

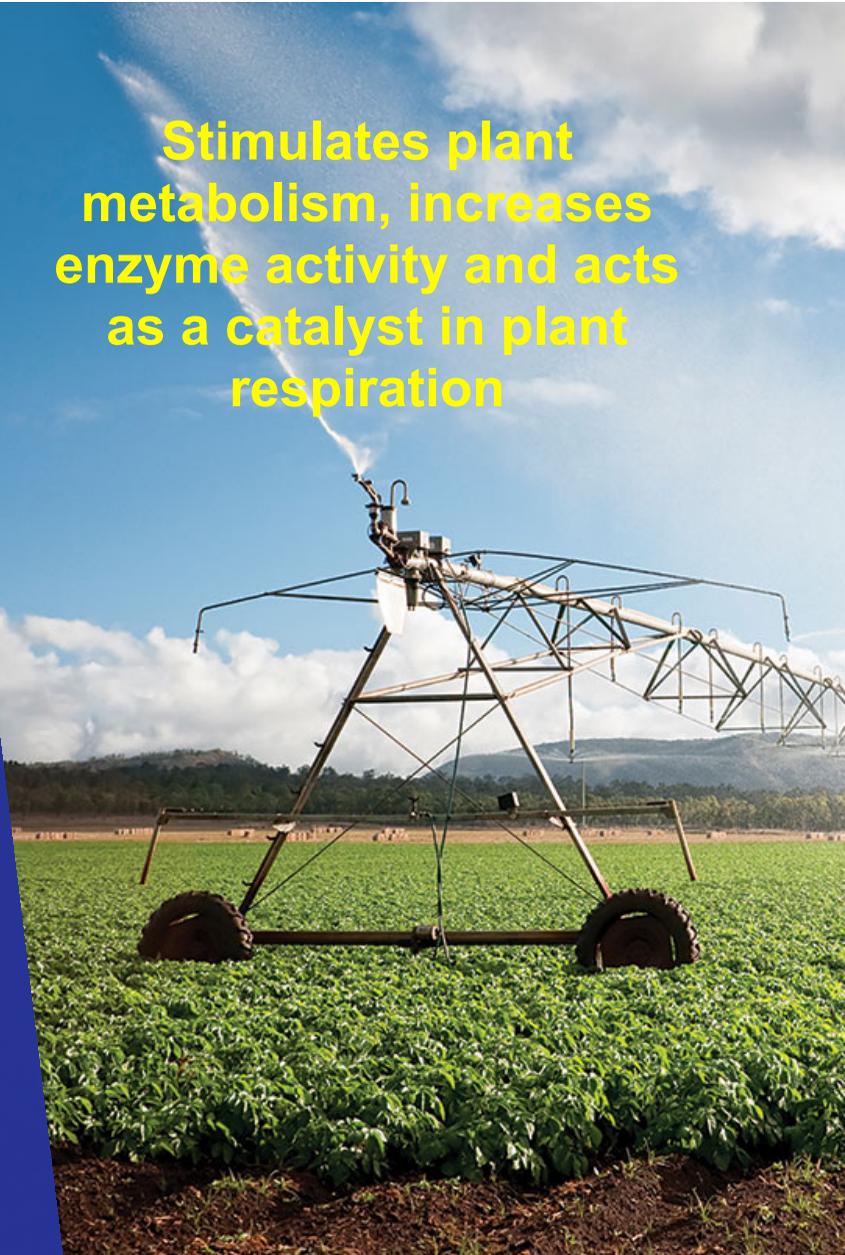


SANO
agronomy

July 2017

BPG Irrigation Booster

Stimulates plant
metabolism, increases
enzyme activity and acts
as a catalyst in plant
respiration



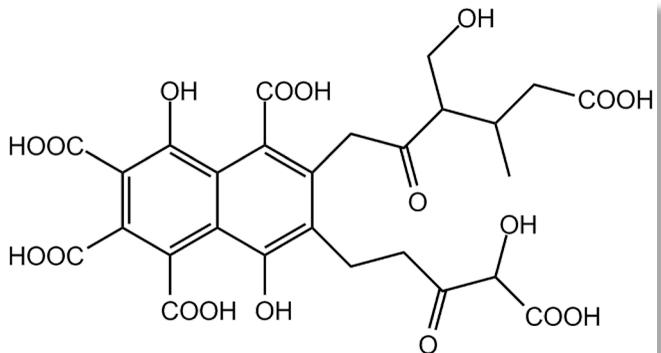
BPG Irrigation Activator is used in...

IN-FURROW, DRIP, SPRAY and NFT

BPG Irrigation specifically targets the soil and roots. It is an environmentally sustainable product that directly benefits the soil and associated bacteria concomitant with increased plant health and productivity.

The addition of **Fulvic Acid** enhances the ability of the soil to retain nutrients, and by ensuring bacterial health the exchange of nutrients is optimised. Not only that, **a complex of more than 60 essential minerals and vitamins** are added to make sure no plant ever struggles to meet its nutritional needs.

Fulvic Acid acts like a claw to bond with macro and micronutrients that might otherwise be inaccessible to the plant. Once the minerals fuse with the **Fulvic Acid**, they become bioactive and chemically available to the plant where they are needed most. The increased uptake of nutrients naturally increases the plant's metabolism and increases enzymatic activity. **Fulvic Acid** is a very powerful input for any crop in any growing environment, including soilless greenhouse environments. It is the soluble fraction from humus meaning it can interact directly with plant roots. It vastly enhances the uptake and transport of nutrients within the soil structure.



Structure of Fulvic Acid

BPG Irrigation

BPG Irrigation

Fulvic Acid stimulates plant metabolism, increases enzyme activity and acts as a catalyst in plant respiration. It improves nutrient efficiency as it enhances permeability of cell membranes, and it increases cell division and cell elongation. Due to the nature of its structure, it also acts as a natural detoxifier for many common pollutants.

Due to the enhanced nutrient substrate and a complement of minerals, the application of fertilizers is more effective and in some cases may be considerably reduced. This is important because it not only saves farmers from having to purchase more fertilizer than needed, it reduces the amount of fertilizers that leaches into the water table. This means less agricultural pollution and cleaner water.

Where water is at a premium this formulation is effective in reducing leaching therefore retaining moisture in the rhizome. No toxins and unlike many synthetic products this product naturally degrades, the degradation products continuing to feed and amend the soil.

Greater bioavailability of nutrients means larger root mass that can anchor plants. Prevention of soil compaction and retention of moisture all support nutrient exchange. This means they are better able to survive drought conditions.

It is pointless putting down Nitrogen or any other type of nutrient if your soil does not have the capacity (or CEC) to hold these nutrients. You might as well wash your money down the drain. To put things in perspective:

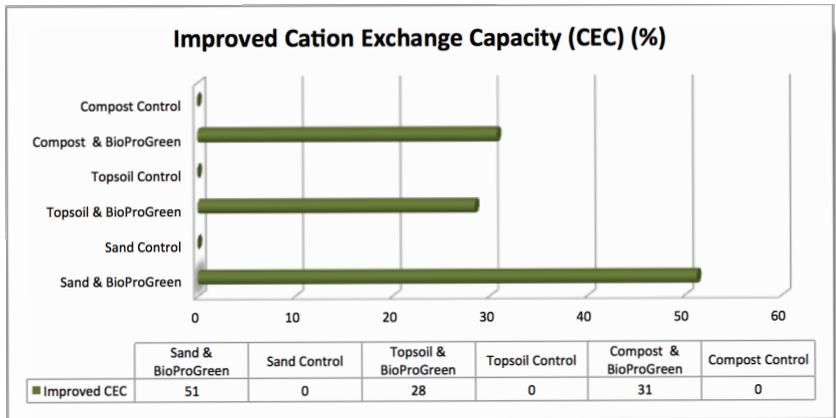
➔ **Humic Acid has a CEC of 450meq / 100g and**

➔ **Fulvic Acid has a CEC of 1,450meq / 100g.**

This is the highest level of CEC for any natural material and will dramatically reduce the loss of nutrients through leaching, increasing their availability for your seed.

Many soil tests can show high concentrations of nutrients, yet a leaf analysis may show a deficiency in that same nutrient. Why is this? It is because that particular nutrient is in a chemical formation that is not available to your plant. To help ensure your seed and plant has all the nutrients it requires from the very beginning, use **BPG Irrigation** simply because it contains **Fulvic Acid**.

BPG improves Cation-Exchange Capacity (CEC)

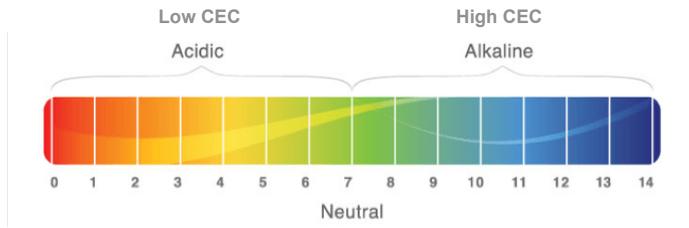


CEC is used as a measure of soil fertility, nutrient retention capacity, and the capacity to protect groundwater from cation contamination. The **CEC** of soil is determined by the amount of clay and humus that is present. These two colloidal substances are primarily responsible for nutrient and water holding capacity.

Sandy soils with very little organic matter have a low **CEC**, and heavy clay soils with high levels of decayed organic matter have a much greater capacity to hold cations. This is because clay and humus have electrostatic surface charges that attract and hold ions.

The holding capacity of clay varies with the type of clay. Humus has a **CEC** that is two to three times that of the best clay. One way to increase the **CEC** of a soil is to enhance the formation of humus. In general, the higher the **CEC**, the higher the fertility of that soil. Soils with low **CEC** compromise plant growth. This is because plants exhaust a fair amount of energy scrounging for mineral nutrients in soil with a low **CEC** - this is energy that could have been used for growth, flowering, seed production and for critical root development.

BPG helps soil pH and CEC



From an agricultural standpoint pH is important because it strongly affects plant growth, nutrient availability, elemental toxicity and microbial activity.

Have you ever asked yourself why? Basic science provides a very simple explanation...

Positively (+) Charged Acidic Soils

When your soil colloids are positively charged, as with acidic soils, positively charged ions, such as nitrogen, are repelled by the soil surface. As a result, they end up in the water column and are leached away. These soils have a low CEC.

Positively (-) Charged Alkaline Soils

Conversely, when your soil is negatively charged, as with alkaline soils, cations from the water column are attracted to the soil surface. These soils have high CEC, which makes them very fertile.

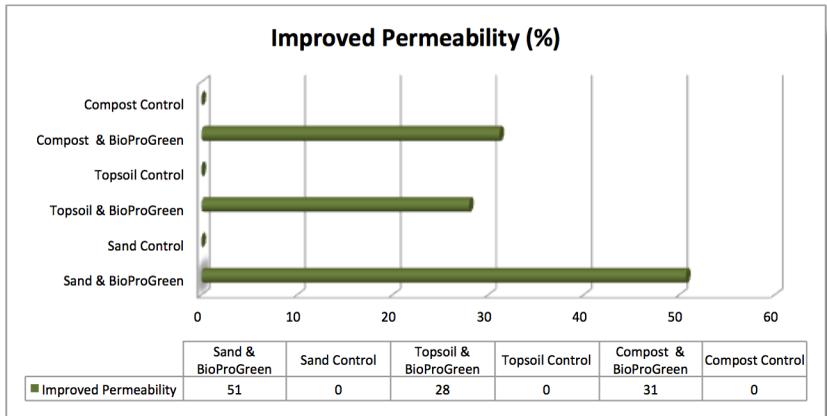
How BPH Helps

Because most soils are acidic farmers continually add lime (calcium carbonate) to increase pH. Since pH is a logarithmic scale, small differences in pH mean large numbers of H^+ or OH^- ions.

BPG goes one step further: BPG Base is alkaline with over 60 minerals added that are already bio-available to plants. This is because BPG Base contains Fulvic Acid, a powerful chelator that is soluble in water under all pH conditions, and has the highest level of CEC for any natural material.

BPG Irrigation

BPG improves soil permeability and reduces soil compaction.

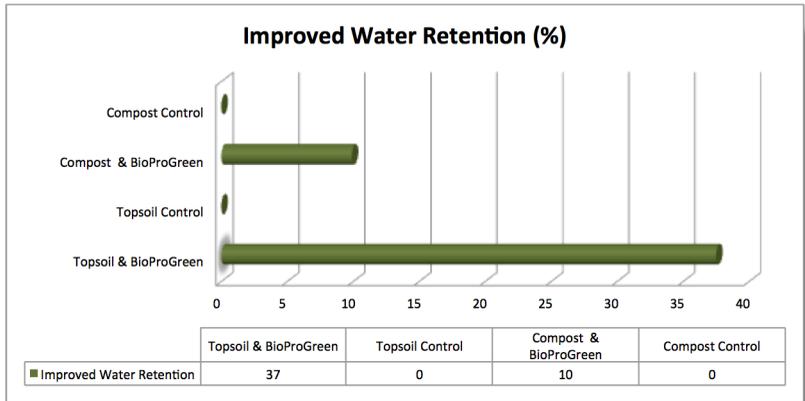


Permeability refers to the movement of air and water through the soil, which is important because it affects the supply of root-zone air, moisture, and nutrients available for plant uptake. A soil's permeability is determined by the relative rate of moisture and air movement through the most restrictive layer within the effective root zone.

Water and air rapidly permeate coarse soils with granular subsoils, which tend to be loose when moist and don't restrict water or air movement. Slow permeability is characteristic of a moderately fine subsoil, which is firm when moist and hard when dry.

Compact soils restrict the development of roots, and less root volume limits nutrient uptake. Compaction also restricts the diffuse and flow of nutrients in the soil. Few roots and limited nutrient movement can result in stunted growth because the plant is unable to take up the nutrients in the soil. Compacted soils also limit air movement and gas exchange in the root zone. Water-holding capacity is controlled primarily by soil texture and organic matter.

Tests show that BPG increases water retention



This is particularly beneficial in drought conditions because it ensures increased nutrient availability to plants. With increased and deeper roots, plants are adapted to survive harsh conditions.

BPG has been shown to increase germination rates

Tests were conducted on sand, topsoil and compost. In every instance, and on average, **BPG** outperformed the untreated controls. Lower germination rates will reduce yields, which is money out of your pocket.

In addition, biomass was increased, which can be attributed to how **BPG** enhances the development of a larger healthier root system. This root mass consists of longer thicker anchoring roots, and more root hairs with which to absorb nutrients.

Increased biomass means increased yields, which is money into your pocket (very good).



Bracing roots on corn stalks after a severe wind flattened the crop

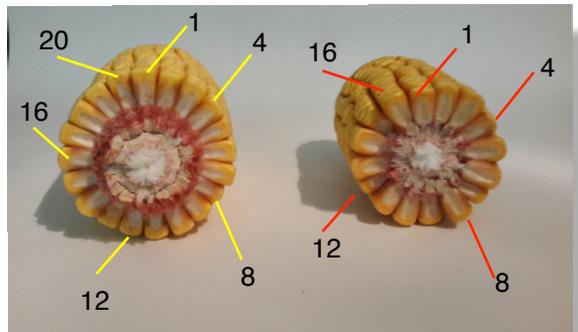
Sometimes things just happen that are not planned for.

On one of our tests, one of our farmers was horrified to see that a severe wind had flattened most of the the corn. Thinking the crop destroyed and the test a waste of time, he was suprised to see what happened.

After a few days, the tested corn **grew little bracing roots** that slowly raised them upright. He took a photograph that you now see above to show to our scientist. When he harvested his corn, he saw that the BioProGreen corn ears had 20 rows, which was **25% more** than the control corn that had survived the wind damage.

He had never seen this phenomenon before, and it was a test that could never be planned.

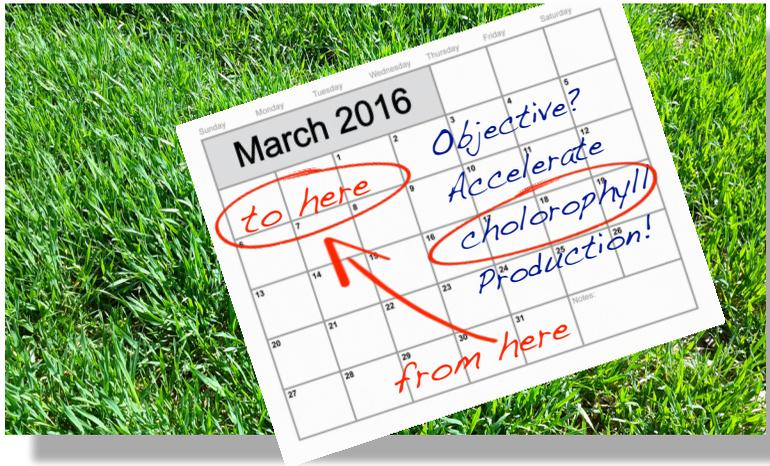
25% more corn rows when treated with BPG



**BPG Treated:
20 Rows**

**Untreated:
16 Rows**

BPG Irrigation



Imagine if you could accelerate your crop's production of Chlorophyll. What would this mean to you?

Chlorophyll is a vital biomolecule critical in photosynthesis, which is the process plants use to convert light energy into chemical energy that can be released to fuel the plants' activities. This chemical energy is stored in carbohydrate molecules, such as sugars, which are synthesized from carbon dioxide and water.

As a rule of thumb, the "greener" the leaves, the higher the Chlorophyll reading and the healthier the plant. On the other hand, Chlorosis is a condition in which leaves produce insufficient chlorophyll, turning them yellow, which compromises growth.

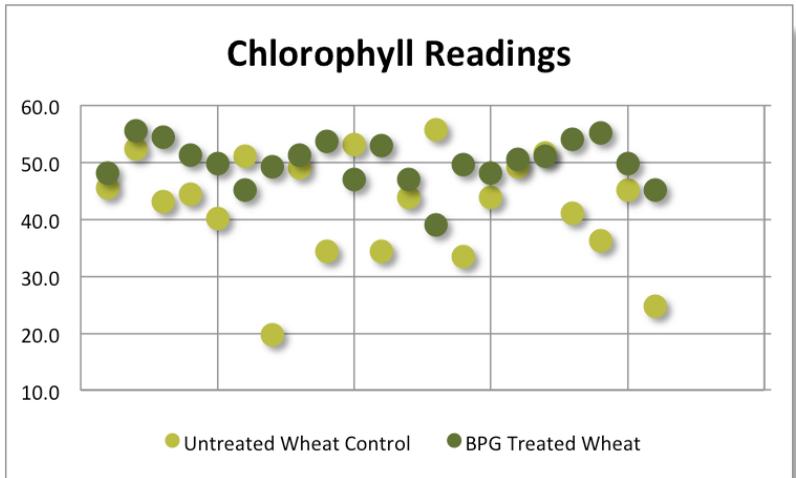


Treated with BPG



Untreated Control

BPG Irrigation



In a test on winter wheat, the **BPG** Test produced Chlorophyll 3 weeks earlier than the control. In our test, we noticed that the crop did not have to compete with weeds for light or nutrients, or fight off pests.

This is because the crop was out of sync with untreated crops and weeds, and with pests that organize themselves around plant cycles.

In this particular instance, the **BPG** Test was significantly different from the control. As a percentage it was **15.75%** “**greener**” than the control.

What is really interesting is that the standard deviation was much smaller in the test - this means that the colour was more consistent (less variation) than the control. In the graph above, you can see that the **BPG** treated plants had a more consistent and higher reading of Chlorophyll.

This is exactly what you need to grow healthy plants faster and with increased biomass!

Recruiting Research Partners

We are offering a great incentive to become a Research Partner!

Data Collection Elements	Untreated A	BPG Treated B (5-Acres)	BPG Treated C (5-Acres)
Fertilizer Use	100%	100%	75%
Fertilizer Savings	0%	0%	25%
Estimated Yield Increase	0%	20%	20%
Estimated minimum ROI	n/a	500%	1,000%

In return for great incentives, we are recruiting Research Partners to conduct three tests on their farms and to provide us with yield data.

These tests should confirm you can cut your fertilizer costs by a minimum of 25% while increasing your yields. The three tests are as follows:

- 1). **Test A** - Grow crops as you currently do.
- 2). **Test B** - Add BPG to a 5-acre section of your fields
- 3). **Test C** - Add BPG to a 5-acre section of your fields **AND** use 25% less fertilizer

We will compile the data from a number of farmers and provide you with a report on our findings. We expect to confirm our previous findings that using BPG products can result in increased yields while reducing fertilizer use by a minimum of 25%.

Using less fertilizer will increase your profits AND help to protect the environment.



SANO
agronomy

Call Us Today!

- **BPG Renew** to remediate soil pollutants, feed soil rhizome (root area), increase beneficial soil organisms, add Cation Exchange Capacity (CEC), add Carbon, restore soil fertility, and to prime the soil for the new growing season.
- **BPG Irrigation** to reduce germination time, increase germination rate, help plants get off to a better start, stimulate root development, reduce pest and pathogen damage by producing healthier plants, and protect against late frost.
- **BPG Foliar** to grow bigger and stronger plants, develop larger and deeper roots, enhance retention of moisture in the soil, enhance nutrient exchange, reduce agricultural inputs, increase biomass, enhance disease & pest resistance, enhance protection against weather.
- **BPG Weedex** to safely eliminate weeds.
- **BPG Pathex** to safely eliminate algae, bacteria, fungi, and soft-bodied pests.
- **BECOME A RESEARCH PARTNER!** (See Page 30 of this catalog)

CONTACT INFORMATION:

SANO Agronomy, Inc.

Canada: + 1 (778) 991-6806

US: + 1 (731) 336-2366