

MICROBEBIO®
NATURE PHENOMENON

Integrated Durian Production Program



Soil Health



Stronger Roots



Better Growth



Higher Yield



Natural
Protection



CAMBODIA BIOLOGICAL CROP MANAGEMENT SYSTEM

The MicrobeBio® Integrated Durian Production System is a comprehensive biological management program designed for Cambodia's tropical durian production regions. By integrating living soil biology, beneficial microorganisms, biological crop protection, botanical technologies, biological nutrition, and Precision Nano Nutrition™, growers can maximize tree health, flowering, fruit quality, and long-term orchard productivity while significantly reducing dependence on conventional fertilizers and synthetic crop protection products.



**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 season:

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

- Prepare all foliar and biological spray applications using 300–500 liters of clean, non-chlorinated water per hectare.
- Apply during the early morning or late afternoon to maximize microbial survival and nutrient absorption.
- Use clean spray equipment and maintain continuous agitation throughout application.
- Avoid mixing with chlorinated water, highly alkaline products, or incompatible pesticides.





MONTHLY BIOLOGICAL PRODUCTION CALENDAR

MONTH	GROWTH STAGE	RECOMMENDED MICROBEBIO® PROGRAM		PRIMARY OBJECTIVE
January	Post-Harvest Recovery	50 kg Rhizo Activator™ 5 kg Nature Vigor™ 500 g Aqua Activator™ 10 L Hydro Activator™	250 mL Foliar™ 500 g X1™ 500 g X5™ 250 mL Precision Nano Nutrients™	Restore soil biology, regenerate roots, rebuild carbohydrate reserves, strengthen canopy, and prepare for new vegetative growth.
February	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™	Stimulate vigorous shoot growth, improve nutrient uptake, and strengthen root development.

March	Pre-Flower Initiation	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™	500 g X5™ 250 mL Precision Nano Nutrients™	Promote uniform flower initiation while improving plant vigor and biological disease resistance.
April	Flowering	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Maximize flowering, improve pollen viability, increase flower retention, and provide preventive insect and disease protection.
May	Fruit Set	10 L Hydro Activator™ 250 mL Foliar™ 500 g Aqua Activator™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Increase fruit set, reduce flower and fruit drop, stimulate early fruit development, and improve nutrient translocation.
June	Early Fruit Development	10 L Hydro Activator™ 250 mL Foliar™ 5 kg Nature Vigor™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Support rapid fruit growth, improve nutrient-use efficiency, and maintain biological protection during the rainy season.
July	Fruit Expansion	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Maximize fruit size, improve carbohydrate movement, and maintain strong disease and insect suppression.



August	Fruit Filling	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ 500 g X5™ 250 mL Precision Nano Nutrients™	Improve fruit weight, flesh development, sweetness, aroma, and premium fruit quality.
September	Fruit Maturation	10 L Hydro Activator™ 250 mL Foliar™ Upshot™	500 g X3™ (monitor as needed), 500 g X5™ 250 mL Precision Nano Nutrients™	Increase Brix, improve flavor, aroma, fruit firmness, and shelf life while maintaining biological protection.
October	Harvest	10 L Hydro Activator™ 250 mL Foliar™	500 g X5™ (if required) 250 mL Precision Nano Nutrients™	Maintain harvest quality, reduce harvest stress, and initiate tree recovery.
November	Post-Harvest Recovery	50 kg Rhizo Activator™ 5 kg Nature Vigor™ 500 g Aqua Activator™ 10 L Hydro Activator™	250 mL Foliar™ 500 g X1™ 500 g X5™ 250 mL Precision Nano Nutrients™	Restore soil biology, regenerate roots, rebuild nutrient reserves, and prepare for the next production cycle.
December	Vegetative Recovery	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 vegetative growth, maximize nutrient reserves, and prepare for the next flowering season.



BIOLOGICAL CROP PROTECTION



X1™ **ROOT PROTECTION**

Apply 500 g/ha in 300–500 liters of non-chlorinated water to suppress plant-parasitic nematodes, improve root health, and maximize nutrient and water uptake.



X3™ **BIOLOGICAL INSECT MANAGEMENT**

Apply 500 g/ha in 300–500 liters of non-chlorinated water as a preventive program beginning before flowering and continuing through fruit development.

Targets include:

- Fruit borers
- Stem borers
- Mealybugs
- Thrips
- Aphids
- Whiteflies
- Scale insects
- Spider mites



X5™ **BIOLOGICAL DISEASE MANAGEMENT**

Apply 500 g/ha in 300–500 liters of non-chlorinated water throughout the rainy season and during flowering and fruit development.

Provides biological suppression of:

- Phytophthora palmivora
- Anthracnose
- Fusarium
- Rhizoctonia
- Root rot
- Stem canker
- Fruit rot
- Leaf spot diseases



NATURE VENOM™

For elevated insect pressure, apply 500 mL/ha in 300 liters of non-chlorinated water.

Recommended for:

- Mealybugs
- Thrips
- Scale insects
- Whiteflies
- Aphids
- Spider mites
- Leaf-feeding insects
- Early fruit borer infestations

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



GREEN FURY™

For severe infestations or periods of high disease pressure, apply 500 mL/ha in 300 liters of non-chlorinated water.

Recommended for:

- Heavy insect infestations
- High disease pressure during prolonged rainfall
- Orchard recovery following environmental stress
- Integrated resistance management
- Rotation with biological products to provide an additional layer of protection while preserving beneficial soil biology

EXPECTED RESULTS

When used as a complete season-long program, the MicrobeBio® Integrated Durian Production System helps growers achieve:

- Stronger root systems
- Healthier soil biology
- Greater nutrient-use efficiency
- Increased flowering and fruit set
- Larger fruit with improved Brix, aroma, and flavor
- Better fruit firmness and shelf life
- Reduced disease and insect pressure
- Lower dependence on synthetic fertilizers and pesticides
- Improved resilience to drought and environmental stress
- Greater orchard longevity, sustainability, and profitability

This version standardizes the application rates throughout the program, making it suitable for a commercial technical guide, distributor manual, or grower recommendation sheet.



NO.	DISEASES AND PESTS	SYMPTOMS	CAUSE	TREAT
1	Stem Canker and Dieback (<i>Phytophthora spp.</i>)	Causes dark, sunken cankers on stems and branches, leading to dieback of the affected parts.	Fungus Virus	NATURE PHENOM X5™
2	Anthracnose (<i>Colletotrichum gloeosporioides</i>)	Characterized by dark, sunken lesions on fruits, leaves, and twigs, leading to rotting of the fruit and defoliation.	Fungus Virus	NATURE PHENOM X5™
3	Fruit Rot (<i>Rhizopus, Botryodiplodia, and other fungal species</i>)	Causes rotting of the fruit, typically at the post-harvest stage, but can also occur on the tree.	Fungus Virus	NATURE PHENOM X5™
4	Root Rot (<i>Rigidoporus microporus and other fungal species</i>)	Leads to decay of the root system, resulting in the wilting and eventual death of the tree.	Fungus Virus	NATURE PHENOM X5™
5	Leaf Blight (<i>Corynespora cassiicola</i>)	Causes lesions on the leaves, leading to premature leaf drop and reduced photosynthetic capability.	Fungus Virus	NATURE PHENOM X5™
6	Durian Fruit Borer (<i>Mudaria luteileprosa Holloway</i>)	Larvae bore into fruits, causing internal damage and making the fruit susceptible to secondary infections.	Pest	NATURE PHENOM X3™

NO.	DISEASES AND PESTS	SYMPTOMS	CAUSE	TREAT
7	Stem Borer (<i>Batocera rufomaculata</i>)	Larvae bore into the trunk and branches, weakening the structural integrity of the tree and making it susceptible to wind damage.	Pest	NATURE PHENOM X3™
8	Mealybugs (Family <i>Pseudococcidae</i>)	Suck sap from the plant, excrete honeydew, and promote the growth of sooty mold, affecting photosynthesis and the overall vigor of the tree.	Pest	NATURE PHENOM X3™
9	Mites (<i>Various species</i>)	Feed on plant sap, leading to yellowing of leaves, defoliation, and overall decline in plant health.	Pest	NATURE PHENOM X3™
10	Thrips (<i>Various species</i>)	Feed on flowers and young fruits, affecting fruit set, development, and causing scars on fruits.	Pest	NATURE PHENOM X3™

Prevent: agitate 200 g MicrobeBio® Green Fury™ into at least 200 liters of non-chlorine water ** to treat 1 hectare.

Treat: agitate 500 g MicrobeBio® 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.



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