



Department of Agriculture  
STATE OF HAWAII

**LICENSED**

PERIOD 2012-2014 LIC. NO.



Department of Agriculture  
STATE OF HAWAII

**LICENSED**

PERIOD 2015-2017 LIC. NO.

**8351.4**



• For Prevention,  
Control and Suppression  
of Soil and Foliar  
Diseases

• Activates ISR (Induced  
Systemic Resistance) in  
Plants

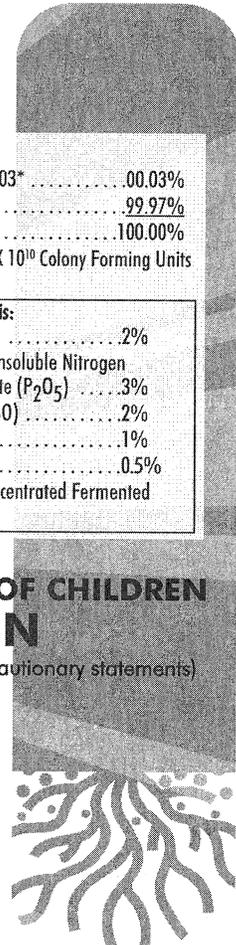
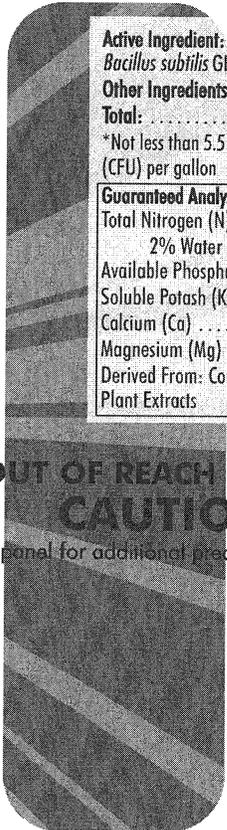
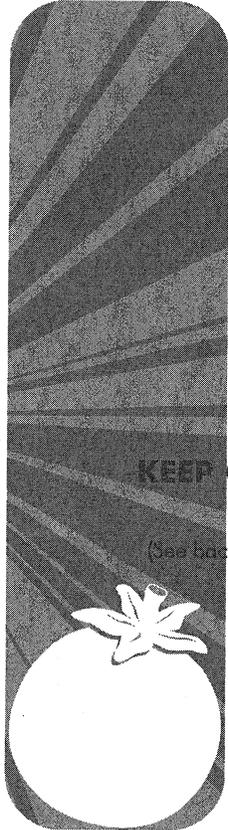


Another quality product from:  
**Growth Products, Ltd.**  
80 Lafayette Av., White Plains, NY 10603 USA  
Questions? Call (800) 648-7626  
[www.growthproducts.com](http://www.growthproducts.com)  
[questions@growthproducts.com](mailto:questions@growthproducts.com)

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.oapfca.org/metals.htm>

# 2-3-2 COMPANION<sup>®</sup>

LIQUID BIOLOGICAL FUNGICIDE  
FOR AGRICULTURAL USE



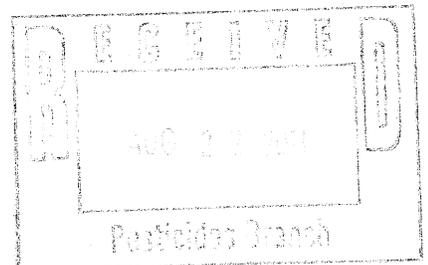
**Active Ingredient:**  
*Bacillus subtilis* GB03\* .....00.03%  
**Other Ingredients:** .....99.97%  
**Total:** .....100.00%  
\* Not less than 5.5 X 10<sup>10</sup> Colony Forming Units  
(CFU) per gallon

**Guaranteed Analysis:**  
Total Nitrogen (N) .....2%  
2% Water Insoluble Nitrogen  
Available Phosphate (P<sub>2</sub>O<sub>5</sub>) .....3%  
Soluble Potash (K<sub>2</sub>O) .....2%  
Calcium (Ca) .....1%  
Magnesium (Mg) .....0.5%  
Derived From: Concentrated Fermented  
Plant Extracts

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

(See back panel for additional precautionary statements)

EPA Registration No. 71065-3  
EPA Establishment No. 71065-NY-001  
Net Contents:  1 Gallon (9.8 lbs.)  2.5 Gallon (24.5 lbs.)  5 Gallon (49 Lbs.)



**Agricultural Use**

**2-3-2**

**COMPANION® LIQUID BIOLOGICAL FUNGICIDE**

**GENERAL INFORMATION AGRICULTURAL CROPS**

- Use on Food and Forage Crops
- For Prevention, Control and Suppression of Root and Foliar Diseases
- Activates the Plant's Defense / Immune System (Induced Systemic Resistance [ISR])
- A Rhizosphere Bacterium
- Quickly Establishes Beneficial Colonies on Roots and Leaves
- Improves Nutrient Uptake
- Stimulates Healthier Roots and Accelerates Plant Growth

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

**Product Description:**

Companion® Liquid Biological Fungicide is a broad-spectrum biological fungicide for the prevention, control and suppression of soil borne and foliar diseases on all agricultural crops. Companion® Liquid Biological Fungicide contains the active ingredient *Bacillus subtilis* GB03 which is a rhizosphere bacterium that quickly establishes beneficial colonies on the plant's roots and leaves. It stimulates healthier roots, accelerates plant growth and activates the defense system of the plant. Companion® Liquid Biological Fungicide is non-selective. Companion® Liquid Biological Fungicide is most effective when applied prior to the onset of disease. Use Companion® Liquid Biological Fungicide in combination and/or rotation with chemical fungicides to enhance disease control. For use on all outdoor field grown food crops including vegetables, herbs, small fruits, berries

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), notification to workers, and Restricted-Entry Interval. The requirements in this box only apply to the uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI). There is a REI of four (4) hours for this product. PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water), is:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

**EXCEPTION:** If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

and fruit and nut trees. Use in greenhouse plug production and hydroponics operations.

**Modes of Action:**

Companion® Liquid Biological Fungicide has multiple modes of action in preventing, controlling and suppressing plant diseases. It produces a broad-spectrum antibiotic (Iturin) that disrupts pathogen cell-wall formation. It is a competitive and fast colonizing rhizosphere bacterium, which occupies the plant's root hairs and leaves preventing the growth and antagonistic effects of soil borne and foliar pathogens. GB03 is known to stimulate phytohormones, which trigger the plant's systemic resistance to disease (Induced Systemic Resistance), the defense mechanisms of the plant for prolonged periods of time. It is non-selective to plant materials.

**PGPR (Plant Growth-Promoting Rhizobacteria):**

*Bacillus subtilis* GB03 is classified as a Plant Growth-Promoting Rhizobacteria (PGPR). PGPR are free-living bacteria

that have beneficial effects on plants as they increase plant productivity, enhance crop fertility, growth and root development.

DISEASE LIST	
<p><i>Alternaria</i> spp. - Black Root Rot, Early Blight</p> <p><i>Aspergillus</i> spp.</p> <p><i>Botrytis cinerea</i> - Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight</p> <p><i>Colletotrichum orbiculare</i> - Anthracnose</p> <p><i>Colletotrichum</i> spp. - Anthracnose</p> <p><i>Didymella bryoniae</i> - Gummy Stem Blight</p> <p><i>Erwinia</i> - Soft Rot</p> <p><i>Erwinia carotovora</i> - Cucurbit Wilt, Angular Leaf Spot</p> <p><i>Erwinia tracheiphila</i> - Cucurbit Wilt, Angular Leaf Spot</p> <p><i>Galearomyces cichoracearum</i>, formerly called <i>Erysiphe cichoracearum</i> - Powdery Mildew</p> <p><i>Fusarium oxysporum</i> - Wilt</p> <p><i>Fusarium solani</i></p> <p><i>Phytophthora aerial blight</i> - Blight, Leafspot and Rot</p> <p><i>Phytophthora</i> spp. - Late Blight, Blackeye/Buckeye Rot in Tomatoes</p> <p><i>Plasmadiophora brassicae</i> - Corky Root, Clubroot</p> <p><i>Podosphaera xanthii</i>, formerly called <i>Sphaerotheca fuliginea</i>. - Powdery Mildew</p> <p><i>Pseudomonas syringae</i> - Angular Leaf Spot</p>	<p><i>Pythium aphanidermatum</i> - Root Rot</p> <p><i>Pythium irregulare</i> - Root Rot</p> <p><i>Pythium</i> spp. - Root Rot</p> <p><i>Rhizoctonia solani</i> - Root Rot, Bottom / Stem Rot</p> <p><i>Sclerospora graminicola</i> - Downy Mildew</p> <p><i>Sclerotinia minor</i> - Blight</p> <p><i>Sclerotinia minor</i> - Lettuce Drop</p> <p><i>Ucinula necator</i> - Powdery Mildew</p> <p><i>Xanthomonas campestris</i> - Bacterial Leafspot</p> <p><i>Xanthomonas axonopodis</i> - Citrus Canker</p> <p><b>TURF DISEASES:</b> Anthracnose (<i>Colletotrichum graminicola</i>) Brown Patch (<i>Rhizoctonia</i> spp.) Dollar Spot (<i>Sclerotinia</i>) Summer Patch (<i>Magnaporthe poae</i>) Fusarium Patch (<i>Fusarium nivale</i>) Pythium (<i>Pythium</i> spp.)</p>

**INTEGRATED PEST (DISEASE) MANAGEMENT (IPM)**

Companion® Liquid Biological Fungicide is an important tool in sound disease management whenever fungicide use is necessary. Apply Companion® Liquid Biological Fungicide alone or in combination and / or rotation with chemical fungicides. This will result in reduced susceptibility to disease and overall reduction in the use of chemical fungicides. Consult local agricultural authorities for specific IPM strategies developed for your crop(s) and location.

**RESISTANCE MANAGEMENT**

Companion® Liquid Biological Fungicide is an important tool to prevent the development of resistant pathogens that often occurs with chemical fungicide products. Companion® Liquid Biological Fungicide's multiple and unique modes of action inhibits the pathogen's ability to develop resistance. Use Companion® Liquid Biological Fungicide in combination with lower rates of chemical fungicide for improved efficacy and /or in rotation with chemical fungicides to reduce chemical applications.

#### **PREHARVEST INTERVAL – AGRICULTURAL USE**

Companion® Liquid Biological Fungicide can be applied up to and including the day of harvest.

#### **AERIAL DRIFT REDUCTION ADVISORY INFORMATION**

It is the responsibility of the applicator and grower to avoid spray drift. Do not spray when wind speed favors drift beyond the intended application area. The effects of equipment and weather factors will determine the potential drift. When states have more stringent regulations, they must be observed. Contact your State extension agent for spray drift prevention guidelines in your area.

#### **APPLICATION INSTRUCTIONS / MIXING – AGRICULTURAL USE**

Apply Companion® Liquid Biological Fungicide with all types of sprayer or sprinkler and drip irrigation systems used for making ground applications. Apply Companion® Liquid Biological Fungicide through irrigation systems, drip (trickle), fertigation, overhead spray and mist systems, continuous feed, closed Ebb and Flood and hydroponics systems.

#### **Tank Mixing:**

Special care should be taken when tank mixing.

- 1) SHAKE WELL before use and before mixing with water.
- 2) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 3) Companion® Liquid Biological Fungicide must be diluted with water prior to use. Determine the treatment rates as indicated in the directions for use and make proper dilutions.
- 4) Prepare a solution in the chemical tank by filling the tank  $\frac{3}{4}$  level with the required water and then adding the specific amount of Companion® Liquid Biological Fungicide to the tank as required. Add the remaining water. Mix thoroughly. Maintain agitation while spraying.
- 5) Check pH of tank mix solution prior to adding Companion® Liquid Biological Fungicide. DO NOT mix into tank solution if pH is below 4 and above 9.
- 6) DO NOT let stand overnight.
- 7) Companion® Liquid Biological Fungicide can be applied in conjunction with most fertilizers and most pesti-

cides. Check for Compatibility with other products.

#### **Compatibility:**

Companion® Liquid Biological Fungicide is compatible with most high quality fertilizers, micronutrients, organic materials, wetting agents, surfactants, most fungicides, herbicides and insecticides. Do NOT mix with copper based fungicides, concentrated acids such as sulfuric acid, solvents, oxidizing agents or bactericides. Do not mix with products with a pH below 4 or above 9. Consult specific product labels for additional information or restrictions concerning tank mixing. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. Companion® Liquid Biological Fungicide has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations is not feasible. Therefore, prior to treating entire crop, test a small portion of the crop for sensitivity. Consult your Growth Products representative for more information on Companion® Liquid Biological Fungicide compatibility with pesticides, surfactants and fertilizers.

AGRICULTURAL APPLICATIONS		
CROP	DISEASE	PRODUCT USE RATE
Berries, such as: Blueberry, Blackberry, Raspberry, Strawberry	Black Root Rot, Early Blight <i>Alternaria</i> spp. Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight <i>Botrytis cinerea</i> Root Rot <i>Pythium</i> spp. Blight, Leafspot and Rot <i>Phytophthora aerial blight</i> Wilt <i>Fusarium oxysporum</i>	Field Spray: 32 - 128 fl. oz. per acre (2 1/3 - 9 L per Ha ) Greenhouse: 16 fl. oz. per 100 gal water (125 ml per 100 L water) Cuttings Dip Rate: 1 - 2 fl. oz. per gal water (8-16 ml per liter water) Banding: 32 - 64 fl. oz. per 100 gal water (250-500 ml per 100 L water) Drip Tape: 32 - 64 fl. oz. per acre (2 1/3 - 5 L per Ha )
Citrus, such as: Grapefruit, Lemons, Limes, Oranges, Pomelo, Tangelo, Tangerines	Brown Spot, Leaf Spot, Stem-end Rot, Black Rot <i>Alternaria</i> spp. Black Mold Rot <i>Aspergillus</i> spp. Anthracnose, Post Blossom Fruit Drop <i>Colletotrichum graminicola</i> Root Rot, Wilt <i>Fusarium</i> spp. Brown Rot, Foot Rot, Gummosis and Root Rot <i>Phytophthora</i> spp. Black Pit (fruit), Blast <i>Pseudomonas syringae</i> Damping-off, Root Rot <i>Pythium</i> spp. Areolate Leaf Spot <i>Rhizoctonia solani</i> Blight, Twig Blight, Fruit Rot, Root Rot <i>Sclerotinia</i> Bacterial Leafspot <i>Xanthomonas campestris</i> Citrus Canker <i>Xanthomonas axonopodis</i>	Field Spray: 32 - 128 fl. oz. per acre (2 1/3 - 9 L per Ha ) Greenhouse: 16 fl. oz. per 100 gal water (125 ml per 100 L water) Cuttings Dip Rate: 1 - 2 fl. oz. per gal water (8-16 ml per liter water) Banding: 32 - 64 fl. oz. per 100 gal water (250-500 ml per 100 L water) Drip Tape: 32 - 64 fl. oz. per acre (2 1/3 - 5 L per Ha )
Cole Crops, such as: Broccoli, Cauliflower, Cabbage, Brussels Sprouts, Collards	Black Root Rot, Early Blight <i>Alternaria</i> spp. Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight <i>Botrytis cinerea</i> Corky Root, Clubroot <i>Plasmiodiophora brassicae</i> Root Rot <i>Pythium</i> spp. Blight, Leafspot and Rot <i>Phytophthora aerial blight</i> Wilt <i>Fusarium oxysporum</i>	Field Spray: 32 - 128 fl. oz. per acre (2 1/3 - 9 L per Ha ) Greenhouse: 16 fl. oz. per 100 gal water (125 ml per 100 L water) Cuttings Dip Rate: 1 - 2 fl. oz. per gal water (8-16 ml per liter water) Banding: 32 - 64 fl. oz. per 100 gal water (250-500 ml per 100 L water) Drip Tape: 32 - 64 fl. oz. per acre (2 1/3 - 5 L per Ha )

<p>Cucurbits, such as: Cucumber, Cantaloupe, Squash, Pumpkin, Melons</p>	<p>Black Root Rot, Early Blight  <i>Alternaria spp.</i>                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Gummy Stem Blight  <i>Didymella bryoniae</i>                  Cucurbit Wilting, Soft Rot, Angular Leaf Spot  <i>Erwinia spp.</i>                  Powdery Mildew  <i>Golovinomyces cichoracearum</i> (formerly called <i>Erysiphe cichoracearum</i>)  <i>Podospaera xanthii</i> (formerly called <i>Sphaerotheca fuliginea</i>)                  Root Rot  <i>Pythium spp.</i>                  Blight, Leafspot and Rot  <i>Phytophthora aerial blight</i>                  Wilt  <i>Fusarium oxysporum</i></p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  Banding:                  32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water)                  Drip Tape:                  32 – 64 fl. oz. per acre (2<math>\frac{1}{3}</math> -5 L per Ha )</p>
<p>Herbs and Spices, such as: Coriander, Basil, Chives, Dill, Rosemary, Sage &amp; Mint</p>	<p>Black Root Rot, Early Blight  <i>Alternaria spp.</i>                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Root Rot  <i>Pythium spp.</i>                  Blight, Leafspot and Rot  <i>Phytophthora aerial blight</i>                  Wilt  <i>Fusarium oxysporum</i></p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  (For hydroponics rate, see Hydroponics Systems Table below)</p>
<p>Fruiting Vegetables, such as: Peppers, Tomato, Eggplant, Okra, Tomatillo</p>	<p>Black Root Rot, Early Blight  <i>Alternaria spp.</i>                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Root Rot  <i>Pythium spp.</i>                  Late Blight, Blackeye/Buckeye Rot in Tomatoes  <i>Phytophthora spp.</i>                  Wilt  <i>Fusarium oxysporum</i>                  Root Rot, Bottom / Stem Rot  <i>Rhizoctonia solani</i>                  Blight  <i>Sclerotinia minor</i>                  Bacterial Leafspot  <i>Xanthomonas campestris</i></p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  Banding:                  32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water)                  Drip Tape:                  32 – 64 fl. oz. per acre (2<math>\frac{1}{3}</math> -5 L per Ha )                  (For hydroponics rate, see Hydroponics Systems Table below)</p>

<p>Leafy Vegetables, such as: Lettuce, Celery, Spinach, Parsley, Radicchio</p>	<p>Black Root Rot, Early Blight  <i>Alternaria</i> spp.                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Root Rot  <i>Pythium</i> spp.                  Powdery Mildew  <i>Golovinomyces cichoracearum</i> (formerly called <i>Erysiphe cichoracearum</i>)  <i>Podosphaera xanthii</i> (formerly called <i>Sphaerotheca fuliginea</i>)                  Blight, Leafspot and Rot  <i>Phytophthora aerial blight</i>                  Root Rot, Bottom / Stem Rot  <i>Rhizoctonia solani</i>                  Lettuce Drop  <i>Sclerotinia minor</i>                  Wilt  <i>Fusarium oxysporum</i></p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  Banding:                  32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water)                  (For hydroponics rate, see Hydroponics Systems Table below)</p>
<p>Legumes such as:                  Beans, Green Beans, Snap Beans, Lentils, Peas</p>	<p>Black Root Rot, Early Blight  <i>Alternaria</i> spp.                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Root Rot  <i>Pythium</i> spp.                  Blight, Leafspot and Rot  <i>Phytophthora aerial blight</i>                  Root Rot, Bottom / Stem Rot  <i>Rhizoctonia solani</i>                  Wilt  <i>Fusarium oxysporum</i>                  Blight  <i>Sclerotinia minor</i>                  Bacterial Blight/ Leafspot  <i>Xanthomonas campestris</i></p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  Banding:                  32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water)                  Drip Tape:                  32 – 64 fl. oz. per acre (2<math>\frac{1}{3}</math> -5 L per Ha )</p>
<p>Bulb Vegetables, such as: Onions, Garlic, Shallots</p>	<p>Black Root Rot, Early Blight  <i>Alternaria</i> spp.                  Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight  <i>Botrytis cinerea</i>                  Root Rot  <i>Pythium</i> spp.                  Blight, Leafspot and Rot  <i>Phytophthora aerial blight</i>                  Blight  <i>Sclerotinia minor</i>                  Bacterial Blight/ Leafspot  <i>Xanthomonas campestris</i>                  Soft Rot, Angular Leaf Spot, Bacterial  <i>Erwinia</i> spp.</p>	<p>Field Spray:                  32 -128 fl. oz. per acre (2<math>\frac{1}{3}</math> -9 L per Ha )                  Greenhouse:                  16 fl. oz. per 100 gal water (125 ml per 100 L water)                  Cuttings Dip Rate:                  1- 2 fl. oz. per gal water (8-16 ml per liter water)                  Banding:                  32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water)                  Drip Tape:                  32 – 64 fl. oz. per acre (2<math>\frac{1}{3}</math> -5 L per Ha )</p>

<p>Root / Tuber and Corn Vegetables, such as: Carrot, Potato, Sweet Potato, Beets, Ginger, Radish, Ginseng, Turnip</p>	<p>Black Root Rot, Early Blight <i>Alternaria</i> spp. Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight <i>Botrytis cinerea</i> Root Rot <i>Pythium</i> spp. Soft Rot, Angular Leaf Spot <i>Erwinia</i> spp. Root Rot, Bottom / Stem Rot <i>Rhizoctonia solani</i> <i>Fusarium solani</i></p>	<p>Field Spray: 32 -128 fl. oz. per acre (2 1/3 -9 L per Ha ) Cuttings Dip Rate: 1- 2 fl. oz. per gal water (8-16 ml per liter water) Banding: 32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water) Drip Tape: 32 – 64 fl. oz. per acre (2 1/3 -5 L per Ha )</p>
<p>Tropical / Sub Tropical Fruits, such as: Bananas, Mangos, Papaya, Avocados, Coffee, Pineapples</p>	<p>Root Rot <i>Pythium</i> spp. Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight <i>Botrytis cinerea</i> Powdery Mildew <i>Golovinomyces cichoracearum</i> (formerly called <i>Erysiphe cichoracearum</i>) Wilt <i>Fusarium oxysporum</i></p>	<p>Field Spray: 32 -128 fl. oz. per acre (2 1/3 -9 L per Ha ) Greenhouse: 16 fl. oz. per 100 gal water (125 ml per 100 L water) Cuttings Dip Rate: 1- 2 fl. oz. per gal water (8-16 ml per liter water) Banding: 32 – 64 fl. oz. per 100 gal water (250-500 ml per 100 L water) Drip Tape: 32 – 64 fl. oz. per acre (2 1/3 -5 L per Ha )</p>
<p>Grasses Grown for Seed, Sod Production, Pasture and Forage Grasses</p>	<p>Anthraxnose (<i>Colletotrichum graminicola</i>) Brown Patch (<i>Rhizoctonia</i> spp.) Dollar Spot (<i>Sclerotinia</i>) Summer Patch (<i>Magnaporthe poae</i>) Fusarium Patch (<i>Fusarium nivale</i>) Pythium (<i>Pythium</i> spp.)</p>	<p>Spray Rate Field: 1 – 1 1/2 gal per acre ( 9 - 14 L per Ha)  Apply at time of seeding, plugging sprigs and newly cut ribbons. Apply through standard spray equipment with <u>no less than 50 gal. water per acre</u></p>

**How to Apply**

**Plug Production:**

Drench at time of seed germination to control seedling diseases. Or soak plug prior to when conditions first become favorable for disease development and onset of disease. Apply at 7 – 14 day intervals or as required.

**Cutting Propagation:**

Drench at time of callus formation. Reapply at 14 days. Repeat every 14 days until ready for field transplant.

**Greenhouse Drench:**

Drench to soak plug. Apply as a pre-plant drench immediately prior to field planting to control seedling diseases.

**Field Applications:**

Mix with transplant water. Drench at the time of planting plug, starter plant, and bare-root transplant in field in transplant water. Or soak bare-root transplant in the solution 1 to 5 minutes and plant immediately.

**In-Furrow:**

Apply as an in-furrow spray in sufficient water to obtain thorough coverage of the open furrow and covering soil. Apply at time of planting plug, starter plant or cutting. In-furrow applications are more effective against soil borne diseases that may develop later in the growing season.

**Banding:**

Spray directly onto soil using single or multiple nozzles. Ad-

just to provide thorough coverage of soil surface surrounding plants. Limit band to 7" or less. Apply prior to plastic. Begin applications when conditions first become favorable for disease development. Apply at 7 – 14 day intervals or as required.

**Drip Irrigation:**

Add to stock solution. Do not mix with concentrated acids or if pH of solution is below 4 or above 9. Use all of solution same day. Inject during last half of irrigation cycle so that Companion® Liquid Biological Fungicide remains in root

zone and not lost to deep percolation. Begin applications when conditions first become favorable for disease development. Apply at 7 – 14 day intervals or as required.

**Spray:**

Use through sprinkler, center pivot, lateral move, end tow, side-wheel roll, traveler, solid or hand move systems. Begin applications when conditions first become favorable for disease development. Apply at 7 – 14 day intervals or as required

**Other:**

HYDROPONICS SYSTEMS FOR ALL CROPS LISTED ABOVE		
Crop	Product Rates	Frequency & Notes
Seed Treatment	Mix 4 fl. oz. in 1 gallon of water	Soak seeds/plugs with a solution before placing them in growing trays. Do not use treated seed for food or feed purposes or process for oil. Treat only those seeds needed for immediate use, minimizing the interval between treatment and planting. Do not store excess treated seeds beyond planting time.
Herbs and Leafy Crops, Tomatoes and all Fruiting Vegetables	<b>Charging Rate:</b> 5 fl. oz. per 150 gallons water in nutrient tank	Apply at time of placement in trays. Run through system.
	<b>Recharging Rate:</b> 3 fl. oz. per 150 gallons of water.	Replenish every time water is added or every 5 – 7 days.

**CHEMIGATION**

**General Requirements -**

- 1) Apply this product only through a drip system or sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, hand move, flood (basin), furrow, border or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- 2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- 3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 4) Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public

water system unless the pesticide label-prescribed safety devices for public water systems are in place.

- 5) A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

**Specific Requirements for Chemigation Systems Connected to Public Water Systems -**

- 1) Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water sup-

ply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

4) The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Specific Requirements for Sprinkler Chemigation -

1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

4) The system must contain functional interlocking controls,

to automatically shut off the pesticide injection pump when the water pump motor stops.

5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Specific Requirements for Flood (Basin), Furrow and Border Chemigation -

1) Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

2) The systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

a. The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

f. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

**Specific Requirements for Drip (Trickle) Chemigation**

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

**Application Instructions for All Types of Chemigation-**

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as re-

quired. The product will immediately go into suspension without any required agitation.

**Notice - Read carefully conditions of sale and limited warranty statement.**

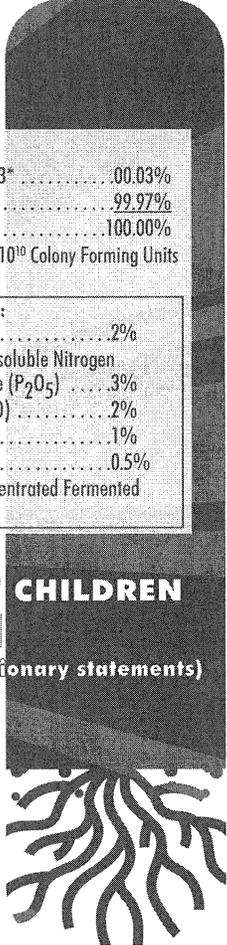
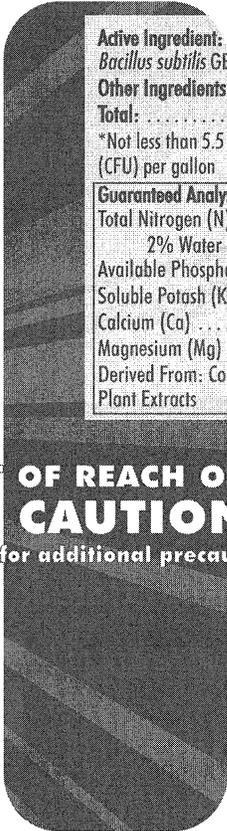
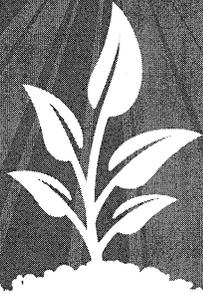
As its sole express warranty, Growth Products, Ltd., warrants that this product conforms to the microbial description on the label and is reasonably fit for purposes stated on the label only when used in accordance with directions and instructions specified on the label, subject to the inherent risks set forth above. To the extent consistent with applicable law, Growth Products, Ltd. neither makes nor authorizes any of its distributors to make any warranty of fitness or merchantability, guaranty or representation, express or implied, concerning this material. Buyer assumes the responsibility to handle, use and store this product in accordance with the safety instructions and use directions contained on the label. To the extent consistent with applicable law, the Buyer/User purchases this product to the foregoing Conditions of Sale and Warranty which may be varied only by a written agreement signed by a duly authorized representative of Growth Products, Ltd., and if these terms are not acceptable, return all product to the place of purchase, unopened for a full refund.



# 2-3-2 COMPANION<sup>®</sup> LIQUID BIOLOGICAL FUNGICIDE

FOR AGRICULTURAL USE

- For Prevention, Control and Suppression of Soil and Foliar Diseases
- Activates ISR (Induced Systemic Resistance) in Plants



Active Ingredient:	
<i>Bacillus subtilis</i> GB03*	00.03%
Other Ingredients:	99.97%
Total:	100.00%

\*Not less than 5.5 X 10<sup>10</sup> Colony Forming Units (CFU) per gallon

Guaranteed Analysis:	
Total Nitrogen (N)	2%
2% Water Insoluble Nitrogen	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> )	3%
Soluble Potash (K <sub>2</sub> O)	2%
Calcium (Ca)	1%
Magnesium (Mg)	0.5%
Derived From: Concentrated Fermented Plant Extracts	

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

(See back panel for additional precautionary statements)

Another quality product from:  
**Growth Products, Ltd.**  
 80 Lafayette Av., White Plains, NY 10603 USA  
 Questions? Call (800) 648-7626  
 www.growthproducts.com  
 questions@growthproducts.com

EPA Registration No. 71065-3  
 EPA Establishment No. 71065-NY-001

Net Contents:  1 Gallon (9.8 lbs.)  2.5 Gallon (24.5 lbs.)  5 Gallon (49 Lbs.)

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfca.org/metals.htm>

**2-3-2**  
**COMPANION**  
 LIQUID BIOLOGICAL FUNGICIDE

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal.

**Pesticide Storage:** Store in a dry place out of direct sunlight and away from heat sources. Keep from overheating or freezing.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:** Non-refillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

**PRECAUTIONARY STATEMENTS**

**Hazards to Humans and Domestic Animals:** CAUTION. Causes moderate eye and skin irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**Personal Protective Equipment (PPE):** Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks

Mixer/loaders and applicators must wear a dust/mist-filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow manufacturer's instructions for cleaning / maintaining PPE. Keep and wash PPE separately from other laundry.

**User Safety Recommendations:** Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**Environmental Hazards:** Do not apply to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when cleaning equipment or disposing of equipment washwater.



Growth Products® and Companion® are Registered Trademarks of Growth Products, Ltd.

**FIRST AID**

If in eyes	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
If on skin or clothing	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 – 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.</p>	