



OCEANSOLUTION REVOLUTION  
ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE SUSTAINABLE AGRICULTURE



### EASE OF APPLICATION

We understand the value of your current programs and how much effort it takes to grow food and feed crops. With OceanGrown's OceanSolution™ you don't need expensive new planting or fertilizing equipment, you can use your existing equipment. You can apply it whenever you would normally use the fertilizer you have been using.

In fact, our years of experience with a variety of food and feed crops can be used to your advantage. So whether you are doing in-row planting, foliar, side-row, chemi-gating or even more advanced growing programs, OceanSolution™ can easily and readily be adapted to meet your demands for consistent, stable growing - with the best part being the proven yield increase and the other benefits that you can read about as follows.



### COST EFFECTIVE

Our pricing remains not only stable year to year - it costs less than conventional industrial NPK fertilizers - and it gives several more advantages, including consistent and improved yield. Holding input costs is a big challenge for any grower. Look at what happened to NPK costs over the last several years - cost increases for NPK has ranged from 300 to 400 percent more than previous levels. OceanSolution™ has not seen any price increase since 2004.

Here is something really important to remember - OceanSolution™ can be used to reduce NPK inputs and thereby lower costs. Some growers have been able to fully eliminate using NPK fertilizers entirely, which directly reduces their nutrient input costs. There is also the added cost reduction by lowering additional agricultural inputs – fungicides and pesticides.



### PROVEN YIELD INCREASE

Despite changing growing conditions like drought, temperature swings, floods, or early snows - all of which stress a plant's ability to be healthy and give expected yields - OceanSolution™ works to keep the plant's physiology at its peak performance. In other words, the more plants are able to take advantage of the OceanSolution™ enriched soils, to remain rooted, and continuously experience healthy nutrient uptake helps the plant to

overcome the stressors. Whether foliar or side-row applied, the plants continue to receive the direct benefits, which also further enable the uptake of critically needed nutrients for maximizing the core health and resiliency. Overall, each planted seed has the optimum conditions needed to give both planned yields and actual increased yields. Recent field trials by the chief agronomist at one of the world's best known sweet corn and vegetable brand research fields has shown proven yield increases over conventional NPK based growing programs. Growers who began using OceanSolution™ over the past several years have been very happy to report that their yields have increased, especially during very challenging growing conditions. As you learn more about why this happens, you will begin to understand that the answer is not too complicated. You simply must use the best inputs to get the best outputs - and that means that giving the soil and the plant the best chance to grow to it's fullest and healthiest potential that is at the heart of these yields.



### **OPTIMUM OUTCOME OF INTEGRATED PEST MANAGEMENT**

The healthier a plant becomes, the less susceptible it is to both pests and diseases. This isn't new news - but it is hard to do when the plant has limited inputs. It is true that yield can be increased - but sometimes, it just costs too much to do that. In terms of keeping more plants healthy by applying additional herbicides, pesticides, and fungicides - yes, you will stand a better chance of more plants giving you the expected and in some cases, better yields - but only in the sense that fewer plants were lost to pests or diseases or other stressors. Using OceanSolution™ is really about giving the plant the best opportunity to maintain a steady and high level of resistance that would normally require the use of more pest management inputs, and it doesn't make sense to apply products that have tough and unwanted consequences, such as water or air pollution or worker health issues. OceanSolution™ is non-toxic and gives the plants the best fighting chance to grow healthy, without the need for additional pest and disease management inputs. And consider this, if these additional inputs are necessary, then a healthy plant will need only a minimal amount, as it already has higher levels of immune response.



### **OPTIMUM OUTCOME OF INTEGRATED NUTRIENT MANAGEMENT LESS INDUSTRIAL NPK RATES AND APPLICATIONS**

Researchers have demonstrated that a plant needs balanced and moderate inputs of nutrients to thrive and remain healthy. The challenge is to maintain soil conditions at reasonably supportive levels of moisture, organic and bacteriological materials, and nutrient availability. Unfortunately, even when NPK, plus other key elements (in some cases up to a total of about 16 minerals altogether) are applied, the challenge is overcoming acidic or alkaline soils, where it affects plant growth and ultimately, yields. OceanSolution™ has the benefit of having the richest bio-diversity of bacteria available. Recent research indicates that over 20,000 different kinds of bacteria are in just one liter of ocean water. And since, OceanGrown's OceanSolution™ is deep, clean, ocean water with the broadest amount of elements - typically up to 90 of the known elements on the earth, in trace and significant amounts - and has key azo and nitro bacteria at levels that overcome pH issues in soils, growers find that OceanSolution™ is a highly effective nutrient input for optimizing both soils and the plant's ability to achieve high efficiency in nutrient uptake. The value of these inputs and the fact that fixing nitrogen at approximately 40 lbs per acre means, that not only can plants respond to the nitrogen rich application, but that the rate of nutrient uptake is such that the plant is not overly stressed from over-application of NPK. The typical NPK application, especially in the Midwest, is genuinely risky in the summer growing month of June. Since rainfall is a key factor in June, the grower typically over-applies the NPK fertilizer at the beginning of the month,

only to find that the rainfall intensity washes the overage of NPK into waterways and the residual is then the hoped for amount that actually affects plant growth. Read further to find out that this risky approach will no longer be legally tolerated. The benefit of using OceanSolution™ is that there is no concentrated nitrogen nor phosphorous that can be washed away. It really is important to know that OceanSolution™ is one of the most practical and effective ways to minimize the over-application of typical NPK fertilizers.



## IMMEDIATE AND LONG TERM IMPROVED SOILS

Soil scientists believe that the best soils for growing crops are the soils that have the best physical, chemical, and biological properties. The typical physical problems of crusting, compaction, under-consolidation, and setting-up are all issues that must be resolved by the grower. Chemical challenges are soil ph, and cation exchange capacity and organic matter functioning. Biologically, soil has both micro and macro organism that contribute to its overall physical and chemical properties, as soil microbes or animals interact or consume the organic matter, they change the soils biologic functioning. OceanSolution™ has direct impact on the soils chemical and biologic conditions that enable proper and healthy cycles of increasing the soils capacity to grow plants - this outcome is sustainable fertility for your crops. The immediate and long term consequences of using OceanSolution™ is the opportunity to enhance and amend soils that benefit from introducing both elemental nutrients and highly biodiverse bacteria. So, year to year, whether tilled or non-tilled, or whether high erosion conditions exist, the soils are not subjected to only a minimum re-introduction of primarily NPK inputs which overlooks the biologic needs of the soil. Using OceanSolution™ accomplishes more than just the nutrient bio-availability for the plants - it squarely addresses the needs of the soil.



## ENVIRONMENTALLY POSITIVE

Non-toxic. Non-toxic. Non-toxic. Okay, this just had to be repeated at least three times. The real point here is that the application is safe. There is the simple fact that the runoff of any over-application does not pose an issue the way typical NPK over-applications do. In fact, the [Clean Water Act \(CWA\)](#) has now been re-authorized by the US Senate to develop rulings that will come into effect within the next two years that would require growers to report how much NPK type fertilizers and other agricultural inputs are applied. Those rulings would also include the monitoring and reporting of any exceedance (run off) of these inputs that enter navigable bodies of water. Florida has already passed such regulations and other states may do so even prior to the federal rulings. [Read more](#). Golf courses in Florida have switched from conventional NPK applications to OceanSolution™ to meet these requirements at the time of writing this information.

With healthier soils and stronger root structures, scientists have noted that more carbon gases (especially nitrous oxide) are retained in the soils longer. This process known as carbon sequestration is a powerful benefit. Several leading groups and universities are convinced that growers can take advantage of this, if they can show that their soils and root structures increase the sequestration process - and, this is really the main point here - the grower can then legitimately calculate how much carbon is captured and then sell the value of this capacity as a "carbon credit". Whether the grower chooses this as a way to increase their profits or not is up to the grower. However, the carbon is captured and the problem of contributing to greenhouse gases is actually reduced. As mentioned earlier, researchers have found that conventional NPK, when over-applied, and then followed by intense rainfall events, contribute significantly to the creation of nitrous oxide, a serious

greenhouse gas that has been found to shift climates problematically across the earth. Also, when NPK is over applied and an intense rainfall event occurs, the runoff is significant and impacts water quality in downstream systems. Again, the solution here is to apply an input that does not have these disadvantages. OceanSolution™ is the environmentally pro-active and environmentally sound way to minimize both issues of greenhouse gases and water pollution.



## **SOCIALLY RESPONSIBLE**

Improving soils for future farming and improving the nutrients found in the food or feed is directly beneficial for the people or animals who consume these foods or feed - this is part of what is called being "Socially Responsible". Most large companies, including food producers, such as Nestle, General Mills, ADM, Bunge, Tyson Foods and others, publish reports known as Corporate Social Responsibility reports. In these reports you will read how they are taking efforts to measurably manage their corporations impacts - financially, socially and environmentally. All these impacts show that they are being responsible to society for their actions. In some cases, especially with food companies, they want to reference that the growers who supply them with the raw ingredients for their products have taken careful efforts to care about the future and still provide people with healthy foods. Why not begin with the healthiest inputs - like OceanSolution™ - to let these food producers know that your choice for being socially responsible (as stated in the benefits mentioned above) is being done. If you consider how responsibility for ensuring the future of our soils, waters, climate, and bring the most nutrient effective foods and feeds into the marketplace, then please consider choosing OceanSolution™.



## **ADDITIONAL OCEANGROWN PRODUCTS**

### ***OG Carbon Plus***

The OG/Carbon Component contains organic acids, colloidal minerals and complex carbohydrates that enhance crop growth, health and fruitation. Research has proven that plants with high levels of carbohydrates and trace minerals are more immune to stressful situations such as drought, frost, and herbicide shock. Many scientists also believe that plants high in carbohydrates are less susceptible to insect problems. In agricultural applications, carbon based compounds made up of multiple glucoses, organic acids and colloidal minerals can dramatically benefit both nutrient recycling and plant growth.

OG/Carbon Component is an excellent chemical carrier that causes plants to quickly absorb herbicide. This results in maximum herbicide uptake and helps make applications rainfast in minutes. Another benefit of OG/Carbon Component is that it helps reduce herbicide shock to the growing crop. The organic acids, colloidal minerals and complex carbohydrates in OG/Carbon Component that aid in immediate uptake of chemical into weeds also encourage and enhance crop growth, health, and fruitation.

Research has also shown that plants with high levels of carbohydrates and trace minerals secrete them through their roots, encouraging microbial activity. For instance, legumes,

with high levels of carbohydrates and trace minerals, encourage rhizobium activity thereby greatly increasing nodulization of the roots, increasing pod fill which encourages higher yields.

OG/Carbon Component can be safely combined with all types of herbicide, pesticide, and fertilizer products. High priced chemical and crop input costs can be offset by including C4 in your farming program.

#### General Information about OG/Carbon Component

Carbon - All life on Earth is built upon carbon and carbon-based compounds. DNA, RNA, and protein all use carbon in their "backbones" to link all the functional groups together and there are only 3 non-mineral nutrients that plants use: hydrogen, oxygen and carbon (water included as H<sub>2</sub>O).

Carbohydrate - Any of a group of organic compounds that includes sugars, starches, celluloses, and gums and serves as a major energy source. These compounds are produced by photosynthetic plants and contain only carbon, hydrogen, and oxygen, usually in the ratio 1:2:1.

Mineral - An inorganic element, such as calcium, iron, potassium, sodium, or zinc, that is essential to the nutrition of humans, animals, and plants.

In agricultural applications, carbon-based compounds made up of multiple glucoses, organic acids and colloidal minerals can dramatically benefit both nutrient recycling and plant growth. Easy to apply, low volume formulations that can be either foliar or soil applied and are able to blend with all types of fertilizers and herbicides are the key.

These specialized formulations can be used to:

- Improve photosynthesis, resulting in higher plant brix levels and better yields.
- Chelate fertilizer solutions, making them more available to the plant.
- Boost soil Azotobacter nitrogen production.
- Help plants overcome stress from hail or frost.
- Help crops recover from herbicide shock, especially soybeans.
- Feed soil microbes, which then convert nutrients in the soil into plant food.
- Breakdown crop residue and help build humus, best applied during the off season.
- Stimulate amino acid and protein production in the plant.
- Can increase nodulization in legumes by supplying carbohydrate to plant.
- Opens stomata (plant leaf cells) to accept foliar fertilizer applications.
- Work as a chemical carrier and wetting agent, entering plants at cellular level.
- Stimulate mycorrhizal growth in plant root systems, assists in nutrient flow.

OG/Carbon Component does not contain California Proposition 65 Chemicals.  
OG/Carbon Component qualifies as a USDA Bio Preferred Solution

## *OG HA Plus*

The OG Humic Acid Component is an OMRI certified organic liquid product, which contains a 12% Humic acid solution that helps correct multiple deficiencies in crops by providing high quality micro nutrients for healthy plants and better yields. Formulated for easy handling and flexible application, this concentrated liquid is of the highest quality—homogenized and screened through a #100 mesh screen means no plugging of spray nozzles or drip tubes.

OG Humic Acid Component contains a concentrated complex of Humic acids, cultured soil bacteria and trace minerals- a combination that works especially well for residue breakdown. Humic acid stimulates an organic decay system that uses winter and spring moisture to re-establish good soil life, improve soil tilth and convert carbon into plant food. The source of all carbon is from the decay of organic matter. Since organic matter is 58% carbon, the proper decay of the crop residues adds a priceless fertilizer that can't be duplicated by chemical formulations. In addition, the OG/Humic Acid Component helps prevent metal ions from tie-up by soil particles and conversion to an insoluble form.

OG Humic Acid Component is a versatile product that helps meet the nutritional needs of crops across a broad range of soil conditions, fertility programs and tillage practices. As part of a balanced soil management plan, it nurtures bountiful crops this season and can improve overall soil health.

Application options include broadcast or pivot, as well as banding on the row or in the furrow.

Trace minerals contained in OG Humic Acid Component include:

- Boron (B) - assists in nitrogen and phosphorus use by plants.
- Copper (Cu) chelated - supports protein synthesis.
- Iron (Fe) chelated - promotes chlorophyll production and photosynthesis.
- Manganese (Mn) chelated - contributes to nitrate assimilation.
- Molybdenum (Mo) - aids in nitrogen fixation from air in legume nodules.
- Zinc (Zn) chelated - promotes seed/grain formation and plant maturity.

OG Humic Acid Component is easily applied with liquid fertilizers and helps retain soluble fertilizers in the root zone for release as needed and also stimulates germination.

Reduce the salt index of Starter Fertilizers

Another benefit of putting OG Humic Acid Component (1 to 2 quarts) in the starter solution, is its ability to buffer the salinity and toxicity of commercial fertilizers. Most phosphate fertilizers are formulated with ammonia, and seedlings are very sensitive to ammonia toxicity and salt burn from applied fertilizers. By absorbing ammonium and sodium cations, Humic acids reduce the toxicity of these fertilizers.

OG Humic Acid Component Application Rates

OG Humic Acid Component is compatible with most fertilizer, herbicide, microbial and enzymatic formulations that are neutral or slightly alkaline in pH.

Always jar test.

Soil Application: Broadcast rate of 1 to 2 gal./acre. In furrow rate 1 to 2 qts./acre.

Foliar Applications: A rate of 1 to 2 qts./acre.

OMRI™ (Organic Materials Review Institute) Listed

### *OG Calcium*

The OG/Calcium Component is a 10% liquid solution that is used to stabilize nitrogen applications and increase overall plant nutrient uptake. Calcium helps deliver other nutrients throughout the plant as well as promoting plant growth and enzyme activation. Calcium added to nitrogen increases N absorption by the plant. It promotes stronger cell walls and helps in root and leaf development. It also makes phosphorous and micronutrients more available.

Our calcium is unique in that it is designed to release nutrients and minerals that are in the soil & make them available to the plant. Plant Available Calcium Determines the Uptake of All Other Nutrients Into the Plant.

Our Calcium is 100% Soluble; it can be mixed with 28% or 32% liquid nitrogen and applied or it can be broadcast just ahead of all types of nitrogen fertilizer applications. Applying 3 to 4 gallons/acre of Liquid Calcium can double nitrogen efficiency by stabilizing N and helping to prevent it from wicking off or leaching away, thereby reducing the total amount of N needed. Liquid Calcium helps hold nitrogen in the soil for approximately 6 months.

Caution: Do not apply with fertilizers containing phosphate or potash. Not compatible with any glyphosate formula, 2,4-D amine or ester herbicides. 10-34-0 or other commercial phosphate and potash fertilizer formulas can gel or clump when mixed with 10% Liquid Calcium.

OMRI™ (Organic Materials Review Institute) Listed

### *OG P.G.S.*

OG P.G.S. is a symbiotic, balanced formula of micronutrients fully chelated and carried in a solution of fermented sugars and organic acids that provide Enhanced Chemical Uptake and Balanced Plant Growth.

Plant hormones and growth regulators

Hormones are produced naturally by plants, while plant growth regulators are applied to plants by humans. Plant hormones and growth regulators are chemicals that affect all aspects of plant growth, including: germination, root growth, flowering, maturity and fruit set. Extremely small concentrations of these substances produce major growth changes.

Plant growth regulators can be synthetic compounds that mimic naturally occurring plant hormones or they may be natural hormones that were extracted from plant tissue. Applied

amounts of these substances are measured in parts per million and in some cases parts per billion.

There are five major plant growth regulating hormones: auxins, gibberellins, cytokinins, ethylene, and abscisic acid.

Auxins - affects root growth, flower formation and fruit set.

Gibberellins - help break seed dormancy, and speed germination.

Cytokinins - stimulate cell division and also delay aging.

Ethylene - induces ripening and is a plant response to stress.

Abscisic Acid - helps regulate water evaporation in the plant.

The properties listed above are just a few of the more important growth regulating factors of these plant hormones.

The term auxin is derived from the Greek word auxein which means “to grow”

Growth regulating substances and plant hormones are most often applied as a spray to foliage or as an in furrow treatment and depending on the product, can usually be combined with other fertilizer solutions to stimulate a favorable plant response.

### ***OG Probiotic Component (BF-888)***

The OG/Priobiotic Component is a mix of live organisms and improves germination, helps buffer fertilizer solutions and encourages nutrient uptake by the plant. Its non-plant food ingredients include *Acidovorax facilis*, *Bacillus licheniformis*, *Bacillus subtilis*, *Bacillus oleronius*, *Bacillus lentimorbus*, *Bacillus marinus*, *Bacillus megaterium*, *Cellulomonas fimi*, *Cellulomonas flavigena*, *Rhodococcus rhodochrous*. Minimum viable cell = 1,000,000 colony forming units/cubic centimeter.

### ***OG AmerOyl***

AmerOyl contains a proprietary blend of several organic oils and plant extracts, which are produced by plants naturally to repel and kill insects; but which are non-toxic to humans and animals.