

MicrobeBio®

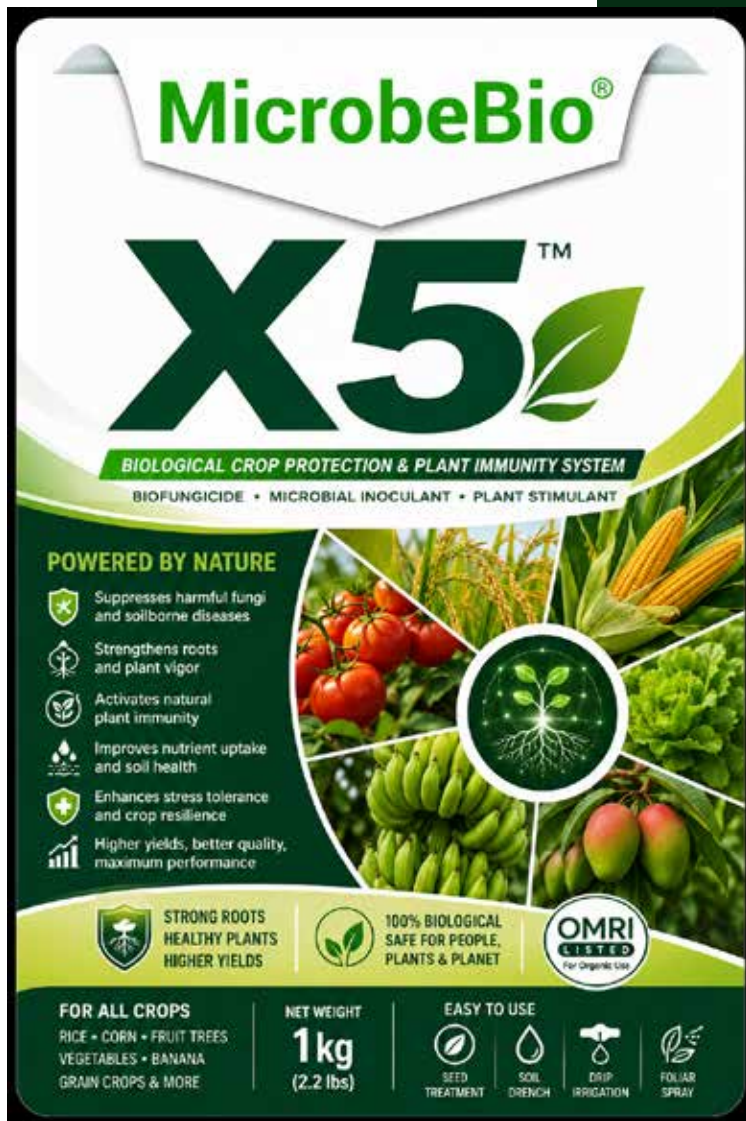
X5™ 

**BIOLOGICAL CROP PROTECTION &
PLANT IMMUNITY SYSTEM**



HELPS CONTROL





MICROBEBIO X5™

Advanced Biological Fungal Disease Control, Soilborne Protection & Plant Immunity System

Microbebio X5™ is an advanced biological disease management system engineered to protect crops against major:

- Soilborne diseases
- Fungal pathogens
- Root diseases
- Stem and vascular diseases
- Foliar fungal infections
- Secondary infections associated with viral stress

X5™ is specifically designed for:

- Rice
- Corn / Maize
- Banana / Plantain
- Fruit Trees
- Vegetables
- Grain crops
- Coffee & Cacao
- Tropical and Pacific agriculture systems



PROPRIETARY X5™ MICROBIAL COMPLEX

The Microbebio X5™ system contains a proprietary consortium of beneficial microorganisms selected for:

- Broad-spectrum fungal suppression
- Rhizosphere colonization
- Plant immunity activation
- Competitive exclusion of pathogens
- Stress resilience
- Root and vascular protection



PRIMARY MICROBES IN X5™

MICROBE	PRIMARY FUNCTION
Microbe	Primary Function
<i>Bacillus subtilis</i>	Antifungal metabolite production, ISR activation, root colonization
<i>Bacillus amyloliquefaciens</i>	Disease suppression, biofilm formation, rhizosphere protection
<i>Bacillus velezensis</i>	Broad-spectrum fungal suppression and plant defense stimulation
<i>Pseudomonas fluorescens</i>	Root protection, siderophore production, pathogen suppression
<i>Trichoderma harzianum</i>	Root colonization, fungal parasitism, root stimulation
<i>Trichoderma viride</i>	Soil fungal suppression and organic matter interaction
<i>Paenibacillus polymyxa</i>	Root growth support, nutrient mobilization, disease suppression
<i>Streptomyces</i> spp.	Suppression of soilborne pathogens and root disease complexes
<i>Bacillus licheniformis</i>	Organic matter degradation and rhizosphere stabilization
<i>Bacillus pumilus</i>	Stress tolerance support and foliar disease suppression



FUNCTION OF THE X5™ MICROBIAL SYSTEM

COMPETITIVE EXCLUSION

Beneficial microbes rapidly colonize root and leaf surfaces, reducing available space for pathogens to establish.

ANTIFUNGAL METABOLITE PRODUCTION

The microbial consortium produces natural biological compounds that suppress harmful fungi and reduce disease pressure.



RHIZOSPHERE STABILIZATION

The microbial system creates a balanced root-zone ecosystem that supports:

- Root development
 - Nutrient uptake
 - Oxygen exchange
 - Soil biological stability
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ISR PLANT IMMUNITY ACTIVATION

X5™ stimulates Induced Systemic Resistance (ISR), helping crops:

- Respond faster to infection
 - Improve stress tolerance
 - Strengthen defense enzymes
 - Recover more rapidly after stress or disease
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ROOT & VASCULAR PROTECTION

The X5™ system helps maintain healthier root and vascular systems, improving:

- Water movement
- Nutrient transport
- Stress resilience
- Crop uniformity



GENERAL BENEFITS OF X5™

ROOT & SOIL HEALTH BENEFITS

- Stronger root systems
 - Reduced root rot pressure
 - Improved nutrient uptake
 - Better root oxygen environment
 - Improved rhizosphere biology
 - Reduced transplant stress
-

CROP PERFORMANCE BENEFITS

- Improved photosynthesis
- Better crop vigor
- Improved flowering and fruit set
- Better grain filling
- Higher crop uniformity
- Stronger stems and vascular systems





FRUIT & HARVEST BENEFITS

- Better fruit quality
 - Improved shelf life
 - Reduced fruit rot
 - Better firmness and color
 - Reduced post-harvest losses
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STRESS & RECOVERY BENEFITS

- Better drought recovery
 - Improved flood tolerance
 - Reduced heat stress damage
 - Faster recovery after disease pressure
-

ENVIRONMENTAL BENEFITS

- Reduced chemical fungicide dependency
- Improved soil microbial balance
- Safer for beneficial biology
- Supports regenerative agriculture systems

MAJOR SOILBORNE DISEASES X5™

HELPS CONTROL



BROAD-SPECTRUM
PROTECTION



CONTROLS MAJOR
SOILBORNE PATHOGENS













HEALTHIER ROOTS
STRONGER PLANTS



IMPROVES YIELD
POTENTIAL



Disease	Pathogen	Disease	Pathogen
 Fusarium wilt	<i>Fusarium spp.</i>	 Black root rot	<i>Multiple fungi</i>
 Root rot	<i>Multiple fungal complexes</i>	 Collar rot	<i>Soil fungal complexes</i>
 Damping-off	<i>Pythium spp., Rhizoctonia spp.</i>	 Sclerotium rot	<i>Sclerotium rolfsii</i>
 Rhizoctonia root disease	<i>Rhizoctonia solani</i>	 Charcoal rot	<i>Macrophomina phaseolina</i>
 Pythium root rot	<i>Pythium spp.</i>	 Phytophthora root disease	<i>Phytophthora spp.</i>



STRONG ROOTS
HEALTHY FUTURE

X5™

SOIL HEALTH. PLANT PROTECTION.
MAXIMUM PERFORMANCE.

VEGETABLE DISEASES X5™

HELPS CONTROL



BROAD-SPECTRUM
PROTECTION



CONTROLS MAJOR
VEGETABLE PATHOGENS



HEALTHIER PLANTS
STRONGER YIELD



IMPROVES YIELD
POTENTIAL



	Disease	Pathogen
	Damping-off	<i>Pythium spp.</i> , <i>Rhizoctonia spp.</i>
	Fusarium wilt	<i>Fusarium spp.</i>
	Powdery mildew	<i>Various fungi</i>
	Downy mildew	<i>Oomycetes</i>
	Anthracnose	<i>Colletotrichum spp.</i>
	Early blight	<i>Alternaria spp.</i>
	Late blight	<i>Phytophthora spp.</i>



STRONG ROOTS.
HEALTHY PLANTS.



COMPLETE PROTECTION
THROUGH EVERY STAGE.



BETTER YIELD.
BETTER QUALITY.

X5™

COMPLETE DISEASE CONTROL
FOR HEALTHIER VEGETABLES

FRUIT TREE DISEASES X5™

HELPS CONTROL



BROAD-SPECTRUM
PROTECTION









CONTROLS MAJOR
FRUIT TREE PATHOGENS



HEALTHIER TREES
STRONGER ROOTS



IMPROVES YIELD
AND QUALITY

Disease	Pathogen
 Anthracnose	<i>Colletotrichum spp.</i>
 Powdery mildew	<i>Various fungi</i>
 Root rot	<i>Multiple fungal complexes</i>
 Stem canker	<i>Various fungi</i>
 Phytophthora diseases	<i>Phytophthora spp.</i>
 Fruit rot	<i>Mixed fungal pathogens</i>



STRONG ROOTS.
HEALTHY TREES.



PLANT HEALTH.
MAXIMUM PERFORMANCE.



COMPLETE PROTECTION
FOR BETTER YIELD & QUALITY.

X5™

COMPLETE DISEASE CONTROL
FOR FRUIT TREES

CORN / MAIZE DISEASES

X5™

HELPS CONTROL



BROAD-SPECTRUM
PROTECTION











CONTROLS MAJOR
CORN PATHOGENS



HEALTHIER CORN
HIGHER YIELDS



IMPROVES YIELD
POTENTIAL

Disease	Pathogen
 Fusarium ear rot	<i>Fusarium spp.</i>
 Fusarium stalk rot	<i>Fusarium spp.</i>
 Southern rust	<i>Puccinia polysora</i>
 Common rust	<i>Puccinia sorghi</i>
 Gray leaf spot	<i>Cercospora zeae-maydis</i>
 Northern corn leaf blight	<i>Exserohilum turcicum</i>
 Anthracnose stalk rot	<i>Colletotrichum graminicola</i>
 Charcoal rot	<i>Macrophomina phaseolina</i>



STRONGER PLANTS.
BETTER YIELDS.



PLANT HEALTH.
MAXIMUM PERFORMANCE.



COMPLETE PROTECTION
FOR EVERY STAGE.

X5™

COMPLETE DISEASE CONTROL
FOR HIGHER YIELDS

MAJOR FOLIAR & VASCULAR DISEASES X5™ HELPS CONTROL



BROAD-SPECTRUM PROTECTION













CONTROLS MAJOR PLANT PATHOGENS



HEALTHIER PLANTS STRONGER YIELD



IMPROVES YIELD POTENTIAL

Disease	Pathogen	Disease	Pathogen
 Powdery mildew	<i>Various fungi</i>	 Early blight	<i>Alternaria spp.</i>
 Downy mildew	<i>Oomycetes</i>	 Late blight	<i>Phytophthora spp.</i>
 Leaf spot diseases	<i>Multiple fungi</i>	 Stem rot	<i>Multiple fungi</i>
 Anthracnose	<i>Colletotrichum spp.</i>	 Fruit rot	<i>Mixed fungal pathogens</i>
 Rust diseases	<i>Various rust fungi</i>	 Cercospora leaf spot	<i>Cercospora spp.</i>



STRONGER PLANTS. BETTER YIELDS.

X5™

PLANT HEALTH. DISEASE CONTROL. MAXIMUM PERFORMANCE.



PROPRIETARY X5™ MICROBIAL COMPLEX

X5™ does not directly kill viruses. However, X5™ helps reduce virus impact by:

- Strengthening plant immunity
- Improving plant recovery
- Supporting vascular health
- Reducing secondary fungal infections
- Working synergistically with vector control systems such as X3™, X3 SB™, Green Fury™, and X7™



VIRUS SUPPORT EXAMPLES

VIRUS	SUPPORT MECHANISM
Rice Tungro Virus	Improved immunity + vector reduction
Tomato Yellow Leaf Curl Virus	Better recovery + whitefly reduction
Mosaic Virus Complexes	Reduced stress and secondary infection
Maize Streak Virus	Improved recovery and vascular support
Banana Bunchy Top Support	Improved vigor and recovery

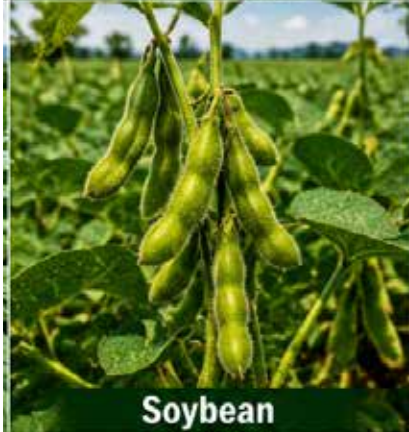
HOW X5™ COMPLEMENTS THE FULL MICROBEBIO SYSTEM



Corn / Maize



Vegetables



Soybean



Sugarcane



Pepper



Potato

PRODUCT	FUNCTION WITH X5™
X1™	Root protection + nematode reduction
X3™	Insect vector reduction
X3 SB™	Stem borer and stink bug control
Aqua Activator	Improves nutrient uptake and root vigor
Nature Phenom™	Improves crop performance and recovery
BIO-CORE™	Stabilizes soil biology
Nano Chitosan™	Enhances immunity signaling
Nano S9™	Structural stress resistance
Nature Venom™	Botanical disease support



EXPECTED FIELD BENEFITS

Under proper integrated management:

- Disease pressure reduction: 70–95%
- Improved root health
- Better crop recovery
- Higher crop quality and yield
- Reduced reinfection cycles
- Better shelf life and export quality
- Improved Pacific crop resilience

FINAL POSITIONING

Microbebio X5™ is more than a fungicide. It is a complete biological plant immunity and disease management system designed to:

- Protect crops naturally
- Improve soil and root health
- Support plant immunity
- Reduce disease pressure sustainably
- Maximize Pacific crop performance and quality

The logo for MicrobeBio is displayed on a white, ribbon-like banner that appears to be peeling up from the top of the page. The banner is set against a background of a lush green rice field under a bright, golden sunset sky. The sun is low on the horizon, casting a warm glow over the scene. The rice stalks in the foreground are in sharp focus, showing their characteristic drooping panicles.

MicrobeBio[®]

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