

MICROBEBIO PLANTAIN APPLICATION

A 5-Year Nutrition, Root & Crop Protection Program

Dominican Republic • Plantain Production, Establishment Through Successive Ratoon Crops



Soil & Roots



Precision Nutrition



Root Protection



Insect Protection



Disease Protection

One Integrated Biological System

The program combines five product families to maintain strong roots, active soil biology, vigorous plants, healthy functional leaves, bunch development, and continuous biological crop protection across the five-year plantation cycle.



Soil & Roots

Rhizo Activator™ + Nature Vigor™ + Aqua Activator™ + Hydro Activator™



Precision Nutrition

Nano P™ + Nano Elements™ + MicrobeBio Foliar™



Root Protection

X1™ — biological root & nematode protection



Insect Protection

X3™ + Green Fury™ — biological + botanical IPM



Disease Protection

X5™ + Nature Venom™ — biological + botanical IPM

Objective: strong roots · active soil biology · vigorous plants · healthy leaves · bunch development · continuous protection

Establishment & First Crop

Focus: establish roots → build canopy → prepare for flowering → support first bunch.

Stage	Products & Rates / ha	Method
Pre-Plant	Rhizo Activator™ 50 kg; Nature Vigor™ 5 kg; Aqua Activator™ 500 g; Hydro Activator™ 10 L; X1™ 500 g	Soil / root-zone drench
30–45 Days	Nature Vigor™ 5 kg; Hydro Activator™ 10 L; Nano P™, Nano Elements™ & Foliar™ 250 mL each	Root zone + foliar
60–90 Days	Rhizo Activator™ 50 kg; Aqua Activator™ 500 g; Hydro Activator™ 10 L; X1™ 500 g; Nano P™ & Nano Elements™ 250 mL each	Root zone + foliar
120–150 Days	Nature Vigor™ 5 kg; Aqua Activator™ 500 g; Hydro Activator™ 10 L; X1™ 500 g; Nano Elements™ 250 mL	Root zone + foliar
Pre-Flowering	Rhizo Activator™ 50 kg; Nano Elements™ 250 mL; Foliar™ 250 mL	Root zone + foliar
Bunch Development	Rhizo Activator™ 50 kg; Nano Elements™ 250 mL; Foliar™ 250 mL	Root zone + foliar

Soil/root applications use 300–500 L water/ha at establishment, rising to 500–750 L/ha as plants develop.

First Ratoon

The existing root and rhizosphere system allows the program to shift from establishment toward maintenance and productivity.

Timing	Products & Rates / ha	Water / ha
Post-Harvest / Ratoon Start	Rhizo Activator™ 50 kg; Nature Vigor™ 5 kg; Aqua Activator™ 500 g; Hydro Activator™ 10 L; X1™ 500 g	500–750 L/ha
Early Growth	Aqua Activator™ 500 g; Nano P™* 250 mL; Nano Elements™ 250 mL; Foliar™ 250 mL	300–500 L/ha
Mid-Cycle	Rhizo Activator™ 50 kg; Nature Vigor™ 5 kg; Hydro Activator™ 10 L; X1™ 500 g	500–750 L/ha
Pre-Flowering	Rhizo Activator™ 50 kg; Nano Elements™ 250 mL; Foliar™ 250 mL	400–600 L/ha
Bunch Development	Rhizo Activator™ 50 kg; Nano Elements™ 250 mL; Foliar™ 250 mL	400–600 L/ha

**Nano P™ becomes soil/tissue-analysis driven after establishment.*

Second, Third & Fourth Ratoon — Maintenance

Focus shifts to maintaining root density, soil biology, and consistent bunch productivity; monitoring pest and disease pressure becomes increasingly important.

Product / Purpose	Year 3	Year 4	Year 5
Rhizo Activator™ (soil nutrition)	50 kg — 4×/year	50 kg — 4×/year	50 kg — 4×/year
Nature Vigor™ (soil biology)	5 kg — 2×/year	5 kg — 2×/year	5 kg — 2×/year
Aqua Activator™ (rhizosphere)	500 g — 2–3×/year	500 g — 2–3×/year	500 g — 2–3×/year
Hydro Activator™ (root/water support)	10 L — 3×/year	10 L — 3×/year	10 L — 3×/year
X1™ (root protection)	500 g — 2–3×/year	500 g — 2–3×/year	500 g — 2–3×/year
Nano Elements™ (precision nutrition)	250 mL — 3–4×/year	250 mL — 3–4×/year	250 mL — 3–4×/year
Foliar™ (foliar nutrition)	250 mL — 3–4×/year	250 mL — 3–4×/year	250 mL — 3–4×/year
Nano P™	As indicated by analysis	Only if required	According to analysis

At the end of Year 5, evaluate root health, nematode pressure, plant uniformity, disease pressure, bunch weight, yield/ha, and overall economics before continuing the ratoon cycle.

5-YEAR SUMMARY

Annual Product Volumes per Hectare

Product	Year 1	Year 2	Year 3	Year 4	Year 5
Rhizo Activator™	200 kg	200 kg	200 kg	200 kg	200 kg
Nature Vigor™	15 kg	10 kg	10 kg	10 kg	10 kg
Aqua Activator™	1.5 kg	1 kg	1–1.5 kg	1–1.5 kg	1–1.5 kg
Hydro Activator™	30 L	20 L	30 L	30 L	30 L
X1™	1.5 kg	1 kg	1–1.5 kg	1–1.5 kg	1–1.5 kg
Nano P™	500 mL	Up to 250 mL *	As needed	As needed	As needed
Nano Elements™	1–1.25 L	750 mL	750 mL–1 L	750 mL–1 L	750 mL–1 L
Foliar™	750 mL–1 L	750 mL	750 mL–1 L	750 mL–1 L	750 mL–1 L

**Based on soil/tissue analysis.*

The MicrobeBio Plantain 360™ System

Crop protection continues throughout all five years, driven by scouting and field pressure — not simply by calendar applications.



ROOTS — X1™

500 g/ha, applied 2–3×/year in 500–750 L water/ha to moist soil throughout the active root zone. Additional treatment where nematode/root pressure warrants it.



INSECTS — X3™ + Green Fury™

X3™ is the biological IPM component (500 g/ha), guided by scouting of black banana weevil, thrips, and other pests. During outbreaks, add Green Fury™ (500 mL/ha in 300 L water) for corrective botanical protection every 7–14 days.



DISEASE — X5™ + Nature Venom™

X5™ (500 g/ha) provides preventive biological protection, integrated with scouting, leaf sanitation, drainage and inoculum management. During elevated pressure, add Nature Venom™ (500 mL/ha in 300 L water) every 7–14 days.

5-Year Protection Calendar

Protection	Year 1	Year 2	Year 3	Year 4	Year 5
X1™ — root & nematode protection	2–3×	2–3×	2–3×	2–3×	2–3×
X3™ — biological insect protection	Scout / IPM	Scout / IPM	Scout / IPM	Scout / IPM	Scout / IPM
Green Fury™ — corrective (outbreaks)	Pest outbreak	Pest outbreak	Pest outbreak	Pest outbreak	Pest outbreak
X5™ — biological disease protection	Preventive / IPM	Preventive / IPM	Preventive / IPM	Preventive / IPM	Preventive / IPM
Nature Venom™ — botanical (high pressure)	High pressure	High pressure	High pressure	High pressure	High pressure

Black Sigatoka is a particular concern in the Dominican Republic: heavy rainfall and flooding raise disease pressure and cause loss of functional leaf area. Do not automatically tank-mix living microbial products with strong oxidizers, bactericides, incompatible fungicides, or disinfectants — apply separately where compatibility is not established.

Water Volumes & Compatibility



Soil / Root Applications

≈300–500 L water/ha during initial establishment, rising to 500–750 L/ha for established plants and ratoons.



Foliar Nutrition

≈300–600 L water/ha, adjusted for canopy size to ensure adequate coverage.



Green Fury™

500 mL/ha in 300 L water/ha — applied during elevated insect pressure.



Nature Venom™

500 mL/ha in 300 L water/ha — applied during elevated disease pressure.



Compatibility Caution

Do not automatically tank-mix living microbial products with strong oxidizers, bactericides, incompatible fungicides, disinfectants, or concentrated botanical products. Where compatibility has not been established, apply separately.

Why the Full 5-Year Program Matters in the DR

Crop-protection uses, target organisms, rates, intervals, and application methods must comply with applicable product labels and Dominican Republic registrations.



Black Sigatoka

IDIAF recommends integrated management rather than relying on a single treatment; heavy rainfall and flooding increase pressure and leaf-area loss.



Thrips

A priority insect pest for scouting and evaluation under the X3™ / Green Fury™ IPM program.



Panama Disease

Identified among key Dominican plantain phytosanitary concerns requiring ongoing monitoring.



Moko

A bacterial disease of regional concern; supports the case for sustained, biology-based crop protection.

Maintaining nutrition, root, and crop-protection components throughout all five years keeps the plantation biologically resilient against these regional pressures.

A BIOLOGICALLY ACTIVE ROOT ZONE, YEAR AFTER YEAR

The MicrobeBio Plantain Application is designed to maintain a productive plantain stand through successive ratoon crops — adjusting nutrition and protection according to crop stage and field conditions across the full five-year cycle.



Roots



Insects



Disease