



# COMPANION® LIQUID BIOLOGICAL FUNGICIDE

## MULTI-PURPOSE FUNGICIDE

- Prevent and Control Fungal and Bacterial Diseases
- Build Denser Strong Root System
- Activates Induced Systemic Resistance (ISR)

- Stop Damping Off of Seedlings
- Increase Stock Mass on Plants
- Naturally Occurring *Bacillus subtilis* GB03



**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 Soluble 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: Concentrate fermented plant extracts, iron glucoheptonate

**TECHNICAL SPECIFICATIONS:**

pH . . . . . 5.5

**PRODUCT DESCRIPTION:**

Companion® is a broad spectrum Biological Fungicide for the prevention, control and suppression of soil borne and foliar fungal and bacterial diseases. It can be used throughout the growing season on all types of crops to control diseases such as *Phytophthora*, *Fusarium*, *Pythium*, *Sclerotinia*, and on foliar diseases such as *Alternaria*, *Botrytis cinerea*, *Colletotrichum graminicola* and *Xanthomonas*.

It contains a natural rhizosphere bacteria that quickly populates the soil, forming protective colonies on and around delicate root hairs and on the leaf surface, destroying and warding off diseases. It is a gram-positive bacterium, which survives in extreme environmental conditions includ-

ing heat & drought, making it a durable and reliable fungicide growers can trust.

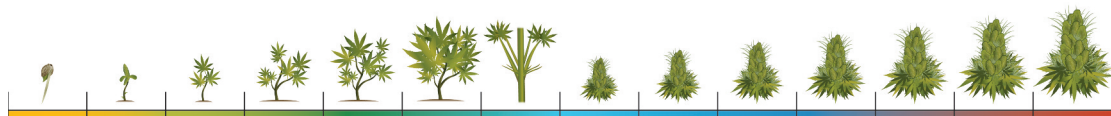
This unique biological has been studied for years at leading universities and is proven to elicit the plants natural defense resistance (ISR), to fight against many pathogens. Companion can be used in combination with other fungicides and phosphites (PO<sub>3</sub>) at reduced label rates, boosting their efficacy, resulting in higher yields and a more marketable crop. Companion can be used up until harvest and has an REI of 4 hours.

Companion is natural rhizosphere microorganism that contains high concentrations of organic components that can neutralize and reduce the harmful effects of TDS (Total Dissolved Solids) buildup from repeated applications of both chemicals and high salt fertilizers.

**A SINGLE PRODUCT WITH MULTIPLE APPROACHES TO DISEASE CONTROL:**

Unlike synthetic fungicides that target a specific protein synthesis or the cell membrane, Companion® Biological Fungicide has multiple modes of action involved in its bio-control performance to fight pathogens. It combines four modes of action to suppress diseases:

1. GB03 strain of *Bacillus subtilis* produces a broad spectrum antibiotic, Iturin, an antifungal /antibacterial lipopeptide that destroys pathogens by puncturing their cell walls



Companion Liquid Biological Fungicide	Seedlings and Clones	Transplanting	Growth Phase	Transition and Early Bloom	Full Bloom	Finishing
No. of Weeks			1-4	1-3	4-8	
Hours of Light			18	12	12	12
Soil & Soilless Mixes	30-60 ml	30-60 ml	5 -10 ml	5 -10 ml	5 -10 ml	5 -10 ml
Hydroponic	1 - 5 ml	1 - 5 ml	1 - 5 ml	1 - 5 ml	1 - 5 ml	1 - 5 ml
Foliar	5-10 ml	5-10 ml	5-10 ml	5-10 ml	5-10 ml	5-10 ml

Apply weekly, amounts listed are to be added per 1 US Gallon (3.79 liters)

Cannabis Application Recommendations		
Application	Rate	Frequency / Notes
All Strains of Cannabis Grown in Soil or Soilless Mixes, Indoors and Outdoors	Mix 5-10 ml per gallon water.	Begin applications at time of transplanting or seeding. Apply weekly throughout growing cycle.
	Foliar Applications: Mix 5-10 ml per gallon water.	Begin applications at time of transplanting or seeding. Apply weekly throughout growing cycle. Spray until run-off.
Hydroponics and Constant Feed	Charging: 1-5 ml per gallon of water	Add whenever nutrient solution reservoir is changed. Replenish every 7-10 days or when water is changed.
Seeding Disease Protection	Mix 30-60 ml per gallon of water.	Drench seed trays until thoroughly soaked at time of seeding. Repeat in 7-14 days.
Clones Disease Protection	Mix 30-60 ml per gallon of water.	Thoroughly drench rockwool, or root cubes before sticking cutting. Also, drench trays of cutting with solution of Companion after planting. Repeat in 7-10 days.
Sizing-Up & Transplanting	Mix 30-60 ml per gallon of water.	After planting in new container, thoroughly drench plant with diluted Companion.
Prevent Bud Rot Caused by Botrytis Cinerea or Gray Mold	Foliar Spray: Mix 5-10 ml per gallon of water	Spray foliar applications weekly throughout entire flowering phase and up until harvest. Spray until run-off

so that the pathogen desiccates. When used in conjunction with synthetic fungicides, Companion improves their efficacy by allowing them to easily move into the cell.

2. *Bacillus subtilis* GB03 produces unique metabolites (lipoproteins) that have antagonistic activity against pathogens inhibiting their protein production.

3. Companion activates the plant's natural defenses, Induced Systemic Resistance (ISR), allowing the plant's immune system to ward off disease and reduce its susceptibility to pathogen attack.

4. Unlike traditional fungicides which often stunt plant growth, Companion actually promotes plant vigor. It is a beneficial Rhizobacteria (PGPR) that produces auxin-like hormones. It quickly colonizes on roots forming a biofilm that produces surfactins, improving nutrient uptake, increasing root growth, enhancing lateral branching, and promoting overall vigor and yield, in a wide variety of crops.

### PLANT ENHANCING BACTERIA (PGPR)

There is a unique advantage in incorporating Companion® Biological Fungicide into your growing program. The active ingredient in Companion is *Bacillus subtilis* GB03, well known as Plant Growth Promoting Rhizosphere (PGPR) bacteria. Not only is it antagonistic to soil-borne pathogens, but interact with plants improving growth. Highly efficient in root colonization, GB03 produces growth metabolites such as auxin compounds which improve plant vitality by enhancing root elongation and branching, maintaining root health, water uptake, improving nutrient uptake such as phosphate solubilization, iron availability and increase the plant's ability to resist envi-

ronmental stress. Unlike chemical pesticides, Companion promotes overall growth, resulting in better development and flowering.

### HYDROPONIC ALGAE CONTROL:

Green algae, called cyanobacteria, is a nuisance that can cause negative impact in hydroponic systems. *Bacillus subtilis* GB03 has the ability of inhibiting or biodegrading cyanobacteria by destroying its cell and plasma membranes, releasing cell organelles. This is an effective and environmentally friendly option for control versus chemical methods such as Algaecides.

### CERTIFIED ACCEPTABLE PESTICIDE:

Companion Biological Fungicide meets the criteria set by the Washington State Department of Agriculture (WSDA) under I-502/I-692 for use in the production of Cannabis in Washington State.

The Colorado Department of Agriculture has determined under Title 35, Article 10, Section 117 of the Pesticide Applicator's Act, that Companion Biological Fungicide may be used in the following cannabis production scenarios: Commercial Cannabis Production and Cannabis for Personal Use.

### A TOOL IN RESISTANCE MANAGEMENT & REDUCTION OF CHEMICALS:

Companion can be used alone or in combination with traditional chemical fungicides either in a tank mix or rotational program. Its multiple modes of action help prevent pathogen resistance. This makes Companion® an ideal foundation for an effective Integrated Pest Management (IPM) Program.

## APPLICATION & MIXING:

Companion Biological Fungicide can be used on all potting soils such as peat, bark, and perlite combinations, or applied as a drench on potted plants, outdoor field crops, and indoor potted plants. It can be used on all stages of growth including, seed germination, cuttings, potting, plug, sizing up and field applications. It can be applied both as a foliar spray, or soil drench to control fungal disease. **DO NOT** tank mix with copper products, highly caustic or acid materials. Do NOT mix concentrates together. Always fill tank  $\frac{3}{4}$  full with water before adding concentrates. It can be tank mixed with other technical materials, organic products or fertilizers. It is effective on all types of growing media including bark-containing mixes. It can be incorporated along with starter fertilizers to enhance their efficacy.

Companion is a preventative fungicide. For best results begin applying Companion from the beginning of the crop cycle or prior to the onset of any diseases. *Botrytis cinerea* (Bud Rot) affects many crops and is prevalent in nature. To prevent Bud Rot be sure to thoroughly wet stems, buds and leaves to the point of run-off with a solution of Companion. Remove infected leaves and buds.

Companion can be used up to the day of harvest.

## STORAGE & HANDLING:

Companion Biological Fungicide should be stored in normal warehouse conditions. Keep in a cool dry location that does not go above 100° F for long periods of time and keep out of direct sun light. Do not store below 32° F. Companion Biological Fungicide has a neutral pH. Always store in original container and keep tightly sealed after opening. Refer to SDS for additional information on storage, handling, safety, disposal and shipping.

FIRST AID	
IF SWALLOWED:	Call a poison center or doctor if you feel unwell: Rinse mouth.
IF IN EYES:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.
IF ON SKIN:	Remove contaminated clothing and wash skin with plenty of soap and water. If skin irritation occurs, get medical advice/attention.
IF INHALED:	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).	
<b>STORAGE:</b> Keep container tightly closed. May be stored in unheated area, but keep from freezing. Store in areas inaccessible to children and pets.	
<b>DISPOSAL:</b> 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.**

