

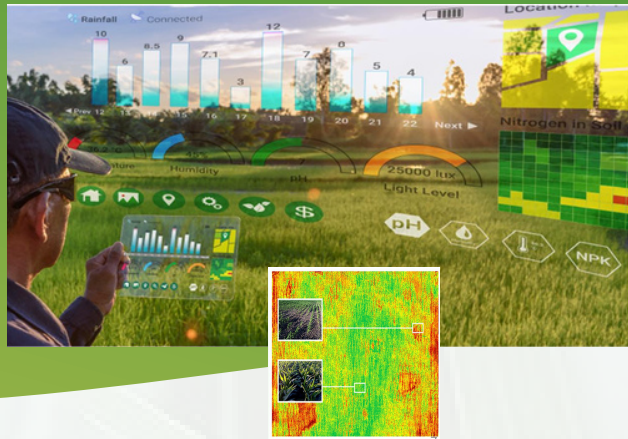
Changing the Game SUGARCANE



Maximizing Yields, Sustainably...

We help growers maximize
the potential of crops,
sustainably...

FARMING Mindsets



Progressive / Precision - Driven

- How much % of Nitrogen is in my plants per KG of leaf tissue samples?
- From my leaf samplings, xx% increase in %N/KG leaf samples from 60DAP and 150DAP correlates to an increase in tonnage between xx% to xx%
- Which fields or stages will require more steady, sustained supplementation?

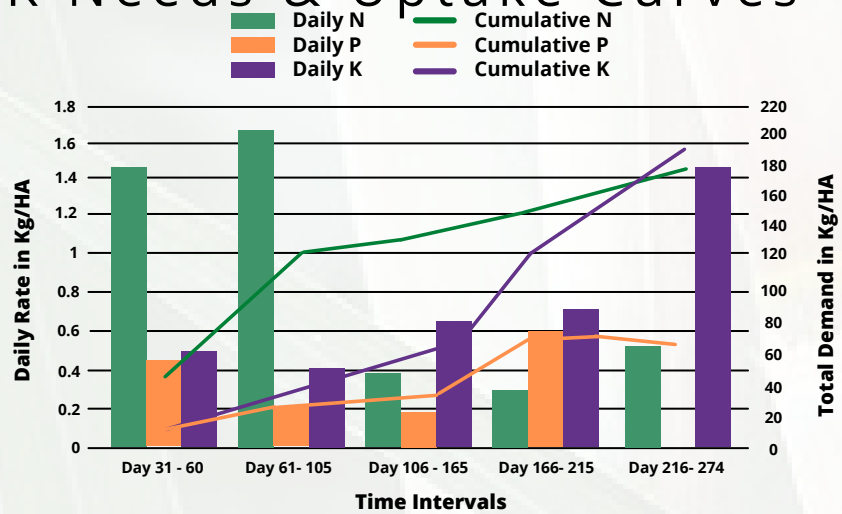
Traditional / Conventional

- I put xxxKG Nitrogen per hectare in 3-5 split application timings
- For the last 3 seasons, xxxKG of NPK equates to more or less XXX tons per hectare
- Fertilization application rate will be uniform across fields for a more stable yield

PLANT NUTRITION BASICS

Sugarcane NPK Needs & Uptake Curves

- Steady upward demand for N from 60 DAP up to 250 DAP
- N application best at 1KG per ton of expected ton-cane/HA*
- N best applied in 3 applications, 3-4 months after planting
- Higher demand for K between 4-2.5 months before harvest
- Grand growth stage (190-250 DAP) applications of N+B+Zn and/or N-P-K + TE may further push yield volume and quality



Source: p.71, Fertigation-A Novel Method Applying Crop Nutrients P. Soman, Chief Agronomist, JAIN Irrigation (Global), NIPA 2021

UNDERSTANDING NPK + TE

NUTRIENT	FUNCTIONAL VALUE	NUTRIENT	FUNCTIONAL VALUE
NITROGEN (1-6%)*	<ul style="list-style-type: none"> • Primary building block for amino acids, protein, protoplasm and chlorophyll • Critical for rapid shoot growth, bud vigor, flower differentiation and fruit set • Drives tillering, stem and leaf area development 	COPPER (2-50ppm)*	<ul style="list-style-type: none"> • Essential for flowering, heading and overall crop development • Promotes grain filling in cereals and biomass translocation from the stem • Critical for photosynthesis
PHOSPHORUS (0.05-1%)*	<ul style="list-style-type: none"> • Restores the vital energy production of the plant to increase root and shoot growth • Promotes roots, flower and seed development • Hastens maturity and fruit development 	MANGANESE (5-500ppm)*	<ul style="list-style-type: none"> • Aids in Nitrogen utilization and assimilation essential for growth • Stimulates enzymes required in photosynthesis • Aids in the absorption of Phosphorus and synthesis of Chlorophyll
POTASSIUM (0.3-6%)*	<ul style="list-style-type: none"> • Promotes biosynthesis of sugars and starches leading to higher yield and brix • Restores vital crop water balance • Regulates stomatal opening to improve photosynthesis • Enzymatic activator for biomass production 	BORON (2-75ppm)*	<ul style="list-style-type: none"> • Aids in Calcium translocation (roots, cell wall) • Shoot lignification, Root growth • Transport of water, potassium and sulfur • Sugar translocation to fruit
IRON (10-1000ppm)*	<ul style="list-style-type: none"> • Helps in chlorophyll formation giving the plant oxygenated and healthy green color • Assists in plant energy production • Helps reduce nitrates and sulfates 	ZINC (5-100ppm)*	<ul style="list-style-type: none"> • Synthesis of proteins and auxins • Calcium translocation • Regulates nutrient uptake • Early root growth, Rapid crop response • Uniform maturity

*Approximate Concentration in Plants
Plant Analysis - A Diagnostic Tool, University of Wisconsin, Bulletin A2289
Table 27, p.120, Agronomy Handbook, Don Ankerman, B.S. & Richard Large, Ph.D.

SUGARCANE GAME CHANGER

Foliar Feeding Program

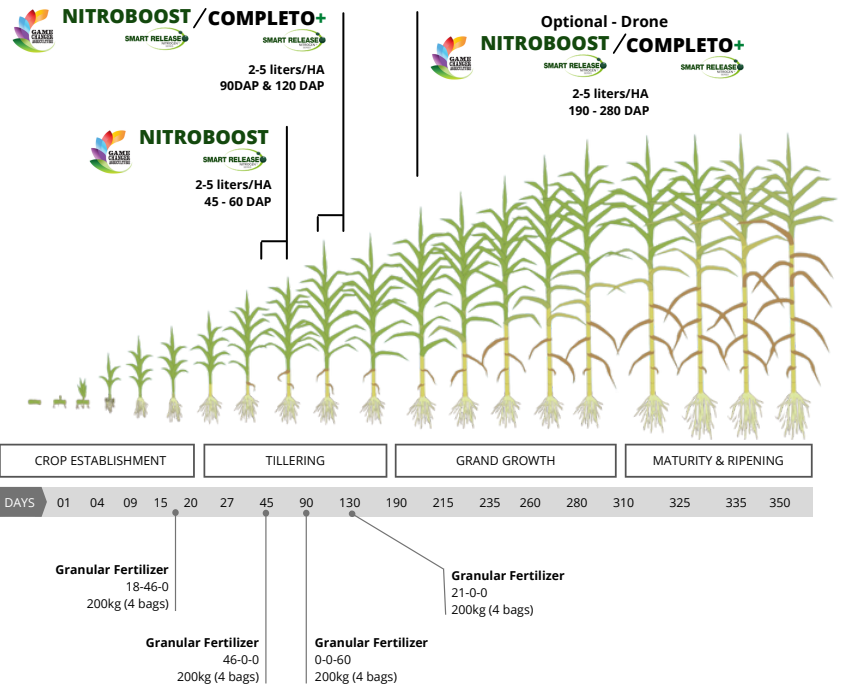


RAFAEL 'NENE' ABELLO
Hacienda Progreso
Isabela, Negros Occidental



"I have seen the significant difference of GameChanger's **NITROBOOST** and **COMPLETO+** versus my previous foliar inputs on leaf nutrient levels, crop health vigor and ultimately my final yield results and profitability per hectare.

NITROBOOST and **COMPLETO+** will be in my production protocol every season as we continue to explore ways to push yields with precision farming tools like smart-release foliar fertilizers, leaf nutrient analysis, drone crop surveys and new application technology by the GameChanger group."



Hacienda Progreso GameChanger Fertilization Program

Value-In-Use Per Hectare Lowest Rate VS Planter's Practice

Cost/Value Points	NITROBOOST COMPLETO+	Planter's Practice Brand P + Brand E	GameChanger Advantage
Price Per Liter	Php495/li	Php437 (Brand P) Php390 (Brand E)	
Rate Per Hectare(HA)	Nitroboost @ 2 li/ha (60DAP) Nitroboost @ 2 li/ha (80DAP) Completo+ @ 2 li/ha (100DAP)	Brand P-1 li/ha (21DAP) Brand P-3 li/ha(60DAP) Brand E-4 li/ha (90DAP)	
Frequency/Timing	60DAP/80DAP/100DAP	21DAP/60DAP/90DAP	
Nitrogen % Leaf Analysis (Baseline at 60 DAP)	60 DAP: 0.76% 150 DAP:1.61%	60 DAP: 1.20% 150 DAP: 1.32%	+112% vs Pre-Treatment +22% vs planter's practice
Total Cost/Hectare(HA)	Php2,970	Php2,871	(Php99)
Total Yield (Tonnage)	109.4	102.6	6.8 tons (plus 6.6%)
Brix (Refractometer Reading)	2.4	2.1	+14%
LKG/TC	262 bags	215 bags	+47 bags
Price Per Bag of Sugar	Php1,500	Php1,500	0
Total Yield Value (Php) per HA	Php393,000	Php322,500	+Php70,500
Gross Value Advantage per HA			
Net Value Advantage per HA			Php70,401
REMARKS	Treatment 2, 8 and 10 Combination Leaf Tissue and Yield Data based on Treatment 2		• NET-Value-Advantage= Total Yield Value per HA plus Foliar Fertilizer Cost Difference

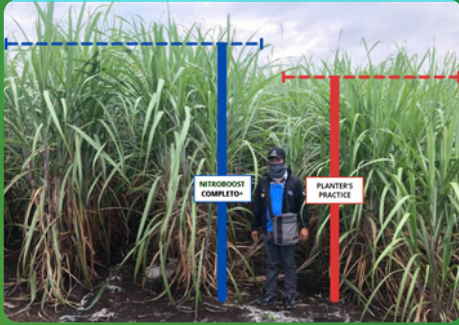
Value-In-Use Per Hectare Middle Rate VS Planter's Practice

Cost/Value Points	NITROBOOST COMPLETO+	Planter's Practice Brand P + Brand E	GameChanger Advantage
Price Per Liter	Php495/li	Php437 (Brand P) Php390 (Brand E)	
Rate Per Hectare(HA)	Nitroboost @ 5 li/ha (60DAP) Nitroboost @ 5 li/ha (80DAP) Completo+ @ 5 li/ha (100DAP)	Brand P-1 li/ha (21DAP) Brand P-3 li/ha(60DAP) Brand E-4 li/ha (90DAP)	
Frequency/Timing	60DAP/80DAP/100DAP	21DAP/60DAP/90DAP	
Nitrogen % Leaf Analysis (Baseline at 60 DAP)	60 DAP: 0.76% 150 DAP:1.61%	60 DAP: 1.20% 150 DAP: 1.32%	+130% vs Pre-Treatment +20% vs planter's practice
Total Cost/Hectare(HA)	Php7,425	Php2,871	(Php4,554)
Total Yield (Tonnage)	112.5	102.6	9.95 tons (plus 9.7%)
Brix (Refractometer Reading)	2.5	2.1	+19%
LKG/TC	281 bags	215 bags	+66 bags
Price Per Bag of Sugar	Php1,500	Php1,500	0
Total Yield Value (Php) per HA	Php421,500	Php322,500	+Php99,000
Gross Value Advantage per HA			
Net Value Advantage per HA			Php94,446
REMARKS	Treatment 3 (5 liter/HA rate) and Treatment 10 (3 applications) Combination of Nitroboost & Completo+		• NET-Value-Advantage= Total Yield Value per HA plus Foliar Fertilizer Cost Difference

What are we looking into?

Before Harvest

- Girth of Stalk
- # of Tillers per 10-meter row*
- # of Millable Stalks
- Height (base to top internode)
- Nitrogen % in Leaf Tissues



At Harvest

- Brix (Sugar / PSTC) Content
- Ton Canes Per Hectare
- Lkg Conversion Factor
- Lkg/TC (50kg bag/Ton Cane)
- Best Value - In - Use Net of Foliar Cost

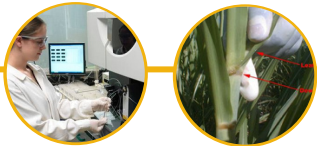


Hacienda Progreso Large Plot Trial

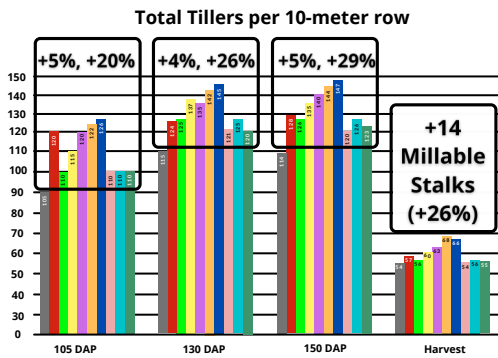
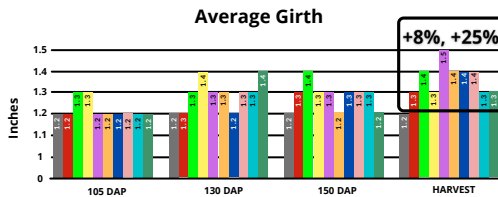
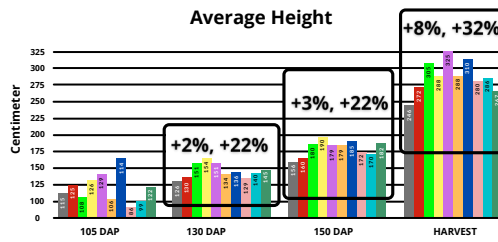
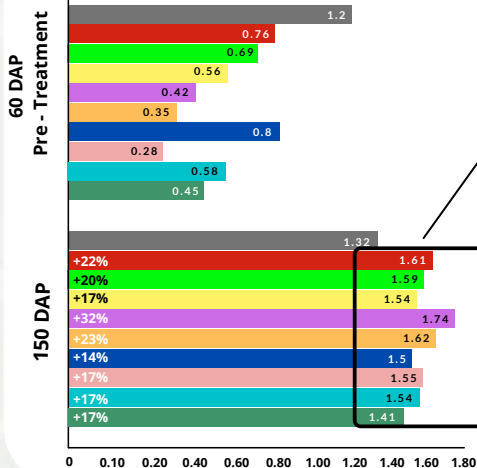
Planted 27 April 2020, Isabela, Negros Occidental

Treatment	Products	Dosage per Hectare	Timing of Application
*T1	Brand P Brand E + Brand P Brand E + Brand P	1L 2L + 1L 2L + 1L	21DAP 60DAP 90DAP
T2	NITROBOOST	2L 2L	60DAP 80DAP
T3	NITROBOOST	5L 5L	60DAP 80DAP
T4	NITROBOOST	10L 10L	60DAP 80DAP
T5	NITROBOOST	10L 10L 10L	60DAP 80DAP 100DAP
T6	COMPLETEO+ NITROBOOST	10L 10L	60DAP 75DAP
T7	COMPLETEO+ NITROBOOST	15L 15L	60DAP 75DAP
T8	COMPLETEO+	2L 2L	60DAP 75DAP
T9	COMPLETEO+	10L 10L	60DAP 75DAP
T10	COMPLETEO+ NITROBOOST NITROBOOST	5L 5L 5L	60DAP 75DAP 95DAP

*Planter's Practice



Leaf Tissue Analysis % Nitrogen Per KG Sample



Preliminary Observations

- At 150 DAP, NITROBOOST and COMPLETEO+ treatments are significantly higher in height, girth and number of tillers
- Lowest NITROBOOST rates at 4 liters already beating planter's practice in height, girth and # of tillers & N level percentage per KG leaf sample
- Average girth at Harvest +8.3% to +25% bigger rate versus planter's practice for NITROBOOST and COMPLETEO+
- 7% to 32% Increase in leaf Nitrogen levels versus planter's practice between 60 DAP benchmark & 150 DAP correlating to increase in girth, height, # of tillers in 10-meter row and up to millable stalks at harvest

Harvest Data Correlations

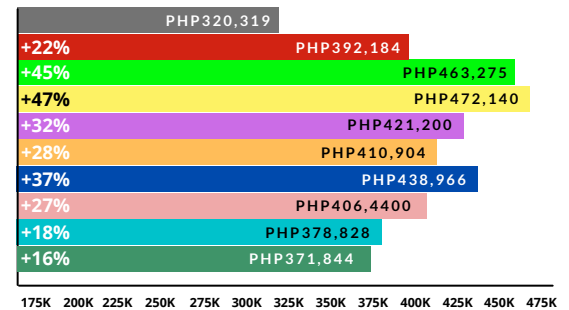
- Smart Release foliar supplementation providing 14% to 32% advantage in leaf Nitrogen levels at 150 DAP
- Higher Nitrogen levels between 60-150 DAP correlating to higher tonnage, LKG and brix content
- Low to middle rates at 4 li and 10 li foliar supplementation already providing crop health and yield advantage
- NPK plus TE (trace elements) foliar feeding with COMPLETEO+ consistently facilitating higher brix at 2.4 factor
- Best value-in-use rates ranging from 10 liters to 20 liters per cropping season split into 3 to 5 applications

Sugarcane Plant Tissue Nutrient Sufficiency Guide Ranges*

Measure	Percentage (%)											Parts Per Million (ppm)				
	N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al			
From	2	.15	.20	1	.10	.20	.01	5	15	15	40	5	20			
To	3	.50	.35	2.20	.45	.60	.10	40	100	200	200	50	200			

Source: Agronomy Handbook: Soil & Plant Analysis Table 26, p.113 Don Ankerman, B.S. & Richard Large, Ph.D MidWest Laboratories, Omaha, NE, USA 2014

Gross Revenue Less Foliar Fertilizer Cost Per HA



NITROBOOST

"The Growth & Yield Booster"

- 21 to 30 Days Smart-Release Fertilizer
- NanoTech: efficient absorption & translocation
- Superior growth & yield performance

High absorption rate at 4x to 30x traditional foliars & granulars

Stimulates growth and tillering while increasing leaf surface permeability

Methanal component serves as sticker during foliar spray

Boron for growth and translocation of sugar, calcium, water potassium & sulfur

4 Release Modes: moisture, heat, sunlight and microbial

Smart Release Nitrogen- long chain methylene urea, high N level

Zinc for rapid crop response and synthesis of auxins, root growth

Technical grade, no chlorides, no burn

Low salt index, no phytotoxicity



NPK 30.75-0-0 %w/v
3,070 mg/L ZINC
3,070 mg/L BORON



NITROBOOST

Other Brands



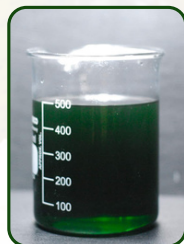
Homogenous Neon Liquid



Coagulated Precipitates

COMPLETO+

"Enhancing Crop Quality, Volume Plus Brix"



Dark Green
Homogenous Liquid

- 14 Days Smart-Release Fertilizer
- 4x to 30x plant absorption efficiency
- Enhances crop quality & performance

High absorption rate at 4x to 30x traditional foliars & granulars

Restores the vital energy production of the plant to increase root and shoot growth

Phosphorous promotes root and shoot growth as well as tillering

Potassium serves as activator for biomass production, biosynthesis of sugars and starches for higher yield and brix factor

Boron for growth and translocation of sugar, calcium, water potassium & sulfur

Copper critical for photosynthesis and overall crop development

Iron helps in chlorophyll formation & overall plant energy (growth) production

Manganese aids in uptake and utilization of Nitrogen, Phosphorus & Magnesium

Zinc for rapid crop response, synthesis of auxins and for root growth



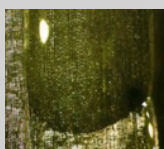
NPK 19 - 9 - 19 %w/v
PLUS Chelated
Trace Elements (TE)

Boron (200mg/L)
Copper (630mg/L)
Iron (1,300mg/L)
Manganese (700mg/L)
Zinc (630mg/L)

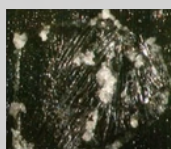
Leaf Nitrogen Distribution

COMPLETO+
NITROBOOST

Other Brands



Highly Absorbable
Micro-Droplets



Non - Absorbable
Dried Crystals



"The future of farming is hinged around precision in terms of plant nutrient availability, pest and disease mappings on top of mechanization and automation.

Mindsets and practices need to change as new approaches and technological innovation that push yield potential spearheaded by GameChanger - Agriculture come into play.

Its about time we change the game in sugarcane."

Miles Abello
Hacienda Progreso
Isabela, Negros Occidental



NITROBOOST

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	4-6	<ul style="list-style-type: none"> Apply every 14-21 days from mid-crop
Brassicas	10	<ul style="list-style-type: none"> Apply at early head development Repeat every 14-21 days
Onions	2-5	<ul style="list-style-type: none"> Apply from when sufficient leaf exists to intercept spray Apply at bulb development
Sugarcane	2-5	<ul style="list-style-type: none"> Apply at 60 DAP, 80 DAP and 100 DAP Option to apply at intervals of 21-30 days as needed from 120 DAP to 250 DAP via drone to further push yield volume Alternating application with COMPLETO+ as needed especially with ratoon crop
Corn	5-10	<ul style="list-style-type: none"> As Side Dress Urea Replacement or Booster at Whorl stage (30 DAP), spray at the rate of 10 liters per hectare at 45 DAP and follow-up spray of 5 liters per hectare at 55 DAP
Rice	5-10	<ul style="list-style-type: none"> As Side Dress Urea Replacement, spray 10 liters per hectare at 35 DAT As Urea Booster (in addition to granular side dress) spray 5 liters per hectare at 35 DAT to maximize yield Follow-up spray at 50 DAT at the rate of 5 liters per hectare to maximize yield increase
Fruit Trees	10	<ul style="list-style-type: none"> Apply from early bloom through fruit set Repeat after 30 days Double at post-harvest Spray volume at 2,500 liters per hectare or 2-6 tank loads per tree
Banana	20-30	<ul style="list-style-type: none"> Apply early in the season via fertigation Repeat every 21-30 days until harvest
Pineapple	2-3	<ul style="list-style-type: none"> Apply every 21-30 days from fruit set to harvest Triple the rate per hectare when applied via fertigation
Turf (GRASS)	55-110	<ul style="list-style-type: none"> Apply at 1:10 water dilution at 4-6 weeks interval for optimum turf (grass) growth Can be applied as foliar spray at 1:10 dilution rate or drench at 1:20 dilution rate SRN can release over 20-30 days on leaf surface and up to 8-10 weeks in the soil
Cutflowers	5-10	<ul style="list-style-type: none"> Do not apply as foliar spray when plants are already in bloom To apply as foliar, use lower rate (5 liters) at 1:100 dilution; as drench or via fertigation use higher rate (10 liters) at 1:100 dilution



"The Growth & Yield Booster"



COMPLETO+

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	5-6	<ul style="list-style-type: none"> Apply every 14 days from mid-crop or when flowering starts
Brassicas	5-6	<ul style="list-style-type: none"> Apply at early head development Repeat every 14 days
Onions	10	<ul style="list-style-type: none"> Apply from when sufficient leaf exists to intercept spray Apply at bulb development
Sugarcane	2-5	<ul style="list-style-type: none"> Apply at 100 DAP and 115 DAP Option to apply at intervals of 14 days as needed from 130 DAP to 250 DAP via drone to further push yield volume and sweetness (Brix/PSTC) Best to apply after NITROBOOST when canopy closes and up to 2.5 to 4 months before harvest for higher brix factor or sugar content
Corn	3-4	<ul style="list-style-type: none"> Apply at 45 DAP and follow-up spray at 55 DAP to maximize yield advantage
Rice	4	<ul style="list-style-type: none"> Apply at panicle initiation Apply at 35 DAT Follow-up at 50 DAT to maximize yield
Fruit Trees	10	<ul style="list-style-type: none"> Apply from early bloom through fruit set Repeat after 30 days Double at post-harvest Spray volume at 2,500 liters per hectare or 2-6 tank loads per tree
Banana	2-3	<ul style="list-style-type: none"> Apply every 14-21 days from fruit set to harvest Triple the rate per hectare when applying via fertigation
Pineapple	15	<ul style="list-style-type: none"> Apply via fertigation early in season Repeat every 14-21 days until harvest
Mango	25-50	<ul style="list-style-type: none"> Apply at the minimum rate of 25 liters per hectare at Bud Swell and Panicle Emergence Double the rate of application to 50 liters per hectare at Pre-flowering At flowering stage, apply minimum rate at 25 liters per hectare Spray volume at 2,500 liters water per hectare or 2-6 tank loads per tree
Cutflowers	5-10	<ul style="list-style-type: none"> Do not apply as foliar spray when plants are already in bloom To apply as foliar, use lower rate (5 liters) at 1:100 dilution; as drench or via fertigation use higher rate (10 liters) at 1:100 dilution



"Enhancing Crop Quality, Volume Plus Sweetness"

SAFETY & RESPONSIBLE USE MEASURES

The following conditions must be observed in order to apply COMPLETO+ and NITROBOOST product blends successfully. Failure to follow these instructions may result in damage to the plant.

- Use COMPLETO+ and NITROBOOST under conditions of optimum plant growth including highest humidity, moderate temperatures and adequate soil moisture.
- Early morning or late afternoon spraying is most effective as evaporation can occur during hotter parts of the day.
- Physically compatible with a wide range of commonly used spray chemicals. When mixing with other chemicals, always mix as small quantity (e.g. bucket test) and check for precipitate (fall out) in mixture. If precipitation occurs, do not proceed further.
- Add wettable or soluble powders, emulsifiables, or flowables to water in the mix and wet. Dissolve or disperse before adding COMPLETO+ and NITROBOOST.
- Use correct label spray rates
- DO NOT use when crop is under heavy stress from pests, heat or inadequate moisture levels.
- DO NOT apply by aircraft if surface wind is greater than 8kph to assure adequate crop coverage and droplet deposition.
- DO NOT spray to run off. DO NOT spray to visible droplet coalescence. DO NOT allow concentrated spray mist to run on fruit or leaves.
- DO NOT apply during the hotter part of the day.

NOTE: We recommend that when applying to a crop or area for the first time, or in combination with other chemicals, a small test area should be sprayed and observed prior to total crop spray.

Standard PPE such as safety glasses, gloves and protective clothing should be worn when using this product.

STORAGE DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Triple rinse container, empty rinsate into spray tank. Dispose of the empty container according to approved local practices. Contact primary industry for disposal information.



FPA Certificate of Product Registration No. 1-1IF-8089

Hacienda Progreso, Isabela, Negros Occidental, Philippines

FPA Certificate of Product Registration No. 1-1IF-8090

