



PRIMER ON THE BENEFITS OF KELP

and a list of our favorites

Kelp is any of a variety of large, brown or green seaweeds that grow underwater and on rocky shores. Kelp growth occurs in cold, nutrient-rich water. They are found throughout the world in shallow open coastal waters, and the larger forests are restricted to temperatures less than 20°C. They grow short and tall, with some of the largest Kelp stretching up for a hundred feet or more from the floor of the ocean. Pillars of full-grown Kelp can contain fifty or more densely packed fronds, all rising to a canopy at the surface. Underwater, the Kelp beds look like shadowy forests.

Kelps vary widely in size and form. But what they all share is that it is hard to tell the stems from the leaves. Despite their appearance, sea kelp are not grouped with the normal aquatic or land plants (kingdom Plantae), but instead are included in either kingdom *Protista* or *Chromista*. Kelp is one of the brown algae. They have no roots, but instead cling to stones, wharves or pilings with holdfasts. They do not have stalks or branches, nor really any special parts of the plant for support or for conducting nourishment from one part of the plant to another. In seaweeds, almost every part of the plant can make its own food. Seaweeds have nothing that looks like flowers, fruit or seeds.

Seaweed photosynthesizes the sunlight and it absorbs nutrients from sea water through its leaves. Since the ocean receives runoff from the entire earth, it contains all known minerals, trace elements, and vitamins. Seaweed contains 60 or more minerals and several plant hormones. It is not a complete fertilizer - it has a fair amount of nitrogen and potash, but very little phosphorus, a major plant nutrient.

There are two kelps that yield the largest overall benefits to plant growth - *Ascophyllum Nodosum*, and *Laminaria Digitata*. There are many kelps that have great benefits for agriculture but these two varieties provide the overall largest amount of nutrition and hormones.

Although kelp extracts do contain small amounts of plant macro-nutrients, their value is not as a fertilizer but as a growth stimulant. They contain potent concentrations of trace minerals, micronutrients, amino acids & vitamins, but most important, kelp contains many growth hormones, including cytokinins, auxins & gibberellins, which stimulate cell division and larger root systems.

What Kelp can do for your Garden

There are a number of benefits to be had by using a good kelp regime along with your normal plant nutrient diet. Kelp provides all the trace elements and minerals (some of which are not "Plant Essential," but still aid in accelerating and promoting good health growth.) Kelp also has provides different vitamins which aid in plant growth and stress relief. Kelp contains amino acids and carbohydrates which chelate minerals and nutrients. Chelates are very important in allowing plants to take up certain essential elements. See our **Chelates Info Sheet** for more about their functions.

Researchers have discovered that kelp helps build and support the plants natural immune system in a variety of different ways. A healthy and strong immune system can in turn help resist disease, insects, and heavy temperature shifts. SAR products like **Scorpion Juice** and **Messenger** aid in keeping the immune system in full effect by eliciting an immune response in plants (please see **Info Sheet** on **Systemic Acquired Resistance** and **Foliar Feeding**). When used together with Kelp in a good foliar cycle, major preventative gains have been reported and can be seen.

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Kelp contains Growth Hormones

The most important aspect of kelp is the growth hormones. Kelp contains ample quantities of auxins, gibberellins, and cytokinins. All growth hormones play a part in how a plant functions, and are more accurately called growth regulators. Kelp has very high amounts of a particular hormone, *cytokinin*. Cytokinins are responsible for cell division, cell enlargement, differentiation of cells, development of chloroplasts.

By spraying or providing a root zone application of kelp at certain times you can achieve heightened growth rates for (practically) whatever stage of growth you are looking to enhance. One example of this is during transplanting - If you apply kelp at the root zone you will get more root growth. Another is during the beginning of the fruiting or Flower phase, if you foliar kelp you will get more Bloom (Bud) sites which in turn will create a greater yield of more fruits / flowers come harvest time.

There are several forms that kelp comes in. We prefer the cold-pressed form of kelp. Cold-processing preserves much higher levels of proteins humatic isolates, enzymes, and growth hormones. This is why we prefer the cold-pressed kelp processed in **BioBizz Alg-A-Mic**.

When foliar spraying try to apply in the early morning when the plant is the most active and the stomata are open to their fullest, avoid spraying before it rains, use high quality water with a ph of 6.0, and any foliar spray benefits from a non ionic wetting agent such as **Wet Betty** (which also contains delivery agents which will help penetrate the cell's membrane with much higher rates).

In conclusion, kelp can help germinate seeds quicker, improve taking of cuttings, encourage rooting, build immunity, add more color and flavor, give a longer shelf life, produce more and larger buds and flowers, counter any nutrient deficiencies, and fight off insects and disease. Kelp is truly mother natures gift to the modern gardener.

Some of Our Favorite Kelp - Based Products

Liquid Karma - If you are looking for just one thing to add to nutrient regimen, Liquid Karma is the one. Great for every stage of growth, Liquid Karma will definately increase branching points, flower sets and yield by as much as 30%. It chelates micronutrients through amino and fulvic acids, shuttles them into plant cells while increasing metabolic rates and conserving plant energy. Full of B-vitamins as well.

SeaPlex - Seaplex's natural, potent mixture is enriched with a proprietary enzyme structure, along with a wide range of ionic minerals. Seaplex is prepared using a patented process that has distinct, specific advantages: Cold Processed, Homogenized to prevent seperation, 200 mesh Screen Filtration, mineral Enhanced, and it is OMRI listed. Great Price to boot!

SeaWeed - New from Agricultural Organics. Bloom high analysis Liquid Seaweed is produced from fresh seacast seaweed. Hand harvested from the beach to help preserve both the ocean ecology and provide a high quality raw material in a sustainable fashion. It is then cold composted using naturally occurring enzymes from beneficial microflora found native in healthy soils.

Alg-A-Mic - A vitality booster made with cold pressed concentrated seaweed; hence the extremely high content of trace elements and hormones of vegetable origin. Natural amino acids and vitamins are also added, catering to the whole spectrum of the plants needs. Alg-A-Mic can be sprayed directly on the leaves as well as watered directly to the roots - both methods promote vigorous green growth. Healthy plants are also less likely to suffer from deficiency diseases and temperature fluctuations. Alg-A-Mic may be used in all stages of growth and bloom. *We prefer a root zone applications at the rate of ¼ tsp per Gallon.*



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