

JOHN'S CORNER

Organic Fertilizers and Nutrients – 6 Seaweed Based Products

By John Ferguson

This week I want to continue with specific organic fertilizers and look at seaweed based products. The best seaweed products come from the ocean and contain all the nutrients found in seawater. The seaweed may come from harvesting of seaweed beds and sometimes from beach cleanups. As in all products the quality varies. Some products may be diluted with water while others may use weed from freshwater lakes that do not have the same nutrients. As a result, price, quality and value varies greatly.

Seawater has over 90 elements in it, hence seaweed products also have the same elements. During its growth the seaweed may concentrate some of these nutrients and make many other useful compounds.

In general, seaweed based organic fertilizers in addition to the primary nutrients generally contain over 60 trace minerals. They will also contain several important plant growth stimulators (these include auxins, hormones, gibberellins, indoles, and cytokinins).

Seaweed fertilizers work best when applied directly on the foliage as a foliar fertilizer. When one uses seaweed fertilizers gardeners regularly report increased cold hardiness in their plants and increased resistance to powdery mildew and black spot.

If the roots of transplants are soaked in a seaweed solution for a few hours before planting, it makes an excellent stimulator and starter solution.



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Dr. T. L. Senn of Clemson Universities Department of Horticulture, wrote about foliar feeding in detail in his book *Seaweed and Plant Growth*, ISBN: 0-939241-01-3, 1987. In this great little book he explains the powers of seaweed as a fertilizer and root stimulator and how foliar feeding can be used to supplement a fertilization program.

A trick I learned many years ago while driving through San Antonio and listening to a local organic gardening radio show hosted by Bob Webster was in using seaweed to control spider mites. I grow a lot of lantanas for the butterflies and they often get riddled by spider mites when the weather gets hot and dry. So the first thing I did upon returning home was purchase a bottle of Microlife Super Seaweed. The leaves of my lantanas were white from spider mite damage so I was able to test his recommendation immediately. I sprayed the plants down and in a few days new green growth appeared. I sprayed a couple additional times and did not have a recurrence of spider mites. Now I always spray Super Seaweed as a preventative and no longer have problems with spider mites.

SUMMARY:

Seaweed products are a great tool for gardeners. They provide nutrients not found in most fertilizers as well as hormones that help the plant grow stronger and faster. They help strengthen a plants natural immune system resulting in less insect and disease problems. When used in food production they increase anti-oxidants and other compounds that promote human health.

PROS:

- seaweed products are fast acting when used as a foliar application
- contain many minor and trace elements
- contain powerful plant growth hormones
- natural root stimulator
- often contain carbon as an energy source for the microbes
- nitrogen and other nutrients are in a readily available form for plants and microbes
- increases microbial diversity

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- strengthen a plant's immune system

CONS:

- Usually a liquid concentrate that has to be mixed before use
- quality varies greatly between brands

QUESTION: For a coupon for a free bag of "Composted Native Mulch" to the first five respondents with the correct answer:

"Some of the algae that live on the surface of the soil have shown the ability to fix nitrogen from the air into the soil, IF there is a certain nutrient (element) present. What is that nutrient?"

Hint: It is used as a catalyst in the process.

CARBON IN PLANTS

The trivia question a couple weeks ago was: "Which element do plants require the most of? The answer is carbon (C). Several readers asked for an explanation.

If we look at all plants the answer is carbon. However if we only look at aquatic plants (they have lots of water in their structure) the answer might be Oxygen (O) or Hydrogen (H). So there is a variation between species.

If we look at the major components of most terrestrial plants, they can be broken down into glucose, cellulose, lignin and some proteins. The amount of these also varies between species, for example a tree will have more lignin than a annual flower. Additionally, all plants have water (H₂O) in their cells,



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roots and stems that are not part of the plant. If the water is removed and we look at what is left they are primarily molecules made of carbon chains. A few examples are:

Glucose $C_6H_{12}O_6$ - has six carbon atoms as its base units

Cellulose $(C_6H_{10}O_5)_n$ - has six carbon atoms as its base units

Lignin $(C_{32}H_{34}O_{11})_n$ - has 32 carbon atoms as its base units

Proteins (composed of amino acids that all have carbon as their base unit)

We can look at the vascular tissue, the cambium layers and the bark of the plant all of which are composed of molecules based on chains of carbon atoms.

Typically for trees we see the following breakdown:

50% Carbon

42% Oxygen

6% Hydrogen

1% Nitrogen

1% Other

When we look at all the molecules that compose a plant or tree, carbon is the most common element. This is why wood burns so well as carbon in the wood is combined with oxygen from the air and produces energy (heat and light). Carbon in decaying organic matter is the energy source for microbes and other soil life, carbon is the base unit for humus that is so critical for good soil health.

Editor's note: We will post the answer to last week's question in next week's newsletter. Stay tuned!