MicrobeBio®

MICROBEBIO BIOLOGICAL CROP PROTECTION & GROWTH SOLUTIONS MANUFACTURING FACILITY

MicrobeBio proposes the construction and operation of a state-of-the-art microbial biomanufacturing and biological crop protection facility to serve commercial agriculture, plantation systems, food production cooperatives, and regenerative land management programs.

The facility will produce MicrobeBio proprietary microbial formulations designed to:

- Increase crop yield, quality, flavor, color, and nutrient density
- Improve soil organic carbon cycling and long-term soil fertility
- Reduce reliance on chemical fertilizers and pesticides
- Strengthen plant immune systems for durable stress resistance
- Provide biological control of harmful plant pathogens and pests, including:

  Fungal & root rot organisms
  Bacterial plant diseases
  Nematodes
  Snails & soft-bodied agricultural pests

This facility becomes a regional manufacturing hub for high-performance regenerative crop solutions.

BACILLUS SUBTILIS / BACILLUS AMYLOLIQUEFACIENS

PRODUCT	FORM	PRIMARY FUNCTION
X-Series® Rhizosphere Growth Consortia (X1–X9)	Wettable Powder	Nutrient uptake, root mass, drought resilience
Bacillus–Trichoderma BioDefense Blend	Wettable Powder	Suppression of fungal & bacterial soil pathogens
Paenibacillus + Pseudomonas Immune Activation Complex	Liquid Concentrate	Induced systemic resistance & plant immune priming
NemaShield™ Microbial Nematode Suppression	Wettable Powder	Biological reduction of root-parasitic nematodes
SnailSafe™ Fermentation-Based Soft Body Pest Control	Liquid & Granule	Biological disruption of snail/slugs feeding & reproduction
AMF Root Symbiosis Granular Blend	Granular	Enhances nutrient exchange, carbon storage, root expansion
Soil microbiome restoration	Agricultural Carbon Credits	Scalable national carbon economy

FACILITY CAPABILITIES

BIOMANUFACTURING INFRASTRUCTURE

- Industrial fermentation systems for aerobic and anaerobic culture lines
- Low-temperature biological drying and spore stabilization systems
- Liquid microbial formulation and suspension stabilization lines
- Controlled AMF nursery and inoculum propagation greenhouse

ANALYTICAL & R&D LABORATORY

- Microbial strain authentication (PCR & culture verification)
- Soil microbiome & pathogen analysis
- Irrigation water contamination & biofilm diagnostics
- Plant tissue nutrient density and disease resistance markers

TOTAL CAPITAL INVESTMENT (CAPEX)

TURNKEY BUILD-OUT, FULLY OPERATIONAL:

USD $14,500,000

INCLUDES: FACILITY CONSTRUCTION OR RENOVATION, UTILITIES INFRASTRUCTURE, FERMENTATION SYSTEMS, DRYING/STABILIZATION SYSTEMS, GREENHOUSE PROPAGATION, LABORATORY BUILD-OUT, PACKAGING AND STORAGE SYSTEMS, COMMISSIONING, AND PERSONNEL TRAINING.

OPERATING EXPENDITURE (OPEX) – FIRST 12 MONTHS

TOTAL FIRST-YEAR OPERATING COST:

USD $4,200,000

(LABOR, UTILITIES, CONSUMABLES, PACKAGING, QA/QC, AGRONOMY SUPPORT, LOGISTICS, MAINTENANCE)

REVENUE & FINANCIAL RETURN

FINANCIAL METRIC	VALUE
Annual Revenue Potential	$18.0M – $31.2M
Net Annual Profit After OPEX	$13.8M – $27.0M
Return on Investment (ROI)	41–68% annually
Payback Period	1.6 – 2.8 years

Profitability is driven by:

- *Exclusive high-value biological formulations*
- *Recurring agricultural input demand*
- *Regional export market supply advantage*

JOB CREATION

CATEGORY	POSITIONS
Lab Scientists & Microbiologists	8–15
Bioreactor & Production Technicians	20–40
Field Agronomists & Crop Support Specialists	6–12
Packaging, Logistics & Warehouse Operations	6–18
Administration, Management & Compliance	3–10
Direct Jobs	45–95
Indirect Jobs: 300+ via cooperative farm networks, distribution, and training support	

ENVIRONMENTAL & AGRICULTURAL BENEFITS

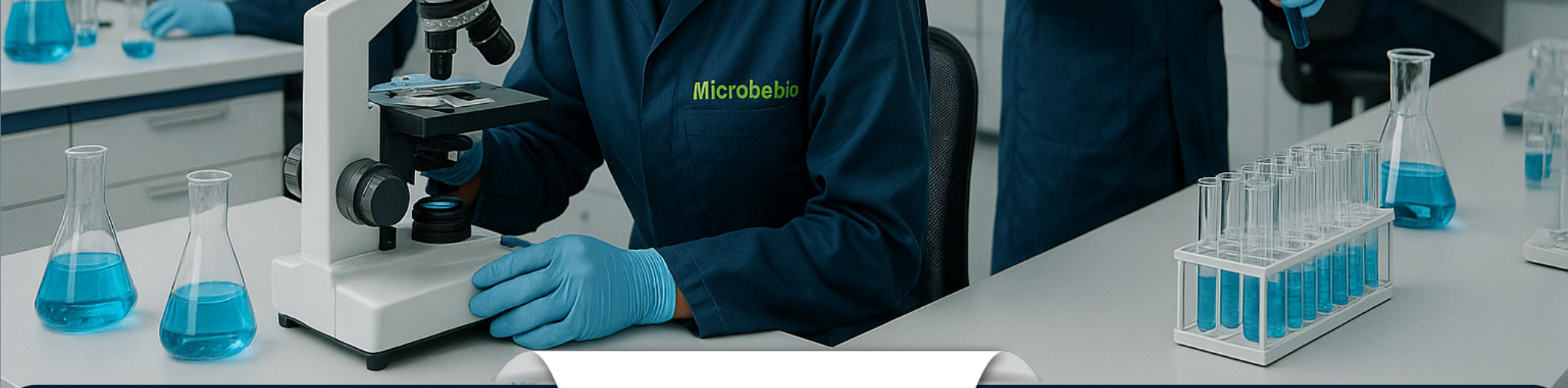
- Reduces pesticide and chemical fertilizer dependency
- Supports regenerative agriculture and long-term soil recovery
- Enhances water efficiency and crop drought tolerance
- Protects rivers and watersheds from agrochemical runoff
- Strengthens national food security and farmer income stability
- Establishes the region as a biotechnology agriculture leader

This project develops a biological agriculture manufacturing cornerstone capable of advancing:

- Stronger crop yields with reduced chemical input costs
- Higher profitability and resilience in farming communities
- Environmental renewal and climate-adaptive land use
- Agricultural export competitiveness across the Caribbean & Latin America

MicrobeBio will:

Provide proprietary microbial genetics and production cultures
Design, build, certify, and commission the manufacturing operations
Train local management and technical teams
Operate or co-operate long-term for stable commercialization and growth



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