

CHANGING THE GAME SUGARCANE



GameChanger Agriculture Corporation

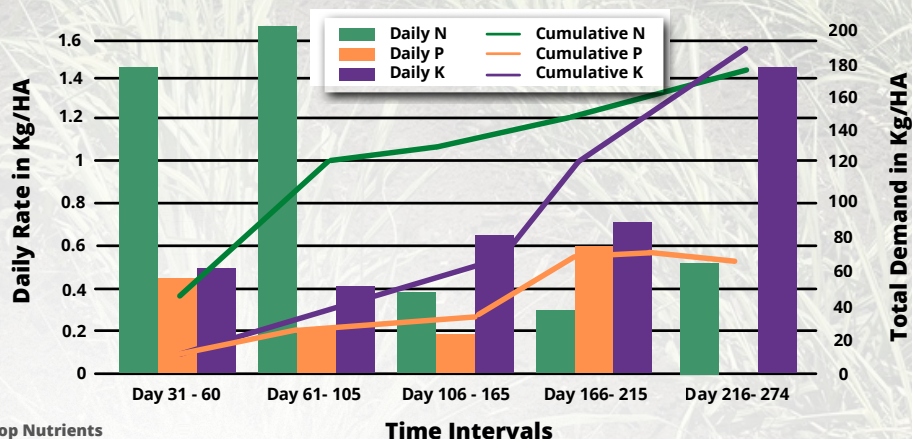
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SPRAY GRO
LIQUID FERTILIZERS
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PLANT NUTRITION BASICS

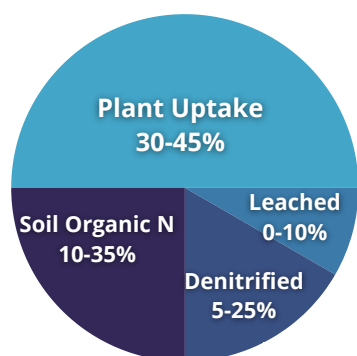
Sugarcane NPK Needs & Uptake Curves

- 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 (180-240 DAP) applications of N+B+Zn and/or N-P-K + TE may further push yield volume and quality

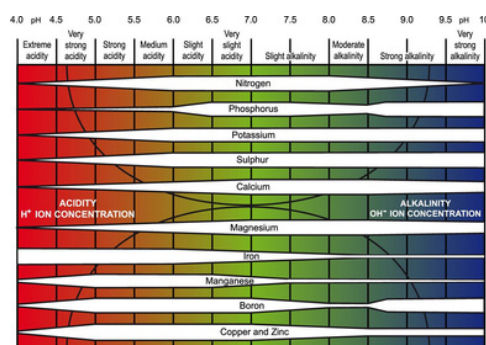


Source: p.71, Fertilization-A Novel Method Applying Crop Nutrients
P. Soman, Chief Agronomist, JAIN Irrigation (Global), NIPA 2021

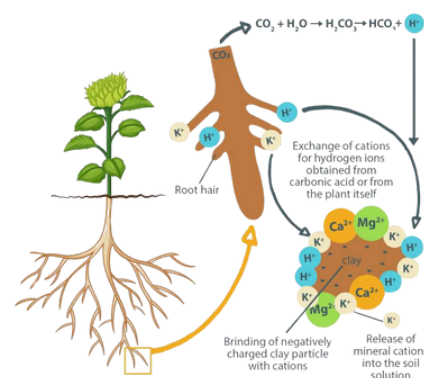
What happens to Granular Nitrogen?



Nutrient Availability VS pH Levels



CATION EXCHANGE CAPACITY (CEC)



UNDERSTANDING NPK + TE

NUTRIENT	FUNCTIONAL VALUE	NUTRIENT	FUNCTIONAL VALUE
NITROGEN (1-6%)*	- 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)*	- 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%)*	- 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)*	- 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%)*	- 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)*	- Aids in Calcium translocation (roots, cell wall) - Shoot lignification, Root growth - Transport of water, potassium and sulfur - Sugar translocation to fruit
IRON (10-1000ppm)*	- 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)*	- 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. 2014 Edition

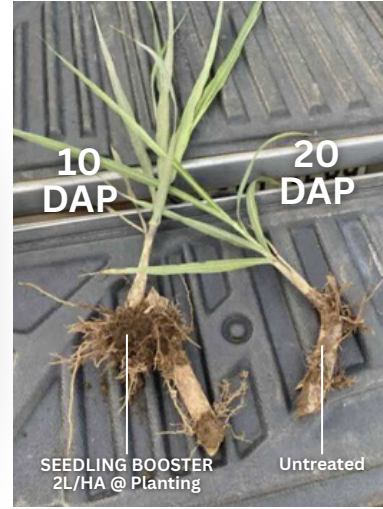
SEEDLING BOOSTER

"For Plant Development, Recovery & Vigour"

"SEEDLING BOOSTER enhances germination, root development, seedling vigour and strong plant establishment making a head start for superior crop performance all the way to harvest. We spray 100% of our fields with SEEDLING BOOSTER at planting and onto the early vegetative stage."

Ed Abello

Farm Manager, Hacienda Progreso
Isabela, Negros Occidental



Getting the Right Balance!!!

SUGARS	FULVIC ACID	LEUCINE	METHIONINE	KELP
CARBOHYDRATES	HUMIC ACID	CELLULOSE	TYROSINE	PHENYLALANINE
RIBOFLAVIN (VITAMIN B2)	PYRIDOXINE (VITAMIN B6)	ALANINE	VALINE	SERINE
ASPARTIC ACID	CYSTEINE	ASH	PROLINE	THREONINE
GLUTAMIC ACID	HISTIDINE	ISOLEUCINE	GLYCINE	TRYPTOPHAIN
NITROGEN	PHOSPHORUS	POTASSIUM	BORON	ZINC

CROP Benefits	Seed Piece	Seedling	Vegetative Growth	Grand Growth	Maturity	Brix
DEVELOPMENT	✓	✓	✓	✓	✓	✓
VIGOUR	✓	✓	✓	✓	✓	✓
RECOVERY	Heat Stress					
	Water Stress					
	Pest Infestation Stress					

NITROBOOST®

"The Growth & Yield Booster"



N P K
30.75 - 0 - 0

Chelated Trace Elements
Zinc (3,070 mg/L)
Boron (3,070 mg/L)

Nitrogen essential for leaf development and photosynthesis

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

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

Promotes shoot growth, tillering, stem elongation and vigour

Methanal component serves as sticker during foliar spray

Low salt index, no phytotoxicity, no burn

NITROBOOST®

Other Brands



Homogenous Neon Liquid



Coagulated
Precipitates

21 to 30 Days Smart-Release NITROGEN

NanoTech: efficient absorption & translocation

Superior growth & yield performance

COMPLETO+®

"Enhancing Crop Quality,
Volume Plus BRIX"



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

N P K
19 - 9 - 19

Chelated Trace
Elements

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

Nitrogen essential for leaf development and photosynthesis

**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 against stress, synthesis
of auxins and root growth**

SUGARBLASTER®

"Bigger & Sweeter!"

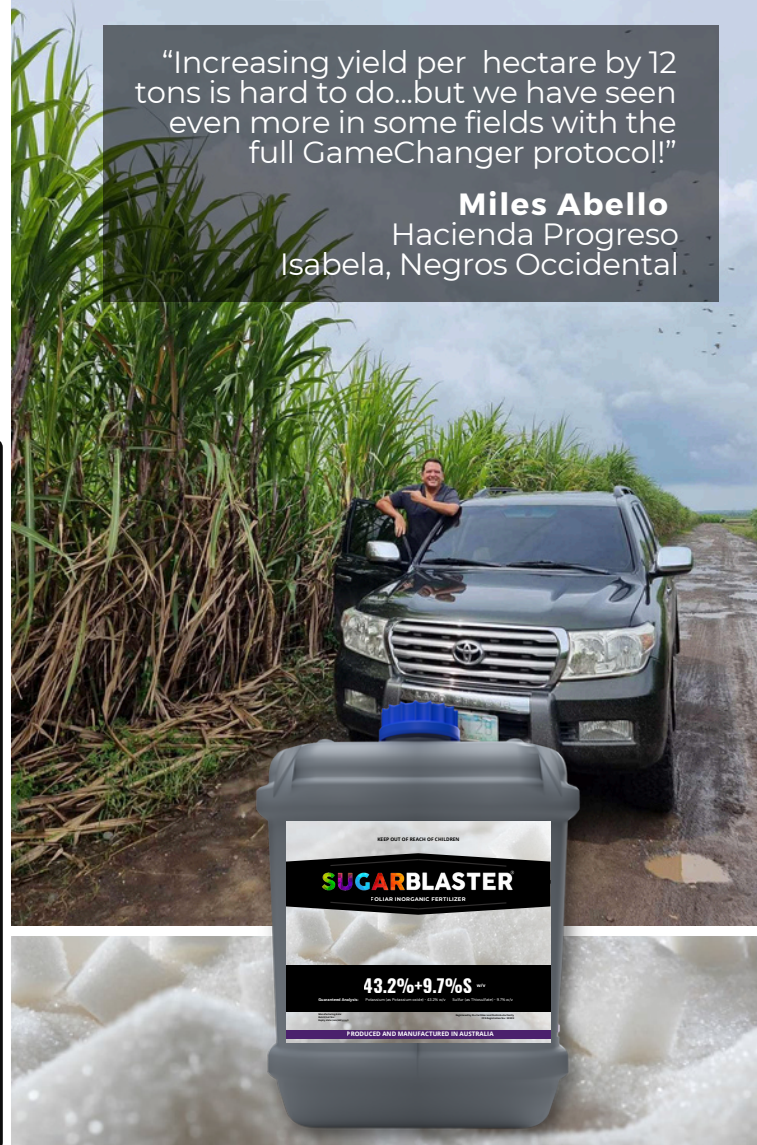
43.2% Potassium
(as Potassium oxide)

9.7% Sulfur (as Thiosulfate)

- Promotes biosynthesis of sugars and starches leading to higher yield and BRIX levels
- Restores vital crop water balance
- Regulates stomatal opening to improve photosynthesis
- Activates enzymes for biomass production
- Foliar spray facilitates improvement in fruit quality and size as well as sugar content & BRIX
- Contains thiosulfate sulfur that releases sulfuric acid to activate root zone for better nutrient uptake
- Contains a high concentration of potassium in liquid form that promotes plant growth and volume
- Pre-dissolved potassium and sulfur source that readily mix with water for more efficient leaf or root absorption
- Provides optimum availability of potassium in heavily leached sands
- Conveniently applied through the drippers without blockages
- Can be easily blended with ammonium polyphosphate to facilitate NPK absorption

"Increasing yield per hectare by 12 tons is hard to do...but we have seen even more in some fields with the full GameChanger protocol!"

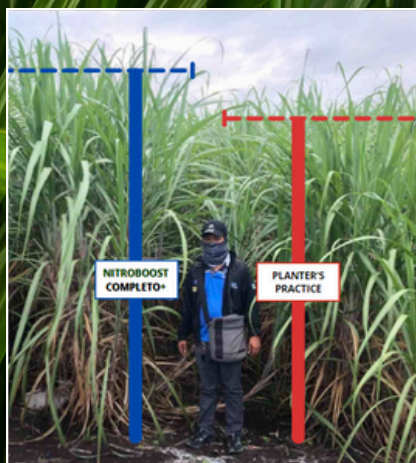
Miles Abello
Hacienda Progreso
Isabela, Negros Occidental





Nene & Miles Abello
Hacienda Progreso, Isabela
Negros Occidental

"We got an increase of 12 tons on average using the customized **GameChanger Protocols** sprayed via drones compared to our previous farm practice. **Any planter would know what that means in terms of ROI for a Php20k investment per hectare.** GameChanger has a nice product called, **SEEDLING BOOSTER**, We're looking at the growth compared to the other products in the market and this seems to be the winner. We are using **SEEDLING BOOSTER** in 100% of our fields"



THE

SPAD METER

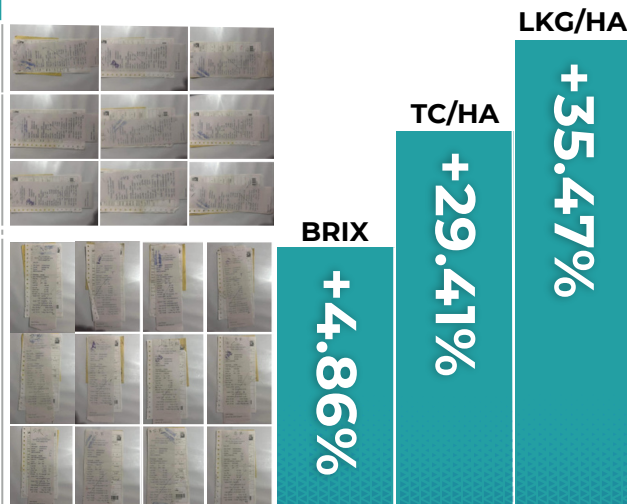
is designed to help users **improve crop quality and increase yield** by providing an indication of the amount of chlorophyll present in the plant leaves.

Chlorophyll and equivalent %N per KG of leaf tissues

Sugarcane Plant Tissue Nutrient Sufficiency Guide Ranges*

Measure	Percentage (%) Per KG Leaf Tissues						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

Protocol	Plate No.	TC/ Truck	LKG/ Truck	LKG/TC	TC/HA	LKG/HA
Planter's Practice	T037607	33.16	1.81	1.85	71.48	132.18
	TLH 993	35.15	1.82			
	T037607	31.37	1.80			
	T037607	31.75	1.90			
	T037607	31.78	1.92			
	UNE453	28.35	1.73			
	MAW9570	31.53	1.73			
	UMH472	30.80	2.10			
	F037607	32.04	1.83			
SEEDLING BOOSTER 2L/HA @ 0 DAP 3L/HA @ 30 DAP NITROBOOST 5L/HA @ 90 DAP 5L/HA @ 120 DAP COMPLETE+ 5L/HA @ 150 DAP 5L/HA @ 180 DAP	MAZ7740	29.24	1.72	1.94	92.50	179.06
	T070610	29.77	2.06			
	XFU485	33.53	2.11			
	MAW9570	29.60	2.00			
	MAZ7740	28.65	2.08			
	T70610	29.98	1.89			
	MAW9570	31.94	2.00			
	XFU485	30.30	2.00			
	MAW9570	33.53	1.65			
	XFU485	35.05	2.03			
	TLH993	34.04	1.70			
	WBJ682	24.36	1.99			



GAMECHANGER

Liquid Feeding Program

SUGARBLASTER 5 liters/HA (240DAP/270DAP)

COMPLETE+ 2-5 liters/HA (180DAP & 210DAP (Optional for BRIX @ 240DAP/270DAP))

COMPLETE+ 2-5 liters/HA (120DAP & 150DAP)

NITROBOOST 2-5 liters/HA (60DAP & 90DAP)

SEEDLING BOOSTER 2-3 liters/HA (0DAP & 30DAP)

Apply **SEEDLING BOOSTER** as needed in any stage of the crop to recover from heat, water or pest related stress conditions

	CROP ESTABLISHMENT	TILLERING	GRAND GROWTH	MATURITY & RIPENING
DAYS	01 04 09 10 20	30 60 90 120 150	180 210 240 270 300	315 330 345 360
Granular Fertilizer	18-46-0 200kg (4 bags)	46-0-0 200kg (4 bags)	0-0-60 200kg (4 bags)	21-0-0 200kg (4 bags)

THE GameChangers!!!



**Dennis De Veyra
& Jun Larrazabal**
DCV Farms Ormoc, Leyte

"With the GameChanger customized protocols, we experienced between **20-30% increase from the usual averages in tonnage** and even observed a **significant increase in BRIX from 2.1 to 2.6** in our commercial trial fields."



"I have been using Nitroboost and Completo+ since 2020 at 5L per hectare applied at 60DAP, 90DAP and 120DAP giving me additional 10 tons per hectare. The cost-efficiency with the significant increase in tonnage is actually driven by the flexibility of applying both macro & micro nutrients in the later stages of the crop via drones. We truly need these new technologies from GameChanger agriculture as we make the shifts to precision farming."

Carlos Balcells
Alcar Devt Corp, Talisay City

"We reduced the granular fertilizers and now going for the full GameChanger combination protocol of Nitroboost and Completo+ at 5L/HA up to 5-6 months-old-canes. So far the crop stand looks really good with greener leaves and bigger stalks so I am looking forward to the additional tonnage this season compared to my other fields with the usual practice."

Gerry Lopez
Nieves Agro/Buen Retiro Corp, Silay City



Miles Abello
Hacienda Progreso
Isabela, Negros Occidental

"Adding 12 tons to usual yield per hectare? That's hard to do!

We start with SeedlingBOOSTER at the rate of 2 liters per hectare sprayed over the furrowline for new plant and now evaluating the follow-up spray at 30DAP mixed with the usual insecticide for borer control showing fantastic results on seedling vigour, root development, tillering, robustness, leaf and stem enlargement...we are also applying SeedlingBOOSTER in our ratoon canes...sky is, indeed, the limit in pushing yield potential with GameChanger Agriculture Corporation protocols!!!"

12 Tons x 2.0 Brix Factor = 24 Bags of sugar
x Php2,500/50kg bag = Php60,000/HA
Less Php20,000/HA GameChanger Protocol Cost
= Add'l Gross Value Advantage @ **Php40,000/HA**



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