

BIO-ACTIV

IMPROVE PLANT GROWTH & QUALITY

Bio-Activ is the evolution of high-performance microbial inoculants. Bio-Activ enhances nutrient and water uptake, improving plant nutrition and protection against abiotic stress for enhanced plant growth and yields. Bio-Activ contains a unique consortium of Bacillus and Paenibacillus bacteria in both their resilient endospore-form and as actively growing cells, providing fast-acting results and long-lasting performance. To maximize the full plant growth promoting rhizobacterial (PGPR) power of this consortium, Bio-Activ retains all of the potent bioactive metabolites produced by the bacteria during their advanced co-fermentation process. Bio-Activ is ideal for high-intensity, large-scale growers and is compatible in all irrigation systems, environments, fertilization programs, medias, and crop types.

Contains: Bacillus subtilis, Bacillus pumilus, Bacillus amyloliquefaciens and Panibacillus chitinolyticus in a fermentation broth.



BIO-ACTIV FEATURES & BENEFITS

- Biofilm formation on roots protects plant from biotic and physical stress and aids growth.
- Enzyme production increases nutrient cycling and improves soil health and fertility by breaking down carbohydrates, proteins, and fats like those found in high-quality organic fertilizers.
- Activates Induced Systemic Resistance (IS) mechanisms in the plant enhancing natural immunity and resistance to stress.
- Siderophore production chelates iron and aids in manganese uptake.
- Nitrogen fixing (N,-> NH.).
- Solubilizes phosphorus and potassium for greater plant availability.
- Non-phytotoxic.
- Higher CFU count than other products on the market means greater efficacy at a lower cost.

PROVEN RESULTS

+20%
increase yield

+16%
in stem diameter

+14%
in growth rate

BIO-ACTIV GUARANTEED ANALYSIS

CONTAINS NON-PLANT FOOD INGREDIENTS

Bacillus subtilis.....5.0x10⁹CFU/mL
 Bacillus pumilus.....4.0x10⁹CFU/mL
 Bacillus amyloliquefaciens.....2.0x10⁹CFU/mL
 Total: 11 Billion CFU/mL (1.1x10¹⁰ CFU/mL)
 CFU/mL = colony forming units per milliliter

BIO-ACTIV APPLICATION RATES

1mL - 2mL / Gallon nutrient solution
Can increase to 3mL/ Gallon during flowering phase and under intense growth conditions (e.g., CO2 injection, mid-flower phase, high light levels)

WHAT'S INSIDE?

Bacillus subtilis
(1x10⁶ CFU/mL)

- Solubilizes K
- Releases soil-bound macro and micro nutrients
- Improves root growth
- Produces siderophores that chelate micronutrients

Bacillus amyloliquefaciens
(1x10⁶ CFU/mL)

- Mobilizes P
- Promotes growth of roots + shoots
- Improves abiotic stress tolerance
- Enhances Water Uptake

Bacillus pumilus
(1x10⁶ CFU/mL)

- Fixes N in deficient conditions
- Improves nutrient availability + uptake
 - Cycles nutrients
- Degrades organic material for plant uptake

TOGETHER:

- Promote vigorous root growth;
- Naturally increase plant tolerance to abiotic stress;
- Encourage fast + prolonged nutrient mobilization;
- Restore soil health;
- Increase plant yield

ENZYMES AND THEIR FUNCTIONS

Cellulase - Decomposition of cellulase (i.e., plant matter like dead roots and leaves) into glucose and other sugars boosts plant productivity.

Urease - Catalyses the hydrolysis of urea into CO₂ and nitrate (NO₃) which increases nutrient availability.

Xylanase - Degrades plant matter into usable nutrients. Found in numerous horticultural enzyme products.

Tannase - Degrades plant polyphenols into water and gallic acid, a phenolic antioxidant compound that plants use to synthesize new compounds with functions like herbivore and pathogen defense, iron, copper, and zinc chelation, and inhibition of pathogenic microbes.

Amylase - Decomposition of complex carbohydrates into sugars across a wide pH range (4.0-7.0) boosts rhizosphere and plant productivity.

Protease - Protein decomposition, which is particularly important to maximize nutrient availability in organic fertilizer programs.

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APPLICATION GUIDELINES

- Bio-Activ is recommended for use as a soil inoculant and can be applied via overhead irrigation, drip irrigation, hand watering, or other hydroponic systems.
- Bio-Activ can be applied throughout the growing season at all stages of the plant life cycle, including the seedling and pre-harvest (flushing) stages.
- Mix well before use. Bacillus spores settle naturally in container.
- Flush drip irrigation lines with clean water after injecting Bio-Activ.
- Can be mixed with tap or reverse osmosis (RO) water—Intended to be used as a plant growth promoting rhizobacteria (PGPR) inoculant.
- Not intended to be used as or in place of chemical plant growth regulators (PGRs).



TANK MIXING

Bio-Activ should be used within 24 to 48 hours of tank mixing with fertilizers or nutrient solutions for best results (applies mostly to growers using organic inputs – conventional inputs can leave tank mixed).

STORAGE CONDITIONS

Bacillus spore liquids are stable for at least 18 months when stored in a cool, dry location in a closed container. Exposure to high humidity and temperature is not recommended.

BIO-ACTIV FEED CHART

For use on clone stock, and during vegetative + flowering growth to enhance nutrient uptake, root development and yield.

Greenhouse & Container Application Rates

VEGETATIVE GROWTH (18H PHOTOPERIOD)

Week	Seedling/Clone	1	2-4	+4
Growth Stage	Vegetative	Vegetative	Vegetative	Vegetative
Lite Applications	1 mL/Gal of water			
Recommended Applications	2 mL/Gal of water			
Heavy Applications	3 mL/Gal of water			
Frequency (# of applications per week)	1	1	1	1

FRUIT & FLOWER GROWTH (12H PHOTOPERIOD)

Week	1	2	3	4	5	6	7	8
Growth Stage	Early flower	Early flower	Mid flower	Mid flower	Mid flower	Late flower	Late flower	Ripen
Lite Applications	2 mL/Gal of water	1 mL/Gal of water	1 mL/Gal of water					
Recommended Applications	3 mL/Gal of water	2 mL/Gal of water	2 mL/Gal of water					
Heavy Applications	4 mL/Gal of water	3 mL/Gal of water	3 mL/Gal of water					
Frequency (# of applications per week)	1	1	1	1	1	1	1	1

Product Notes: Bio-Activ is a combination of naturally occurring plant growth-promoting rhizobacteria that colonize the root zone of plants and increase growth by enhancing macro and micronutrient availability. The high concentration of bacteria populates the area on and near plant roots, increasing plant productivity in all environments. Bio-Activ is compatible with all growing media and fertilization programs. It can be applied as frequently as every watering or as infrequently as once a week. Consider your environment, inputs, and growing intensity when determining application frequency. For optimal results use at the recommended application rates.



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