

Changing the Game VEGETABLES



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

**SPRAY
GRO**
LIQUID FERTILIZERS
AUSTRALIA

SIMON
A G R I

FARMING Mindsets

Progressive / Precision - Driven

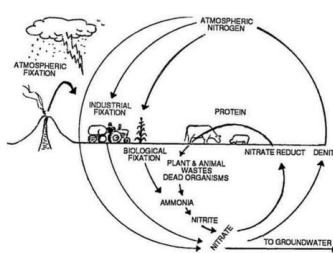
- How much % of Nitrogen is in my plants per KG of leaf tissue samples?
- From my leaf samplings, xx% increase in %N/KG leaf samples from planting to growing and reproductive stages correlates to an increase in tonnage between xx% to xx%
- Which fields or stages will require more steady, sustained supplementation?

Traditional / Conventional

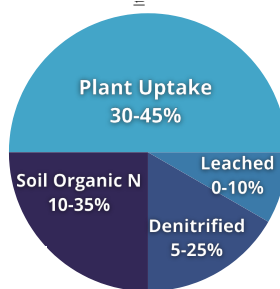
- I put xxxKG Nitrogen per hectare in 3-5 split application timings
- For the last 3 seasons, xxxKG of NPK equates to more or less XXX tons per hectare
- Fertilization application rate will be uniform across fields for a more stable yield

Why Smart-Release Foliar Fertilizers?

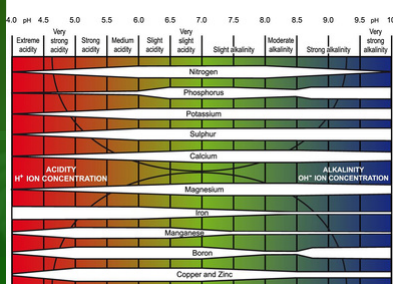
The Nitrogen Cycle



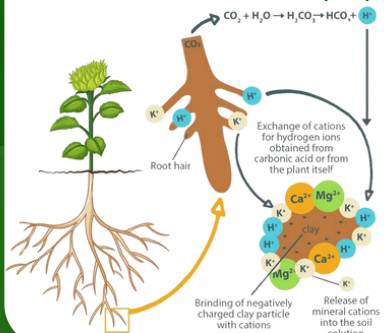
What happens to applied Nitrogen?



Nutrient Availability VS pH Levels



CATION EXCHANGE CAPACITY (CEC)



CROP		Percentage (%)							Parts Per Million (ppm)						
		N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al	
Beans	From:	3.60	0.25	0.30	2.00	0.35	1.00	0.01	25	35	50	50	8	20	
	To:	6.00	0.70	0.70	4.00	1.00	3.00	0.05	70	60	100	200	30	250	
Celery	From:	3.00	0.60	0.40	4.00	0.30	1.50	0.01	25	30	50	60	8	20	
	To:	4.80	1.20	0.80	6.00	0.50	4.00	0.25	50	80	150	200	20	300	
Cucumbers	From:	3.50	0.30	0.30	2.50	0.60	1.25	0.01	25	30	50	50	10	20	
	To:	5.50	1.00	0.70	6.00	1.50	5.00	0.20	80	70	200	200	25	200	
Head Crops	From:	2.50	0.30	0.40	3.50	0.30	1.50	0.01	25	25	50	50	5	20	
	To:	4.50	1.50	1.00	5.00	0.50	2.50	0.10	50	45	100	200	10	200	
Leaf Crops	From:	3.50	0.30	0.40	3.50	0.30	1.25	0.01	25	30	25	60	6	50	
	To:	6.00	0.75	1.00	8.00	1.00	2.50	0.20	50	50	40	200	20	150	
Peppers	From:	3.00	0.30	0.40	4.00	0.50	0.75	0.01	30	30	60	100	15	50	
	To:	6.00	0.60	0.80	6.50	1.00	2.50	0.50	75	60	200	250	50	200	
Potatoes	From:	4.00	0.25	0.30	3.50	0.50	0.70	0.01	25	30	60	100	10	50	
	To:	6.00	0.50	0.70	6.50	1.10	2.00	0.15	60	70	200	200	25	250	
Root Crops	From:	3.50	0.30	0.25	3.00	0.25	1.50	0.01	20	25	50	75	5	20	
	To:	6.00	0.75	0.80	7.00	1.00	4.00	0.20	80	60	200	250	20	300	
Tomatoes	From:	3.00	0.50	0.30	2.50	0.50	2.00	0.01	40	35	100	100	8	20	
	To:	6.00	0.90	0.80	5.00	1.00	6.00	0.10	60	50	200	200	20	200	

Source: Plant Analysis - A Diagnostic Tool, University of Wisconsin, Bulletin A2289, Agronomy Handbook 2015 Edition, Don Ankerman, B.S. & Richard Large, Ph.D.

UNDERSTANDING NPK + TE

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

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

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/volume production

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

NUTRIENT

FUNCTIONAL VALUE

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

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

BORON (2-75ppm)*

- Aids in Calcium translocation (roots, cell wall)
- Shoot lignification, root growth
- Transport of water, potassium and sulfur
- Sugar translocation to canes and fruits

ZINC (5-100ppm)*

- Synthesis of proteins and auxins
- Calcium translocation
- Regulates nutrient uptake
- Early root growth, rapid crop response
- Uniform maturity, crop yield quality

*Approximate Concentration in Plants

NITROBOOST[®]
"The Growth & Yield Booster"

KEEP OUT OF REACH OF CHILDREN
 SMART-RELEASE
NITROBOOST
 SMART-RELEASE FERTILIZER

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"The Growth & Yield Booster"

KEEP OUT OF REACH OF CHILDREN
 SMART-RELEASE
NITROBOOST
 SMART-RELEASE FERTILIZER



NPK
30.75 - 0 - 0
Chelated Trace Elements

Zinc (3,070 mg/L)
Boron (3,070 mg/L)

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30.75 - 0 - 0
Chelated Trace Elements

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Boron (3,070 mg/L)

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30.75 - 0 - 0
Chelated Trace Elements

Zinc (3,070 mg/L)
Boron (3,070 mg/L)

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

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

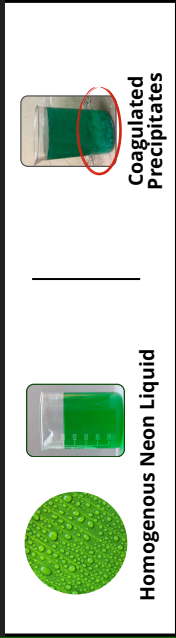
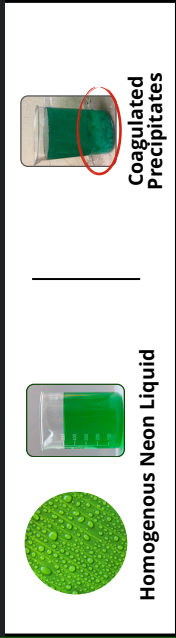
Promotes shoot growth, tillering, stem elongation and vigour

Methanal component serves as sticker during foliar spray

Low salt index, no phytotoxicity, no burn

NITROBOOST®

NITROBOOST®



NPK
2-4-6.7
Chelated
Micronutrients
Zinc (2,000ppm)
Boron (500ppm)

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2-4-6.7
Chelated
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“For Crop Development, Vigour & Recovery”

CROP Benefits

DEVELOPMENT

VIGOUR

RECOVERY

Heat Stress

Water Stress

Pest Infestation Stress

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	TRYPTOPHAN
NITROGEN	PHOSPHORUS	POTASSIUM	BORON	ZINC

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

Nitrogen essential for leaf development and photosynthesis

Phosphorous promotes root growth, flowering and fruit setting

Potassium serves as activator for biomass production, biosynthesis of sugars and starches for bigger and better fruits

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

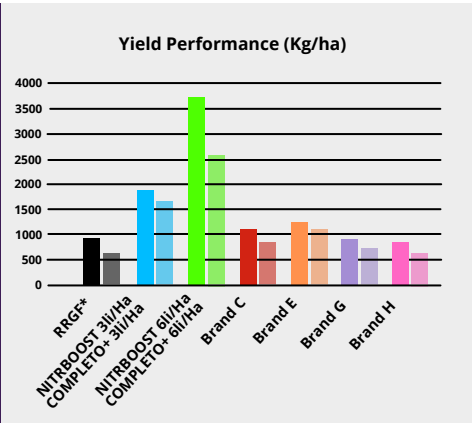
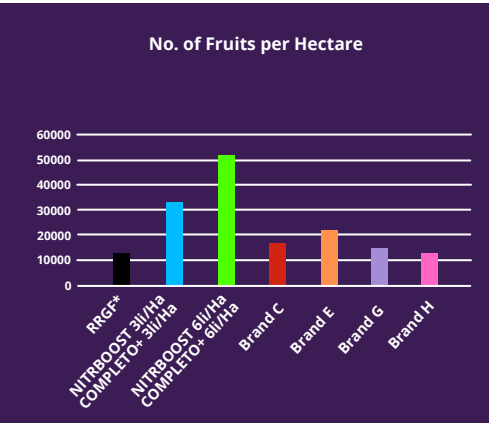
Copper aids in pollen formation crucial for effective pollination and fruit setting

Iron converts nutrients into energy, supporting the tree's vitality and productivity

Manganese aids in pollen germination and growth of pollen tubes for successful fruit setting

Zinc for rapid crop response against stress, while promoting reproductive development, flowering, fruit setting and fruit quality

Knocking Out Traditional Foliar Fertilizers in EGGPLANT



*RRGF - Regular Rate Granular Fertilizer

Description	Rate (li / Ha)	Application Timing (DAT)	No. ('000) Fruit/ha)	Yield Ton / Ha)	Gross Sales (Php)	Cost of Fertilizer Input	Gross Returns (Php)
RRGF*	-	-	13	0.91	18,200	9,800	8,400
NITROBOOST COMPLETEO+	3	45-55-65	33	1.87	37,000	14,300	22,700
NITROBOOST COMPLETEO+	6	45-55-65	51	3.73	74,600	18,800	55,800
Brand C	6	45-55-65	18	1.16	23,200	17,900	5,300
Brand E	3	45-55-65	21	1.26	25,200	13,850	11,350
Brand G	2.5	45-55-65	16	0.93	18,600	11,675	6,925
Brand H	2.5	45-55-65	13	0.82	16,400	11,675	4,725

Eggplant Large Plot Trials
Researcher: Doc Nap Saavedra

RRGF	14-14-14	15g/hill	7 DAT
	46-0-0	15g/hill	21 DAT
	0-0-60	20g/hill	35 DAT
	46-0-0	20g/hill	35 DAT

*RRGF - Regular Rate Granular Fertilizer

***Total of three weeks harvest**

- Trial site: Sta. Maria, Sto.Tomas, Batangas
- Variety: Prolifica
- Planting distance: 1.0m x 1.5m
- Planting date: 27 January 2020
- Harvesting: 3 April 2020
- Spray volume: 200li/ha
- Eggplant Price: P20/kg
- Granular Fertilizer Price: 1,100/50kg bag



COMPLETEO+ 3-5 liters/HA 300-500ml per 16L H2O 60 DAT 90 DAT 130/160/190 DAT

NITROBOOST 3-5 liters/HA 300-500ml per 16L H2O 30 DAT 45 DAT

SEEDLING BOOSTER 2-3 liters/HA 200ml per 16L H2O 10 DAT / 20 DAT 75 DAT 115 DAT / 145 DAT / 175 DAT

SEEDLING BOOSTER @ Nursery

- Spray 500ml/16L knapsack sprayer per 100 nursery seedling trays every 5 days

- NITROBOOST: Apply every 21-30 days before flowering
- COMPLETEO+: Apply every 14 days at any stage
- SEEDLING BOOSTER: Apply as needed to recover from heat, water stress or pest infestation for recovery @ 300ml per 16L knapsack sprayer

Optional Protocol:
Alternating Product 3-Week Spray @ 100ml per 16L Knapsack
Week 0, 1 & 2 - SEEDLING BOOSTER @ 100ml per 16L Knapsack
Week 3, 4 & 5 - NITROBOOST @ 100ml per 16L Knapsack
Week 6, 8, 10, 12, 14, 16, 18, 20, 22 & 24 - COMPLETEO+ @ 100ml per 16L Knapsack
Week 7, 9, 11, 13, 15, 17, 19, 21, 23 & 25 - SEEDLING BOOSTER @ 100ml per 16L Knapsack



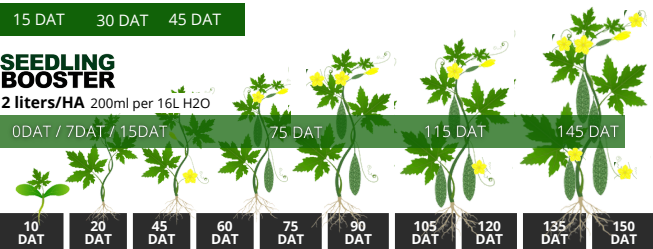


Beating Popular Foliar Fertilizers in Ampalaya

COMPLETEO+ 3-5L/HA (300ml-500ml per 16L H2O) 60 DAT 90 DAT 130 DAT 160 DAT

NITROBOOST 3-5L/HA (300ml-500ml per 16L H2O) 15 DAT 30 DAT 45 DAT

SEEDLING BOOSTER 2 liters/HA 200ml per 16L H2O 0DAT / 7DAT / 15DAT 75 DAT 115 DAT 145 DAT



SEEDLING BOOSTER
Nursery: Spray 500ml/16L knapsack sprayer per 100 nursery seedling trays every 5 days

Optional Protocol:
Alternating Product 3-Week Spray @ 100ml per 16L Knapsack

Week 0, 1 & 2 - SEEDLING BOOSTER @ 100ml per 16L Knapsack
Week 3, 4 & 5 - NITROBOOST @ 100ml per 16L Knapsack
Week 6, 8, 10, 12, 14, 16, 18, 20, 22 & 24 - COMPLETEO+ @ 100ml per 16L Knapsack
Week 7, 9, 11, 13, 15, 17, 19, 21, 23 & 25 - SEEDLING BOOSTER @ 100ml per 16L Knapsack

Treatment	Product of Plants	Dosage per HA	Spraying Frequency	Yield/HA (Tons)	Yield Performance (TON/HA)
1	Brand G	600G	Weekly	2.13	
2	Brand A	240G	Weekly	1.77	
3	COMPLETEO+	2 Liters	Every 2 Weeks	2.58	
4	NITROBOOST	2 Liters	Every 3 Weeks	2.99	
5	COMPLETEO+ NITROBOOST	5 Liters 5 Liters	Alternate Every 3-4 Weeks	4.95	
6	COMPLETEO+	5 Liters	Every 2 Weeks	4.77	
7	NITROBOOST	5 Liters	Every 3-4 Weeks	4.20	
8	Brand C	3.6 Liters	Every 3 Weeks	2.85	

Observations & Conclusions

- Combination of COMPLETEO+ & NITROBOOST applied 14 and 21-30 days apart resulted to the highest yield at 4.95 tons/HA in 20 pickings; +180% above Brand A, +132% above Brand G and +74% above Brand C
- COMPLETEO+ at maximum label recommendation of 5 liters/HA is next best alternative but may be the highest in Value-In-Use with 4.77 tons/HA yield at +169% above Brand A, +124% above Brand G and +67% above Brand C after 20 pickings
- NITROBOOST at low dose of 2 liters/HA applied every 21-30 days produced a yield advantage of +122% above Brand A, +84% above Brand G and +38% above Brand C
- Yield maximization is more evident with COMPLETEO+ and NITROBOOST combination applied alternately every 14 days (COMPLETEO+) and 21-30 days (NITROBOOST)



Trial Site: Springville Farm, San Pedro, Sta. Catalina Negros Oriental

Date Transplanted: March 17, 2020

Harvesting Period: May 2, 2020 to January 28, 2021

Total Number of Pickings: 20x

Pushing Yields in Cabbage

VS Popular Foliar Fertilizers



Treatment	Rate (li/ha)	Timing (DAT)	Yield (Ton/ha)	Gross Sales***	Fertilizer Cost **	Gross Returns	Yield Performance (TON/HA)
T1 RRGF (Farmer's Practice)	*	*	30.0	Php450,000	Php13,800	Php436,000	
T2 RRGF + COMPLETO+	4	15 - 30 - 45 - 60	44.7	Php670,500	Php19,800	Php651,000	
T3 1/2 RRGF + COMPLETO+	4		36.1	Php541,500	Php9,900	Php532,000	
T4 RRGF + NITROBOOST	5		49.0	Php735,000	Php28,800	Php706,000	
T6 RRGF + NITROBOOST(2x) / COMPLETO+	5		40	Php600,000	Php24,600	Php575,000	
T7 RRGF + COMPLETO+(2x) & NITROBOOST (2x)	4		36.7	Php550,500	Php25,800	Php524,000	
T8 1/2 RRGF + NITROBOOST	5		35.5	Php532,500	Php21,900	Php510,000	
T9 RRGF + Brand C (Controlled Release N+B)	6		29.4	Php441,000	Php21,900	Php419,000	
T10 RRGF + Brand H	2.5		36.7	Php550,500	Php15,675	Php534,000	
T11 RRGF + Brand CG	2.5		35.0	Php525,000	Php15,675	Php509,000	
T12 RRGF + Brand G	2.5		36.5	Php547,500	Php15,675	Php532,000	

Researcher's Conclusions

- NITROBOOST** at 5li/ha application applied 4x provided the highest yield with 49 tons/HA equivalent to 63% increase or 19 tons/HA higher than farmer's practice (T1 - RRGF) and better than the commonly used foliar fertilizer especially Brand E and Brand C
- COMPLETO+** at 4li/HA applied 4x produced a yield of 44.67 tons/HA far better than the popular foliar fertilizers (Brands C, H, CG & G)
- Application of half the rate of granular fertilizer plus application of **COMPLETO+** at the rate of 4 li/ha applied 4x provided a 20% yield increase, indicative that the reduction is well compensated with the application of **COMPLETO+**
- The same result was observed with **NITROBOOST** applied at 5 li/ha and half the rate of granular fertilizers

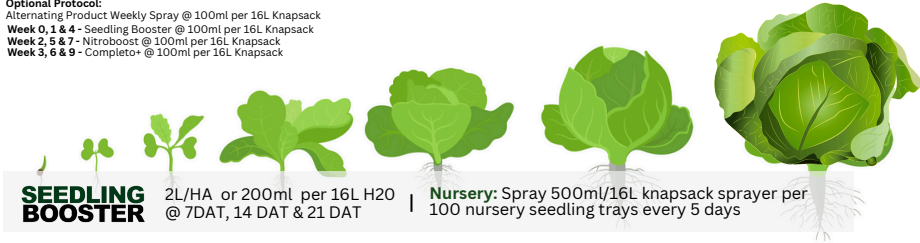
Cabbage Plant Nutrition Trial

Researcher: Napoleon "Doc Nap" Saavedra
Site: Kinabuhayan, Dolores, Quezon
Variety: Gladiator
Planting Distance: 0.3 meter x 0.7 meter
Planting Date: 10 December 2019
Harvest Date: 29 February 2020 (81 DAT)
Treatment Timing: 35 DAT, 50 DAT & 65 DAT



COMPLETO+	3-5L/HA or 300ml-500ml per 16L H2O @ 70 DAT
NITROBOOST	3-5L/HA or 300ml-500ml per 16L H2O @ 15 & 30 DAT 3-5L/HA or 300ml-500ml per 16L H2O @ 45 & 60 DAT

Optional Protocol:
Alternating Product Weekly Spray @ 100ml per 16L Knapsack
Week 0, 1 & 4 - Seedling Booster @ 100ml per 16L Knapsack
Week 2, 5 & 7 - Nitroboost @ 100ml per 16L Knapsack
Week 3, 6 & 9 - Completo+ @ 100ml per 16L Knapsack



1 - 15 DAS	16 - 25 DAS	1 - 7 DAT	8 - 14 DAT	15 - 21 DAT	22 - 28 DAT	29 - 35 DAT	36 - 42 DAT	43 - 49 DAT	50 - 56 DAT	57 - 73 DAT	73 - 80 DAT
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"Kakaiba ang bulas at quality ng aking vegetables mapa-greenhouse man or open field gamit ang smart release foliar fertilizers na Seedling Booster, Nitroboost at Completo+ ng GameChanger Agriculture Corporation...kasama na sa aking production system and GameChanger protocols para malaki ang ani at maganda ang quality ng harvest!!!"

Alonso Callas
Pactil Green Crops Farm
Mountain Province

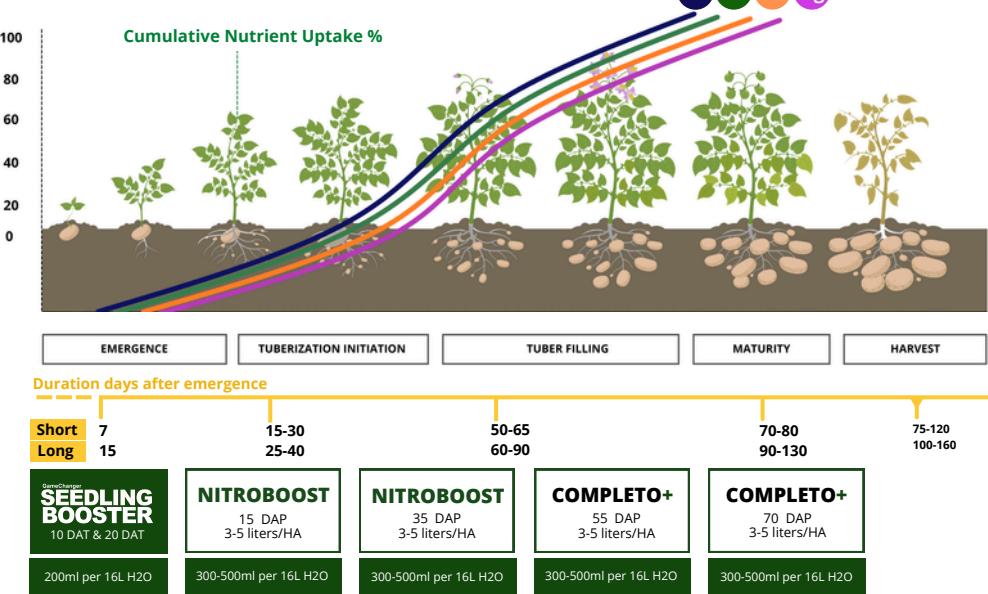


Potato Macro-Nutrient Uptake Pattern

- Nutrient uptake is at its greatest during tuber bulking up (intensive volume increase process)
- Nutrients need to be applied as accurately as possible to the zone of uptake, slightly before, or at the time that the crop needs them
- Leaf tissue analysis is a precision farming tool to optimize fertilization and maximize yields
- Failure to ensure that each plant gets the right balance of nutrients can spoil crop quality and reduce yield
- The highest requirement for potassium is during the 'bulking up' stage of the tubers
- The flowering of potato plants is an indication when 'bulking up' stage starts
- The ideal foliar feeding should start at the tuber bulking stage up to late maturing to push yield volume (tonnage) and quality (size, uniformity)

Source: Fertilizer Research & Education Program (FREP)
California Department of Food and Agriculture

Gamechanger Potato Foliar Feeding Program



SEEDLING BOOSTER

- Apply as needed to recover from heat, water or pest related stress conditions at the rate of 300ml per 16L knapsack sprayer

Optional Protocol:
Alternating Product 3-Week Spray @ 100ml per 16L Knapsack
Week 0, 1 & 2 - Seedling Booster @ 100ml per 16L Knapsack
Week 3, 4 & 5 - Nitroboost @ 100ml per 16L Knapsack
Week 6, 7, 9 & 10 - Completo+ @ 100ml per 16L Knapsack

BIG TIME HARVEST, BIG TIME FARMER

NITROBOOST®

"The Growth & Yield Booster"

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	3-6	• Apply every 21-30 days from mid-crop
Brassicas	3-10	• Apply at early head development • Repeat every 21-30 days
Onions	2-10	• Apply from when sufficient leaf exists to intercept spray • Apply at bulb development at intervals of 21-30 days
Turf (GRASS)	10-50	• Apply at 1:20 water dilution at 4-6 weeks interval for optimum turf (grass) growth • Can be applied as foliar spray at 1:100 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	2-10	• 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

COMPLETO+®

"Enhancing Crop Quality, Volume Plus BRIX"

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	3-6	• Apply every 14 days from mid-crop or when flowering starts
Brassicas	3-6	• Apply at early head development • Repeat spray every 14 days or as follow-up to NITROBOOST
Onions	3-10	• Apply from when sufficient leaf exists to intercept spray • Apply at bulb development
Cutflowers	2-10	• 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



SEEDLING BOOSTER

- 2L/HA or 200ml per 16L H2O @ 10 DAT & 20 DAT
- Nursery: Spray 500ml/16L knapsack sprayer per 100 nursery seedling trays every 5 days
- Apply as needed to recover from heat, water or pest related stress conditions at the rate of 300ml per 16L knapsack sprayer

"For Crop Development, Vigour & Recovery"



Planter's Practice
100% RRGF - Reegular Rate
Granular Fertilizer



GameChanger Protocol
Nitroboost & Completo+ / 50%RRGF



"This is amazing!!!!...mas maganda and bulas ng stems, mas madaming roots, mas buo at malapad ang dahon, mas madaming talbos and flowers with the GameChanger protocols spraying **SEEDLING BOOSTER, NITROBOOST and COMPLETO+**...we also saved on granular fertilizer costs by 50% while we doubled our harvest from 20 crates to 42 crates per day per hectare!!... definitely a GameChanger!!!"

Jef Fernandez
COO, JelFarm OKRA Plantation
Tarlac



"Sa **NITROBOOST** at **COMPLETO+** nakasave ako sa granular fertilizer by 50% at **lumago**, mas mabulas ang talbos, nabawasan ang aborted flowers at mas madaming napipitas ko na talong at ampalaya!... Yung **SEEDLING BOOSTER** napaka galing magpabulas ng bagong tanim!!!"

Barangay Captain Marlon Olivar
Progressive Veggie Grower
Pangasinan



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National Capital Region, Philippines
www.gamechanger-agriculture.com

