

Dry Technology



# BioNUTRIENTS™ SOLUBLE AG 8-1-9

## WSDA APPROVED FOR ORGANIC AGRICULTURE

- **Approved for Use in Organic Production**
- **Populates the Soil with 5 Growth Promoting Rhizosphere Bacteria (PGPR)**

- **Solubilizes Minerals & Cycles Nutrients**
- **Occupies Root Surface Area Protecting Roots**
- **Improves Poor Soil Conditions**

**GUARANTEED ANALYSIS:**

|   |       |
|---|-------|
| Total Nitrogen (N).....                                   | 8%    |
| 2.5% Slowly Available Nitrogen*                           |       |
| Available Phosphate (P <sub>2</sub> O <sub>5</sub> )..... | 1%    |
| Soluble Potash (K <sub>2</sub> O) .....                   | 9%    |
| Iron (Fe) .....   | 3%    |
| Zinc (Zn) .....   | 0.06% |

**Derived From:** Iron Sulfate, Condensed Fermented Plant Extracts, Fish Hydrolysate, Potassium Humate

\*2.5% Slowly Available Nitrogen from Plant Protein Hydrolysate

**ALSO CONTAINS NON-PLANT FOOD INGREDIENTS:**

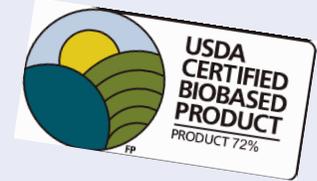
|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Bacillus subtilis .....             | 7.0 x 10 <sup>8</sup> CFU* per gram |
| Bacillus licheniformis.....         | 1.5 x 10 <sup>8</sup> CFU* per gram |
| Bacillus amyloliquefaciens.....     | 1.3 x 10 <sup>8</sup> CFU* per gram |
| Bacillus pumilus .....              | 5.0 x 10 <sup>8</sup> CFU* per gram |
| Yeast (Saccharomyces cerevisiae) .. | 4.4 x 10 <sup>5</sup> CFU* per gram |

\*CFU = Colony Forming Units

|                       |  |
|-----------------------|--|
| 20% .....             | Humic Acid (derived from Leonardite)     |
| 10% .....             | Kelp Extract (Ascophyllum nodosum)       |
| 1.5% .....            | Natural Wetting Agent (Yucca schidigera) |
| 35.7% .....           | Total L-Amino Acids                      |
| 3.34% Glycine         | 0.96% L-Threonine                        |
| 5.85% L-Glutamic Acid | 1.74% L-Valine                           |
| 2.44% L-Aspartic Acid | 1.90% L-Phenylalanine                    |
| 1.63% L-Alanine       | 1.44% L-Isoleucine                       |
| 3.65% L-Proline       | 0.85% L-Histidine                        |
| 3.31% L-Leucine       | 0.46% L-Methionine                       |
| 1.40% L-Lysine        | 1.19% L-Tyrosine                         |
| 1.48% L-Serine        | 0.70% L-Cystine                          |
| 3.19% L-Arginine      | 0.21% L-Tryptophan                       |

**PRODUCT DESCRIPTION:**

BioNutrients is a unique, dry, 100% organic microbial inoculant and soil conditioner registered with WSDA for use in organic crop production. It's a highly concentrated, soluble blend of Plant Growth-Promoting (PGPR) rhizosphere bacteria; B. subtilis GB03, B. subtilis, B. amyloliquefaciens, B. licheniformis and Bacillus pumilus. Together they produce an effective variety of enzymes that solubilize minerals and contribute to nutrient cycling. They exert a strong effect on plant health. BioNutrients also contains a natural wetting agent, kelp, and natural L-amino acids along with fortified natural carriers, that add rich organic material to soils and are a food source for the bacteria.



Once in the rhizosphere, the combination of beneficial bacteria and the rich food source promote colonization of the bacterial on the root hair surface. By increasing the diversity of the soil's microbial populations, the natural soil bacteria colonize the root hair surface and revitalize the soil with living, active communities of soil microbes.

The BioNutrients formulation is also designed to improve soil quality by adding rich organic nutrients that are often depleted in old and over worked soils. A powerful natural wetting agent ensures deep penetration into even the most difficult and compacted soils. The humic acid and plant extracts are rich in carbon which becomes a food and energy source for the soil bacteria colonies and improves the cation capacity of soils.

**CROP TREATMENT RECOMMENDATIONS:**

BioNutrients can be used on all food crops from the time of seeding or plug transplant, in a greenhouse or field, and during the entire crop cycle.

Can be used on all vegetable, herb and field crops as a side dressing, with a starter fertilizer and / or as a ground spray, during the crop's growth cycle.

BioNutrients can also be used on all permanent crops such as vines, berries and fruit trees as a ground spray.

Please refer to charts.

**Mixing Instructions:** BioNutrients can be tank mixed and sprayed with fertilizers and pesticides. Sprayers applying BioNutrients should be fitted with a strainer size of **50-mesh** or larger. Add approximately half of the water to tank mix, leaving enough room to add other products. Add BioNutrients and agitate tank mix. Agitate after the herbicide has been added. Add other products in the following order: 1. urea and other N-P-K fertilizers, 2. pesticides and fungicides, 3. add herbicides last. Agitate between each addition. Use tank mix according to technical material instructions. Be sure to agitate before spraying.

**Storage & Handling:** BioNutrients can be stored in normal dry warehouse areas. Freezing will not affect BioNutrients. When using larger E-Z pails, be sure to close container lid tightly after use. It contains 100% natural ingredients and is safe to handle.

### Transplanting Plugs or Side Dressing

| Application         | Rate  | Frequency / Notes  |
|---------------------|---|--|
| Transplanting Plugs | Mix 1/3 - 1/2 ounce per gallon water<br>(2 - 3 g per Liter water) | Drench plant at time of transplant   |
| Side Dressing       | 1/2 lb per acre<br>(1/2 Kg per Ha)                                | Apply after transplanting 2" out and 2" down and at 2 <sup>nd</sup> true leaf stage along with nitrogen. |

### For Bulk Soil Blending

| Bulk Soil                               | BioNutrients                      |
|---|-----------------------------------|
| 1 cubic yard<br>(1 m <sup>3</sup> )     | 1/2 - 1 lb.<br>(300 - 600 grams)  |
| 50 cubic yards<br>(38 m <sup>3</sup> )  | 25 - 50 lbs.<br>(11.4 - 22.8 kg)  |
| 80 cubic yards<br>(61 m <sup>3</sup> )  | 40 - 80 lbs.<br>(18.3 - 36.6 kg)  |
| 100 cubic yards<br>(76 m <sup>3</sup> ) | 50 - 100 lbs.<br>(22.8 - 45.6 kg) |

### Vegetable, Herb - Field & Permanent Crops

| Application  | Rate   | Frequency / Notes  |
|--|--|--|
| <b>Vegetable, Herb &amp; Field Crops Including (but not limited to):</b> Berries, Brassica, Bulb Vegetables, Cole Crops, Cucurbits, Fruiting Vegetables, Grains, Herbs and Spices, Leafy Vegetables, Legumes, Rice, Root, Tuber and Corm Vegetables, | <b>Rate Per Acre:</b><br>Mix 1 - 4 packs (1/2 - 2 lb.) per 40 - 100 gallons of water and apply per acre.<br>For smaller applications mix 1/3 - 1/2 oz (1 tbsp.) per gallon of water. | Apply after transplanting, thinning or at 2 <sup>nd</sup> true leaf stage. Apply 1 - 2 subsequent applications at 10 - 15 day intervals. Use as needed to supplement nutritional requirements. |
| <b>Permanent Crops Including (but not limited to):</b> Vines & Caneberries, Citrus, Grapes, Nut Crops, Pome Fruit  | <b>Metric:</b><br><b>Rate per Hectare:</b><br>Mix 2 - 9 packs in 100 - 200 Liters water.<br>For smaller applications mix 2 - 4 grams per Liter of water.                             | Apply first application prebloom. Apply subsequent applications at mid-crop, and 3 - 4 weeks prior to harvest or as needed to supplement nutritional requirements.                             |
| <b>Tropical and Sub Tropical Fruit (but not limited to):</b> Banana, pineapple, mango, papaya, coffee  |  | Can be used as a dip or drench at the time of planting. Apply as a side drench 3 to 4 times per year.  |

The following precautionary, hazard statements and pictograms are based on The Globally harmonized System of Classifications and Labeling of Chemicals (GHS) and are mandated by the Occupational Safety and Health Administration (OSHA)



#### WARNING

H303 May be Harmful if Swallowed  
H316 Causes Mild Skin Irritation  
H320 Causes Eye Irritation  
H335 May Cause Respiratory Irritation.

#### FIRST AID

|                      |   |
|----------------------|---|
| <b>IF SWALLOWED:</b> | Call a poison center or doctor if you feel unwell: Rinse mouth.   |
| <b>IF IN EYES:</b>   | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. |
| <b>IF ON SKIN:</b>   | Remove contaminated clothing and wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention.                            |
| <b>IF INHALED:</b>   | Call a poison center or doctor if you feel unwell.  |

You may also contact 1-800-992-5994 day or night for emergency treatment information. If medical advice is needed, have product container or label at hand (P101), Keep out of reach of children (P102), Read label before use (P103).

**STORAGE:** Keep container tightly closed. May be stored in unheated area, but keep from freezing. Store in areas inaccessible to children and pets.

**DISPOSAL:** Dispose of contents/container in accordance with local/regional/national/international regulations. Do not reuse container.

**Condition of Sale and Warranty:** Growth Products, Ltd. warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label only when used in accordance with label directions under normal conditions of use. Handling, storage and use of the product by Buyer or User are beyond the control of Growth Products, Ltd. and Seller. Risks such as crop injury or other unintended consequences resulting from, but not limited to, weather or soil conditions, presence of other materials, disease, pests, drift to other crops or property, or failure to follow label directions will be assumed by Buyer or User. **IN NO CASE WILL GROWTH PRODUCTS, LTD. OR SELLER BE HELD LIABLE FOR CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES RESULTING FROM THE HANDLING, STORAGE OR USE OF THIS PRODUCT.**

Manufactured By:

