Hydroponics

2-3-2

COMPANION® LIQUID BIOLOGICAL FUNGICIDE

INFORMATION FOR HYDROPONICS

• For use in Hydroponics, Soilless Mix Hydro Gardens and Soilless Gardens
• CONCENTRATE
• For Prevention, Control and Suppression of Soil and Foliar Diseases
• Activates ISR (Induced Systemic Resistance) in Plants
• Use on Food Crops
• 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.

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...

Companion® Liquid Biological Fungicide for the prevention, suppression and control of plant diseases on a wide range of food crops, including fruiting vegetables, leafy crops and herbs. Companion® Liquid Biological Fungicide contains the active ingredient Bacillus subtilis G903 which quickly colonizes the developing root system. Companion® Liquid Biological Fungicide provides control of root diseases such as Rhizoctonia, Pythium, Fusarium, Sclerotinia, Botrytis and Phytophthora. Companion® Liquid Biological Fungicide can be successfully used in any Hydroponics System, Soilless Mix Hydro Gardens, Nutrient Film Technique and Soil Gardens to improve plant vigor, root system and yield. Companion® Liquid Biological Fungicide will encourage and maintain healthy white roots and increase root mass. Bacillus subtilis G903 will flourish in this environment, where it quickly adapts and establishes itself on the root systems of plants. It is antagonistic to Blue-Green Algae (Cyanobacteria) growth. It will break down root zone debris keeping roots clean and free of disease.

Use Companion® Liquid Biological Fungicide from the time of seeding and transplant and continued through the plant's lifecycle, for the control of problem fungal and bacterial diseases. Companion® Liquid Biological Fungicide is most effective when applied as a preventative treatment. Use Companion® Liquid Biological Fungicide in combination with reduced rates of chemical fungicides to enhance and prolong disease control. Companion® Liquid Biological Fungicide is easily injected through all systems either by proportioners or through standard fertilizer injectors.
Do not apply this product through any type of sprinkler, flood (basin) furrow, border or drip (trickle) irrigation system.

**Modes of Action:**

Companion® Liquid Biological Fungicide has multiple modes of action in preventing and controlling plant diseases. It produces a broad-spectrum antibiotic (flurin) that disrupts pathogen cell-wall formation. It is a competitive and fast colonizing rhizosphere bacterium, which occupies the plant’s root hairs preventing the growth and antagonistic effects of soil borne pathogens. Companion® Liquid Biological Fungicide’s Bacillus subtilis G803 is known to stimulate phytohormones, which trigger the plant’s systemic resistance to disease ISR (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):**

Companion® Liquid Biological Fungicide’s Bacillus subtilis G803 is classified as a Plant Growth-Promoting Rhizobacteria (PGPR). PGPR are free-living bacteria that have beneficial effects on plants as they enhance seed emergence, colonize roots, and stimulate growth.

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

Integrate Companion® Liquid Biological Fungicide into an overall disease management program whenever fungicide use is necessary. Companion® Liquid Biological Fungicide is an important tool for hydroponics systems to manage disease, which will result in healthy and more vigorous growth. This will reduce the susceptibility to disease and result in an overall reduction in the use of chemical fungicides. Companion® Liquid Biological Fungicide is not harmful to beneficial insects.

**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® Liq-
uid Biological Fungicide’s multiple and unique modes of action inhibit 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.

**STORAGE & HANDLING**

**Storage Requirements:**
DO NOT FREEZE. Keep out of direct sun light or heat source to prevent overheating of liquid. Sun & Air Sealed Box: Because of the unique character of both the solution and microbial spores, Companion® Liquid Biological Fungicide has been packaged in our SUN & AIR SEALED container, which protects from UV radiation that can affect product stability and possible contamination from air borne spores.

**To Dispense:**
SHAKE WELL before use or before mixing with water. Remove plastic carton lid. A dispensing tap is tucked inside the carton. Pull out inner plastic container neck with cap on. Remove cap and immediately screw on top tightly. To open tap, turn to left side. No air will be allowed into this container during use while this tap is in place, DO NOT leave container open.

**MIXING INSTRUCTIONS**

**Tank Mixing:**
SHAKE WELL before use and before mixing with water. Companion® Liquid Biological Fungicide must be diluted with water prior to use. It can be used in all commonly used spray and injection equipment. Special care should be taken when tank mixing. Be sure that all tanks have been cleaned before use. Add water to 3/4 level of the tank followed by fertilizer addition. Mix thoroughly, add Companion® Liquid Biological Fungicide and continue to mix. Companion® Liquid Biological Fungicide can be mixed with most high quality fertilizers, micronutrients, organic materials, wetting agents, surfactants and most fungicides, herbicides.
or insecticides. Maintain agitation while spraying. DO NOT let stand overnight. Companion®
Liquid Biological Fungicide can be tank mixed and applied with both systemic and contact
fungicides as part of a regular growth and maintenance program.
Compatibility:
Companion® Liquid Biological Fungicide is compatible with most high quality fertilizers, mi-
cronutrients, organic materials, wetting agents, and surfactants. Companion® Liquid Bio-
logical Fungicide can also be mixed and applied with Contact and Systemic Fungicides. 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. Be sure to
apply all of tank mix solution the same day to assure viability of spores. Observe the most re-
strictive of the labeling limitations and precautions of all products used in mixtures. Consult
your Growth Products representative for more information on Companion® Liquid Biological
Fungicide compatibility.
COMPANION® LIQUID BIOLOGICAL FUNGICIDE DOES NOT CONTAIN ANY ANIMAL OR WASTE
PRODUCTS.

PREHARVEST INTERVAL – AGRICULTURAL USE
Companion® Liquid Biological Fungicide can be applied up to and including the day of har-
vest.

USE SITES
Companion® Liquid Biological Fungicide is a broad-spectrum fungicide that can be used on
hydroponics grown and soil grown crops to control a variety of diseases.
<table>
<thead>
<tr>
<th>Diseases</th>
<th>Crop</th>
<th>Product Rates</th>
<th>Frequency &amp; Notes</th>
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<tbody>
<tr>
<td>Acreella spp.</td>
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<td>Seed Treatment</td>
<td>Mix 4 fl. oz, in 1 gallon of water (125 ml in 4 liters water) Soak seeds or plugs with a solution before placing them in growing trays. Do not use treated seed for feed or food purposes or for processing into oil. Treat only those seeds needed for immediate use.</td>
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<td>Black Root Rot, Early Blight Alternaria spp.</td>
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<tr>
<td>Crown Rot, Damping-off Fusarium, Gray Mold, Leaf blight Botrytis cinerea</td>
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<td>German Stunt Blight D. lecanii Lecanii</td>
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<td>Rust Rot Pythium spp.</td>
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<tr>
<td>Late Blight, Bacterial blight Xanthomonas spp.</td>
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<td>NBL</td>
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<tr>
<td>Rust Rot, Bottom / Stem Rot K. bulliformis solani</td>
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<td>Stem Blight</td>
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<td>Sclerotinia minor</td>
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<td>Bacterial Leaf spot</td>
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<td>Xanthomonas campestris</td>
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<td>Powdery Mildew</td>
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<td>Goliornospora cichoracearum, formerly called Erysiphe cichoracearum</td>
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<td></td>
<td>Herbs, Leafy Greens, Tomatoes, Fruit, Vegetables</td>
<td>Recharging Rate:</td>
<td>1 fl. oz. per 30 gallons water (30 ml per 120 liters water) Apply at time of placement in trays. Run through system.</td>
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<td>Recharging Rate:</td>
<td>1 fl. oz. per 50 gallons water (30 ml per 200 liters water) Replace every time water is added or every 5—7 days.</td>
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Common Disease Names:
Damping Off, Root Rot, Wilt, Gummy Stem Blight, Early Blight, Leaf Blight, Black Rot, Gray Mold and Angular Leaf Spot.

<table>
<thead>
<tr>
<th>GROWING SYSTEMS</th>
<th>Type of System</th>
<th>Product Rates</th>
<th>Frequency &amp; Notes</th>
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<tr>
<td>Closed Re-circulating System for Ebb and Flow in rock wool and perlite mixtures, and Nutrient Film Technique</td>
<td>Changing Rate: Mix 1 fl. oz. per 30 gallons water. (50 ml per 120 litres)</td>
<td>Apply Companion® Liquid Biological Fungicide after each water change. Clean mix tank weekly. Pre-seek transplants in same solution mix.</td>
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<tr>
<td></td>
<td>Recharging Rate: Mix 1 fl. oz. per 50 gallons of water. (50 ml per 200 litres water)</td>
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<td>Open Systems:</td>
<td>Mix 1.6 fl. oz. per 100 gallons of nutrient mix (500 ml per 400 litres). For small columns mix 1 tsp. per gallon.</td>
<td>Apply the solution with Companion® Liquid Biological Fungicide at the end of the watering cycle so that it stays in the system longer. Repeat the application every 14 to 28 days, or by checking the quality of the roots.</td>
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<td>Sufixes Mix Hydro Gardens (Aggregate Systems), Tinkle Feed Method and Soil Gardeners</td>
<td>Mix 1.6 fl. oz. per 100 gallons of nutrient mix (500 ml per 400 litres).</td>
<td>Apply every 14 – 28 days or by checking the quality of the roots. Apply the solution with Companion® Liquid Biological Fungicide at the end of the watering cycle so that it stays in the system longer.</td>
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### SET INJECTION RATIO TO:

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<tr>
<th>Ratio</th>
<th>Description</th>
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<tr>
<td>1:100</td>
<td>16 fl. oz. of Companion Liquid Biological Fungicide per gallon of stock tank, or 160 fl. oz. per 100 gallons of stock tank. (1 ml per 4 litres of stock water).</td>
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<td>1:200</td>
<td>32 fl. oz. of Companion Liquid Biological Fungicide per gallon of stock tank, or 320 fl. oz. per 100 gallons of stock tank. (2 ml per 4 litres of stock water).</td>
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Frequency: Apply every 14 – 28 days.

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

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

Pesticide Disposal: Mixes resulting from the use of this product may be disposed of on site in 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 1/2 full with water and recap. Shake for 10 seconds. Pour contents into application equipment or a mix tank or store in airtight container 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 governments.

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): Apply the following protective clothing and other personal equipment:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mask/respirators and application 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 mold 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 directly to water, or to areas where surface water is present, or to infested areas below the mean highwater mark. Do not contaminate water when cleaning equipment or disposing of equipment/waste.

First Aid

If in eyes:

- Hold eye open and rinse slowly and gently with water for 15–20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes.
- Call a poison control center or doctor for treatment advice.

If on skin or clothing:

- Tread off contaminated clothing.
- Rinse skin immediately with plenty of water for 15–20 minutes.
- Call a poison control center or doctor for treatment advice.

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.

Bar Code