



# BIO RESTART

*A broad spectrum microbial soil amendment for increased soil health and fertility*

## AVAILABLE PACKAGING:

1kg, 10kg, 25kg

### PRODUCT INGREDIENTS:

Contains a free living consortium of microorganisms.

### PRODUCT METHODOLOGY:

Contains a broad spectrum consortium of microorganisms well known for their ability of:

- ✓ Nitrogen fixation
- ✓ P and K solubilising
- ✓ Root structure enhancement
- ✓ Biomass enhancement
- ✓ Plant growth stimulation
- ✓ Pathogen suppression

### APPLICATION RATES:

Apply 250 gram - 1kg per ha water soluble powder at the beginning of the growth season.

### DIRECTIONS FOR USE:

- ✓ 100l water/ha for in-furrow applications
- ✓ 400l water/ha for bulk applications
- ✓ Can be applied through irrigation and fertigation systems
- ✓ All Fulvigour products can be used and mixed together
- ✗ Do not apply with any biocides



**DRAMATIC  
INCREASE IN  
RHIZOSPHERE  
DIVERSITY**

**NOT FOR  
PUBLIC SALE**



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*Enhancing plant health and vitality: The role of Plant Growth Promoting Bacteria*

## 1. INTRODUCTION:

Plant growth promoting bacteria (PGPB) play a vital role in supporting plant health and vitality by fostering beneficial interactions with plants. This report delves into the mechanisms through which PGPB contribute to improved plant growth, disease resistance, nutrient uptake, and overall well-being. Understanding the symbiotic relationships between plants and PGPB can lead to the development of sustainable agricultural practices that enhance plant health and productivity.

Plant growth promoting bacteria are beneficial microorganisms that form symbiotic associations with plants. They promote plant growth and overall vitality through various mechanisms, including nutrient cycling, disease suppression, hormone production, and stress tolerance. This report highlights the significant contributions of PGPB in fostering healthy plant growth.

## 2. NUTRIENT SOLUBILIZATION:

PGPB have the ability to solubilize essential nutrients such as phosphorus, potassium, and iron from the soil. Through the secretion of organic acids and enzymes, PGPB help release tightly bound nutrients, making them available for plant uptake. This enhances plant nutrient acquisition, leading to improved growth and vigor.

## 3. PRODUCTION OF PHYTOHORMONES:

PGPB produce plant growth-regulating hormones, including auxins, cytokinins, and gibberellins, which influence various aspects of plant development. These hormones promote root growth, shoot elongation, and lateral bud formation, resulting in increased biomass and enhanced plant health.

## 4. BIOCONTROL OF PATHOGENS:

PGPB act as biocontrol agents by producing antimicrobial compounds and competing with plant pathogens for resources. They suppress harmful pathogenic microorganisms, thereby reducing disease incidence and severity. This biocontrol effect enhances plant defense mechanisms and supports disease resistance.

## 5. INDUCED SYSTEMIC RESISTANCE (ISR):

PGPB can activate the plant's innate defense system, inducing systemic resistance to a broad range of pathogens. Through ISR, plants are primed to respond more rapidly and effectively to subsequent pathogen attacks, providing long-lasting protection against diseases.

## 6. DROUGHT AND STRESS TOLERANCE:

PGPB play a significant role in enhancing plant tolerance to environmental stresses such as drought, salinity, and temperature extremes. They produce stress-responsive compounds that help plants cope with adverse conditions, promoting survival and continued growth.

## 7. NITROGEN FIXATION:

Some PGPB are nitrogen-fixing bacteria that convert atmospheric nitrogen into plant-usable forms, like ammonia and nitrates. This symbiotic nitrogen fixation contributes to increased nitrogen availability, fostering plant growth and reducing the reliance on synthetic fertilizers.

Plant growth promoting bacteria are indispensable allies in supporting plant health and vitality. Through nutrient solubilization, hormone production, biocontrol of pathogens, induced systemic resistance, stress tolerance, and nitrogen fixation, PGPB enhance plant growth, disease resistance, and overall well-being. By harnessing these beneficial interactions, agricultural practices can be developed to promote sustainable plant growth, reduce chemical inputs, and foster healthier and more productive crops. Continued research and application of PGPB in agriculture hold significant promise for a more sustainable and resilient future in plant cultivation.