

# High Brix Gardening article

## Soil Re-mineralization

Soil is a marvelous creation. The book of Genesis records how the Creator used the “Dust of the ground” and the breath of his spirit to fashion Adam, the first man. Later it records these well-known words:

*In the sweat of your face you shall eat bread,  
Till you return to the ground,  
For out of it you were taken;  
For dust you are,  
And to dust you shall return. Gen. 3:19 NKJV*

Interestingly, the sustenance for our physical bodies today still traces back to the “dusts of the ground.” The food quality we eat is a direct reflection of the soil mineralization or its lack on which the food was grown. To achieve excellent health it is imperative that we eat foods grown on highly mineralized soil.

Rock, in various forms, is the parent material of all soil. As soil ages the rock particles become smaller and smaller. What started out as rock fragments is broken down to sand. Over time sand is reduced in size to silt. Silt particles eventually break down to the smallest of all particles; clay. While there is considerable variation, soil is generally considered to be a mixture of various portions of sand, silt, and clay.

Rocks are storehouses of fertility. As they break down to smaller particles nutrients within the rocks are released. This release of nutrients feeds the microbial population in the soil. The microbial population in turn feeds the plants. When crops are removed from the land, nutrients that started their journey encapsulated in rock end up as food, timber, animal feed etc. When rocks break down to clay and contribute their nutrients to building crops the soil slowly becomes demineralized.

The liberation of nutrients contained in rocks takes place through 3 spheres:

- Physical Action
- Chemical Reactions
- Microbial Digestion

The breaking down of rocks begins with physical action. The primary way this occurred in the past was through the action of glaciers. Large slow-moving rivers of ice caused rocks to grind other rocks to a powder. A long time ago these glaciers covered large sections of North America. Today most glaciers are confined to the higher altitudes or arctic and sub-arctic zones. Worms also provide physical action as they grind rock particles down in size in their gizzards.

Chemical reactions work upon rock particles to further release stored nutrients. Weak acids in rainwater and root exudates are a couple examples of chemical reactions.

Once the rocks have been partially broken down by physical action and chemical reactions the stage is set for the final performers: soil microbiology. Microbiology functions as the soil's stomach. They digest rock powders and make the nutrients released from the rock powders available to plants. Plants and microbes function synergistically. Plants produce sugars through the process of photosynthesis and have a mineral requirement that must be met from soil reserves. Soil biology, on the other hand, has access to plenty of minerals (if the soil has been remineralized) but need an energy source to liberate rock-bound nutrients. This beautiful synergy of creation reveals the handiwork of its creator. Plant roots excrete carbohydrates that feed soil biology which return the favor by making bound-up nutrients available to the plant. Without fresh incorporation of rock powders the soil becomes progressively demineralized. This leads to a decline in the plants' sugar production, which results in a declining microbial population. When microbial life is reduced the soil will eventually

lose its structure. This happens because the soil will be giving up more carbons than it stores and as a consequence [soil energy](#) is reduced. The end result is reduced yield and quality. When rock powders are added to soil according to the need of the soil the whole process of soil degradation is reversed.

It is hard to explain the pure joy and excitement that results when we personally see the soil being restored and the produce quality surpassing anything that can be found in the stores. Jennifer O. says it best when describing the transformation she has seen in her small peach orchard in Colorado, “It’s heavenly—just heavenly!”

**The nutritional foundation of the High Brix Garden program is soil re-mineralization.** Soil re-mineralization is accomplished through the annual broadcast. The annual broadcast is custom formulated based upon the results of the soil test. It is formulated from the following broad categories.

➤ Calcium-based rock powders

Calcium is present in every biological cell. It must be well supplied in order for the soil to produce top-quality. Limestone and gypsum are frequently used from this group.

➤ Clay-based rock powders

The best in this class is soft rock phosphate. Soft rock phosphate provides many trace nutrients in addition to phosphates. These trace minerals are in a compound colloid form. Soft rock phosphate combines with limestone to form an electromagnetic field within the soil that helps soil resist water and wind erosion.

➤ Silicate-based rock powders

Silica is one of the most often-neglected plant nutrients. It is extremely important for plant growth and in maintaining soil energy. Silicate rock powders are a virtual storehouse of broad-spectrum trace minerals. They also help increase soil

paramagnetism. This type of rock powder requires microbial digestion to make the locked up nutrients available to the plants.

➤ Carbon-based powders

These are very important energy sources that support soil microbiology. Carbon powders help balance calcium-based powders and make both the calcium and the carbon more accessible in the soil. Carbons help increase crop growth through the respiration of carbon dioxide that results from their digestion in the soil. Lastly carbon increases soil energy by increasing the ionization flow of nutrients in the magnetic lines of force.

➤ Fertilizers for specific nutrients in short supply

It does very little good to address all the broad-spectrum rare earth minerals without first addressing the major plant nutrients such as nitrogen, phosphorous, and potassium and the common trace minerals such as copper, iron, zinc, and manganese. Examples of fertilizers in this group would include potassium sulfate and copper sulfate. Fertilizers are only used when called for by the soil test.

➤ Microbial inoculates

This is the match that lights the fuse and causes everything else to work.

When all these components are used in accordance with the soil test, soils can make great strides towards restoration in a relatively short time frame. In summary soil re-mineralization increases the density of soil minerals. These minerals are carriers of [energy](#) that cause plants to grow.

## **What Is Brix?**



Brix is a term popularized by [Carey Reams](#). When used on plant sap it is primarily a measure of the carbohydrate level in plant juices. The instrument used to obtain a brix reading is the refractometer. Refractometers come in two basic styles, optical and digital. Both types work great. Here is how a refractometer is used: squeeze out some sap from a plant, put 2 drops of the juice on the prism, close the prism cover, point to a light source, focus the eye piece, and read the measurement. The brix reading is indicated where the light and dark fields intersect.

What part of the plant is used for taking a brix reading? Whatever part you eat if it is ripe. If it is not ripe take the most recent mature leaves that have had full sunlight for at least 2 hours. Ideally measurements should be taken at the same time of day as you compare throughout the growing season.

A refractometer measures the amount of bend or refraction in the rays of light as they pass through the plant sap. This is why a brix chart is more properly called a [Refractive Index of Crop Juices](#).

[Click here](#) to download the Brix Chart as a PDF.

What causes light to refract as it passes through plant sap?

1. The amount of carbohydrates in the juice.
2. The amount of dissolved minerals in the plant sap.
3. The amount of covalent bonding.

What proof can be offered to show that higher brix readings equal higher quality?

## High Brix Foods Have Greater Carbohydrate Levels

Carbohydrates are the fuel the body uses for basic metabolic function. This has tremendous implications on digestion and human health. This is covered more fully in [Food Quality & Digestion](#).

## High Brix Foods Have Greater Mineral Density

One of the health rules that [Dr. Carey Reams](#) taught was that:

**"All disease is the result of a mineral deficiency."**

This rule clearly shows why it is so important to eat foods with high mineral density. One of the most important nutrients that increases with high brix readings is calcium. According to Dr. Reams calcium levels in produce rise and fall proportionately with the brix levels. This has been independently confirmed by [Bob Pike](#) in his research on tissue

testing. Disorders and degenerative diseases resulting from a calcium deficiency could fill several books.

In addition to increased calcium levels, high brix foods also supply more trace minerals such as copper, iron, and manganese. Trace minerals function as co-enzymes in the digestive process. Co-enzymes work with enzymes as activators of those enzymes. These trace minerals have higher atomic weights. Due to greater mineral density and the inclusion of heavier trace minerals high brix foods weigh more per unit than lower quality produce.



Minerals in foods are in a naturally chelated form. Naturally chelated minerals are bound to amino acids that have a right-hand spin. Amino acids with a right-hand spin are referred to as L-Amino acids. L-Amino acids are biologically active. This translates into easy assimilation into the body compared to inorganic minerals taken in pill form. Amino acids that have been compounded by man have a left-hand spin, which is known as D-Amino acids, or they are a mixture of the L and D form of amino acids. The D form is not biologically active and is rarely found in nature. The L and D forms of amino acids are mirror images of each other. This is the reason why mineral supplements that have minerals bound to an amino acid and claimed to be chelated need to be checked which form the amino acids are in. When it comes to supplementing with vitamins and minerals it is BUYER BEWARE. The indiscriminate use of vitamins and minerals can create a dangerous situation whereas the correct use of vitamins, minerals, and enzymes can be very beneficial to the body. When consuming high quality fruits and vegetables there is no need for the BUYER BEWARE warning.

## High Brix Foods Taste Better



Why won't little Johnny eat his peas? They taste terrible. Little Johnny instinctively knows that sweet tasting peas are better while poor-quality peas are instantly rejected. Have you ever eaten a 22 Brix grape? Once you have you won't forget the taste. A candy bar will be held in disdain by little Johnny compared to 22 brix grapes. Ask any old-timer if they like the taste of fruits and vegetables now compared to when they were young. I am sure you won't be able to find a single person that feels today's are better. Taste is built upon the upon the carbohydrate and mineral levels in the produce. When they decline so does the taste. What about aroma? That seems lost as well. Today's

average 2-3 brix hydroponics greenhouse tomato looks like a tomato but it has virtually no aroma and is nearly tasteless. It is a poor caricature of what a tomato should be. As a culture Americans are so used to eating low quality produce we don't even know what really good produce tastes like.

## High Brix Plants Are Insect And Disease Resistant

Here we see the handiwork of our [Creator](#). Plants in poor health emit an electro-magnetic frequency that insects tune in to. This in effect calls them in for a feast. Plants in good health emit a different frequency that insects do not tune in to. Nature has been designed to use insects to get rid of poor quality plants that are unfit for human consumption. In the same way a poorly balanced soil will produce plants susceptible to disease. Properly balanced soil will produce plants resistant to disease. [William Albrecht](#) put it this way:

**“Insects and disease are the symptoms of a failing crop, not the cause of it. It’s not the overpowering invader we must fear but the weakened condition of the victim.”**

Ouch!

## Animals Instinctively Prefer High Brix Foods

Animals have a greater sense of instinct than does mankind. Their instinct for survival can be seen in the multitude of stories arising from the recent tsunami. Wild animals were not caught by surprise—they had fled for higher ground hours before the waves hit the shores. This same level of instinct carries over to their choice of foods. The foods of highest mineral density and health are preferred over poorer quality. Here is something to ponder over. Wild deer will not graze genetically modified corn stalks unless close to starving. This is why conservationists who are planting corn specifically for the deer population will avoid planting genetically modified corn. Production agriculture has found that it takes twice as many acres of genetically modified cornstalks to get the same amount of weight gain on cattle as compared to conventional non-GMO corn varieties. Here is an easy experiment to prove this point. Buy whole field corn sold in the birdseed section of your local supermarket and some popcorn. Whole field corn will weigh somewhere around 55 lbs. per bushel while the popcorn will be around 66-68 lbs. per bushel. Offer both corn samples to some chickens that are not overly hungry and see which corn they eat first. They first go after the popcorn with great enthusiasm and then the field corn with less enthusiasm. Why? Popcorn has greater mineral density as indicated by test weight. Cattle have the same instinct. They will always prefer the forage with the higher sugar content. This has been proven many times by seeing which hay cattle eat first when offered a choice.

In conclusion Brix has become the gold standard to measure plant quality. Measuring the brix level on plants is quick, simple, and fairly inexpensive. Unfortunately some of the largest detractors of the Brix=Quality movement propagate a system of agriculture that produces low-brix plants. These plants need ‘crop protection’ in the form of herbicides,

insecticides, and fungicides. These pesticides disrupt the delicate microbial balance in the soil and contribute to the continued production of low-brix foods. Another quote from that eminent soil scientist, [William Albrecht](#), seems in order:

**“The use of (pesticide) sprays is an act of desperation in a dying agriculture.”**

The good news is that more and more people are demanding higher-quality food and numerous farmers are getting off the pesticide/GMO/low-brix merry-go-round and beginning to produce food that can have a tremendous impact on improving our health and nutrition—and it all starts with our [digestive system](#).