "The disease resistance of plants and animals in the sea is remarkably different from disease resistance in land animals....freshwater trout all develop terminal cancer of the liver at the average age of 5 1/2 years; cancer has never been found in sea trout. It is also known that sea animals have never been diagnosed as arteriosclerotic. Investigators have also established the startling absence of disease in the sea, citing not only the absence of 'chronic' disease forms, but especially the general vigorous health of sea animals that has apparently lengthened life many times in comparison to similar land species."

Murray felt that sea water contained a near ideal profile of minerals for life. Unfortunately, inorganic minerals were poorly used by animal life, "...people can utilize inorganic salts or elements only by having plant life in their intestines in the form of bacteria to hook up the inorganic element with a carbon atom so it can be transformed into an organic form."

Murray fertilized plants with sea salt from specialized locations. He observed that "color, disease resistance, taste and production yields were outstanding." Murray found that nasty plant diseases could often be eradicated by foliar application of sea minerals. A sea mineral blend called Sea-90 is available for agricultural use today.

REFERENCE:

Murray, Maynard, Trace Elements in Nature's Balance, *Aeres*, January 2003, Vol. 33, No. 1. http://www.seaagri.com/docs/dr_murray_and_trace_elements.pdf

MINERAL SUPPLEMENTATION

Almost every chemical reaction that takes place in the body requires at least one mineral. This includes energy production, tissue manufacture, protein synthesis, cellular growth and reproduction, water balance, and



functioning of the immune system.

We have seen how glyphosate can bind with minerals so strongly that they become unavailable to plants. The process of minerals binding with other substances is called chelation. Chelate is the Greek word for 'claw'.

CHELATION

Chelation is a technology which can help counteract the mineral deficiencies created by poor agricultural practices and food processing.

Minerals have positive charges. One can grab onto them (claw) with negatively charged particles. Some substances can grab onto minerals only weakly, while others like glyphosate can grab onto minerals strongly.

Minerals which have not been chelated properly are only poorly absorbed by humans. The positively charged minerals are attracted to the negatively charged lining of the intestine, but pass through only poorly. Chelated minerals, because the charge is neutralized, can be absorbed much more easily.

The most effective manner to chelate a mineral for human nutrition is to wrap it with amino acids. The amino acid bond is strong enough to withstand the powerful hydrochloric acid in the stomach, but weak enough to release the minerals once they are transported to the blood stream.

Oxides, sulfates, and carbonates do not hold onto minerals efficiently

in the environment of the stomach acid. The body must try to chelate them with amino acids before they can be used efficiently.

Since most minerals have two positive charges, GNLD uses a complex technology which wraps two amino acids around each mineral molecule. The GNLD chelation process provides several distinct advantages. First, GNLD chelated minerals are manufactured using the most soluble forms of minerals, so their dissolution is speedy.

Secondly, chelation dramatically enhances the mineral absorption rate. Studies have shown that GNLD double amino acid chelated minerals can be absorbed up to 6 times better than non-amino acid chelated minerals.

Thirdly, chelated minerals are less irritating to the stomach and intestines than are non-chelated products. Non-chelated iron is notorious for causing constipation and black stool.

CHELATED CAL-MAG WITH D

This product contains GNLD's proprietary double amino acid chelated calcium and magnesium with 1,000 IU of vitamin D3 for every three tablets. Many nutrition experts including the late Mildrid Seelig, a world magnesium expert, consider the 2 to 1 ratio of calcium to magnesium the preferred ratio of the two minerals. The tablets are coated for easy swallowing. A built-in technology for rapid dissolution makes this one of the most readily dissolved calcium products on the market. The double chelation technology assures the most effective absorption of calcium possible.

CHELATED MULTI-MINERAL™

This supplement provides broad-spectrum mineral supplementation. It includes both macrominerals such as

calcium, magnesium, potassium, and phosphorus as well as microminerals such as zinc, copper, iodine, iron, manganese, selenium, chromium, and molybdenum in one product. The minerals are formulated with GNLD's exclusive amino acid chelates and complexes significantly improving absorption over unbound minerals.

Chelated Multi-Mineral also contains a Custom Trace Mineral Blend. Trace elements are provided by a unique combination of sea vegetation including Atlantic kelp, sea dulse, Irish moss, and more. This product provides the most soluble forms of minerals available. The product also contains vitamin D3 for bone health.

CHELATED IRON™

Iron is one of the most important mineral elements. It is involved in energy metabolism and is a key component of proteins which carry oxygen in the blood and muscles. Iron is poorly absorbed and deficiency is common in women during their menstrual years and also in those with low hydrochloric acid production including the elderly and those who use antacids. Aspirin use can also cause iron deficiency. Only about 10% of dietary iron is absorbed. GNLD's unique chelation process tilts the odds for absorption in your favor.

A small part of the population suffers with a genetic disorder called hemochromatosis which results in iron accumulation in the liver. Those with





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this condition should not supplement with iron.

Because of the importance of iron for oxygenation of tissue and energy production, low levels can increase risk of death from heart disease, the nation's number one killer. A study conducted by the U.S. National Institute on Aging found that men with the highest blood levels of iron had only 20% the risk of dying from coronary artery disease than men in the lowest iron category. Women with the highest blood levels of iron dropped their risk of death from heart disease by half.

CHELATED ZINC™

The human body contains more zinc than any other trace mineral except for iron. Zinc is also poorly absorbed like iron with less than 10% of dietary zinc being absorbed. GNLD double amino acid chelated zinc overcomes this problem.

Zinc is involved in a number of important functions in the human body including the absorption and activity of the B vitamins, the production of nucleic acids which encode genetic information, the functioning of the prostate, and the healing of wounds

and burns. Zinc is a component of insulin. It is a component of 25 enzymes related to digestion, including the digestion of carbohydrates and alcohol.

The body cannot rid itself of carbon dioxide without the help of a zinc containing enzyme. (Accumulation of carbon dioxide in the tissues increases susceptibility to fungal infections.) Zinc is also essential for normal growth and development of reproductive organs. Zinc plays a role in normal appetite and ability to taste. It is also necessary for healthy skin, bones, and hair. Zinc is also necessary for proper immune function and has been shown to reduce risk of contract-

ing the common cold and reducing the cold symptoms by an average of three days in one study.

Intake of calcium above 1,000 mg a day impedes zinc absorption and may contribute to deficiency.

WEB RESOURCES

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www.yourbodyssignlanguage.com
www.jimmcafee.com

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