



Another remarkable innovation from Perfect Blend research laboratories!

BioticCalcium™

Patent Pending - 2010

Unique high calcium biotic fertilizers in a machine spreadable granule form. From the research and development of Perfect Blend comes a revolutionary new product ! **BioticCalcium™** marries the incredible topsoil carbon sequestration benefits of biotics with the well recognized benefits of calcium.

Why can **BioticCalcium™** be the best calcium product you have ever applied? The answer is in the topsoil. By combining biotic nutrients focused on growth of soil microorganisms with additional gypsum to supply calcium and sulfur your soil receives the best of both chemical and biotic fertility. By adding additional calcium to a biotic formulation the uptake mechanism for many other minerals, including nitrogen, phosphates, potassium, iron, zinc and other trace minerals is greatly enhanced.

BioticCalcium™ as a soil conditioner gypsum acts to provide additional free calcium ions in which flocculates soil particles opening up the soil and making it more porous. Calcium is particularly effective in breaking up compacted soil caused by sodium and clay to allow less tillage and increasing topsoil depth.

Water Efficiency - Calcium promotes water infiltration, retention and conservation which allows water to become more available in chemical terms. Test show farmland treated with gypsum can require up to 33% less water. This savings along can pay for the cost of application of **BioticCalcium™**.

pH Adjustment - Calcium is a buffering agent which means very high ph and very low pH soils will move to the middle with the addition of **BioticCalcium™**.

Only Perfect Blend has been able to manufacture a product that is as advanced and as topsoil efficient as **BioticCalcium™**. Growers have used gypsum for over 200 years. The remarkable marriage of these two products creates an entirely new soil nutrient.

Nutrient	Analysis	Nutrient Pounds Per Ton
Nitrogen	2.5	50
Phosphorous	2.5	50
Potassium	1.5	30
Calcium (Gypsum)	15.5	310
Magnesium	0.6	12
Sulfur	7	140
Boron	0.01	0.2
Copper	0.025	0.5
Iron	0.1	2
Manganese	0.025	0.5
Zinc	0.025	0.5
Hi-Sol		
Carbon		1,126
Moisture	10	200
TOTALS 2000		

Biotic Mechanisms

How Perfect Blend Biotic Fertilizers work in the soil

Mechanism # 1 – Dual fertility action

- Biotic fertilizers are highly water soluble. They provide plants and soil bacteria with “plant and bacteria ready” chelated water soluble nutrients.

Mechanism # 2 – Primary bacteria bloom

- Bacteria have the ability to communicate and move quickly. They are the first topsoil microorganisms to take advantage of the nutrient-rich biotic fertilizer liquids as they enter the topsoil.

Mechanism # 3 – Secondary microorganisms bloom

- Immediately after the bacteria bloom as secondary bloom of soil microorganisms occurs. The secondary nutrition blooms are “...are occurring like sharks attacking a school of fish.” - Dr. Russ Ingham

Mechanism # 4 – Soil acids form

- The remains of the bacteria and secondary microorganisms create stable nutrient rich soil acids.

Mechanism # 5 – Complex sugars increase

- Increased bacteria populations accelerate the consumption of cellulose and lignin structures of roots and plant detritus. More soil acids and increasingly complex sugars are created.

Mechanism # 6 – Fungus levels accelerate and balance

- As fulvic acid increases so do mycorrhizae fungus. Bacteria and fungus balances naturally. “Mycorrhizae’s favorite food is fulvic acid.” – Dr. Mike Amaranthus

Mechanism # 7 – Soil acid gels form

- Highly hygroscopic soil acid structures absorb moisture and develop into gels. Soil acid gels retain up to 98% of their weight in moisture and protect the soil against erosion.

Mechanism # 8 – Larger soil inhabitants are attracted

- A nutrient rich topsoil structure attracts and accelerates a habitat for earthworms, spiders, and other beneficial ground dwellers.

Mechanism # 9 – Topsoil fertility levels have been increased

- As a result of biotic mechanisms a beneficial topsoil microcosm can be established that will provide crops with a steady source of “plant ready” nutrients in a chelated ionic form. *

The science behind the mechanisms of biotic fertilizers is well established. These mechanisms may not always occur in the provided sequence. They may occur either concurrently or slightly out of sequence.



The science of biotic fertilizers

The science behind the mechanisms of biotic fertilizers is well established. The basis of all natural soil fertility is fulvic and humic acid which is created as a result of the remains of the life cycle of soil microorganisms. Their remains become stable carbon plant nutrients full of ionic minerals, carbohydrates, and other complex plant foods that nature stores in topsoil as acid gels.

The research and development that lead to Perfect Blend patent applications for biotic fertilizer begin in 1997. The development of a highly efficient nutrient program to accelerate the growth of protein synthesis in populations of soil microorganisms took over a decade. Today, we understand the mechanisms that enable Perfect Blend fertilizers to be efficient, effective and predictable.

Biotic fertilizers are sterilized, nutrient balanced, homogenized, pH balanced, and altered on a molecular level to create a highly water soluble carbon-linked nutrient. The elemental nutrients in a Perfect Blend biotic fertilizer have been subjected to a process that creates a microorganism nutrient that has no equal in the commercial fertilizer world.

“Perfect Blend is the world leader in biotics for one simple reason . . . their science performs!”

Biotic fertilizer nutrients:

Found in all Perfect Blends biotic formulations.

Primary Nutrients

Nitrogen
Phosphate
Potash

Secondary Nutrients

Calcium
Sulfur
Magnesium

Trace Minerals

Boron
Chlorine
Cobalt
Copper
Iron
Manganese
Molybdenum
Sodium
Zinc

Amino Acids

Aspartic Acid
Theronine
Serine
Glutamic Acid
Proline
Glycine
Alanine
Cystine
Valine
Methionine
Isoleucine
Leucine
Tyrosine
Phenylalanine
Histidine
Lysine
Arginine
Tryptophan

Vitamins

B-6
B-12
Biotin
Folic Acid
Niacin
Pantothenic Acid
Riboflavin
Thiamine
Vitamin E

Enzymes

Auxin Group
Zeatin

Fish Oils

Omega 3
Omega 6
Omega 9
Eicosapentaenoic acid (EPA)
Docosahexaenoic acid (DHA)

BioticCalcium™

is made using the biotic fertilizer nutrients which are then chemically bonded to a highly efficient calcium source. The result is a unique agglomerated granule product.

Pathogen Free

The unique Perfect Blend process provides triple assurance that there is no possibility of viable human pathogens in our fertilizers after the manufacture process. The most sophisticated program of kinetic, chemical and heat process in the industry is used to eliminate any possibility of human pathogens. Perfect Blend does not use dangerous low technology composting to manufacture its fertilizers.

Maximum Efficiency of Transformation

The 6.0 - 6.1 ph formulation process promotes rapid soil microbial growth. Altered molecular structure of feedstock increases solubility and rapid transformation into humic substances. Homogenous granules assure rapid protein acceleration in soil microbial populations. PB biotics are balanced nutrition high in chelates for direct uptake by plants. Mycorrhizal inoculates replenish depleted fungal colonies.

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