

MicrobeBio®

**MICROBEBIO X2:  
ADVANCED  
MICROBIAL SHIELD  
FOR BROAD-  
SPECTRUM  
PATHOGEN  
RESISTANCE**



**CONTENTS**  
MicrobeBio X2 is a broad-spectrum microbial shield for plants. It contains a blend of beneficial bacteria and fungi that help protect plants from a wide range of pathogens. The product is easy to apply and can be used on a variety of crops.

**QUARANTEED ANALYSIS**  
CONTAINS BENEFICIAL STRAINS PER POUND\*\*  
Bacteria: 1.15E+09 CFU/g  
Fungi: 1.15E+09 CFU/g  
Total Microbes: 2.3E+09 CFU/g

**GENERAL APPLICATION AND DILUTION INSTRUCTIONS**  
Apply 1/2 cup per 100 sq ft of growing area. Mix with water and apply to soil. For foliar application, dilute with water and spray on leaves.

**ATTENTION**  
This product is not a pesticide. It is a microbial shield that helps protect plants from pathogens. It is not intended for use on animals or humans.

**STORAGE**  
Store in a cool, dry place. Avoid exposure to moisture and direct sunlight.

**WARRANTY**  
MicrobeBio X2 is guaranteed to contain the active ingredients listed on the label for 12 months from the date of manufacture.



# OVERVIEW

Microbebio X2 is a powerful biological formulation engineered to strengthen plant immunity and soil health by building broad-spectrum resistance against harmful pathogens. This advanced microbial consortium integrates beneficial bacteria, fungi, and mycorrhizae that colonize the rhizosphere, suppress soilborne diseases, and activate natural plant defense mechanisms.

Through biological competition, enzyme secretion, and systemic resistance induction, Microbebio X2 forms a protective living barrier that defends plants against fungal, bacterial, and nematode attacks while promoting vigorous growth and resilience.





## MICROBIAL COMPOSITION AND PATHOGEN CONTROL FUNCTIONS

### 1. PSEUDOMONAS FLUORESCENS

A root-colonizing bacterium known for its ability to produce antibiotics, siderophores, and hydrogen cyanide that inhibit pathogens such as Fusarium, Pythium, Rhizoctonia, and Sclerotium.

- Induces systemic resistance (ISR) in plants
- Disrupts pathogen growth and spore germination
- Protects against root rot, damping-off, and wilt diseases

### 2. BACILLUS SUBTILIS

A spore-forming bacterium that builds a protective biofilm on roots and foliage. It produces lipopeptides (surfactin, iturin, fengycin) that lyse pathogen cell membranes and block infection.

- Controls Alternaria, Botrytis, Phytophthora, and Rhizoctonia
- Forms physical and biochemical barriers against infection
- Promotes chlorophyll production and rapid recovery from disease stress

### 3. BACILLUS AMYLOLIQUEFACIENS

A strong biocontrol and growth-promoting bacterium that secretes antifungal compounds and enzymes like chitinase and glucanase.

- Suppresses *Fusarium oxysporum*, *Colletotrichum*, *Phytophthora infestans*, and *Sclerotinia sclerotiorum*
- Inhibits pathogen spore formation and colonization
- Enhances root immunity and nutrient absorption for faster regeneration

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### 4. TRICHODERMA HARZIANUM

A mycoparasitic fungus that actively attacks, penetrates, and digests pathogenic fungi. It competes for space and nutrients while releasing antifungal enzymes and metabolites.

- Destroys *Fusarium*, *Pythium*, *Phytophthora*, and *Rhizoctonia*
- Stimulates plant immune response and root regeneration
- Promotes root elongation and overall plant vitality under pathogen pressure

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### 5. RHIZOPHAGUS INTRARADICES

An arbuscular mycorrhizal fungus (AMF) that extends the root system with a vast hyphal network, strengthening plant access to water and nutrients.

- Enhances plant defense by inducing systemic resistance
- Reduces infection rates from soilborne fungi and nematodes
- Boosts plant tolerance to environmental stressors linked to pathogen outbreaks

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### 6. PHANEROCHAETE CHRYSOSPORIUM

A white-rot fungus with exceptional lignin-degrading and detoxifying enzymes. It helps purify soils contaminated with pathogen residues, pesticides, and heavy metals.

- Breaks down pathogen biofilms and toxins
- Improves soil microbial balance and organic matter decomposition
- Enhances the natural disease-suppressive power of the soil





## BROAD-SPECTRUM PATHOGEN RESISTANCE

Microbebio X2 provides comprehensive protection against:

- **Fungal pathogens:** Fusarium, Rhizoctonia, Pythium, Phytophthora, Sclerotium, Alternaria, Colletotrichum, Botrytis, and Sclerotinia
- **Bacterial pathogens:** Erwinia, Pseudomonas syringae, Xanthomonas campestris, and Ralstonia solanacearum

- **Nematodes:** Meloidogyne spp. (root-knot nematodes) and Pratylenchus spp.  
This broad defensive action is achieved through microbial synergy — combining competitive exclusion, antibiotic production, enzymatic degradation, and immune activation.



## SYNERGISTIC DEFENSE AND GROWTH BENEFITS

- **Complete Biological Shield:** Active suppression of soilborne, foliar, and root pathogens
- **Immune Activation:** Induction of systemic resistance pathways for long-term protection
- **Soil Regeneration:** Decomposition of organic residues and pathogen toxins
- **Nutrient Efficiency:** Enhanced uptake of nitrogen, phosphorus, and trace minerals
- **Plant Recovery:** Faster healing and vigor after pathogen stress or damage
- **Sustainable Protection:** Reduces reliance on chemical fungicides while improving soil biodiversity



MICROBEBIO X2 IS MORE THAN A BIOFERTILIZER—IT'S A BIOLOGICAL DEFENSE SYSTEM. BY HARNESSING THE SYNERGISTIC POWER OF PSEUDOMONAS, BACILLUS, TRICHODERMA, RHIZOPHAGUS, AND PHANEROCHAETE, IT TRANSFORMS THE SOIL MICROBIOME INTO A LIVING SHIELD THAT CONTINUOUSLY GUARDS PLANTS AGAINST A WIDE SPECTRUM OF PATHOGENS.

FARMERS AND GROWERS USING MICROBEBIO X2 GAIN NOT ONLY STRONGER DISEASE RESISTANCE BUT ALSO HEALTHIER SOILS, IMPROVED YIELDS, AND LONG-TERM AGRICULTURAL SUSTAINABILITY.



# GROW CLEANER. GROW STRONGER. GROW WITH MICROBEBIO.

#MicrobeBioX1 #NematodeControl #SoilHealth  
#BiologicalFarming #RegenerativeAgriculture  
#MicrobialDefense #RootProtection  
#SustainableFarming #EcoFriendlyAgriculture  
#PlantImmunity

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**[www.microbebio.com](http://www.microbebio.com)**

*[info@microbebio.com](mailto:info@microbebio.com)*



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