

Changing the Game VEGETABLES



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



FARMING Mindsets

Progressive / Precision - Driven

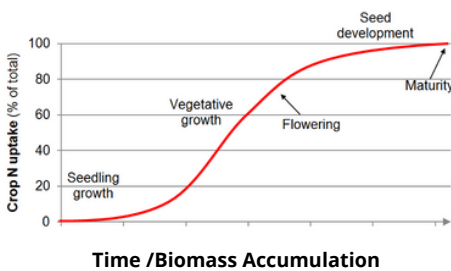
- How much % of Nitrogen is in my plants per KG of leaf tissue samples?
- From my leaf samplings, xx% increase in %N/KG leaf samples from planting to growing and reproductive stages correlates to an increase in tonnage between xx% to xx%
- Which fields or stages will require more steady, sustained supplementation?

Traditional / Conventional

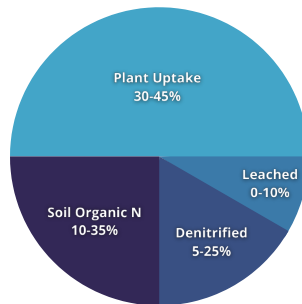
- I put xxxKG Nitrogen per hectare in 3-5 split application timings
- For the last 3 seasons, xxxKG of NPK equates to more or less XXX tons per hectare
- Fertilization application rate will be uniform across fields for a more stable yield

Why Smart-Release Foliar Fertilizers?

Seasonal Nitrogen Uptake Pattern



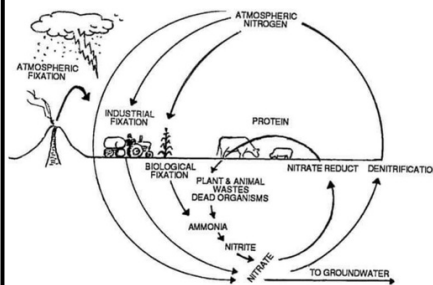
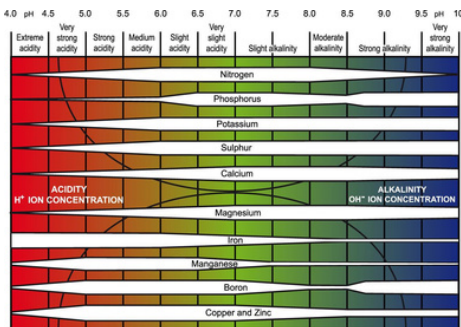
What happens to applied Nitrogen?



Veggie Plant Tissue Nutrient Sufficiency Guide Ranges*

Crop	Percentage (%)							Parts Per Million (ppm)						
	N	S	P	K	Mg	Ca	Na	B	Zn	Mn	Fe	Cu	Al	
Asparagus	From	2.40	0.25	0.30	1.50	0.15	0.40	0.01	25	20	10	50	10	20
	To	3.80	0.50	0.75	2.40	0.50	1.00	0.10	75	60	180	300	50	200
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
Melons	From	2.00	0.30	0.20	2.50	0.50	2.00	0.01	25	20	50	60	5	20
	To	6.00	1.00	0.80	5.00	1.00	3.50	0.20	75	89	100	120	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

Nutrient Availability VS pH Levels



The Nitrogen Cycle

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

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/volume 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 canes and fruits
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, crop yield quality

*Approximate Concentration in Plants

NITROBOOST®

"The Growth & Yield Booster"

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

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

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 Nitrogen level

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

Technical grade, no chlorides

Low salt index, no burn

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



FPA Certificate of Product Registration No.1-11F-8089

NITROBOOST

Other Brands



Homogenous Neon Liquid



Coagulated Precipitates

COMPLETO+®

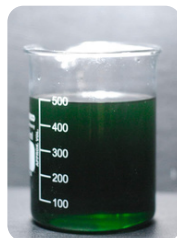


FPA Certificate of Product Registration No.1-11F-8090



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)



Dark Green
Homogenous Liquid

"Enhancing Crop Quality, Volume Plus BRIX"

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

High absorption rate at 4x to 30x traditional foliar & 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

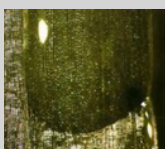
Manganese aids in uptake and utilization of Nitrogen, Phosphorus & Magnesium

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

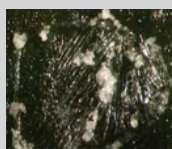
Leaf Nitrogen Distribution

COMPLETO+ NITROBOOST

Other Brands



Highly Absorbable
Micro-Droplets

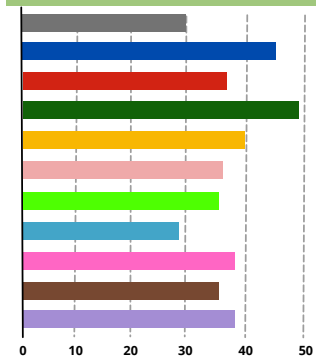


Non - Absorbable
Dried Crystals

Pushing Yields in Cabbage VS Popular Foliar Fertilizers

Treatment	Rate (li/ha)	Application 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	30.0
T2 RRGF + COMPLETO+	4	35-50-65	44.7	Php670,500	Php19,800	Php651,000	44.7
T3 1/2 RRGF + COMPLETO+	4	35-50-65	36.1	Php541,500	Php9,900	Php532,000	36.1
T4 RRGF + NITROBOOST	6	35-50-65	49.0	Php735,000	Php28,800	Php706,000	49.0
T6 RRGF + NITROBOOST(2x) / COMPLETO+	6	35-50-65	40	Php600,000	Php24,600	Php575,000	40.0
T7 RRGF + COMPLETO+(2x) & NITROBOOST	4	35-50-65	36.7	Php550,500	Php25,800	Php524,000	36.7
T8 1/2 RRGF + NITROBOOST	5	35-50-65	35.5	Php532,500	Php21,900	Php510,000	35.5
T9 RRGF + Brand C (Controlled Release N+B)	6	35-50-65	29.4	Php441,000	Php21,900	Php419,000	29.4
T10 RRGF + Brand H	2.5	35-50-65	36.7	Php550,500	Php15,675	Php534,000	36.7
T11 RRGF + Brand CG	2.5	35-50-65	35.0	Php525,000	Php15,675	Php509,000	35.0
T12 RRGF + Brand G	2.5	35-50-65	36.5	Php547,500	Php15,675	Php532,000	36.5

*RRGF - Regular Rate Granular Fertilizer (4 bags 14-14-14 basal application @ planting + 6 bags 46-0-0 @ 14 DAT + 6 bags 46-0-0 at 35 DAT)
 **Fertilizer Price Average @ Php1,100/bag
 ***Cabbage Price @ Php15/KG



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
 DAT - Days After Transplant

Researcher's Conclusions

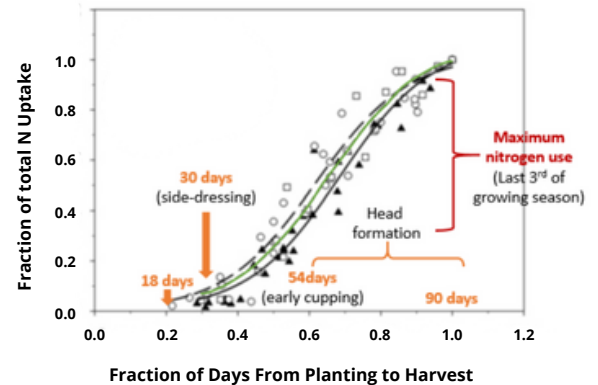
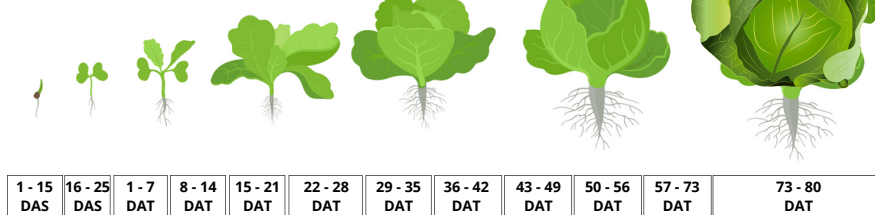
- NITROBOOST at 6li/ha application applied 3x provided the highest yield with 49 tons/HA equivalent to 63% increase or 19 tons/HA higher than farmer's practice (T1 - RRGF) and better than the commonly used foliar fertilizer especially Brand E and Brand C
- COMPLETO+ at 4li/HA applied 3x produced a yield 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 3x 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

- Tissue analysis at harvest revealed that a summer cabbage crop uses about 36.3KG/HA of Nitrogen, divided fairly equally between the head and the leaf and stump residue
- Studies showed that Nitrogen uptake by the cabbage crop exceeded the amount of Nitrogen applied via fertilizers
- In the 2016 trial, Nitrogen uptake exceeded amount applied (150 lb/A) by 35 to 73 lb/A (=23 to 48%)
- Cabbage crop is a very efficient nutrient scavenger

Source: Understanding Nitrogen Use in Cabbage, Christy Hoepfing, CCE Cornell Vegetables Research Program, Cabbage Research and Development Program (CRDP), New York 2016



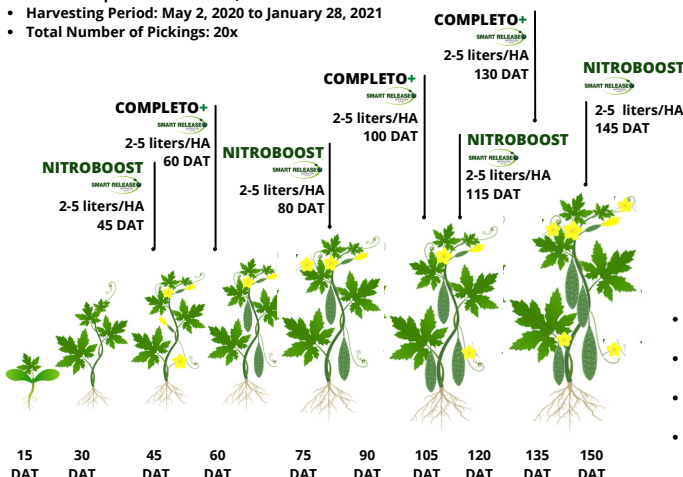
GameChanger Cabbage Foliar Feeding Program



Nitrogen use in cabbage (green) demonstrated in a recent study in California (Smith et al. 2016) showed that half of the nitrogen use occurs during the last third of the growing season during cupping and head formation

Beating Popular Foliar Fertilizers in Ampalaya

- 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



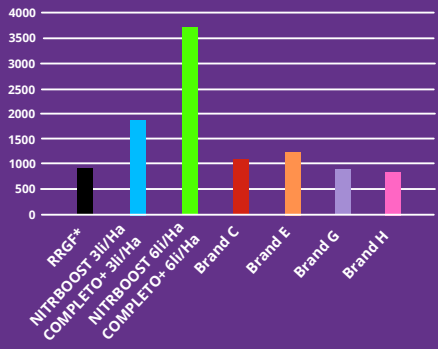
Treatment	Product of Plants	Dosage per HA	Spraying Frequency	Yield/HA (Tons)	Yield Performance (TON/HA)
1	Brand G	600G	Weekly	2.13	2.13
2	Brand A	240G	Weekly	1.77	1.77
3	COMPLETO+	2 Liters	Every 2 Weeks	2.58	2.58
4	NITROBOOST	2 Liters	Every 3 Weeks	2.99	2.99
5	COMPLETO+ & NITROBOOST	5 Liters / 5 Liters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

Observations & Conclusions

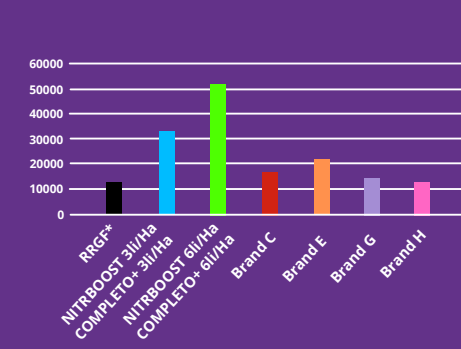
- Combination of COMPLETO+ & NITROBOOST applied 14 and 21-30 days apart resulted to the highest yield at 4.95 tons/HA in 20 pickings; +180% above Brand A, +132% above Brand G and +74% above Brand C
- COMPLETO+ at maximum label recommendation of 5 liters/HA is next best alternative but may be the highest 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 COMPLETO+ and NITROBOOST combination applied alternately every 14 days (COMPLETO+) and 21-30 days (NITROBOOST)

Knocking Out Traditional Foliar Fertilizers in EGGPLANT

Yield Performance (Kg/ha)



No. of Fruits per Hectare



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

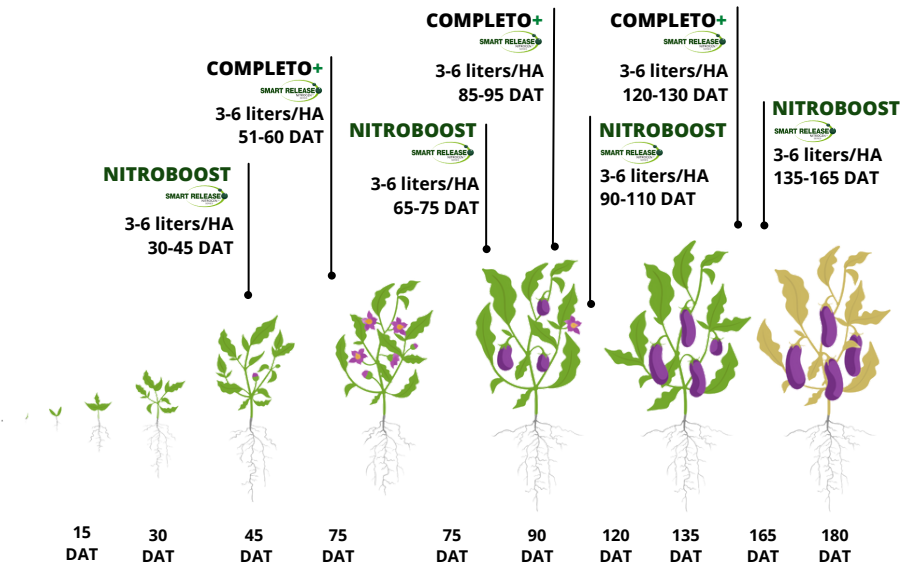
- Trial site: Sta. Maria, Sto. Tomas, Batangas
- Variety: Prolifica
- Planting distance: 1.0m x 1.5m
- Planting date: 27 January 2020
- Harvesting: 3 April 2020
- Spray volume: 700li/ha
- Eggplant Price: P200/kg
- Granular Fertilizer Price: 1,100/50kg bag

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

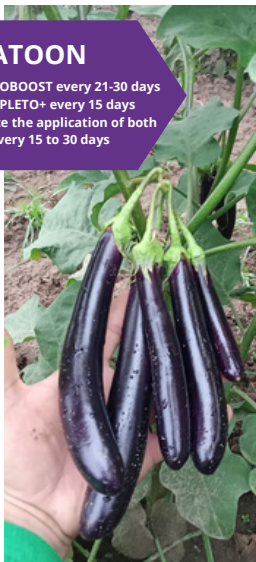
*Total of three weeks harvest

*RRGF - Regular Rate Granular Fertilizer



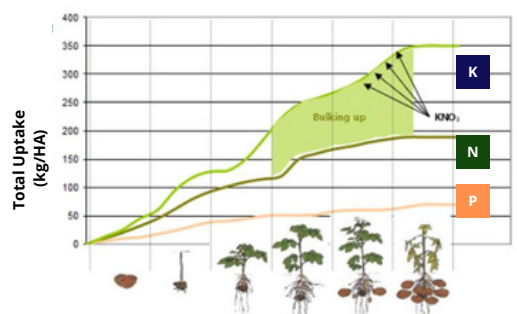
RATOON

- Apply NITROBOOST every 21-30 days
- Apply COMPLETEO+ every 15 days
- Or alternate the application of both products every 15 to 30 days

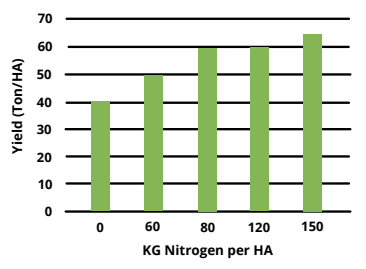


Gamechanger Potato Foliar Feeding Program

Potato Macro-Nutrient Uptake Pattern

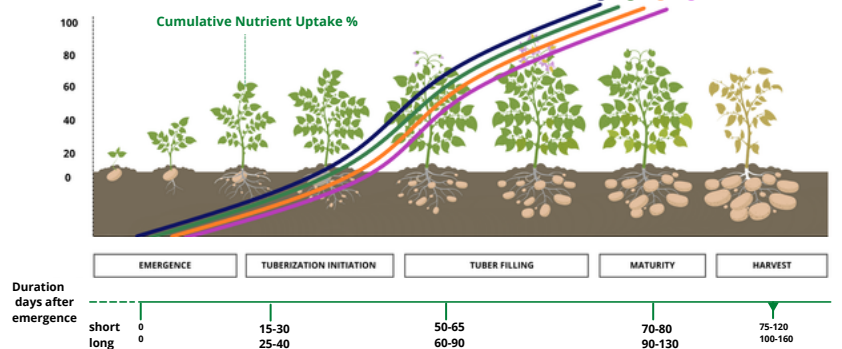


The Effect of Nitrogen (N) on Potato Yields



- Nitrogen management is one of the most important factors required to obtain high yields of excellent quality potatoes
- An adequate early season Nitrogen supply is important to support vegetative growth
- The period of highest Nitrogen demand varies by potato variety and is related to cultivar characteristics such as root density and time to maturity
- Petiole and leaf tissue analysis during the growing season is a useful tool, allowing growers to determine the nutrient status of the crop and respond in a timely manner with appropriate foliar feeding

- 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



NITROBOOST 15 DAP 3-5 liters/HA	NITROBOOST 35 DAP 3-5 liters/HA	COMPLETEO+ 55 DAP 3-5 liters/HA	COMPLETEO+ 70 DAP 3-5 liters/HA
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NITROBOOST®

"The Growth & Yield Booster"

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	3-6	<ul style="list-style-type: none"> Apply every 21-30 days from mid-crop
Brassicas	3-10	<ul style="list-style-type: none"> Apply at early head development Repeat every 21-30 days
Onions	2-10	<ul style="list-style-type: none"> Apply from when sufficient leaf exists to intercept spray Apply at bulb development at intervals of 21-30 days
Sugarcane	2-10	<ul style="list-style-type: none"> Apply at 60 DAP, 80 DAP and 100 DAP (Days After Planting) Option to apply at intervals of 21-30 days as needed from 120 DAP to 200 DAP via drone to further push yield volume Alternating application with COMPLETEO+ as needed especially with ratoon crop
Corn	3-10	<ul style="list-style-type: none"> As Urea Booster (in addition to granular side dress) spray 3-5 liters per hectare at 25-30 DAT (Days After Transplant) to maximize yield As Side Dress Urea Replacement, spray 10 liters per hectare at 25-30 DAT Follow-up spray at 50 DAT with COMPLETEO+ at the rate of 3-5 liters per hectare to maximize yield increase
Rice	3-10	<ul style="list-style-type: none"> As Urea Booster (in addition to granular side dress) apply 3-5 liters per hectare at 25-35 DAT (Days After Transplant) to maximize yield As Side Dress Urea Replacement, spray 10 liters per hectare at 35 DAT Follow-up spray at 50 DAT with COMPLETEO+ at the rate of 3-5 liters per hectare to maximize yield increase
Fruit Trees	3-10	<ul style="list-style-type: none"> Apply from early bloom through fruit set Repeat application after 30 days Double spray rate at post-harvest Spray volume at 2,500 liters per hectare or 2-6 tank loads per tree
Banana	2-10	<ul style="list-style-type: none"> Repeat every 21-30 days until 4 weeks before harvest Triple the rate per hectare when applied via fertigation
Pineapple	2-10	<ul style="list-style-type: none"> Apply every 21-30 days from fruit set up to 4 weeks before harvest Triple the rate per hectare when applied via fertigation
Turf (GRASS)	10-50	<ul style="list-style-type: none"> Apply at 1:20 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	2-10	<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

COMPLETEO+®

"Enhancing Crop Quality, Volume Plus Sweetness"

Crop	Foliar Rate (Liters/Ha)	Recommendations
Vegetables	3-6	<ul style="list-style-type: none"> Apply every 14 days from mid-crop or when flowering starts
Brassicas	3-6	<ul style="list-style-type: none"> Apply at early head development Repeat spray every 14 days or as follow-up to NITROBOOST
Onions	3-10	<ul style="list-style-type: none"> Apply from when sufficient leaf exists to intercept spray Apply at bulb development
Sugarcane	2-10	<ul style="list-style-type: none"> Apply at 100 DAP and 115 DAP (Days After Planting) 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	3-10	<ul style="list-style-type: none"> Apply at 45 DAP and follow-up spray at 55 DAP to maximize yield advantage
Rice	3-10	<ul style="list-style-type: none"> Apply at panicle initiation Apply at 35 DAT (Days After Transplant) Follow-up at 50 DAT to maximize yield and grain quality
Fruit Trees	5-10	<ul style="list-style-type: none"> Apply from early bloom through fruit set Repeat application after 30 days Double rate of application per hectare at post-harvest Spray volume at 2,500 liters per hectare or 2-6 tank loads per tree
Banana	2-10	<ul style="list-style-type: none"> Apply every 14 days from fruit set to harvest Triple the rate per hectare when applying via fertigation
Pineapple	2-5	<ul style="list-style-type: none"> Apply every 15 days early in season and from fruit set to harvest Triple the rate per hectare when applying via fertigation
Mango	10-50	<ul style="list-style-type: none"> Apply at the minimum rate at Bud Swell and Panicle Emergence Double the rate of application per hectare at Pre-flowering At flowering stage, apply minimum rate per hectare Spray volume at 2,500 liters water per hectare or 2-6 tank loads per tree
Cutflowers	2-10	<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

BIG TIME HARVEST, BIG TIME FARMER



"In my field trials and commercial farm areas, the combination of NITROBOOST & COMPLETEO+ sprayed alternately in both highland vegetables (cabbage, potato, broccoli, cauliflower, carrots, etc.) and lowland crops (eggplant, ampalaya, string beans, tomato, rice, corn etc.) produced the best results in terms of yield volume and crop quality compared to traditional farming inputs and foliar fertilizers.

Indeed, the patented smart-release action of both NITROBOOST & COMPLETEO+ which facilitates sustained foliar feeding of both macro-nutrients (NPK) and micro-nutrients (Boron, Copper, Iron, Manganese, Zinc) are translating to bountiful harvests and better income to benefit the lives of fellow farmer-entrepreneurs wanting to experience BIG TIME yields."



Napoleon 'Doc Nap' Saavedra

Retired R&D Manager of a Swiss Multinational Agrochemical & Seeds Company
Farmer-Entrepreneur & Agronomy Research Consultant, Los Banos, Laguna



"I have seen the extraordinary impact of the NITROBOOST & COMPLETEO+ alternating sprays in my lowland crops (ampalaya, pepper, rice & corn) versus my usual foliar fertilizers. I have experienced significantly increase in tonnage and more pickings over the growing period aside from higher percentage of 'class A' quality fruits.

NITROBOOST & COMPLETEO+ smart-release fertilizers are the new precision farming tools for growers who are serious about maximizing farm productivity with higher yields and superior crop quality. With prices of granular fertilizers skyrocketing nowadays (double that of last year), we need new (nano) technology products like NITROBOOST & COMPLETEO+ that maximizes the yield potential and quality of the crops and ultimately giving us farmer-entrepreneurs the highest returns from our inputs. Kung gusto mo maging BIG TIME ang harvest mo, NITROBOOST & COMPLETEO+ dapat nasa fertilization program mo."

Al Gabriel 'Prof AlZam' Zamora

Agriculturist & University Professor
Farmer-Entrepreneur, Dumaguete City, Negros Oriental

