# BioBlend™
# Labels & Material Safety Data

2026

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BioBlend™ is a proprietary combination of biological products.

This document contains the labels, material safety data sheets and available organic certifications for the products that could be included in BioBlend™.

This is not a BioBlend™ label.

Conventional.

AgroThrive®
ORGANIC BIO-FERTILIZERS

# LF, 2.5-2.5-1.5 Liquid Organic Fertilizer

**Measurement:** Density 9.6 lb/gallon (US) at 68ºF
**Grade:** 2.5 - 2.5 - 1.5 (N-P-K)

## GUARANTEED ANALYSIS

Total Nitrogen (N).....2.5%
0.13% Ammoniacal Nitrogen
2.20% Other Water Soluble Nitrogen
0.17% Water Insoluble Nitrogen
Available Phosphate ($P_2O_5$).....2.5%
Soluble Potash ($K_2O$).....1.5%

REGISTERED cdfa ORGANIC INPUT MATERIAL

REGISTERED MATERIAL For Use in Organic Agriculture Washington State Dept. of Agriculture

OMRI LISTED®

This product was made in a solar powered facility.

## DERIVATION STATEMENT

This product was derived from corn steep liquor and fermented fish by-products.

## HEAVY METALS

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm

## APPLICATION RATES

| Application Method | Row Crops & Grass (gpa)* | Trees & Vines (gpa)* |
|---|---|---|
| Flood or Sprinkler | 15-40 | 20-40 |
| Sprayer or Shank | 10-20 | 20-40 |
| Drip Tape | 5-25 | 10-20 |

*gpa= (gallons per acre)

AgroThrive, Inc.
26775 Old Stage Road
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Toll Free (888) 449-2853

MADE IN USA

# SAFETY DATA SHEET

**Product Identity: AgroThrive™ LF, 2.5-2.5-1.5 Liquid Organic Fertilizer**

## Section I. General Information

**Product Description:** Dark brown or black, natural, liquid organic fertilizer.

## Section II. Information on Ingredients

All natural and organic ingredients.
Contains no hazardous ingredients as per Hazard Communication Standard.

**Trade Name:** AgroThrive™ LF

**Chemical Family:** Fermented, proteinaceous, organic plant and seafood fertilizer.

**Components:** Plant byproducts
Seafood byproducts

**Other Contaminants:** None.

## Section III. Physical Characteristics

**Appearance:** Dark brown to black liquid. Slightly viscous.

**Odor:** Slight ammonical.

**Specific Gravity:** 1.20

**Density:** 9.6 lb/gal

**Solubility in Water:** Yes

**pH:** 4.0-4.3

**Boiling Point:** 212ºF

## Section IV. Health Hazards

**Inhalation:** None.

**Skin Contact:** None. Wash with clean water.

**Eyes:** Moderate. Exposure may result in eye irritation. Flush with clean water for one (1) minute.

**Ingestion:** Moderate. May cause gastrointestinal discomfort. Seek medical advice.

**Carcinogenicity:** None. This product is not considered a carcinogen by NTP, IARC or OSHA guidelines.

## Section V. Fire and Explosion Hazards Flash Point

(Method): None (p-m closed cup).

**Flammable Limits:** N/A

**Extinguishing Media:** None.

**Unusual Fire & Explosion Hazards:** None.

## Section VI. Reactivity Data Reactivity. Stable.

**Conditions to Avoid. None.**
**Incompatibility (Materials to avoid):** None.
**Hazardous Decomposition:** None.
**Hazardous Depolymerization:** Will not occur.

## Section VII. Safe Handling Precautions

If Material is Released or Spilled: If uncontaminated, collect and reuse normally. Keep away from drinking water. After cleaning the spill, flush with fresh water until site is clean. Waste Disposal Method. If possible spread on lawn or garden soil. If contaminated dispose in approved landfill in accordance with all applicable federal, state and local regulations.

## Section VIII. Control Measures

Respiratory Protection. None. Ventilation. As needed. Protective Gloves. Standard. Not needed under normal use. Avoid contact with open wounds or cuts. Otherwise, use neoprene or PVC gloves for personal hygiene. Eye Protection. Only needed if operating spray equipment.

## Section IX. Emergency and First-Aid Measures

In emergency contact your regular health services provider.

## Section X. Special Precautions

Store product in cool, dry area away from potable water and food or feed supplies. Do not store at sustained temperature above 120ºF. Product to be used and/or applied within 2 years of delivery. Mix well before use.

## Section XI. Disclaimer

Although the manufacturer and owner have taken reasonable care in the preparation of this document, we extend no warranties and guarantees, express or implied, with respect to this information and we accept no liability resulting from its use. Each user should determine the suitability of this product for their individual use.

## GUARANTEE

AgroThrive, Inc. makes no guarantee, express, implied or statutory, whatsoever with respect to the AgroThrive™ LF product condition, performance or its adequacy for any use, which extends beyond the use of the product under normal conditions in accordance with the statements made on this label. Compatibility with other products should always be first tested by 'mixing in a jar' before application.

AgroThrive, Inc.
The Science of Organic Growth™

305 Vineyard Town Center #356
Morgan Hill, CA 95037
www.agrothrive.net

PHONE (831) 675-2853
FAX (831) 675-2875
TOLL FREE (888) 449-2853

# Manure-Free Certificate

This is to certify that AgroThrive organic fertilizers and soil amendments do not contain any animal manure. They are made from concentrated plant protein and ocean going fish by a proprietary high temperature liquid composting process called Progressive Digestion Process.

For further information please call AgroThrive, Inc. toll free at 888-449-2853, or visit our web site at:

www.agrothrive.net.

D. Macura

Mr. Dragan Macura, M.Sc., P. Ag.
Chief Science Officer.

# OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

## Product

AgroThrive LFP, 2-7-0.3 Liquid Organic Fertilizer

## Company

AgroThrive, Inc.
Dragan Macura
305 Vineyard Town Center #356
Morgan Hill CA 95037 United States

| Status | Categories | Date Listed |
|---|---|---|
| Allowed | NOP: Fish Products, Liquid, Stabilized | 31-Jul-2015 |

| Product code | Use Class | Expiration |
|---|---|---|
| pdg-5289 | Crop Fertilizers and Soil Amendments | 1-Mar-2027 |

## Restrictions

Not applicable.

Executive Director/CEO

Product review is conducted according to the policies in the current *OMRI Policy Manual*© and based on the standards in the current *OMRI Standards Manual*©. This certificate may be out of date. Verify the current certificate online at OMRI.org, or contact OMRI for verification. OMRI listing is not equivalent to organic certification and is not a product endorsement, and cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.

Organic Materials Review Institute
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# OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

## Product

AgroThrive™ TD 6.0 – 4.0 – 4.0

## Company

AgroThrive, Inc.
Dragan Macura
305 Vineyard Town Center #356
Morgan Hill CA 95037 United States

| Status | Categories | Date Listed |
|---|---|---|
| Allowed | NOP: Fertilizers and Soil Amendments, Blended | 27-Aug-2010 |

| Product code | Use Class | Expiration |
|---|---|---|
| pdg-2118 | Crop Fertilizers and Soil Amendments | 1-Mar-2027 |

## Restrictions

Not applicable.

Executive Director/CEO

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Organic Certificate Pending

# RUTOPIA BIO+M

**Contents: RUTOPIA BIO+MTM**
Trichoderma, ENDO and ECTO Mycorrhizal, Beneficial Microbes, Naturally Occurring Vitamins, Pantothenic Acid, Riboflavin, Fulvic Acid, Manganese, Iron and Ascophyllum, Yucca Schidigera, sea kelp, Nitrogen Fixing and Phosphorus Solubilizing Bacteria, Bt's for plant protection. (NOT A PLANT FOOD**)**
**Warranty:**
Compost Technologies, LLC makes no warranty, either expressed or implied, concerning the use of this product other than indicated on the label. Compost Technologies, LLC recommendations for the use of this product are based on tests believed to be reliable. The use and application of the product is beyond the control of the manufacturer, therefore no guarantees or warranties are expressed or implied relating to the effectiveness or performance of the product.

## Contains

| Ingredient | Analysis (per 0.25 POUNDS) |
|---|---|
| **RUTOPIA BIO+M only**<br>Live Spores of Endo & Ectomycorrhizal Fungi | Includes Glomus Mosseae, Gigaspora margarita, Pisolithus Tinctorius, Glomus brasilianum, Glomus deserticola, Glomus Clarum, Glomus etunicatum, Glomus intraradices.<br>Approx. 56 million/per |
| **RUTOPIA BIO and +M**<br>Nitrogen Fixing Bacteria | 50 Million/each |
| Phosphorus Solubilizing Bacteria | Approx 50 Million/each |
| Growth Promoting Bacteria<br>**Anti-fungal Bacteria**<br>**Bt Plant Protecting** | Approx 50 Million/each<br>**Approx 100 Million/**each<br>**Approx 80 Billion** |
| Soluble Sea Kelp Extract | 1.8% Ascophyllum nodosum |
| Soluble Yucca Extract | 1.8% Yucca Schidigera |
| Minerals | Magnesium, Calcium, Zinc, Iron, Manganese, and Copper |
| Beneficial Fungus<br>Other | **Trichoderma Fungi**,<br>Plant Proteins, Biotin, Folic Acid, Vitamins- B6, B7, B12, C, A, D, E & K and 15 essential Amino Acids |

RUTOPIA BIO+M has no application restrictions. See label for complete application instructions.

**RUTOPIA BIO** is a unique scientifically produced biostimulant built in sugars. The formulation contains natural sugars, sugar plant extracts, beneficial bacteria, humectants, UV inhibitors, surfactants, trichoderma, beneficial microbes, naturally occurring vitamins, amino acids, humic substances, langbeinite, enzymes, sea kelp extract, and proprietary additives.

**RUTOPIA BIO** increases root permeability and the water holding capacity of soil allowing the plant to better utilize both available nutrients and moisture. **Promotes cell division, stimulates photosynthesis, and delays senescence.** The root colonizing bacteria enhances root growth and bolsters the plant's natural defense against stress conditions such as drought, temperature extremes, frost damage, insect pressure and disease. The nitrogen-fixing bacterium enables atmospheric nitrogen to be utilized by the plant, likewise the phosphorus solubilizing bacteria increases phosphorus availability for plant up take, this will increase plant yields and production. **Specific bacteria included in RUTOPIA BIO helps promote beneficials in the soil that can prohibit the growth of nematode populations.**

**TRICHODERMA** is a unique addition to a biostimulant. This beneficial fungi is used to prevent disease causing fungi in the soil and at the plant roots. Trichoderma contains spores, which grow around the plants roots depriving pathogenic fungi nutrients and living space. **The spores of trichoderma produce antibiotics, which destroy the spores of pathogenic fungi thus helping to prevent diseases such as fairy ring.**

**RUTOPIA BIO+M** TURF and PLANT INOCULANT with highly selective strains of ecto and endomycorrhizae fungi will quickly colonize the roots of plants to provide the best possible conditions for the roots to become associated with mycorrhiza. **The mycorrhizal fungi are nature's own way of improving plant survival by promoting enormous root growth both in mass and length**. This will contribute naturally to water absorption, nutrient uptake, increased yields and production, general plant growth, reduction in transplant losses, decrease in plant diseases, and improved plant tolerance to heat and stress.

**RUTOPIA BIO** and **RUTOPIA BIO+M** as a biostimulant helps deliver needed nutrients to the roots of plants in times of stress and when in stress plants can not on it's own produce certain elements. Both **RUTOPIA BIO** and **RUTOPIA BIO+M** supplements these elements by making them available in the soil for plant up take. **The product utilizes organic means of replenishing needed nutrients into the soil, while enabling the plant to uptake applied products more efficiently decreasing the amount of applied nitrate rich fertilizers, pesticides, and fungicides.**

**RUTOPIA BIO KEY MICROBIAL COMPONENTS**
GENUS BACILLUS: (37 SPECIES)
Bacillus azotofixans (2 strains): nitrogen fixation
Bacillus azotoformans (3 strains): nitrogen fixation, plant growth hormones
Bacillus inegaterium (2 strains): decomposition, nutrient cycling
Bacillus polymyza (5 strains): anti-fungal, nitrogen fixation, nutrient cycling
Bacillus thuringiensis (4 strains): anti-fungal, plant protecting, nematode/insect consuming Bacillus licheniformis (6 strains): enzymes, plant growth hormones, soil structure
Bacillus pumulis (2 strains): decomposition, nutrient cycling
Bacillus subtilla (10 strains): anti-fungal
Bacillus spp. (3 strains): decomposition, nutrient cycling, solubilize minerals, soil Structure, plant growth hormones, anti-fungal
**GENUS PSUEDOMONAS: (5 SPECIES)** Psuedomonas aureofaceans (2 strains): anti-fungal Psuedomonas spp. (3 strains): anti-fungal, nitrogen fixation, plant growth hormones
**GENUS STREPTOMYCETES (7 SPECIES)** Streptomycetes lycidas (2 strains): anti-fungal
Streptomycetes spp. (5 strains): anti-fungal, decompose organic matter
**GENUS TRICHODERMA (4 SPECIES)** Trichoderma harzianum (2 strains): anti-fungal, plant growth hormones Trichoderma viride (1 strain): anti-fungal
Trichoderma spp (1 strain): anti-fungal, plant growth hormones
**GENUS GLIOCLADIUM (2 SPECIES)**
*NOW CLASSIFIED AS TRICHODERMA Gliocladium virens (2 strains): anti-fungal
**AMINO ACIDS***
Alanine, Valine, Cystine, Isoleucine, Leucine, Proline, Threonine, Serine, Methionine, Phenylalanine, Tryptophan, Tyrosine, Ornithine, Arganine, and Lysine.

# RUTOPIA BIO+M

**Issue Date: 6/01/2013**
**Product Identification:**
**RUTOPIA BIO+M**
**Trade Name: RUTOPIA BIO+M-soil treatment/ amendment Formula: Proprietary**
**Toxicity Hazards:** None Known
**Health Hazard Data:**
Live bacteria cultures
Non-hazardous, generally recognized as safe.
EPA exempt from requirement of having a tolerance.
Acute Effect
Mildly irritating to skin
Mildly irritating if inhaled
May cause discomfort if ingested.
**HMIS HAZARD Rating:**
Health Hazard (0-4) 0
Fire Hazard (0-4) 0
Reactivity (0-4) 0
**Hazardous Ingredients/Hazard Data**
This material is not hazardous as defined by OSHA 1910, 1200
**Health Hazard Data and First Aid:**
By eye contact: Direct contact with eyes can cause temporary irritation**. DO NOT RUB EYES. IRRIGATE WITH WATER FOR 15 MINUTES.**
By skin contact: Rinse with soap and water. Prolonged or repeated contact of product with skin may cause minor irritation to some individuals. Leaves a sticky residue on skin.
If swallowed: Ingestion in small quantities is not harmful. Ingestion of large quantities can cause diarrhea. **Drink plenty of water.**
Special precautions: None
**Spill or Leak Procedures:**
**Vacuum or sweep up spill. Reuse if not contaminated.**
Clean-up with soap and water. Wash contaminated clothing before reuse. Waste disposal: On site or in an approved waste disposal facility
**This material is biodegradable and not considered hazardous.**
Observe all Federal, State and Local laws.

**Physical Data:**
Appearance and Odor: Dark brown to gray powder. Sharp odor.
Extinguishing media: All
Special fire fighting procedures: NA
Unusual fire & explosion hazard: Dust
Incompatibilities: Strong oxidizers, such as dry bleach
Hazardous combustion or decomposition products: None known
**Storage and Transport:**
Storage stability: Stable at normal temperature and light conditions.
Special storage precautions: Very stable under normal storage conditions when kept in closed, original container in **a cool place.** Keep from freezing. Keep dry, protect from moisture.
**Special transport/handling precautions:**
Protective gloves are recommended but not required.
Face mask should be worn when mixing or when loading sprayer tanks/hoppers.
Goggles are recommended for eye protection.
Use common sense in work practices.
**Use caution when opening sealed containers.**
**General Information:**
This product is for agricultural and horticultural use only and is not intended for other applications. Read and follow all instructions provided on product and container labels. Non-Food. Not labeled for human or animal consumption.
**DISCLAIMER:**
THIS INFORMATION IS FURNISHED WITHOUT WARRANTY, EXPRESSED OR IMPLIED, EXCEPT THAT IT IS TO THE BEST KNOWLEDGE OF COMPOST TECHNOLOGIES THE DATA ON THIS SHEET RELATES ONLY TO THE SPECIFIC MATERIALS DESIGNATED HEREIN. COMPOST TECHNOLOGIES ASSUMES NO LEGAL RESPONSIBILITY FOR THE USE AND RELIANCE UPON THIS DATA.
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### SEED STARTER – SLURRY METHOD

* Utilize as seed starter to promote germination
* Suggested general rate is 1 lb. per 100 lbs. of seed
* Lay out seeds on waterproof tray
* Dampen seeds with water (preferably non-chlorinated)
* Shake Seed Treatment on to dampened seeds
* Homogeneously mix water, Seed Treatment and seed until seed are covered by slurry
* Allow slurry to dry thoroughly on seed coat (testa)
* For optimum results plant seeds immediately after slurry dries

| AMOUNT OF SEED | AMOUNT OF WATER | AMOUNT OF SEED TREATMENT |
|---|---|---|
| 1 lb | ½ oz | 0.16 oz |
| 5 lb | 1 oz | 0.8 oz |
| 10 lb | 2 oz | 3.2 oz |
| 50 lbs | 10 oz | 8.0 oz |

### SEED STARTER – DUSTING

* Dust seed with product mixture at the rate of 0.15 - 0.25 oz per lb of seed
* Use higher rate on seeds that are difficult to germinate or seeds that produce seedlings prone to environmental stress
* For optimum results plant seeds immediately after dusting

### SOIL APPLICATION

* Blend with soil prior to planting to promote root growth and development.
* Incorporate at the rate of 1 tbl (15 grams) per 2 cubic feet of soil.

### SOIL-LESS MEDIA APPLICATION

* Adjust pH of soil-less media to range of 5.8 – 6 for optimum results
* Prepare 1 : 100 solution (1g/100ml) and then pour the solution through media (rockwool, coco, perlite)
* Dip un-moistened cuttings in the rooting powder and plant in media

# ACELLERATE™

## Seed Germination Enhancer and Root Morphogenesis

**aCELLerate™ is a microbial based product specifically formulated to stimulate seed germination and enhance root morphogenesis the process by which the anatomical structures of the roots are generated and functionally organized. The processes associated with root morphogenesis are root initiation, root formation, root growth and root architecture.**

**The synergistic formulary addresses the nutritional, biochemical and biological requirements of the root system from initiation through plant establishment. Each ingredient in formula was chosen based on the benefit it affords the plant as well as the synergies it affords the system as a whole!**

### NUTRIENTS DERIVED FROM

Protein Hydrolysate, Bone Meal, Kelp (Ascophyllum nodosum), Sodium Tetraborate Decahydrate

### ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

**Active Ingredients**

**Bacillus subtilis 300,000,000 CFU per gram, Bacillus licheniformis 300,000,000 CFU per gram, Bacillus megaterium 300,000,000 CFU per gram, Bacillus amyloliquefaciens 300,000,000 CFU per gram, Pseudomonas putida 300,000,000 CFU per gram, Pseudomonas fluorescens 300,000,000 CFU per gram, Azospirillum amazonense 300,000,000 CFU per gram, Azospirillum lipoferum 300,000,000 CFU per gram, Trichoderma harzianum 50,000,000 CFU per gram, 50,000,000 CFU per gram**

**Inert Ingredients**

34.00 % Hydrated Sodium Calcium Aluminosilicate
19.95 % Non-Calcined Diatomaceous Earth (carrier for microorganisms)
5.00 % Humic Acid (leonardite), 4.00 % Brewers Yeast Extract

**Innovative Turf Solutions LLC**
mrs@innovativeturfsolutions.com
www.innovativeturfsolutions.com

Net weight: 50 lb. bag

### GENERAL INFORMATION

* May be tank mixed with fertilizers, biostimulants and microbial foods (sugars, humic acids, kelp)
* It is advisable not to co-apply product with pesticides (fungicides, herbicides, insecticides, nematicides, fumigants) as they can compromise integrity of the beneficial organisms herein contained. If absolutely required tank mix the product with pesticide and apply within 1 hour.
* Never tank mix with pesticides that contain imazilil, propiconazole, tebuconazole and triflumizole.
* When applied in rotation with pesticides it's advisable to allow 5 - 7 days between application of pesticide and this product.
* Never apply product mixture just prior to a pesticide application
* Do not mix product and store, apply all tank mixes Within 8 hours of preparation.
* Agitate tank while adding product and during entire application process
* Always perform jar test when mixing product with other inputs to test for physical compatibility
* To facilitate mixing process you may create slurry (1 lb. in 2 gal of water) and add slurry to tank while agitating
* Optimal results achieved if product is applied early morning, evening or on an overcast day

## Warranty:

**Innovative Turf Solutions makes no warranty, either expressed or implied, concerning the use of this product other than indicated on the label.**

**Innovative Turf Solutions' recommendations for the use of this product are based on tests believed to be reliable. The use and application of the product is beyond the control of the manufacturer, therefore no guarantees or warranties are expressed or implied relating to the effectiveness or performance of the product.**

**NO KNOWN ENVIRONMENTAL HAZARDS.**

## Storage and Disposal:

**Avoid storage that may result in freezing. Store at temperatures above 5°C and under 30*C.**

**KEEP OUT OF REACH OF CHILDREN AND ANIMALS.**

OMRI LISTED
For Organic Use · OMRI.org

# OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program regulations.

## Product

ACCELERATE Seed Germination Enhancer and Root Morphogenesis

## Company

Innovative Turf Solutions LLC
Melissa Schrand
1415 Indian Bluffs Drive
Maineville Ohio 45039 United States

| Status | Categories | Date Listed |
|---|---|---|
| Allowed | NOP: Microbial Products | 1-Jun-2022 |

| Product code | Use Class | Expiration |
|---|---|---|
| its-17087 | Crop Fertilizers and Soil Amendments | 1-Sep-2026 |

## Restrictions

Not applicable.

Executive Director/CEO

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# aCELLerate™

**aCELLerate is a microbial based product specifically formulated to stimulate seed germination and enhance root morphogenesis the process by which the anatomical structures of the roots are generated and functionally organized. The processes associated with root morphogenesis are root initiation, root formation, root growth and root architecture.**

**The synergistic formulary addresses the nutritional, biochemical and biological requirements of the root system from initiation through plant establishment. Each ingredient in formula was chosen based on the benefit it affords the plant as well as the synergies it affords the system as a whole!**

## Nutrient Solubilization & Nutrient Mineralization

* Most soils contain an abundance of P and K the problem is its usually in an insoluble form and cannot be assimilated by the plant.
* Select beneficial soil organisms have the capacity to convert insoluble phosphatic and potassium-based compounds into plant available forms.
* Beneficial soil bacteria & soil fungi produce secondary metabolites (organic acids, enzymes) which are responsible for the conversion of insoluble phosphorus and potassium into plant available forms.
* In acidic soils P tends to bind with Aluminum (Al) and Iron (Fe) to form insoluble Aluminum Phosphate & Iron Phosphate.
* In alkaline soils P tends to bind with Calcium (Ca) & Magnesium (Mg) to form insoluble Calcium Phosphate & Magnesium Phosphate.
* Inorganic minerals such as calcium phosphate and iron phosphate are solubilized by low molecular weight organic acids into plant available P
* Inorganic minerals such as muscovite, orthoclase, biotite, mica are solubilized by organic acids into plant available K
* Hydroxyl and carboxyl groups of organic acids chelate the cations bound to P & K which in turn converts them into soluble P & K.
* Organic Acids include but are not limited to gluconic acid, 2-ketogluconic acid, lactic acid valeric, succinic, isovaleric acid & acetic acid.
* The solubilization process results in increased phosphorous and potassium availability to the plant.
* Organic phosphates such as phytic acid and mono-esters are mineralized by enzymes released by the soil bacteria and fungi.
* Release of organic anions, siderphores & phosphatase enzymes hydrolyze organic P & K or split the P & K from their organic residues.
* Phosphate & Potassium Mineralizing Enzymes include but are not limited to phytase, acid phosphatase, alkaline phosphatase
& D-glycerophosphatase.
* The solubilization and mineralization processes ultimately results in increased P, K, Ca, Mg, S, Fe, Mn & Zn availability to the plant.
*** Increased phosphorous availability promotes root initiation, root formation, root growth, enhanced root architecture**
**ultimately resulting in plant establishment and enhanced nutrient assimilation**
*** Increased potassium availability enhances root morphology, promotes increased root diameter and activates multiple enzyme systems which support root functionality**

## Plant Growth Hormone Producing Rhizo-Bacteria

* Stimulating root growth was once entirely attributed to supplemental applications of Phosphate based fertilizers
* The emphasis for stimulating root growth has shifted to the use of Plant Growth Hormones
* Plant Growth Hormones are secondary metabolites produced by beneficial soil bacteria
* Collectively these organisms are referred to as Plant Growth Promoting Rhizo-Bacteria or PGPRB
* Plant Growth Promoting Rhizo-Bacteria produce plant growth hormones such as auxins, cytokinins, gibberellins, ethylene
* The predominate plant growth hormone that influences root growth is the auxin class
* The predominate auxin responsible for root growth is indole – 3 – acetic acid (IAA)

* IAA promotes root initiation, root formation, root elongation, increases root diameter, root branching and enhances root architecture
* Another class of hormones closely associated with root growth are cytokinins
* Cytokinins promote cell division (cytokinesis), cell differentiation and root morphogenesis
* The predominant cytokinins are kinetin, zeatin & 6 - benzylaminopurine
* BOTH auxins & cytokinins must be present in a precise ratio in order to stimulate root morphogenesis
* The ratio of auxins (dominant hormone) to cytokinins (subservient hormone) is critical to root morphogenesis
*** Formula contains multiple species-strains of bacteria that produce indole – 3 – acetic acid via tryptophan pathway & independent of tryptophan pathway and cytokinin dominant kelp**

## Supplemental Kelp Extract

* Contains highly concentrated cold water kelp extract derived from Ascophyllum nodosum
* Kelp is concentrated via centrifugation prior to drying in ambient temperatures to avoid degradation of hormonal component
* The kelp utilized contains plant growth hormones (cytokinins, auxins) but is cytokinin dominant
* The auxins promotes root initiation, root formation, root growth, enhanced root architecture resulting in plant establishment
* The cytokinins stimulate flowering, stimulate cell division, provides increased resistance to drought, & enhances chlorophyll synthesis
* As previously mentioned auxins (dominant) and cytokinins (subservient) must be present in the proper ratio for root morphogenesis to occur
* In addition to hormones kelp contains alginates, micronutrients, vitamins and minerals which feed plant and microbial component (synergy)
*** Kelp portion of formula stimulates root initiation, root growth, root development which results in rapid root strike**
**and enhanced nutrient assimilation**

## Supplemental L Amino Acids

* Enhances plant metabolism & increases metabolic efficiencies
* Metabolic balance / homeostasis is essential for root morphogenesis
* Critical metabolic processes include protein synthesis, stress reduction, photosynthesis, stomatal regulation, phytohormone production
* Increases foliar nutrition efficiencies & facilitates translocation of nutrients within leaf tissue
* Will increase assimilation of P, B, Ca, Kelp, Dextrose in formula by increasing cell membrane permeability (synergy)
* Will then facilitate translocation of P, B, Ca, Kelp, Dextrose within leaf tissue (synergy)
* Act as a chelating mechanism by neutralizing charge of minerals / nutrients
* L-Amino Acids Glutamic Acid, Arginine, Lysine, Proline & Methionine are essential for pollination & flowering mechanism
* Provides beneficial soil organisms with organic nitrogen source for protein synthesis (synergy)
* Supplies rhizobacteria with the amino acid Tryptophan which promotes synthesis of the auxin indole -3-acetic acid (synergy)
**** L-Amino Acid portion of formula promotes metabolic homeostasis, enhances IAA synthesis, improves nutrient efficiencies & enhances flowering mechanism***

## Supplemental Brewers Yeast Extract

* Brewers yeast extract is rich in L – amino acids, minerals, vitamins and plant growth factors
* Brewers yeast extract has a profound positive effect on root growth and development
* Many studies indicate that brewer's yeast extract is comparable to IAA in its ability to enhance rooting (in particular # of roots)
* Brewers yeast extract also supports the growth of mycorrhizal fungi and rhizosphere bacteria (synergy)
**** Brewers yeast portion of formula promotes root growth and enhances microbial growth***

## Supplemental Calcium

* Calcium is synergistic with auxins as it is responsible for translocation of the hormone within the plant (synergy)
* Auxins produced by microorganisms or contained in kelp must be transported to the roots in order to stimulate initiation and growth
* Auxin transport system in plants depends upon the structural features of cellular membranes analogous to transport of inorganic ions
* Supplemental calcium ensures adequate calcium ions are present to produce enough biphasic calcium ($Ca^{2+}$) to facilitate
auxin transport across cellular membranes (synergy)
* The importance of Calcium is often overlooked in relation to the flowering process as well
* Calcium is required for pollen tube development, initiation of photoperiodic flowering mechanism and it participates as the biochemical messenger in the fertilization process, particularly pollen - pistol interactions
*** Supplemental calcium supports auxin (IAA) transportation into roots and enhances flowering processes**

## Supplemental Humic Acid

*Supplemental applications of humic acids enhances root development and improves overall soil conditions
* Formula contains a broad range of humic acids & fulvic acids derived from bioactive leonardite
* Humic acid stimulates root initiation by mitigating oxidation of critical plant hormones such as auxins (IAA) & cytokinins (synergy)
*Improves nutrient availability, chelates micronutrient (synergy with L Amino Acids) and enhances cation exchange capacity
* Synergistic with microbial component provides recalcitrant carbon source for beneficial soil organisms (synergy)
*** Supplemental humic acid enhance root growth and supports preservation of auxins (IAA) and cytokinins**

### NUTRIENTS DERIVED FROM

Protein Hydrolysate, Bone Meal, Kelp (Ascophyllum nodosum), Sodium Tetraborate Decahydrate

### ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

**Active Ingredients**

Bacillus subtilis 300,000,000 CFU per gram, Bacillus licheniformis 300,000,000 CFU per gram,
Bacillus megaterium 300,000,000 CFU per gram, Bacillus amyloliquefaciens 300,000,000 CFU per gram,
Pseudomonas putida 300,000,000 CFU per gram, Pseudomonas fluorescens 300,000,000 CFU per gram,
Azospirillum amazonense 300,000,000 CFU per gram, Azospirillum lipoferum 300,000,000 CFU per gram,
Trichoderma harzianum 50,000,000 CFU per gram, 50,000,000 CFU per gram

**Inert Ingredients**

34.00 % Hydrated Sodium Calcium Aluminosilicate
19.95 % Non-Calcined Diatomaceous Earth (carrier for microorganisms)
5.00 % Humic Acid (leonardite), 4.00 % Brewers Yeast Extract

### GENERAL INFORMATION

* May be tank mixed with fertilizers, biostimulants and microbial foods (sugars, humic acids, kelp)
* It is advisable not to co-apply product with pesticides (fungicides, herbicides, insecticides, nematicides, fumigants) as they can compromise integrity of the beneficial organisms herein contained. If absolutely required tank mix the product with pesticide and apply within 1 hour.
* Never tank mix with pesticides that contain imazilil, propiconazole, tebuconazole and triflumizole.
* When applied in rotation with pesticides it's advisable to allow 5 - 7 days between application of pesticide and this product.
* Never apply product mixture just prior to a pesticide application
* Do not mix product and store, apply all tank mixes within 8 hours of preparation.
* Agitate tank while adding product and during entire application process
* Always perform jar test when mixing product with other inputs to test for physical compatibility
* To facilitate mixing process you may create slurry (1 lb. in 2 gal of water) and add slurry to tank while agitating
* Optimal results achieved if product is applied early morning, evening or on an overcast day.

## SOIL APPLICATION

* Blend with soil prior to planting to promote root growth and development
* Incorporate at the rate of 1 tablespoon per 2 cubic feet of soil

## SOIL-LESS MEDIA APPLICATION

* Adjust pH of soil-less media to range of 5.8 – 6 for optimum results
* Prepare 1 : 100 solution (1g/100ml) and then pour the solution through media (rockwool, coco, perlite)
* Dip un-moistened cuttings in the rooting powder and plant in media

## SEED STARTER – SLURRY METHOD

* Utilize as seed starter to promote germination
  * Suggested general rate is 1 lb. per 100 lbs. of seed
  * Lay out seeds on waterproof tray
  * Dampen seeds with water (preferably non-chlorinated)
  * Shake Seed Treatment on to dampened seeds
  * Homogeneously mix water, Seed Treatment and seed until seed are covered by slurry
  * Allow slurry to dry thoroughly on seed coat (testa)
  * For optimum results plant seeds immediately after slurry dries

| AMOUNT OF SEED | AMOUNT OF WATER | AMOUNT OF SEED TREATMENT |
|---|---|---|
| 1 lb | ½ oz | 0.16 oz |
| 5 lb | 1 oz | 0.8 oz |
| 10 lb | 2 oz | 3.2 oz |
| 50 lbs | 10 oz | 8.0 oz |

## SEED STARTER - DUSTING

* Dust seed with product mixture at the rate of 0.15 - 0.25 oz per lb of seed
  * Use higher rate on seeds that are difficult to germinate or seeds that produce seedlings prone to environmental stress
  * For optimum results plant seeds immediately after dusti

# Soybean Powder

Organic Soil Amendment
**100% Non GMO Soybean Isolates**

Guaranteed analysis:
Protein.....>90%

L-Amino Acids, Vitamins and Folic Acid
Net Contents: 20kg (44.092 pounds)

**Issue Date: 12-17-2013**

**Product Identification:**
Trade Name: Soil Therapy SOYAPLEX Soil Amendment
Formula: 100% NON-GMO SOYBEAN ISOLATES
CAS# 68513 95 1

**Toxicity Hazards:** None Known

**Health Hazard Data:**
Non-hazardous, generally recognized as safe. FOOD GRADE.
EPA exempt from requirement of having a tolerance.
Acute Effect
Mildly irritating to skin
Mildly irritating if inhaled

**HMIS HAZARD Rating:**
Health Hazard (0-4) 0
Fire Hazard (0-4) 0
Reactivity (0-4) 0

**Hazardous Ingredients/Hazard Data**
This material is not hazardous as defined by OSHA 1910, 1200

**Health Hazard Data and First Aid:**
By eye contact: Direct contact with eyes can cause temporary irritation. **DO NOT RUB EYES. IRRIGATE WITH WATER FOR 15 MINUTES.**

By skin contact: Rinse with soap and water. Prolonged or repeated contact of product with skin may cause minor irritation to some individuals.
If swallowed: Ingestion in small quantities is not harmful. Ingestion of large quantities can cause diarrhea. **Drink plenty of water.** This is a food grade product.

Special precautions: Mask should be worn when filling hoppers, sprayer tanks, or emptying bags.

**Spill or Leak Procedures:**
Sweep or vacuum. May be used if not contaminated.
Waste disposal: On site or in an approved waste disposal facility
**This material is biodegradable and not considered hazardous**.
Observe all Federal, State and Local laws.

**Physical Data:**
Appearance and Odor: yellow to brown-smells like grain
Extinguishing media: water or chemical foam
Special fire fighting procedures: spread material and apply water or foam
Unusual fire & explosion hazard: none
Incompatibilities: **keep dust away from open flames**
Hazardous combustion or decomposition products: None known

**Storage and Transport:**
Storage stability: Stable at normal temperature and light conditions.
Special storage precautions: Very stable under normal storage conditions when kept in closed, original
container in a cool dry place.

**Avoid moisture**.
Special transport/handling precautions: Respiratory protection is required for dust when loading hoppers or emptying bags.Protective gloves are recommended but not required. Goggles are recommended for eye protection. Use common sense in work practices.

**This product is for agricultural and horticultural use only and is not intended for other applications. Read and follow all instructions provided on product and container labels. Non-Food. Not labeled for human or animal consumption.**

**DISCLAIMER:**
THIS INFORMATION IS FURNISHED WITHOUT WARRANTY, EXPRESSED OR IMPLIED, EXCEPT THAT IT IS TO THE BEST KNOWLEDGE OF COMPOST TECHNOLOGIES, LLC THE DATA ON THIS SHEET RELATES ONLY TO THE SPECIFIC MATERIALS DESIGNATED HEREIN. COMPOST TECHNOLOGIES, LLC ASSUMES NO LEGAL RESPONSIBILITY FOR THE USE AND RELIANCE UPON THIS DATA.

# Soybean Powder

Organic Soil Amendment
**100% Non GMO Soybean Isolates**

Guaranteed analysis:
Protein.....>90%

L-Amino Acids, Vitamins and Folic Acid
Net Contents: 20kg (44.092 pounds)

**Sprayable Powder Organic Soil Amendment**

100% Non GMO Soybean Isolates
Guaranteed analysis: Protein.....>90%
Other natural ingredients of Soil Therapy SoyaPlex
L-Amino Acids, Vitamins and Folic Acid Net Contents: 20kg (44.092 pounds)

**Contents**

Soy protein isolates, naturally occurring carbohydrates, amino acids, Folic Acid and Vitamins.

**Application Rates**

General AgriculturalApplications
Hard Stone Fruit and Citrus-5-15 PPA Almonds/Walnuts 10-40 PPA Vegetables-15-60 PPA Grapes-5-15 PPA Cotton-5-10 PPA Tubers-5-30 PPA Alfalfa-5-15 PPA

**Custom Applications**

Crop specific programs may be required contact your Ag Chem supplier or Insure Organics.
Split or multiple applications every 2 weeks or as needed, produce consistent results
Soil Therapy Soyaplex can be applied directly to a growing plant.
Apply with sufficient water to insure proper mixing and even spray patterns. 2lbs. per gallon of water suspension is easy to achieve.
Post application irrigation: Continue with regular irrigation schedule.
Can be applied by water run, ground sprayer, aerial sprayed, applied through tape, pivot, and overhead irrigation or shanked-in.
Tank Mixing Instructions: Gradually add powder to the mixing tank that is at least 1⁄2 full and continue filling while vigorously agitating. Make sure the mixture is thoroughly agitated. Use diluted product within 36 hours. Always jar test before mixing products

**Warranty**

Compost Technologies, LLC makes no warranty, either expressed or implied, concerning the use of this product other than indicated on the label.
Compost Technologies, LLC recommendations for the use of this product are based on tests believed to be reliable. The use and application of the product is beyond the control of the manufacturer; therefore, no guarantees or warranties are expressed or implied relating to the effectiveness or performance of the product.

**Precautionary Statements**

Non-hazardous to Humans, Fish or Animals. No Protective clothing is required. However, it is recommended that gloves, face mask, and eye protection be worn when handling and mixing. May cause skin and eye irritation in some individuals.
If product comes in contact with skin, wash thoroughly with soap and water.
If product comes in contact with eyes, flush for 15 minutes with pure water. If irritation persists, seek medical attention.
NO KNOWN ENVIRONMENTAL HAZARDS. USDA GRAS LISTED

**Storage and Disposal**

Avoid storage that may result in the bags becoming wet. Store at temperatures above 40°F and below 80°F.
KEEP OUT OF REACH OF CHILDREN AND ANIMALS.

Store in cool dry areas. Shelf life of this product is one (1) year or longer if maintained at temperatures below 70°F. and above 40°F.

In case of spill, vacuum or sweep up material. If not contaminated may be used.

Dispose at any sanitary landfill or other waste disposal site. (Follow all State and Federaldisposallaws.)