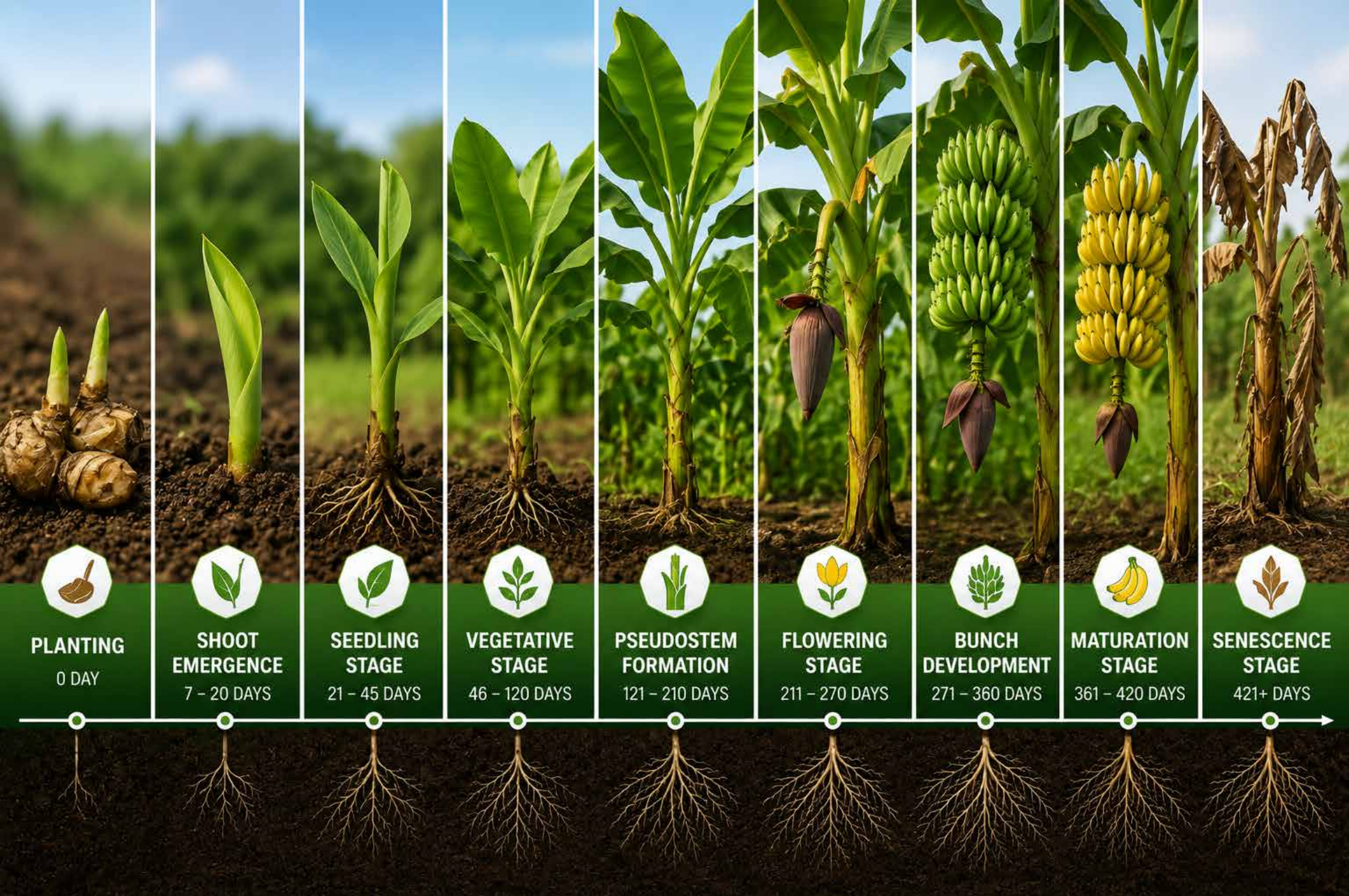


MICROBEBIO®
NATURE PHENOMENON

Integrated **Banana** Production Program

Microbebio®





CAMBODIA BIOLOGICAL CROP MANAGEMENT SYSTEM

The MicrobeBio® Integrated Banana Production System is a complete biological management program developed for commercial banana production in Cambodia. The system integrates living soil biology, beneficial microorganisms, biological nutrition, botanical crop protection, biological disease management, and Precision Nano Nutrition™ to maximize bunch weight, fruit quality, ratoon vigor, and long-term plantation productivity.

Designed for both export and domestic production, the program supports healthier soils, stronger root systems, improved nutrient efficiency, and reduced dependence on conventional fertilizers and synthetic pesticides.

Suitable for:

- Cavendish
- Grand Naine
- Williams
- Local Cambodian varieties
- Organic and conventional production systems



**COMPLETE
BIOLOGICAL NUTRITION**

**BIOLOGICAL CROP
PROTECTION**

**PRECISION NANO
NUTRITION™**

STANDARD APPLICATION RATES (PER HECTARE)

Unless otherwise specified, use the following application rates throughout the production cycle.

Product	Standard Rate
Rhizo Activator™	50 kg/ha
Nature Vigor™	5 kg/ha
Aqua Activator™	500 g/ha
Hydro Activator™	10 L/ha
Foliar™	250 mL/ha
Precision Nano Nutrients™	250 mL/ha
X1™	500 g/ha
X3™	500 g/ha
X5™	500 g/ha
Nature Venom™	500 mL/ha
Green Fury™	500 mL/ha

- Apply all foliar and biological spray applications in 300–500 liters of clean, non-chlorinated water per hectare.
- Spray during the early morning or late afternoon for optimum microbial survival and nutrient uptake.
- Maintain continuous agitation while spraying.
- Avoid chlorinated water and highly alkaline tank mixes.

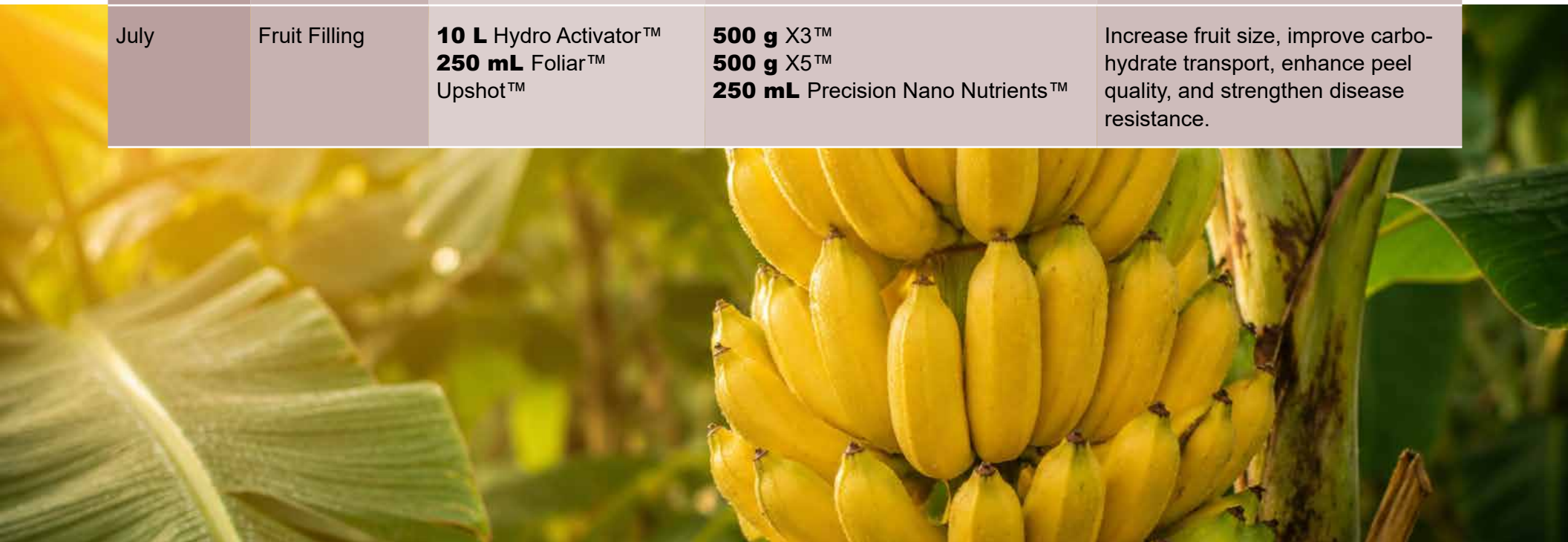




MONTHLY BIOLOGICAL PRODUCTION CALENDAR

MONTH	GROWTH STAGE	RECOMMENDED MICROBEBIO® PROGRAM		PRIMARY OBJECTIVE
January	Early Vegetative Growth	50 kg Rhizo Activator™ 5 kg Nature Vigor™ 500 g Aqua Activator™ 10 L Hydro Activator™	250 mL Foliar™ 500 g X1™ 250 mL Precision Nano Nutrients™	Establish vigorous root systems, stimulate beneficial soil biology, promote rapid leaf production, and strengthen pseudostem development.
February	Rapid Vegetative Growth	10 L Hydro Activator™ 250 mL Foliar™ 5 kg Nature Vigor™	500 g Aqua Activator™ 500 g X1™ 250 mL Precision Nano Nutrients™	Increase canopy development, maximize photosynthesis, improve nutrient uptake, and prepare plants for reproductive growth.

March	Flower Initiation	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™	500 g X5™ 250 mL Precision Nano Nutrients™	Support flower initiation, strengthen disease resistance, and improve nutrient movement throughout the plant.
April	Flower Emergence	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Improve bunch initiation, support pollination, and provide preventive protection against insects and fungal diseases.
May	Finger Development	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Improve finger development, reduce fruit abortion, increase nutrient translocation, and enhance early bunch growth.
June	Rapid Fruit Expansion	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Maximize bunch weight, improve fruit expansion, and maintain biological protection during the rainy season.
July	Fruit Filling	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Increase fruit size, improve carbohydrate transport, enhance peel quality, and strengthen disease resistance.



August	Fruit Maturation	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Improve fruit filling, sweetness, shelf life, peel strength, and export quality.
September	Harvest	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ (monitor as needed), 500 g X5™ 250 mL Precision Nano Nutrients™	Maintain harvest quality, reduce plant stress, and encourage healthy ratoon development.
October	Ratoon Recovery	50 kg Rhizo Activator™ 5 kg Nature Vigor™ 10 L Hydro Activator™ 250 mL Foliar™	500 g Aqua Activator™ 500 g X1™ 500 g X5™ (if required) 250 mL Precision Nano Nutrients™	Rebuild root systems, stimulate sucker growth, restore soil biology, and replenish nutrient reserves.
November	Vegetative Growth	5 kg Nature Vigor™ 250 mL Foliar™ 500 g Aqua Activator™ 10 L Hydro Activator™	250 mL Foliar™ 500 g X1™ 250 mL Precision Nano Nutrients™	Promote vigorous ratoon growth, strengthen root systems, and maximize nutrient uptake.
December	Plantation Development	10 L Hydro Activator™ 250 mL Foliar™ 5 kg Nature Vigor™	500 g Aqua Activator™ 500 g X1™ 250 mL Precision Nano Nutrients™	Build healthy plants, increase resilience, and prepare the plantation for the next production cycle.



BIOLOGICAL ROOT HEALTH



X1™

Apply 500 g/ha in 300–500 liters of non-chlorinated water.

Provides biological suppression of:

- Burrowing nematodes
- Root-knot nematodes
- Lesion nematodes
- Spiral nematodes

Healthy roots improve nutrient uptake, water absorption, and ratoon vigor.

BIOLOGICAL INSECT MANAGEMENT



X3™

Controls or suppresses:

- Banana weevil
- Banana scarring beetle
- Aphids
- Thrips
- Mealybugs
- Whiteflies
- Spider mites
- Caterpillars

BIOLOGICAL DISEASE MANAGEMENT



X5™

Apply 500 g/ha in 300–500 liters of non-chlorinated water throughout periods of active growth and the rainy season.

Provides biological suppression of:

- Fusarium Wilt (Panama Disease)
- Black Sigatoka
- Yellow Sigatoka
- Cordana Leaf Spot
- Anthracnose
- Rhizoctonia
- Pythium
- Root rot diseases

Preventive applications help maintain healthy foliage, maximize photosynthesis, and improve bunch development.

BOTANICAL CROP PROTECTION



NATURE VENOM™

Apply 500 mL/ha in 300 liters of non-chlorinated water whenever insect populations exceed economic thresholds.

Recommended for:

- Banana aphids
- Mealybugs
- Thrips
- Whiteflies
- Spider mites
- Scale insects
- Early banana weevil infestations

Nature Venom™ provides rapid botanical suppression while remaining fully compatible with the MicrobeBio® biological production system.

GREEN FURY™

Apply 500 mL/ha in 300 liters of non-chlorinated water during periods of severe insect infestations, elevated disease pressure, or environmental stress.

Recommended for:

- Heavy Sigatoka pressure
- Severe insect outbreaks
- Post-flood recovery
- Extended rainy periods
- Plantation sanitation
- Resistance management programs

Green Fury™ complements X3™ and X5™ by providing an additional botanical layer of protection while preserving beneficial soil microorganisms.

BIOLOGICAL NUTRITION



HYDRO ACTIVATOR™

Hydro Activator™ provides season-long biological nutrition by supplying:

- Organic nutrients
- Amino acids
- Natural peptides
- Biological growth stimulants
- Trace minerals
- Stress-mitigating compounds

Supports vigorous vegetative growth, flowering, bunch development, fruit filling, and ratoon recovery.



FOLIAR™

Apply 250 mL/ha throughout the growing season to:

- Improve chlorophyll production
- Increase photosynthesis
- Correct minor nutrient deficiencies
- Enhance canopy health
- Improve bunch filling and fruit quality



UPSHOT™

Apply from flowering through harvest to:

- Increase bunch weight
- Improve finger length and diameter
- Enhance carbohydrate movement
- Improve fruit filling
- Increase sugar accumulation
- Improve peel strength
- Extend shelf life
- Produce more uniform export-quality fruit

PRECISION NANO NUTRITION™

Apply 250 mL/ha with foliar sprays throughout the production cycle.

Recommended nutrients:

- ***Nano Calcium™*** – Strong cell walls, peel strength, and fruit quality
- ***Nano Magnesium™*** – Chlorophyll production and photosynthesis
- ***Nano Zinc™*** – Enzyme activity and vigorous vegetative growth
- ***Nano Boron™*** – Flower initiation and bunch development
- ***Nano Potassium™*** – Fruit filling, sugar transport, bunch weight, and overall fruit quality



EXPECTED RESULTS

The complete MicrobeBio® Integrated Banana Production System helps growers achieve:

- Stronger root systems
- Improved soil biology
- Increased nutrient-use efficiency
- Reduced dependence on synthetic fertilizers
- Lower pesticide and fungicide inputs
- Improved resistance to Fusarium Wilt and Sigatoka
- Larger bunches with better fruit uniformity
- Increased fruit weight and sweetness
- Stronger peel and longer shelf life
- Healthier ratoon crops
- Greater resilience to drought and environmental stress
- Higher yields, improved profitability, and long-term plantation sustainability





Diseases & Pests

PRE-PLANTING & LAND PREPARATION STAGE 0-1 MONTHS	VEGETATIVE GROWTH STAGE 1 - 6 MONTHS	FLOWERING & BUNCH FORMATION STAGE 6 - 10 MONTHS	FRUIT MATURATION & HARVEST STAGE 10 - 12 MONTHS
Banana Weevil (<i>Cosmopolites sordidus</i>) AQUA ACTIVATOR X3™	Black Sigatoka (<i>Mycosphaerella fijiensis</i>) AQUA ACTIVATOR X5™	Fruit Scarring Beetle (<i>Colaspis spp.</i>) AQUA ACTIVATOR X3™	Post-Harvest Mold (<i>Colletotrichum spp.</i>) AQUA ACTIVATOR X5™
Panama Disease (<i>Fusarium wilt</i>) AQUA ACTIVATOR X5™	Banana Weevil AQUA ACTIVATOR X3™	Thrips & Mealybugs AQUA ACTIVATOR X3™	Storage Pests <i>Banana Weevil, Beetles, Mites</i> AQUA ACTIVATOR X3™
Root-knot Nematodes AQUA ACTIVATOR X1™	Aphids & Thrips AQUA ACTIVATOR X3™	Fusarium Wilt & Black Sigatoka AQUA ACTIVATOR X5™	
	Root Rot (<i>Pythium spp.</i>) AQUA ACTIVATOR X1™	Anthrachnose & Powdery Mildew AQUA ACTIVATOR X5™	

Treat:

Plant disease outbreak (*pest*): agitate 500 g Green Fury™ into at least 200 liters of non-chlorine water to treat 1 hectare.

Plant disease outbreak (*fungus and virus*): agitate 500 g Nature Venom™ into at least 200 liters of non-chlorine water to treat 1 hectare.

Note:

Water and treat for pests and diseases every 3 weeks until the disease no longer appears.

Managing these diseases and pests requires an integrated approach, including good agricultural practices (regular monitoring, proper irrigation and fertilization), and the use of resistant varieties (where available).), use appropriate insecticides and fungicides, as well as biological controls. It is important that durian growers keep up to date with the best farming practices and remain vigilant for the emergence of diseases and pests to ensure the health and productivity of their durian trees.



MicrobeBio®

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