PBL®

PEPTECH BIOSCIENCES LTD.

Your Efficient Agro Partner

Enhance Natural Crop Resilience



Biological Crop Solutions

Powered by

SYNERA™

Synergistic Enhancement & Resilience Architecture by PBL

Crop Nutrition

Crop Protectors

Crop Boosters

Quality Products
Sustainable Future

Trusted by Farmers
Chosen by Partners Worldwide
www.peptechbio.com

PEPTECH BIOSCIENCES LTD.

Peptech Biosciences Limited is where agricultural science is transformed into reliable, field-ready performance. Built on the legacy of Titan Biotech and decades of expertise in Amino acid–based biotechnology, the company began with pioneering Bio-Stimulants and has since grown into a comprehensive portfolio of Bio-Stimulants, Bio-Fertilizers, Bio-Pesticides, Plant Growth Regulators, and Chemical Agri-Input Solutions for modern agriculture.

What sets Peptech apart is its science-to-field approach. Every formulation begins with focused research and is developed through structured R&D, rigorous laboratory validation, and extensive multi-location field trials. This ensures that each product performs consistently across diverse crops, soils, and climatic conditions.

Backed by advanced automated manufacturing systems, strong quality assurance protocols, and robust regulatory expertise, Peptech enables global agri-brands to scale seamlessly through white-label, OEM, contract manufacturing, and P2P supply models.

With a presence in over 30 countries, Peptech Biosciences is trusted for its consistency, compliance, and commitment to performance-driven agriculture. At its core, the company believes innovation is only meaningful when it delivers measurable impact in the field—season after season.



Why Choose Peptech Biosciences

Science-Driven Innovation

Every product is developed through structured R&D, validated through lab analysis and multi-location field trials for assured performance.

Integrated Manufacturing Strength

Fully automated, scalable production systems ensuring precision, efficiency, and consistent batch quality.

Global Regulatory Expertise

Compliance-ready documentation and certifications supporting smooth market entry across international regions.

Proven Field Performance

Extensive testing across diverse agro-climatic zones ensures real-world reliability beyond laboratory conditions.

Our Business Models

White Label Manufacturing

Ready-to-market formulations tailored for fast brand expansion with consistent quality and regulatory support.

Contract Manufacturing (End-to-End)

From formulation to packaging, we manage full-cycle production through advanced automated facilities.

P2P Supply

Reliable supply of formulated agri-inputs for distributors and institutional buyers.

Custom R&D & Formulation Development

“One Product – One Partner" supports the development of region-specific, differentiated products.

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Microbial Solution

Advancing Sustainable Agriculture with Science & Innovation

At Peptech Biosciences Limited, we harness advanced microbial science to transform soil health into measurable crop performance. Our formulations are developed through precision strain selection, optimized fermentation technologies, and stable multi-strain ecosystem design, ensuring reliable results across diverse agro-climatic conditions.

We focus on strengthening the soil–plant–microbe continuum, enhancing nutrient availability, improving root efficiency, and building natural resilience against biotic and abiotic stress factors.



Engineering Soil Biology for Performance

Targeted Strain Selection
High-performing, crop-specific microbial strains

Controlled Fermentation Systems
Solid-state & submerged fermentation precision

Rhizosphere Optimization
Enhancing root zone microbial activity

Stable Consortium Engineering
Designed microbial synergy for field reliability

Freeze Drying Technology
For maximum microbial stability

Spray Drying Systems
For scalable production efficiency

Key Features

- High CFU formulations for rapid soil colonization
- Validated microbial strains backed by research
- Multi-strain consortia (6+ strains) for synergy
- Available in Liquid & Powder formulations
- 1000+ microbial strain library for customization
- Advanced fermentation-based manufacturing
- Long shelf-life with stable viability
- Ready technical regulatory dossiers

Key Agricultural Challenges We Solve

- Soil Health Degradation
- Low Nutrient Use Efficiency
- Poor Root Development
- Soil & Seed Borne Diseases
- Air Borne Diseases
- Nematode Infestation
- Abiotic Stress
- Inconsistent Crop Performance
- Nutrient Lock-Up in Soil

Microbial Product Range

- **Bio-Fertilizers**
- **Bio-Fungicides**
- **Bio-Pesticides**
- **Bio-Nematicides**

Advanced Manufacturing Capabilities

Liquid Formulations	Powder Formulations	Solid State based Fungal formulations
900 KL	**3000 MT**	**1500 MT**
High Count 150 KL	High Count 600 MT	High Count 300 MT

Peptech Biosciences Limited bridges the gap between soil biology and plant nutrition—delivering measurable improvements in crop health, productivity, and sustainable agriculture.

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PEPTECH BIOSCIENCES LTD.

Your Efficient Agro Partner

Bio-Fertilizers

Mycorrhizae 01
Microbial NPK 02
Bradyrhizobium japonicum 03
Nitrogen Fixing Bacteria 04
Phosphorus Solubilizing Bacteria 04
Potassium Solubilizing Bacteria 04
Zinc Solubilizing Bacteria 04
Magnesium Solubilizing Bacteria 04
Silica Solubilizing Bacteria 04
Iron Mobilizing Bacteria 04





Bio-Nematicides

Paecilomyces lilacinus 05
Verticillium chlamydosporium 06

Bio-Pesticides

Bacillus thuringiensis var. Kurstaki 07
Bacillus thuringiensis var. Kurstaki 10% WSL 08
Metarhizium anisopliae 09
Beauveria bassiana 10
Verticillium lecanii 11
Hirsutella thompsonii 12





Bio-Fungicides

Trichoderma viride 13
Trichoderma harzianum 14
Trichoderma asperellum 15
Bacillus subtilis 16
Pseudomonas fluorescens 17

MYCORRHIZAE

(Glomus intraradices / Rhizophagus irregularis)

Bio-Fertilizers

Mycorrhizae are naturally occurring beneficial fungi that establish a symbiotic association with the roots of nearly 90% of terrestrial plant species. This association significantly enhances the plant's ability to absorb phosphorus, nitrogen, micronutrients, and water by extending the effective root surface area through an extensive network of fungal hyphae. The formulation contains **Vesicular Arbuscular Mycorrhizae (VAM)**, a group of endomycorrhizal fungi that colonize plant roots and improve nutrient mobilization, soil health, and overall crop performance. Beyond nutrient uptake, Mycorrhizae stimulate the plant's natural defence mechanisms by inducing phytoalexin production and supporting beneficial rhizosphere microorganisms, thereby improving tolerance against soil-borne pathogens and environmental stresses. Their ability to enhance soil structure, increase water retention, and improve fertilizer-use efficiency makes them an essential biological solution for sustainable agriculture.

BENEFITS:

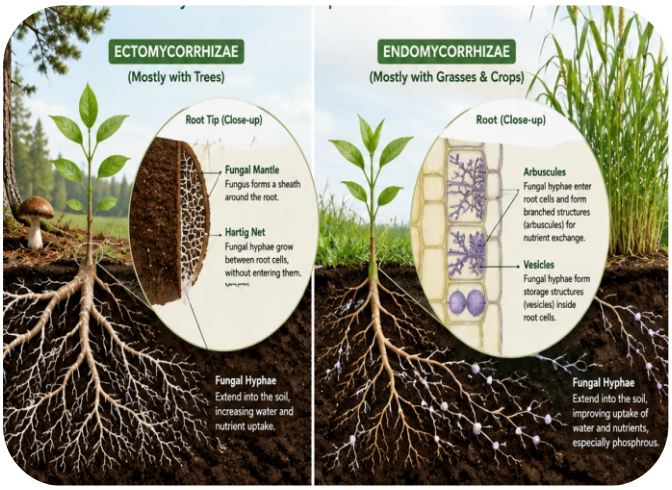
- Expands the effective root absorption area by up to 1000 times for enhanced nutrient and water uptake.
- Improves phosphorus, nitrogen, iron, zinc, and other essential nutrient availability.
- Promotes stronger, healthier, and more extensive root development.
- Enhances tolerance to drought, salinity, and nutrient-deficient soil conditions.
- Improves resistance against soil-borne pathogens such as Fusarium and Phytophthora.
- Reduces transplant shock and improves plant establishment.
- Improves soil aggregation, organic matter utilization, and long-term soil fertility.
- Enhances fertilizer-use efficiency and can help reduce DAP application under suitable agronomic conditions.

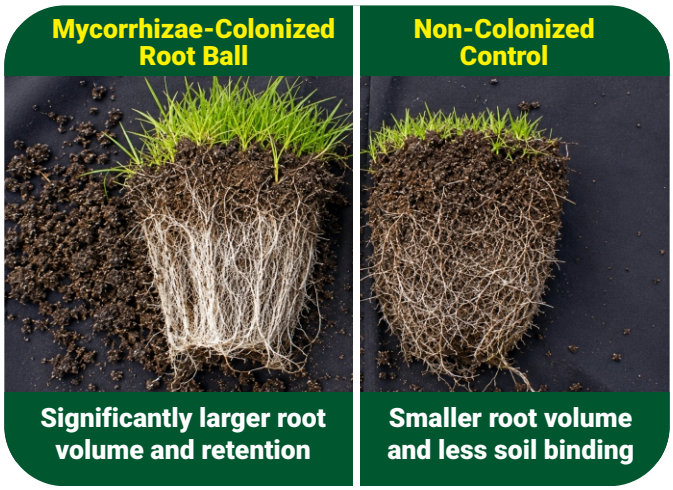
RECOMMENDED CROPS:

Suitable for cereals, pulses, oilseeds, vegetables, fruit crops, plantation crops, spices, ornamental plants, forestry species, and nurseries.
Major Crops: Rice, Wheat, Maize, Sorghum, Bajra, Barley, Oats, Banana, Mango, Guava, Citrus, Apple, Grapes, Pomegranate, Papaya, Dragon Fruit, Watermelon, Tomato, Chilli, Brinjal, Potato, Onion, Garlic, Cotton, Sugarcane, Tea, Coffee, and several horticultural crops.

AVAILABLE AS TECHNICAL AND IN VARIOUS FORMULATIONS:

- **Technical Grade:** Available from 33,000 spores/g up to 100,000 spores/g.
- **Formulated Grade:** Available at 3,500 IP/g.
- Custom spore counts and formulations can be developed to meet specific market and customer requirements.





*Dossiers are available

*The application method is solely for guidance purposes. Application rates will vary due to climate, frequency, soil, etc.
We encourage users to conduct their own testing in order to determine what is best for their crop under their specific conditions and environments.

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Bio-Fertilizers

MICROBIAL NPK

(Nitrogen, Phosphorus and Potassium Solubilizing Microbial Consortia)

Microbial NPK Consortium is an effective Bio-Fertilizer that harnesses the power of beneficial microbes to unlock the full potential of soil and crops. It is a consortium of three microorganisms: Nitrogen-fixing bacteria (NFB), Phosphate-solubilizing bacteria (PSB), and Potassium solubilizing bacteria (KSB). NFB converts atmospheric nitrogen into a plant-usable form; PSB breaks down unavailable phosphate reserves in the soil; and KSB liberates fixed and residual potash within the soil. It is an eco-friendly solution that supports sustainable agriculture.

BENEFITS:

- Fosters a thriving ecosystem within the soil.
- Improves soil fertility.
- Ensures crops have a balanced supply of essential elements.
- Ensures essential elements are readily available.
- Enhances nitrogen utilization apart from reducing conventional dose of chemical fertilizers.
- Boosts germination, growth and vigour of seedling.
- Helps plants cope with dry conditions by promoting water use efficiency.

RECOMMENDED CROPS:

Suitable for all crops Paddy, Wheat, Maize, Groundnut, Sugarcane, Grapes, Pomegranate, Citrus, Banana, Tea, Coffee, Coconut, Vegetables, and Flowers

DOSAGES:

$5x10^7$ or CFU/ml or CFU/g min.	$2x10^8$ CFU/ml or CFU/g min	$2x10^9$ CFU/ml or CFU/g min	$2x10^{10}$ CFU/ml or CFU/g min
10 L/ha	2 - 3 L/ha	1.5 L/ha	0.5-0.75 L/ha

APPLICATION TIME:

1st Application: During soil preparation/ seed sowing/ plantation/ two (2) leaf stage by means of Broadcasting with manure/ foliar/ drenching.

2nd Application: 15 days after 1st application by means of drenching/drip/ furrow or channel irrigation.

3rd Application: During the booting and pre-flowering stage.





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BRADYRHIZOBIUM JAPONICUM

Bio-Fertilizers

CFU count: 1 x 10^8 CFU/g min.

Bradyrhizobium japonicum is a species of legume-root-nodulating, microsymbiotic nitrogen-fixing bacteria that serves as an effective biofertilizer. Known for its acid tolerance, it belongs to the Rhizobium family. It forms nodules on the roots of legume plants, fixing atmospheric nitrogen and making it readily available for plant use. It promotes ecological balance and reduces reliance on chemical fertilizers, making it an invaluable resource for farmers.

BENEFITS:

- Boosts germination of seeds.
- Improves soil fertility & enhances nutrient mobility.
- Enhance better absorption of nutrients & water.
- Convert & fix atmospheric nitrogen & make it available in an easily absorbable form to plants.
- Helps plants to withstand abiotic stress.
- Enhances crop quality & yield.

APPLICATION METHOD & DOSAGES:

Seed treatment: 1-2 gm/kg of seeds
Soil application: 250-500 gm/ha

RECOMMENDED CROPS:

All leguminous crops Soyabean, Groundnut, Oil seeds crop, etc.









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BIO-FERTILIZERS

Bio-Fertilizers are living microbial fertilizers that help in plant growth either by solubilizing or mobilizing nutrients or by growing in the plant's rhizosphere (commonly known as the root). The Bio-Fertilizers include various microorganisms like beneficial bacteria and fungi; these two are very successful in colonizing the rhizosphere, rhizoplane, or root interior and easing the plant's overall growth and development.

CFU Count: $1X10^8$ CFU/gm
Dosage: 2.5 - 5 kg/ha
Mode of Application: Soil Drenching, Soil Application, and Drip irrigation.

1. NITROGEN FIXING BACTERIA

Nitrogen Fixing Bacteria are either symbionts or free-living organisms. They convert inert atmospheric N convert inert nitrates, nitrites, or 2 ammonia, that are absorbed by plants for their growth through nitrogen assimilation. Using symbionts in crop rotation ensures nitrogen fixation in soil for succeeding crops.

2. PHOSPHORUS SOLUBILIZING BACTERIA

Phosphate Solubilizing Bacteria belong to the group of organisms composed of actinomycetes, bacteria, fungi, arbuscular mycorrhizae, and cyanobacteria capable of hydrolyzing organic and inorganic phosphorus into soluble forms, thus making it bioavailable to plants. After plants and then: PSBs also contribute to the production of plant growth-promoting substances like indole-3-acetic acid (IAA) and gibberellic acid (GA). The application of PSB reduces the use of chemical phosphatic fertilizers.

3. POTASSIUM SOLUBILIZING BACTERIA

Potassium solubilizing microorganisms, solubilize fixed forms of potassium to plant available K by various mechanisms including acidolysis, chelation, exchange reactions, complex lysis, and the production of organic acids. Potassium solubilizing bacteria (KSB) are ready to enhance plant growth and yield.

4. ZINC SOLUBILIZING BACTERIA

ZSB are one of the capable microbes that can simply regulate plant growth-promoting properties like Zn, P, and K solubilization, biological processes, and the production of phytohormones like kinetin, indole-3-acetic acid (IAA), and gibberellin. ZSB secrete a variety of organic acids that convert the fixed form of zinc into an available form, promoting plant growth, yield, and soil fertility.

5. MAGNESIUM SOLUBILIZING BACTERIA

This bacterium ensures the easy availability of magnesium to the plants for their healthy development. It converts insoluble forms of magnesium nutrients into easy and absorbable forms, making them very effective fertilizers in mineral deficient soils. Magnesium is centrally bound in the chlorophyll molecule in plant tissue. Thus, if Mg is deficient, the shortage of chlorophyll ends up in poor and stunted plant growth.

6. SILICA SOLUBILIZING BACTERIA

Plants can uptake Si only in the soluble form of mono-silicic acid. Silica Solubilizing bacteria help in the conversion of this insoluble silica into mono-silicic acid, which helps plants by influencing the growth and development of plant roots, thus allowing better root resistance in dry soils and also accelerates the root growth.

7. IRON MOBILIZING BACTERIA

The Iron Mobilizing Microorganisms included bacterial strains that solubilize the unavailable form of iron present in the soil and make it available to the plants in more absorbable and easy forms. These microbes are helpful to the plants in various ways, helping to build strength and immunity in the plant along with a good yield.

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PAECILOMYCES LILACINUS

(Purpureocillium lilacinum)

Bio-Nematicides

CFU Count: 2 x 10^6 CFU/g min.

Paecilomyces lilacinus is a biological nematicide formulated using a naturally occurring soil fungus known for its effectiveness against a wide variety of plant-parasitic nematodes. It infects eggs, juveniles, and adult stages of nematodes, offering broad-spectrum protection in an eco-friendly and sustainable way.

BENEFITS:

- Controls root knot, burrowing, lesion, cyst, and other harmful nematodes that affect crop roots.
- Being a naturally occurring fungus, it is safe for beneficial soil microbes and poses no harm to crops, humans, or the environment.
- Applied directly to soil, it attacks nematodes at multiple life stages, breaking the lifecycle and reducing crop damage.
- Promotes healthy root development and boosts plant vigor.
- Supports sustainable and chemical-residue-free farming practices.

TARGET CROPS:

Maize, Sorghum, Soybean, Chickpea, Cowpea, Eggplant, Potato, Capsicum, Tomato, Cucumber, Ornamental flowers, Vineyards, and nursery crops.

TARGET DISEASES/NEMATODES:

- **Root-knot nematodes:** *Meloidogyne spp.*
- **Cyst nematodes:** *Heterodera spp., Globodera spp.*
- **Root lesion nematodes:** *Pratylenchus spp.*
- **Reniform nematodes:** *Rotylenchulus reniformis*

DOSAGE AND APPLICATION METHOD:

Soil Application:
10 Kg of *Paecilomyces lilacinus* formulation to be mixed with 100 Kg FYM / well decomposed organic manure and applied around the rhizosphere uniformly for existing crops in the field is sufficient for one hectare at the time of soil application and repeat after 40 days of planting.

Drip System:
10 Kg of *Paecilomyces lilacinus* formulation to be mixed with 1000 Liters of water and filter the contents well. After filtering it can be incorporate into the soil through the drip irrigation systems either before or after planting. In the case of high nematode population pressures and in perennial crops, multiple applications are recommended.

Soil Drenching:
Mix 10 gm/L in water and drench.





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Bio-Nematicides

VERTICILLIUM CHLAMYDOSPORIUM

CFU Count: 2 x 10^6 CFU/g min.

Verticillium chlamydosporium is a naturally occurring, eco-friendly Bio-Nematicide designed to protect crops from harmful nematodes. This product contains beneficial microorganisms that target and suppress root-knot, cyst, and lesion nematode populations in the soil while preserving beneficial insects in the environment. It's an ideal addition to Integrated Pest Management (IPM) systems and supports sustainable agriculture.

BENEFITS:

- Offers natural and eco-friendly nematode control for healthier crop growth.
- Effectively targets soil-borne nematodes, minimizing root damage and nutrient loss.
- Safe for beneficial insects, pollinators, and the environment.
- Convenient wettable powder form for easy application via soil or seed treatment.
- Supports ecological balance and sustainable farming practices.

APPLICATION METHODS:

Soil application and Seed treatment

TARGET CROPS, INSECTS, AND DOSAGE:

Crop(s)	Target Pest(s)	Dosage
Tomato, Brinjal, Okra, Carrot, and other vegetables	Root-knot nematodes (Meloidogyne spp.); Cyst nematodes (Heterodera & Globodera spp.); Root lesion nematode (Pratylenchus spp.)	Seed treatment with 20 gm/Kg seeds, 5 Kg/ha as soil application





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BACILLUS THURINGIENSIS VAR. KURSTAKI

Bio-Pesticides

Bacillus thuringiensis var. kurstaki (Btk) WP is an advanced biological insecticide designed for precision pest control in modern agriculture. Its high insecticidal potency ensures rapid and targeted action against Lepidopteran larvae. It provides an eco-friendly, low-residue solution that effectively protects vital crops such as pulses, vegetables, cereals, and oilseeds while having minimal impact on beneficial insects and the environment when used as recommended. Ideal for Integrated Pest Management (IPM) programs, it offers farmers a safe, efficient, and sustainable alternative to conventional chemical insecticides.

BENEFITS:

- High-potency biological insecticide for effective management of Lepidopteran pests.
- Delivers up to 100% pest mortality when use as recommended and in favourable conditions.
- Easy-to-disperse WP formulation for uniform spray coverage.
- Compatible with conventional spraying equipment for convenient field application.
- Highly target-specific with minimal or no impact on beneficial insects and other non-target organisms when used as recommended.
- Provides reliable pest control while reducing dependence on conventional chemical insecticides.

AVAILABLE POTENCY			
16000 IU/mg	18000 IU/mg	32000 IU/mg	36000 IU/mg

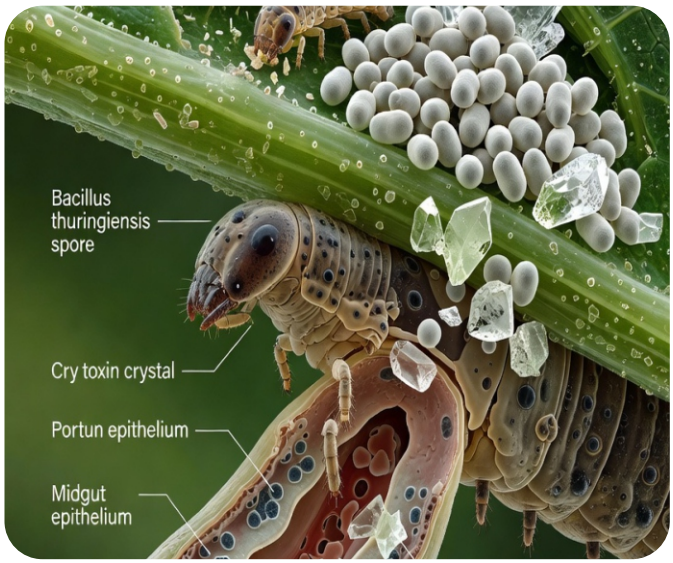
TARGET CROPS:

Pulses, Chickpea, Pigeon Pea, Maize, Sorghum, Pearl Millet, Rice, Sugarcane, Cabbage, Cauliflower, Broccoli, Brinjal, Groundnut, Soybean, Castor, and other cruciferous and horticultural crops.

TARGET PESTS:

Highly effective against Legume Pod Borer (Helicoverpa armigera), Bean Pod Borer (Maruca vitrata), Tobacco Caterpillar (Spodoptera litura), Diamondback Moth (Plutella xylostella), Stem Borer (Chilo partellus), Pink Stem Borer (Sesamia inferens), Brinjal Fruit & Shoot Borer (Leucinodes orbonalis), Rice Leaf Folder (Cnaphalocrocis medinalis), Red Hairy Caterpillar (Amsacta albistriga), Tomato Leaf Miner (Tuta absoluta)





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Bio-Pesticides

BACILLUS THURINGIENSIS VAR. KURSTAKI 10% WSL

It is a biologically derived pest control agent containing $2X10^9$ CFU/ml of active bacteria and 2.0% delta-endotoxin, delivering a potent 14245 IU/ml activity level.

Btk specifically targets and controls destructive Lepidopteran larvae, ensuring the health of vital crops like Pulses, Vegetables, Cereals, and Oilseeds - without harming the environment or non target or ganisms.

BENEFITS:

- High Efficacy: Delivers up to 100% pest mortality
- User-Friendly: Ready-to-use liquid formulation
- Safe Handling: Low risk of inhalation exposure
- Excellent Coverage: Superior water dispersibility
- Equipment Friendly: Compatible with standard sprayers
- Residue-Free: Minimal chemical traces on harvested crops

TARGET CROPS:

Fruit crops, Cole crops, Sugarcane, Cotton, Groundnut, Maize, Sorghum, Barley, Rice, Potato, Soybean, and Ornamentals in greenhouses, nurseries, etc.

TARGET INSECTS:

Highly effective against Lepidopteran pests such as:

Legume Pod Borer (Helicoverpa armigera, Maruca sp.), **Diamondback Moth** (Plutella xylostella), **Stem Borer** (Chilo partellus), **Borer** (Sesamia inferens), **Brinjal Fruit & Shoot Borer** (Leucinodes orbonalis), **Rice Leaf Folder** (Cnaphalocrocis medinalis), **Red Hairy Caterpillar** (Amsacta albistriga)

DOSAGE AND APPLICATION METHOD

Method: Foliar spray directly onto plant leaves

- 1 liter per Acre
- 2.5 liter per Hectare

APPLICATION SCHEDULE

- 2-3 sprays per crop cycle, based on pest infestation.
- Best applied during evening hours for increased efficacy.
- Use at key growth stages:
  - **Pre-flowering:** Early protection
  - **Post-flowering:** Pest prevention during reproductive phase
  - **Pod Emergence:** Safeguards yield-forming stages





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METARHIZIUM ANISOPLIAE

CFU count: NLT 1×10^6 CFU/gm

Bio-Pesticides

Metarhizium anisopliae 1.0% WP is a biological Insecticide based on an entomopathogenic fungi that naturally infect and kill a wide range of insect pests by penetrating their cuticle. It is especially effective against soil and foliar pests like weevils, white grubs, hoppers, and caterpillars. This product offers targeted pest control without harming beneficial organisms, making it ideal for sustainable farming.

BENEFITS:

- Effectively targets key insect pests that impact crop yield and quality.
- Eco-friendly solution that supports ecological balance, making it ideal for sustainable farming.
- Reduces pest pressure, leading to healthier plants and improved yields.
- Safe for beneficial insects and natural predators; does not disrupt the agro-ecosystem.
- Highly effective against thrips across diverse cropping systems; can be applied close to harvest due to low residue risk.

TARGET CROPS:

- Fruits: Mango, Banana, Citrus, Grapes, Pomegranate, etc.
- Field Crops: Sugarcane, Cotton, Maize, Sorghum, Barley, Rice, Groundnut, Soybean, Potato.
- Vegetables: Cole crops, Tomato, Chilli, Brinjal, Onion, Garlic, etc.
- Nurseries & Ornamentals

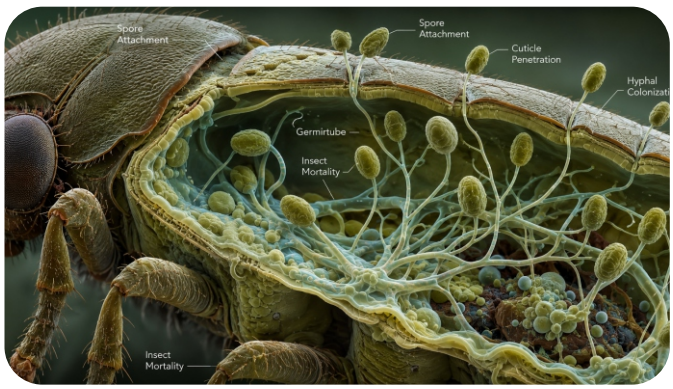
TARGET INSECTS:

Root weevils, Black vine weevil, Spittlebug, White grubs, Termites, Japanese beetle, Caterpillar, Semi-loopers, Beetle grubs, Borers, Cutworms, Sucking pests like Pyrilla, Mealybugs, Aphids.

DOSAGE AND APPLICATION METHODS:

Foliar spray:
2.5 - 4 Kg of formulation in 400 L of water. The spray volume depends *Metarhizium anisopliae* on the crop canopy. Filter the solution with muslin cloth before spray on the target pest. Spray should be done during evening hours on both sides of the leaves.
Soil Application:
Mix 5 Kg of formulation with 400 Kg of FYM /compost /well *Metarhizium anisopliae* decomposed organic manure. Spray some water for moisture and cover it with a polythene sheet. Remix the heap after 4 days and again cover the heap. This process should be done under shade. After complete process (8-10 days), broadcast this mixture into 1-hectare field.
Soil Drenching:
Mix 10 gm per L in water and drench.





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Bio-Pesticides

BEAUVERIA BASSIANA

CFU Count: NLT 1 x 10^8 CFU/gm

Beauveria bassiana is a biological insecticide containing spores of Beauveria bassiana, a fungus that infects and kills insect pests through contact. Once applied, the spores germinate on the insect's body, penetrate the cuticle, and release toxins that lead to death and this is typically seen as white muscardine disease. It is effective against a wide range of pests and works best under warm, humid conditions.

BENEFITS:

- Entomopathogenic fungal spores do not need to be ingested; contact with the insect's body is sufficient to initiate infection and cause death.
- It effectively controls many economically important crop pests, improves plant health, and contributes to higher productivity.
- Its formulations are compatible with agrochemicals and other natural enemies and pollinators.
- It can be applied up to the day of harvest, as it leaves no harmful residues for consumers.
- It plays a key role in integrated pest management and is widely used in organic farming and greenhouse crop systems.

TARGET CROPS:

Rice, Cereals, Pulses, Cotton, Oil seeds, Cabbage, Cauliflower, Fruits, and Plantation crops, especially coffee.

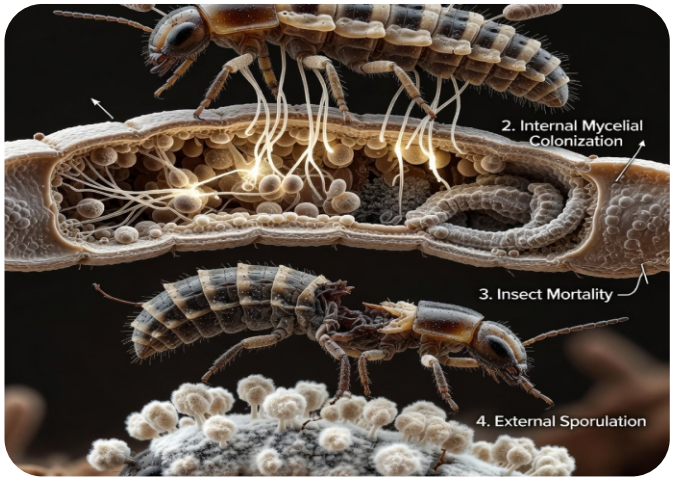
TARGET INSECTS:

It is an entomopathogenic fungus that causes white muscardine disease in a range of lepidopteran insects, as well as whiteflies, aphids, thrips, grasshoppers, and certain types of beetles.

DOSAGE AND APPLICATION METHODS:

Foliar spray: 10 g /L water
Mix 5 Kg *Beauveria bassiana* formulation in 400 L water, filter with muslin cloth and spray in one hectare / affected area.
Soil application:
Beauveria Bassiana formulation can be sprinkled around the root-zone and incorporated into the soil either mechanically or through watering the plant. It can also be incorporated into the soil through irrigation systems during the pre or post planting stage (Filter the mixture before using the sprayer).
For greenhouse pest problems, repeat the applications every 15-20 days.
Beauveria bassiana formulation (4 Kg) can be mixed with 100-150 Kg of FYM/ organic fertilizer or field soil and can be broadcasted in field uniformly.
For white grubs and termites, it may be used in combination with Metarhizium (1:1 w/w soil drenching).





*Dossiers are available
*The application method is solely for guidance purposes. Application rates will vary due to climate, frequency, soil, etc.
We encourage users to conduct their own testing in order to determine what is best for their crop under their specific conditions and environments.

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VERTICILLIUM LECANII

(LECANICILLIUM LECANII)

Bio-Pesticides

CFU Count: 1 X 10^8 CFU/g min.

Verticillium lecanii is a biological Insecticide containing the entomopathogenic fungus *Lecanicillium lecanii*. It is highly effective against soft-bodied pests like aphids, whiteflies, mealybugs, and scales in agricultural and horticultural settings. This product is designed to provide a safe and eco-friendly solution to pest management, reducing reliance on synthetic chemical pesticides while promoting sustainable agricultural practices.

BENEFITS:

- Made from naturally occurring fungus, it offers safe pest control without harming the environment.
- Controls soft-bodied pests such as mealy bugs, aphids, and whiteflies that damage crop health and yield.
- Non-toxic to beneficial insects like bees and ladybugs, and safe for people handling or working in treated areas.
- Helps farmers reduce the use of harsh chemical pesticides, supporting residue-free crop production.
- Compatible with eco-friendly farming practices and integrated pest management programs.
- Can be applied through simple foliar spray with standard equipment, making it convenient for farmers

TARGET CROPS

Banana, Grapes, Guava, Citrus, Mango, Sapota, Apple, Coconut, Paddy, Cotton, Tomato, Chilly, Citrus, Brinjal, Onion, Okra, Tea, Cardamom, Coffee, Aromatic and Medicinal crops

APPLICATION METHOD:

Foliar Spray : Ensure thorough coverage on both sides of leaves.

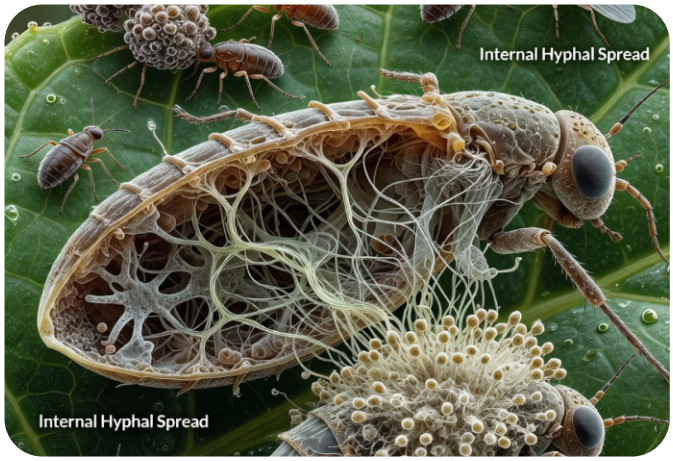
APPLICATION & DOSAGE:

Citrus & Horticultural	Target Pest	Dose	Dilution in Water (L/ha)
Foliar spray	Waxy Skin Insects & Sucking Pests	1 Kg/acre	200 L/acre

INSTRUCTIONS:

- Apply during early morning or late evening.
- Repeat application at 10–15 day intervals during infestation.
- Do not mix with chemical fungicides.
- Maintain field humidity after application for better spore germination.





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Bio-Pesticides

HIRSUTELLA THOMPSONII

CFU Count: 1 x 10^8 CFU/g min.

It is an entomopathogenic fungus, used as a biological pest control agent against a variety of mites. It induces mycosis in mites, leading to their eventual death. It is also pathogenic to certain mite species (order Acari) and some insect species belonging to the orders Lepidoptera and Hemiptera.

TARGET PEST:

- *Varroa destructor* (A parasitic mite that infects honey bees)
- Citrus rust mite
- Broad mite
- Coconut mites
- Red spider mites

TARGET CROPS:

Litchi, Chili, Brinjal, Tomato, Coconut, Citrus, Apple, Cucurbits, Tea, Roses, Cotton & other horticultural crops.

DOSAGE:

For effective pest management, foliar application is recommended at a dosage of 3-5 kg/ha. The dosage should be adjusted according to the level of pest infestation.

Note: Apply 2-3 foliar sprays in the morning using a high-volume sprayer, ensuring thorough coverage of both sides of the leaves. Repeat at 15-day intervals.





*Recommended to mix with spreader or adjuvants | *Dossiers are available
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Bio-Fungicides

TRICHODERMA VIRIDE

CFU Count: 2 x 10^6 CFU/g or CFU/ml min.

Trichoderma viride is a fungal biocontrol agent serving as an antagonistic fungus that can suppress more than 60 species of pathogen-causing diseases such as, root rot, wilts, brown rot, damping off, charcoal rot, and other soil-borne infections. In addition to disease control, it also acts as a plant growth promoter.

Features:

- Eco-friendly bio-fungicide that does not harm the environment, beneficial organisms, or pollinators, and supports soil microecology.
- Protects high value nursery seedling and field crops from a wide range of **soil-borne and seed-borne pathogens** through **mycoparasitism** and **antibiosis**.
- Induces **systemic resistance** in plants, enhancing their natural defense mechanisms.
- Boosts plant vigour, enhances drought and disease resistance.
- Helps in decomposes farm waste, solubilizes phosphorus, detoxifies contaminated soils, and improves overall soil health.
- Suitable for organic farming, natural farming, and biofertilizer-based practices.

TARGET CROPS :

Paddy, Maize, Rice, Pulses, Vegetables, Oilseeds, Cotton, Sugarcane, Ginger, Turmeric, Cardamom, Black Pepper, Tea, Coffee, Fruits, and Cut Flowers.

TARGET PATHOGENS :

Pythium spp., Phytophthora spp., Rhizoctonia spp., Colletotrichum spp., Fusarium spp., Sclerotium rolfsii, Sclerotinia spp., Macrophomina, and Cephalosporium spp.

DOSAGE AND APPLICATION METHODS:

Seed Treatment: 10 g of formulation mix in 50 ml. of water and applied on 1Kg of seed uniformly, shade dry the seeds for 20 to 30 minutes before sowing.

Nursery Bed Treatment: Mix 50 g of formulation mix in 10 L. of water and drench nursery bed 1 m^2. meter are at time of seeding.

Seedling Treatment: Dissolve 100 g of formulation in 10 L. water and dip the roots of seedlings for 30-45 min before transplanting.

Soil Application: Mix 2.5 Kg with 50 Kg FYM and broadcast in a one-hectare field before sowing.

Foliar Application: Mix 5 g with 1 ltr water.





*Dossiers are available

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TRICHODERMA HARZIANUM

Bio-Fungicides

CFU Count: 2 x 10^6 CFU/g or CFU/ml min.

Trichoderma harzianum is a fast colonizing, highly adaptable fungal bioagent used to control a broad range of plant pathogens. It acts both as a natural fungicide and a root-associated growth promoter, making it a dual purpose tool for sustainable farming.

Features:

- Controls root rot, wilt, damping off, and other fungal diseases
- Stimulates root branching and plant vigor due to PGPR traits
- Improves tolerance to drought and abiotic stress
- Detoxifies contaminated soils and supports nutrient cycling
- Compatible with organic inputs and certified for sustainable farming
- Works well in consortium with other beneficial microbes

TARGET CROPS :

Paddy, Maize, Rice, Pulses, Vegetable Crops, Oil Seeds, Cotton, Ginger, Turmeric, Cardamom, Black Pepper, Tea, Coffee, Fruits, and cut flower crops, etc.

TARGET PATHOGENS :

Highly effective in controlling Pythium spp., Phytophthora spp., Rhizoctonia spp., Fusarium spp., Sclerotium rolfsii, Sclerotinia spp., Macrophomina, Cephalosporium spp., and Meloidogyne spp. (Root Knot Nematodes).

DOSAGE AND APPLICATION METHODS:

Seed Treatment: 10 gm of formulation mix in 50 ml. of water and applied on 1 kg of seed uniformly, shade dry the seeds for 20 to 30 minutes before sowing.

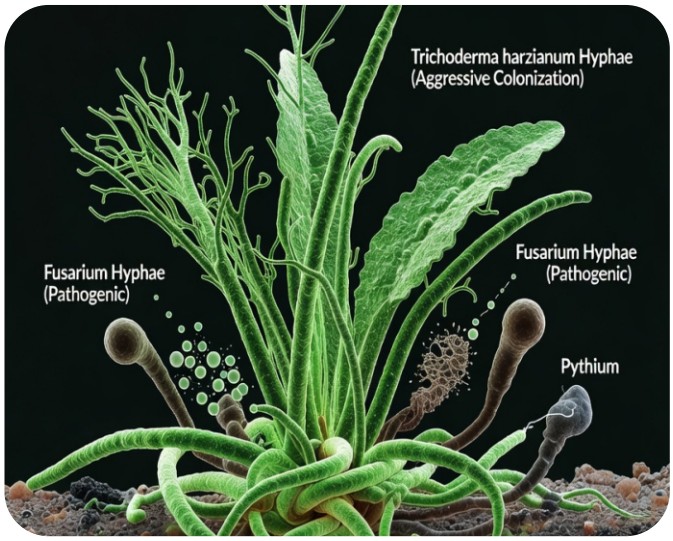
Nursery Bed Treatment: Mix 50 gm of formulation mix in 10 ltr. of water and drench nursery bed 1 Sq. meter are at time of seeding.

Seedling Treatment: Dissolve 100 gm of formulation in 10 ltr. water and dip the roots of seedlings for 30-45 min before transplanting.

Soil Application: Mix 2.5 kg with 50 Kg FYM and broadcast in a one-hectare field before sowing.

Foliar Application: Mix 5 gm with 1 ltr water.





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Bio-Fungicides

TRICHODERMA ASPERELLUM

CFU Count: 1 x 10^8 CFU/g or CFU/ml min.

Trichoderma asperellum is a beneficial fungus widely used as a bio-fungicide for the management of soil-borne fungal diseases. It suppresses plant pathogens through multiple biological mechanisms while colonizing the rhizosphere and root surface. In addition to disease management, it promotes root development, improves nutrient uptake, enhances plant vigor, and activates the plant's natural defense system, contributing to healthier crop growth and improved productivity.

TARGET PATHOGENS AND DISEASES:

Fusarium spp., Rhizoctonia solani, Sclerotium rolfsii, Sclerotinia sclerotiorum, Pythium spp., Phytophthora spp.

TARGET CROPS:

Tomato, Capsicum, Chilli, Cauliflower, Cabbage, Onion, Garlic, Pea, and Beans

DOSAGE & APPLICATION METHOD:

Nursery Bed Treatment: Mix 15–25 g of formulation in 6–8 L of water and drench 1 m² nursery area.
Seed Treatment: Apply 5–8 g/kg of seed.
Soil Application: Mix 3–5 kg of formulation with 50 kg of well-decomposed FYM or compost and broadcast uniformly over 1 hectare.
Soil Drenching: Apply 5–10 g/L of water around the root zone.
Foliar Application: Apply 5–10 g/L of water as a foliar spray, where recommended.

Note: For optimal results, apply as a soil drench or foliar spray at the recommended dosage of 1-2 grams per liter of water, with applications repeated every 15 days.





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BACILLUS SUBTILIS

OMRI LISTED For Organic Use

Bio-Fungicides

CFU count: 1 x 10^8 CFU/g or CFU/ml min.

Bacillus subtilis is a Bio-Fungicide and plant growth-promoting rhizobacteria (PGPR), which colonizes roots and protects the root system of the plant. It inhibits the germination of fungal spores, prevents pathogen attachment to plant surfaces, and suppresses harmful microbes through competitive exclusion. This makes it effective against a range of soil borne, foliar, and fruit fungal diseases. It also solubilizes phosphorus and produces siderophores—iron-chelating compounds that enhance plant nutrition and suppress pathogen growth. In addition, B. subtilis supports plants by enhancing secondary metabolite production, modulating phytohormone levels, and improving tolerance to environmental stresses.

BENEFITS:

- Competitive effects of *Bacillus subtilis* allow it to multiply and colonize massively and rapidly, which helps in achieving antibacterial and disease-preventing effects.
- *Bacillus subtilis* not only directly inhibits plant pathogenic bacteria but also enhances plant disease resistance by inducing the plant's disease resistance.
- Antibacterial and bacteriostatic activities of *Bacillus subtilis* allow it to produce substances such as subtilin, organic acids, and antibacterial proteins, which inhibit the growth and reproduction of pathogenic bacteria, destroy the bacterial structure, and kill pathogens.
- It enhances seed germination and plant growth by enhancing the synthesis of photosynthetic pigments, apart from boosting plant growth by altering cytokinin and ethylene homeostasis.
- *Bacillus subtilis* enhances stress tolerance and disease resistance in their plant hosts by inducing the expression of stress-response genes, phytohormones, and stress-related metabolites.
- It is frequently used as an important component of integrated pest management and a key component for managing organically grown fields as well as glasshouse crops.

TARGET CROPS :

Grapes, Berries, Orchid, Strawberry, Banana, Capsicum, Groundnut, Cucumbers, Soyabean, Roses, and other cut flowers.

TARGET DISEASES :

Pythium spp., Fusarium app., Alternaria spp., Erysiphe spp., Xanthomonas spp., Botrytis spp., Phytophthora spp., Sclerotinia spp.

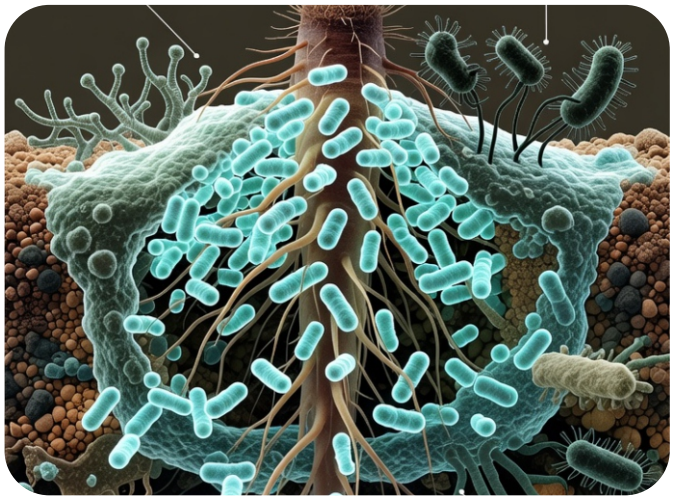
DOSAGE AND APPLICATION METHODS:

Seed Treatment: Mix 10 ml formulation with 10 gram of crude sugar and apply uniformly on 1 Kg of seeds. Shade dry the seeds for 20-30 min before sowing.

Drench Application: Mix 2.5 liter /ha

Foliar Application: Mix 2.5 liter /ha





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Bio-Fungicides

PSEUDOMONAS FLUORESCENS

CFU Count: 1 x 10^8 CFU/g or CFU/ml min.

Pseudomonas fluorescens 1.0% WP is a fluorescent Pseudomonas belonging to Plant Growth Promoting Rhizobacteria (PGPR), playing a major role in plant growth promotion, induced systemic resistance, biological control of pathogens, and reducing the severity of various diseases. The efficacy of Pseudomonas antagonists in controlling fungal diseases is often better when used alone and sometimes in combination with compatible fungicides. *P. fluorescens* is a potential Bio-Pesticide for augmentative biological control of many diseases of agriculture and horticultural importance.

BENEFITS:

- Protect crops from several soil-borne and seed-borne plant pathogens.
- Nature-friendly and active against specific plant pathogens and pathogenic nematodes present in soil.
- Induces resistance in plants against pathogens and is helpful in export-oriented produce by serving as an alternative to chemical fungicides.
- Pseudomonas promotes plant growth by suppressing pathogenic microorganisms, synthesizing growth-stimulating plant hormones, PGR activity, and promoting increased plant disease resistance.
- It also protects plants during different stress conditions like heavy metal pollution, osmosis, temperature, oxidative stress, etc.
- It is frequently used as an important component of integrated pest management and a key component for managing organically grown fields as well as glasshouse crops.

TARGET CROPS:

Vegetable Crops, Groundnut, Soyabean, Cotton, Paddy, Maize, Rice, Pulses, Sugarcane, Ornamental Crops, Tea, Turmeric, Cardamom, Black Pepper, and Fruit Crops.

TARGET PATHOGENS:

Highly effective against various foliar diseases as well as soil-borne diseases such as *Fusarium spp., Verticillium spp., Phytophthora spp., Pythium spp., Rhizoctonia spp., Botrytis spp., Sclerotium spp., Sclerotinia spp., Xanthomonas spp.,* etc.

DOSAGE AND APPLICATION METHODS:

Seed Treatment: 10 gm of formulation mix in 40 ml. of water and applied on 1 Kg of seed uniformly, shade dry the seeds for 20 to 30 minutes before sowing.

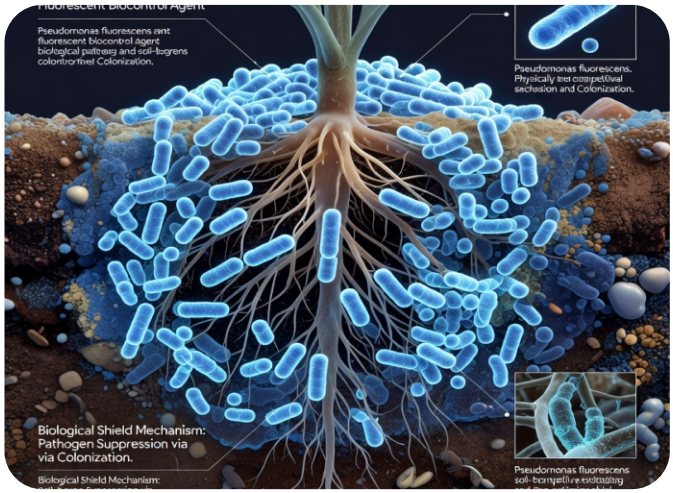
Nursery Bed Treatment: Drench nursery beds (one Sq meter) with @ 5 - 8 gm of *Pseudomonas fluorescens* formulation per liter of water before sowing the seeds specially for transplanted crop like Paddy, Capsicum, Eggplant, Tomatoes, Cabbage and Cauliflowers etc.

Seedling Treatment: Dissolve 100 gm of formulation in 10 L. water and dip the roots of seedlings for 30-45 min before transplanting.

Soil Treatment: Mix 2.5-4 Kg of *Pseudomonas fluorescens* formulation in 250 Kg of FYM/ compost/ well decomposed organic manure and broadcast in the field (1Hectare per 10,000 Sq. mtr.).

Foliar Application: Spray 5 gm/L to protect blast and blight diseases of paddy crop after 40-45 days of transplanting.





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Botanical

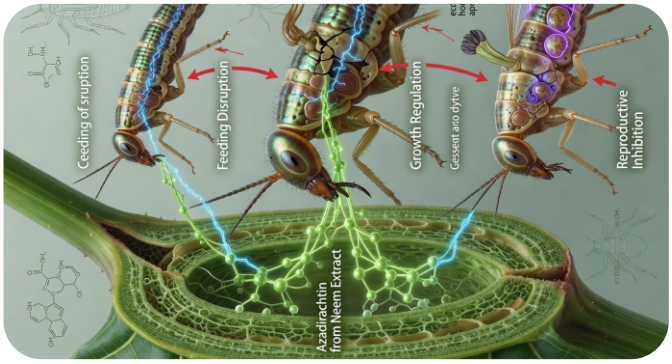
AZADIRACHTIN (NEEM)

Azadirachtin is a premium neem-derived bio-pesticide known for its broad-spectrum activity against a wide range of sucking and chewing insect pests. Acting as an anti-feedant, insect growth regulator, and oviposition deterrent, it disrupts the normal life cycle of insects while reducing the risk of resistance development. Its systemic movement within the plant provides long-lasting protection without harming beneficial organisms, making it an ideal solution for Integrated Pest Management (IPM) and sustainable agriculture. Safe, biodegradable, and compatible with most crop nutrition programs, Azadirachtin offers reliable crop protection across fruits, vegetables, plantation crops, field crops, and ornamentals.

AVAILABLE AS TECHNICAL AND IN VARIOUS FORMULATIONS:

Azadirachtin Technical | 0.03% EC (300 ppm) | 0.15% EC (1500 ppm) | 0.3% EC (3000 ppm) | 1% EC (10,000 ppm) | 1.2% EC (12,000 ppm) | 3% EC (30,000 ppm) | 5% EC (50,000 ppm)





KARANJA OIL

Karanja Oil, extracted from the seeds of Pongamia pinnata, is a natural botanical bio-pesticide valued for its insecticidal, repellent, and anti-feedant properties. Rich in bioactive compounds such as karanjin and pongamol, it effectively manages a wide range of crop pests while remaining safe for beneficial insects and the environment. Its biodegradable nature, low residue profile, and compatibility with organic farming make it an excellent choice for sustainable crop protection. Suitable for vegetables, fruits, cereals, pulses, and horticultural crops, Karanja Oil supports environmentally responsible pest management with dependable field performance.

AVAILABLE AS TECHNICAL AND IN VARIOUS FORMULATIONS:

Karanja Oil Technical | Water Soluble Liquid (WSL)





*Dossier are available

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PBL®



ISO 9001:2015 | OMRI LISTED For Organic Use | REACH COMPLIANCE | CE | FCO FERTILIZER CONTROL ORDER, 1985 | CIBRC CENTRAL INSECTICIDES BOARD & REGISTRATION COMMITTEE | PMFAI™ | CHEMEXCIL | RSOCA

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Unit 2 : E-515, Industrial Area, Chopanki, Bhiwadi- 301019, Rajasthan, India
Unit 3 : B-1131, RIICO Industrial Area, Bandapur, Chopanki, Bhiwadi, Distt.
Khairthal-Tijara (Raj.)