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# QUICK HELP GUIDE

Area of Concern	Recommendation	Page
Anticipating extreme weather and crop damage (e.g., heat wave, cold snap, hail, etc.) and want to protect the crop.	Apply Crop Finish™ prior to the stress to protect the crop from damage, or if damage has occurred, to hasten recovery.	56
I need an inoculant for my soybeans that will help with micronutrient uptake to minimize issues like iron deficiency chlorosis (IDC).	BOS™ Soybean inoculant also contains <i>Pseudomonas sp.</i> , known to secrete siderophores which chelate iron to make it more available to the crop.	59, 60
I need safe, low salt index, K-source for use at seeding.	Terra-K™ is a safe and effective source of potassium, ideal for soil applications. The EBN™ technology supplies fulvic acid to promote nutrient availability and crop growth.	80
Do you have an inoculant for peas, lentils, and faba beans?	Our BOS™ Pea, Lentil, & Faba Bean products include a self-adhering peat powder, a granular inoculant, and liquid inoculant. We pair a <i>Rhizobium</i> with our <i>Pseudomonas</i> to promote improved nutrient availability and stress tolerance, ensuring larger yields.	59-60
Do you have any products certified for organic production?	Our Enviro™ Line of products are certified for organic production, as is our BOS™ inoculant line.	69-72
I want to address micronutrient nutrition with one product. Which one should I choose?	TruPhos® Advanced™ is an orthophosphate base with a micronutrient package formulated with our PGE™ technology to promote crop growth, seed set, and grain filling.	47
What nutritional product can I tank mix with a post-emergent herbicide to promote crop growth while taking care of the weeds?	ManZinPhos-DX™ is a great tank mix partner for post-emergent herbicides. It supplies a shot of orthophosphate with Mn and Zn to push growth and yield of the crop while cleaning up the weeds.	48
What product can I apply with pH-sensitive plant protection products?	FertiBoost-DX™ or FertiBoost 7-14-7™ are great choices for mixing with pH-sensitive products to help boost yields.	57, 65
My crop is showing iron deficiency chlorosis (IDC). Which iron-based product should I apply?	Alkaline soils in the spring with high salinity often result in patches of IDC. Terra Ferra™ is designed for soil applications, while FeMax™ is formulated to supply foliar iron.	33, 78

Area of Concern	Recommendation	Page
What are my options if a soil test shows low levels in nutrients like copper, zinc, and boron?	Our FertiCare® Line coats granular fertilizer blends with readily available sources of nutrients that are evenly distributed across the field. Improved distribution results in optimal uptake, increased nutrient use efficiency, and greater yields.	85, 88
What is a good starter fertilizer?	Terra Core™ is an effective starter fertilizer that supplies nitrogen, phosphorous, zinc, and humic substances. In the soil, humic substances stimulate microbial activity and chelate micronutrients, making them more available to the crop and ensuring strong early growth.	77
My water test shows high levels of Ca/Mg and high pH. I worry that my pesticides won't work the way they should.	Disclose pH® is the ideal product to condition your spray water. It will acidify the water and reduce the conductivity associated with hard water cations like Ca <sup>2+</sup> and Mg <sup>2+</sup> .	89-90
What is a good product for reducing canopy stress and improving crop quality?	SiliCalMax™ contains calcium, boron, and silicon—three elements that help crops withstand stress and improve cellular integrity. Applications during fruit development can improve both yield and grain quality.	40
Rains may have leached N, and the older leaves are pale, showing symptoms of N deficiency.	An application of N-Finity, our controlled-release nitrogen can help. It contains urea for immediately available N, while the urea-triazone will slowly release N to continue feeding the crop.	68
Foaming while filling up the sprayer is a real pain.	Quick Defoamer™ can prevent or even eliminate that in a jiffy!	7
Which products can promote root growth and reduce transplant shock?	We have two great options: TerraDrive™ and MaxiBoost™. Both supply a suite of nutrients and can be added to most liquid starter fertilizers or to transplant water to improve growth and establishment, for a strong crop.	67, 79
I need something to boost P and Zn levels in my crop.	TruPhos® Zinc™ contains 20% P <sub>2</sub> O <sub>5</sub> as orthophosphate, together with 4.0% zinc. It has a low pH and is suitable for foliar applications on a variety of crops.	51
How can I improve germination and stand establishment to give my crop a strong start?	Our VigorMax® Line of seed treatments provides micronutrients that coat each seed to start feeding your crop immediately upon germination. VigorMax® seed treatments are a low cost, low risk strategy to pick up a few more bushels at harvest.	81-84

# FOR MORE THAN 60 YEARS, OUR TEAM HAS BEEN HELPING DISTRIBUTORS, DEALERS, AND CROP ADVISORS ACROSS MULTIPLE CONTINENTS BETTER UNDERSTAND CROP NUTRITION.

We believe that the combination of education and knowledge sharing, along with our scientifically enhanced nutrient solutions, takes the guesswork out of decision-making and enables growers to attain higher and more consistent yields.

## OUR PROMISE

We provide science-driven solutions to maximize nutrient uptake and crop utilization for all crops.

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Our products are perfected with low use rates in mind to help reduce the impact on the environment.

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Only the highest grade of active ingredients are used in our products.

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We analyze and identify crop nutrient deficiencies throughout all growth stages.

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We listen to our customers and offer advice to help solve their nutrient challenges.

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We ensure cost effective return on investment.

### How do we keep our promise?

We make this possible through our team of passionate scientists and agronomists who make up more than half of the company. Our specialized team is strategically embedded in the communities that we serve; they are committed to increasing crop yield without undoing the checks and balances implemented by nature.

To find out more about NutriAg, visit [nutriag.com](https://nutriag.com) or call us at **(416) 636-1555**



# OUR INDUSTRY-LEADING TECHNOLOGIES ARE CAREFULLY DEVELOPED AND RIGOROUSLY TESTED TO ENSURE THEIR SAFETY AND EFFECTIVENESS ON ALL CROPS.



## **PolyAldoCarbosate®**

Our exclusive formulation of natural, plant-derived carbohydrates chelate essential crop nutrients to enhance uptake and optimize usage by the plant.



## **Matrix Ortho-Deprotonation™**

Our advanced manufacturing process employs unique sequestering technology, which allows for the simultaneous inclusion of 100% orthophosphate with other nutrients while maintaining a true solution.



## **LEX™ Technology**

Our Plant Activator Line is activated by our exclusive LEX™ technology, which enhances abiotic stress tolerance to help crops recover from unforeseen events and to benefit overall crop vigor and protect yield.



## **Essential BioNutritionals™**

Our Essential Bionutritional complexes are natural metabolites that improve the nutritional quality of our fertilizers leading to superior performance and higher yields.



## **Bioactive Organic Soil-Microbes™**

Our exclusive Bioactive Organic Soil-Microbes™ technology enhances nitrogen fixation, phosphate solubilization, micronutrient availability and crop-stress tolerance, maximizing yield potential.



## **Enviro AldoCarbosate™**

An organic form of NutriAg's natural plant-derived carbohydrate technology delivers highly effective crop nutrition.



## **Plant Growth Enhancer™**

Our exclusive Plant Growth Enhancer (PGE) technology, featured in TerraDrive, contains a unique combination of plant growth stimulants that work together to stimulate root growth for improved nutrient uptake and overall crop development.



## **Methylobacterium organophilum™**

M-BOS is a unique bacterium able to use methanol and oxalic acid as carbon sources. Once applied, these special bacteria produce metabolites that assist plant defenses against abiotic stress, and improve crop growth by delaying leaf senescence and improving nutrient utilization.

Our full range of soil-applied liquid fertilizers, foliar feeds, water conditioners, microbial inoculants, and fertilizer coatings are fully soluble, preventing blockages in nozzles and increasing uptake by the plant. Our technology ensures greater tank mix compatibility without compromising the efficacy of the other chemistries in the spray tank.

# Canadian Prairies Product Analysis Tables

Max Line																					
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	Ni	KINETIN	TECH
BoronMax	1.27	7.2	1.3	10.7											8.1						
CalciMax	1.23	5.9	2.7	22.8				8.0							0.5						
CelluMax	1.17	13.4	2.4	20.5			9.0										10.3				
CuMax	1.15	10.3	1.4	12.2										4.2							
FeMax	1.22	6.7	1.9	15.9									4.0								
K-Max Extra	1.43	7.7	5.2	44.7			24.0														
MagMax	1.24	7.5	3.2	26.9					6.0						0.5						
ManMax	1.21	1.9	2.0	16.7								5.5			0.45	0.5					
MolyMax	1.14	8.3	1.3	11.2												5.0					
NickelMax	1.17	2.8	0.9	7.7															5.0		
S-Max	1.36	9.2	6.6	56.4	19.0		5.0			15.0											
SiliCalMax	1.22	5.9	2.6	22.0				7.6							0.47		2.75				
SproutMax	1.24	4.5	2.0	17.1					3.0		1.3				1.0					0.001	PGE
ZincMax	1.26	3.9	2.7	23.3							10.2				0.5						
ZinManMax	1.24	3.8	1.8	15.5							5.1	2.7			0.5	0.25					

TruPhos Line																					
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	Ni	KINETIN	TECH
*ManZinPhos-DX	1.43	1.7	3.9	33.1	6.0	20.0	5.0			1.8	1.0	3.0									MOD, EBN
TruPhos Calcium	1.30	1.3	3.0	25.3		23.0	3.0	3.0													MOD
TruPhos Magnesium	1.47	1.7	3.3	28.4		29.0	5.0		4.0												MOD
TruPhos Advanced	1.27	1.5	3.8	32.6	5.0	18.0	2.0		0.5		0.8	0.05	0.1	0.1	0.1	0.05		0.05			MOD, PGE
TruPhos Zinc	1.29	1.5	2.8	24.2	6.0	20.0					4.0										MOD

Plant Activator Line																					
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	Ni	KINETIN	TECH
Crop Finish	1.23	9.7	2.4	20.2			6.0							1.0	2.0						
FertiBoost 7-14-7	1.25	6.8	3.7	31.2	7.0	14.0	7.0				0.05	0.05		0.05	0.05	0.005					
Nutri Lex	1.20	6.8	3.1	26.1			8.0	2.4	0.8						0.2						LEX, EBN

Inoculant Line																					
Product		Analysis																			TECH
BOS-Pea, Lentil, Faba Bean Peat		9 x 10 <sup>8</sup> CFU of <i>Rhizobium leguminosarum</i> biovar <i>viciae</i> and 1 x 10 <sup>4</sup> CFU of <i>Pseudomonas</i> sp. per gram																			BOS
BOS-Pea, Lentil, Faba Bean Granular		2 x 10 <sup>8</sup> CFU of <i>Rhizobium leguminosarum</i> biovar <i>viciae</i> and 1 x 10 <sup>4</sup> CFU of <i>Pseudomonas</i> sp. per gram																			BOS
BOS-Pea, Lentil, Faba Bean Liquid		1 x 10 <sup>9</sup> CFU <i>Rhizobium</i> biovar <i>viciae</i> and 1 x 10 <sup>6</sup> CFU <i>Pseudomonas</i> sp. per mL																			BOS
BOS-Soybean Peat		2 x 10 <sup>9</sup> CFU of <i>Bradyrhizobium japonicum</i> and 5 x 10 <sup>8</sup> CFU of <i>Pseudomonas</i> sp. per gram																			BOS
BOS-Soybean Granular		2 x 10 <sup>8</sup> CFU <i>Bradyrhizobium japonicum</i> and 1 x 10 <sup>4</sup> CFU <i>Pseudomonas</i> sp. per gram																			BOS
BOS-Dry Bean Peat		8 x 10 <sup>8</sup> CFU of <i>Rhizobium leguminosarum</i> biovar <i>phaseoli</i> and 1 x 10 <sup>5</sup> CFU <i>Pseudomonas</i> sp. per gram																			BOS

Microbial Line																					
Product		Analysis																			TECH
M-BOS		1x10 <sup>7</sup> CFU of <i>Methylobacterium organophilum</i> per mL																			M-BOS
M-BOS ST		1x10 <sup>6</sup> CFU of <i>Methylobacterium organophilum</i> per mL																			M-BOS

BioNutritional Line																				
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
*FertiBoost-DX	1.17	4.0	2.2	18.8	3.0		3.0				2.0	2.0								EBN
Direct-Flo 5-10-5	1.17	5.0	1.9	16.0	5.0	10.0	5.0				0.2	0.05		0.2	0.05	0.005				
MaxiBoost	1.15	5.6	1.5	13.0					1.05	1.34	0.14	0.25	0.5	0.25	0.25	0.004				EBN
N-Finity	1.28	7.5	2.1	17.5	28															
Enviro Line																				
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
Enviro Calcium	1.30	2.5	5.5	46.6				8.1												
Enviro Ca-4	1.20	5.0	1.5	12.4				4.0												
Enviro Copper	1.12	2.5	1.1	9.3										4.0						
Enviro Iron	1.15	2.6	1.4	11.7									4.0							
Enviro K-6	1.13	4.6	1.7	14.2			6.0													EBN
Enviro Lex	1.16	6.7	3.8	32.6			8.0	2.0												
Enviro Magnesium	1.27	5.8	2.8	24.0					4.0											
Enviro Manganese	1.20	3.5	1.6	13.4								5.5								
Enviro PentaMix	1.13	5.6	1.1	9.8							2.0	1.5		0.5	0.75	0.1				EBN
Enviro Potassium	1.17	3.5	4.2	35.8			14.0													
Enviro Trio	1.26	2.8	1.9	16.5							4.0	2.0	1.0							
Enviro Zinc	1.29	2.5	2.0	17.1							8.5									
Product	kg/ bag	pH sat' sol'n	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
Enviro Boron	15.0	7.0	0.4	3.6											16.5					
*Enviro 14-0-0	15.0	5.3	0.8	7.1	14.0															EBN
Terra Line																				
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
Terra Core	1.30	7.0	4.8	40.8	7.0	21.0					0.2									EBN
TerraDrive	1.31	6.3	2.6	21.7							1.5	2.9		1.3	0.25	0.25			0.057	PGE
Terra-K	1.33	9.0	6.0	51.0			28													EBN
Terra Ferra	1.26	7.5	2.4	20.6						3.5			4.0							
FertiCare Line																				
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
FertiCare AllCoat	1.21	4.3	1.7	14.7							6.0	2.0			0.5	0.05			0.1	PGE
FertiCare BoronCoat	1.26	7.6	1.5	12.4											8.1					
FertiCare CuCoat	1.15	10.0	1.4	11.8										4.2						
FertiCare FeCoat	1.21	6.6	2.0	17.2									4.0							
FertiCare ManCoat	1.21	1.6	1.8	15.3								5.5			0.45	0.45				
FertiCare ZincCoat	1.25	5.2	1.6	13.3							10.0				0.5					
VigorMax Line																				
Product	kg/L	pH	EC (1%)	SI	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ca	Mg	S	Zn	Mn	Fe	Cu	B	Mo	Si(OH) <sub>4</sub>	Co	IBA	TECH
VigorMax	1.25	5.3	1.9	16.5							10.2				0.5					
VigorMax Plus	1.24	4.1	1.8	14.9							5.1	2.7			0.5	0.25				

\*Pending registration

# ADDITIONAL PRODUCTS

Beyond B™  
(25-0-0, 0.5% B, 8.5%  
Slow-release Urea Triazone)

CalNit™  
(8-0-0, 10.0% Ca)

Length-N™  
(28-0-0, 20% Slow-release  
Urea Triazone)

MagNit™  
(10-0-0, 9.5% Mg)

MagSul™  
(9.8% Mg, 12.9% S)

NeutralBor™  
(10.0% B)

SprayBor®  
(16.5% B)

LN 25  
(25-0-0, 8.5% Slow-release  
Urea Triazone)

Flushol™ (Cleansing Agent)

## Specialty Water Soluble Feeds

StarterFeed™  
(10-50-10 + micronutrients)

MultiFeed™  
(20-20-20 + micronutrients)

5-11-26 + micronutrients

6-24-34 + micronutrients

8-20-30 + micronutrients

8-45-14 + micronutrients

12-0-12 + micronutrients

12-0-43 + micronutrients

GreenFeed™  
(26-10-16 + micronutrients)

SupaFeed™  
(15-10-32 + micronutrients)

14-0-14 + micronutrients

15-2-20 + micronutrients

15-15-30 + micronutrients

15-30-15 + micronutrients

19-0-19 + micronutrients

20-8-20 + micronutrients

Yield Builder™  
(6-11-26, 4.0% Mg, 1.15% B,  
0.008% Co, 0.5% Mn,  
0.008% Mo, 0.5% Zn)

20-3-19 + micronutrients

22-11-22 + micronutrients

24-12-12 + micronutrients

25-10-10 + micronutrients



## DID YOU KNOW WE OFFER A COMPATIBILITY AID AND A DEFOAMER?

**Quick Fix™** is our spray water utility modifier designed to assist with the compatibility and mixing of various nutrient products.

Add 25.6 oz of Quick Fix to 100 gal of an incompatible spray mix and agitate. If compatibility is not achieved, continue adding 1 oz of Quick Fix per 100 gal with constant agitation.



1.



2.

1. An incompatible spray mix
2. The same mix after addition of Quick Fix

**Quick Defoamer™** is a fast-acting, effective silicone-based defoamer designed to suppress foam in the spray tank of most agricultural sprays.

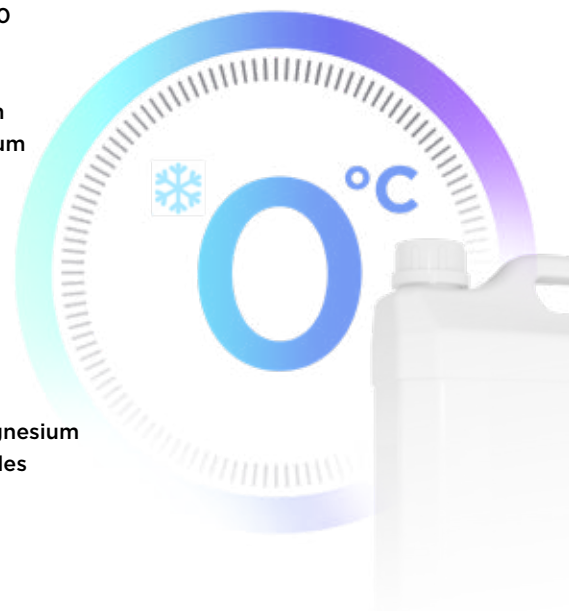
To prevent foaming, add Quick Defoamer directly into the spray tank before foaming begins or, if foam has already formed, spray a small quantity onto the foam as needed to regain control.

## PRODUCTS REQUIRING HEATED STORAGE ABOVE 0 °C

BOS	FertiCare ManCoat
CalciMax	FertiCare ZincCoat
CalNit	Length-N
CelluMax	LN 25
Crop Finish	MagMax
CuMax	ManMax
Direct-Flo 5-10-5	ManZinPhos-DX
Enviro Ca-4	MaxiBoost
Enviro Copper	M-BOS
Enviro Iron	MolyMax
Enviro K-6	Neutral Bor
Enviro Lex	N-Finity
Enviro Magnesium	Quick Defoamer
Enviro Manganese	SiliCalMax
Enviro Potassium	Terra Core
Enviro Trio	Terra Ferra
Enviro Zinc	Terra-K
FeMax	TruPhos Advanced
FertiBoost 7-14-7	TruPhos Calcium
FertiBoost-DX	TruPhos Zinc
FertiCare AllCoat	VigorMax
FertiCare BoronCoat	VigorMax Plus
FertiCare CuCoat	ZincMax
FertiCare FeCoat	ZinManMax

## PRODUCTS NOT REQUIRING HEATED STORAGE

Enviro 14-0-0  
BoronMax  
Disclose pH  
Enviro Boron  
Enviro Calcium  
K-Max Extra  
MagNit  
MagSul  
Nutri Lex  
S-Max  
SprayBor  
SproutMax  
TerraDrive  
TruPhos Magnesium  
Water Solubles



Do not store at temperatures above 40 °C



Store products in shade, out of direct sunlight

## TANK MIX ORDER RECOMMENDATION

1. Ensure that the spray tank is clean. If cleaning is required, use NutriAg's Flushol, a superior tank-cleaning agent. Be sure to rinse the tank thoroughly with water after cleaning; a triple rinse is recommended. Fill the tank with 3/4 of the required amount of water and begin agitation.
2. Add the required amount of pesticide with agitation (herbicide, fungicide, insecticide). Refer to the pesticide label for complete usage directions for the pesticide.
3. Refer to NutriAg's compatibility table or contact your sales representative to confirm the compatibility of NutriAg product with various pesticides.
4. Once compatibility has been confirmed, add the required amount of NutriAg product with agitation.
5. Add the remaining amount of water to the tank.
6. Spray out entire contents of the sprayer.
7. Avoid allowing the tank mixture to stand overnight.
8. After use, rinse out the spray tank with water. A triple rinse is recommended.

# NutriAg Tank mix Compatibilities

All compatibilities were performed in 20 gpa of water and 1.0 L of each product. For inquiries about other water or product rates, consult with your NutriAg representative or send an email to: [mail@nutriag.com](mailto:mail@nutriag.com)

Product	Nutrient Profile																							
	Macronutrients												Micronutrients											
	Nitrogen						Phosphorus						Potassium						Secondary					
	N	P	K	Ca	Mg	S	B	Cu	Fe	Mn	Zn	Mo	Si	Cl	Na	Al	Co	Ni	V	C	O	H	O2	
ManZinPhos Max Plus	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TruPhos Calcium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TruPhos Magnesium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TruPhos Advanced	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
TruPhos Zinc	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
BoronMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CalciMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CelluMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CuMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
FeMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
K-Max Extra	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MagMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
ManMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MangaMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MolyMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
N-Max	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
S-Max	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SiliCalMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SproutMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
VigorMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
VigorMax Plus	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
ZincMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
ZinManMax	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Nutri Lex	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Beyond B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Crop Finish	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
DirectFlo 5-10-5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
FertiBoost 7-14-7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
FertiBoost-D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
KP Boost	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Length-N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
LN 25	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
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MaxiBoost	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
MaxiStart	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Terra Core	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Terra Drive	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Terra Ferra	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Terra K	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NeutralBor	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
SprayBor	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Multifeed 20-20-20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
NutriFeed 35-5-10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Starterfeed 10-50-10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Supafeed 15-10-32	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Yield Builder 6-11-26	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					

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Compatible



Compatible with agitation



May cause problems



Not Compatible



Not tested.  
(Request if needed)

Nutri Lex		Beyond B		Crop Finish		FertiBoost 5-10-5		FertiBoost 7-14-7		KP Boost		Length-N		LN 25		N-Finity		Phyto B		MaxiBoost		MaxiStart		Terra Core		Terra Drive		Terra Ferra		Terra K		NeutralBor		SprayBor		Multifeed 20-20-20		NutriFeed 35-5-10		Starterfeed 10-50-10		SupaFeed 15-10-32		Yield Builder 6-11-26		Disclose pH	
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# ESSENTIAL PLANT NUTRIENTS

**IN ADDITION TO CARBON, HYDROGEN, AND OXYGEN PROVIDED BY AIR AND WATER, PLANTS REQUIRE OTHER ESSENTIAL NUTRIENTS FOR GROWTH AND REPRODUCTION.**

Nutrients are considered essential to plants if they meet one of the following criteria:

1. In its absence, the plant is unable to complete a normal life cycle; or
2. That specific nutrient is part of some essential plant constituent or metabolite.

Plant nutrients are divided into two general categories based on the amounts required by plants: **macronutrients** (primary and secondary) are required at high levels, and **micronutrients** are required at much lower levels. It is important to stress that micronutrients, though required at lower levels, are just as fundamental to plant growth and development as macronutrients. Additionally, there is a group of nutrients, while not considered essential, can still be beneficial to plant growth and development.

## Macronutrients



### Nitrogen

Nodulation/Nitrogen Use  
Photosynthesis  
Protein Production  
Vegetative Growth



### Phosphorus

Carbohydrate Production  
Vegetative Growth  
Root Growth  
Energy Transfer  
Nutrient Uptake



### Potassium

Photosynthesis  
Disease Resistance  
Abiotic Stress Tolerance  
Carbohydrate Production  
Vegetative Growth  
Nutrient Uptake  
Water Usage



## Secondary Nutrients



### Calcium

Nodulation/Nitrogen Use  
Disease Resistance  
Abiotic Stress Tolerance  
Vegetative Growth  
Root Growth  
Water Usage



### Magnesium

Photosynthesis  
Carbohydrate Production  
Protein Production  
Oil Production  
Vegetative Growth  
Hormone Metabolism  
Energy Transfer  
Nutrient Uptake



### Sulphur

Nodulation/Nitrogen Use  
Photosynthesis  
Disease Resistance  
Protein Production  
Oil Production  
Vegetative Growth  
Energy Transfer

## Micronutrients



### Boron

Disease Resistance  
Abiotic Stress Tolerance  
Vegetative Growth  
Root Growth  
Nutrient Uptake



### Chlorine

Photosynthesis  
Disease Resistance  
Vegetative Growth  
Energy Transfer  
Nutrient Uptake  
Water Usage



### Copper

Photosynthesis  
Disease Resistance  
Abiotic Stress Tolerance  
Carbohydrate Production  
Hormone Metabolism  
Energy Transfer



### Iron

Nodulation/Nitrogen Use  
Photosynthesis  
Disease Resistance  
Abiotic Stress Tolerance  
Energy Transfer



### Manganese

Photosynthesis  
Disease Resistance  
Abiotic Stress Tolerance  
Carbohydrate Production  
Vegetative Growth



### Molybdenum

Nodulation/Nitrogen Use  
Abiotic Stress Tolerance  
Protein Production  
Vegetative Growth  
Hormone Metabolism



### Nickel

Nodulation/Nitrogen Use  
Vegetative Growth



### Zinc

Photosynthesis  
Abiotic Stress Tolerance  
Protein Production  
Vegetative Growth  
Hormone Metabolism

## Beneficial Nutrients



### Cobalt

Nodulation/Nitrogen Use  
Reduces Ethylene Production



### Sodium

Water Usage



### Selenium

Disease Resistance  
Abiotic Stress Tolerance



### Silicon

Disease Resistance  
Abiotic Stress Tolerance

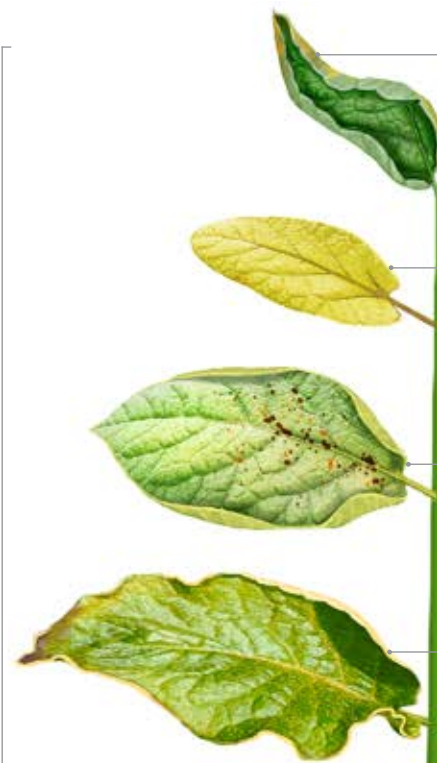
# IDENTIFYING NUTRIENT DEFICIENCIES

## PLANT NUTRIENT DEFICIENCY SYMPTOMS PRESENT DIFFERENTLY DEPENDING ON CROP, ENVIRONMENT, SOIL, AND THE SEVERITY OF THE DEFICIENCY.

These are examples of symptoms intended as an general identification guide. To confirm any potential nutrient deficiencies, take leaf samples from plants that show low to severe symptoms and have them analysed. This will help determine the critical balance between nutrients and their impact on yield outcome.

See page 16 to learn how nutrients in the soil interact with one another, leading to changes in availability to plants.

Younger Leaves



Older Leaves



Healthy  
Leaf



## Boron Deficiency

### Symptoms:

Growing points die off, leaves darken, cup and curl upwards, and plant displays a thick, bushy appearance.

## Sulphur Deficiency

### Symptoms:

Leaves yellow, beginning with young leaves, followed by gradual uniform discolouring across entire plant.

## Manganese Deficiency

### Symptoms:

Young leaves cup, showing chlorosis between veins, and dark brown or black spots may develop along veins.

## Zinc Deficiency

### Symptoms:

Young leaves fail to expand, appearing narrow, and may fold inward, developing brown or scorched tips and margins.

## Magnesium Deficiency

### Symptoms:

Chlorosis appears between veins on older leaves with formation of brown lesions.

## Phosphorus Deficiency

### Symptoms:

Plant becomes stunted because of slow growth, and foliage turns purplish.

## Calcium Deficiency

### Symptoms:

Young growth is usually malformed, with cupped leaves.

## Iron Deficiency

### Symptoms:

Chlorosis begins at base of young leaves and progresses between veins, which remain green.

## Copper Deficiency

### Symptoms:

Young leaves curl, twist, and weaken with normal colour until tips turn brown and become necrotic.

## Molybdenum Deficiency

### Symptoms:

Young leaves appear yellow-green and may develop necrotic spots along veins and base of leaflets.

## Potassium Deficiency

### Symptoms:

Tip and marginal leaf scorch appears in mature foliage, and chlorosis and premature leaf drop occurs.

## Nitrogen Deficiency

### Symptoms:

Plant becomes stunted because of slow growth, exhibiting chlorosis, and foliage turns yellow-green.



**NUTRIANALYTICS**

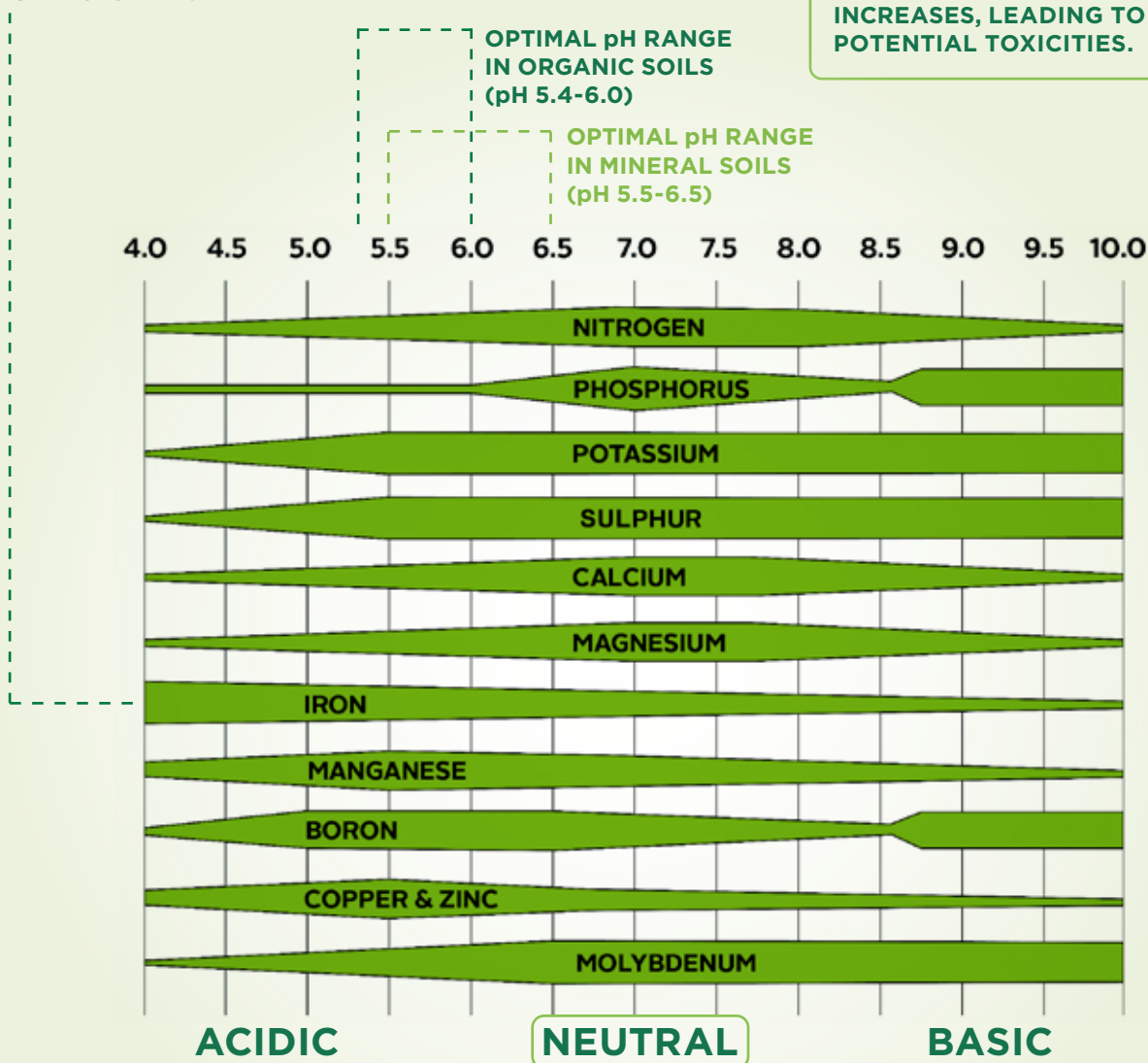
Unlock your crop data with NutriAnalytics.  
Visit [nutrianalytics.com](https://nutrianalytics.com) or call 416-636-1555  
to start identifying the right balance between  
nutrients to optimize your crop.

# SOIL pH AND NUTRIENT AVAILABILITY

pH is defined as the negative log of the hydrogen ion ( $H^+$ ) concentration on a scale of 0 to 14. The neutral point is 7; values less than 7 is acidic, while values greater than 7 are alkaline or basic. The acidification of soils results from natural soil processes and is enhanced by cropping, crop removal, and the use of acid-forming fertilizers. The pH of the soil strongly influences the availability of essential plant nutrients.

AVAILABILITY OF SOIL NUTRIENTS IS AFFECTED BY CHANGES IN SOIL pH IN DIFFERENT WAYS. MOST DECREASE IN AVAILABILITY AS THE pH DECLINES, WHILE SOME, SUCH AS IRON, INCREASES IN AVAILABILITY.

IF THE pH IS BELOW 4.5 OR ABOVE 6.5, THE AVAILABILITY OF NUTRIENTS EITHER DECLINES, LEADING TO DEFICIENCIES, OR INCREASES, LEADING TO POTENTIAL TOXICITIES.



AT A NEUTRAL pH OF 7, MACRONUTRIENTS ARE HIGHLY AVAILABLE; HOWEVER, MICRONUTRIENTS ARE LESS AVAILABLE IN THE SOIL.

# NUTRIENT INTERACTIONS AND NUTRIENT AVAILABILITY

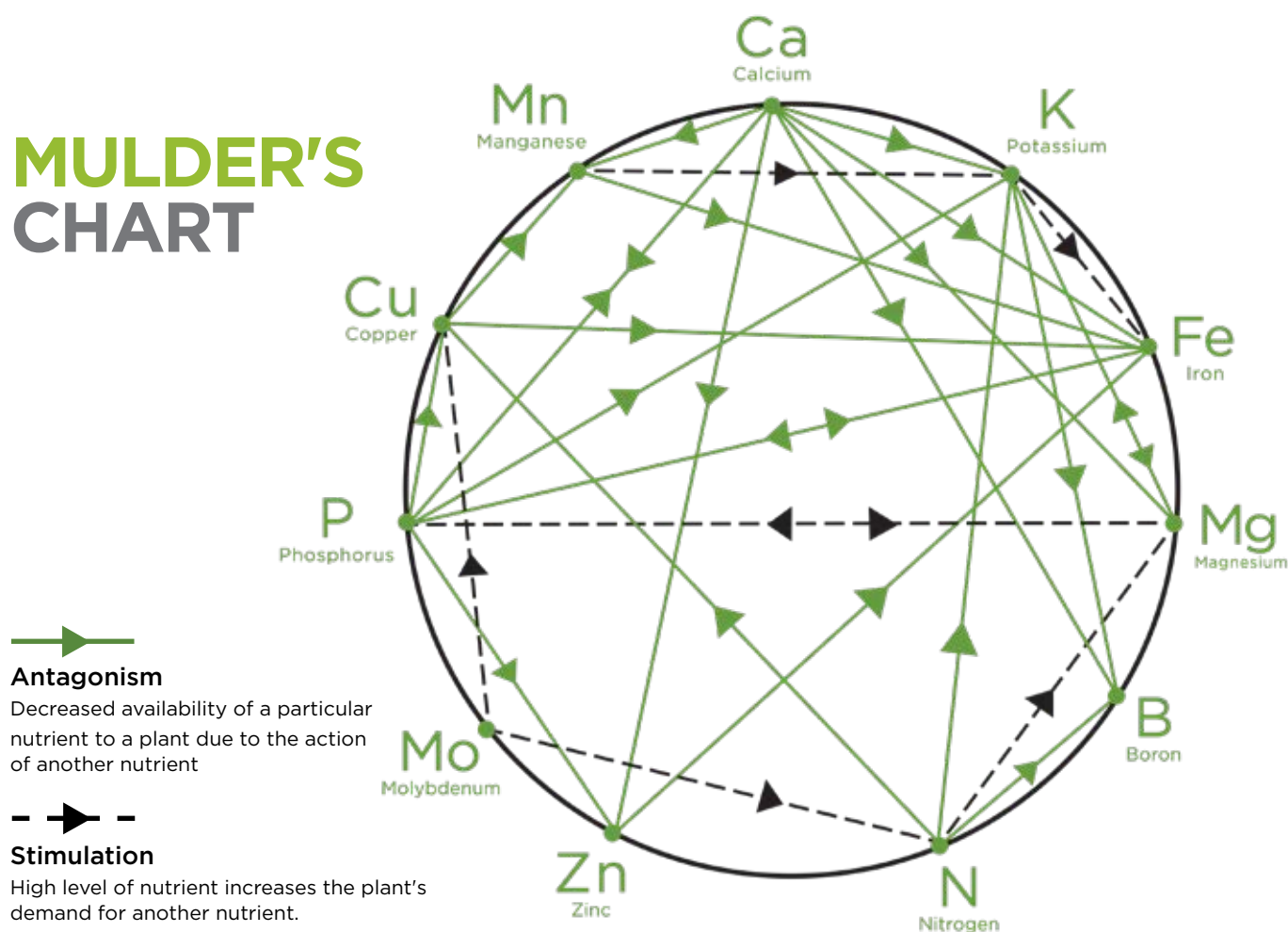
In the soil, nutrients interact with one another leading to changes in availability to plants. The diagram below displays the various interactions that can occur.

**Antagonism:** High levels of a particular nutrient in the soil can interfere with the availability and uptake of other nutrients. For example, high nitrogen levels can reduce the availability of boron, potash, and copper; high phosphate levels can influence the uptake

of iron, calcium, potash, copper, and zinc; high potash levels can reduce the availability of magnesium. Thus, the application of high levels of nitrogen, phosphorus, and potassium can induce plant deficiencies of other essential nutrients.

**Stimulation:** Occurs when high levels of a particular nutrient increase the plant's demand for another nutrient. For example, increased nitrogen levels create a demand for more magnesium.

## MULDER'S CHART





# SOIL NUTRIENT DEFICIENCIES IN WESTERN CANADA

The maps below show regions where soils have tested low for the indicated nutrients and where crops may show signs of nutrient deficiency. Applying the indicated nutrients in these highlighted areas should help or alleviate, deficiency symptoms, leading to improved crop growth and yield.

## LOW POTASSIUM SOIL



## LOW BORON SOIL



## LOW COPPER SOIL



## LOW MANGANESE SOIL



## LOW ZINC SOIL



Sources:  
 Western Canada Handbook, Western Canada Fertilizer Association  
 Micronutrients for Crop Production. Government of Saskatchewan  
 Alberta Institute of Pedology Soil Group Map. Government of Alberta  
 Soil Zones in Southern Saskatchewan, Saskatchewan Ministry of Agriculture.

# FACTORS INFLUENCING NUTRIENT AVAILABILITY: MODE OF ROOT UPTAKE

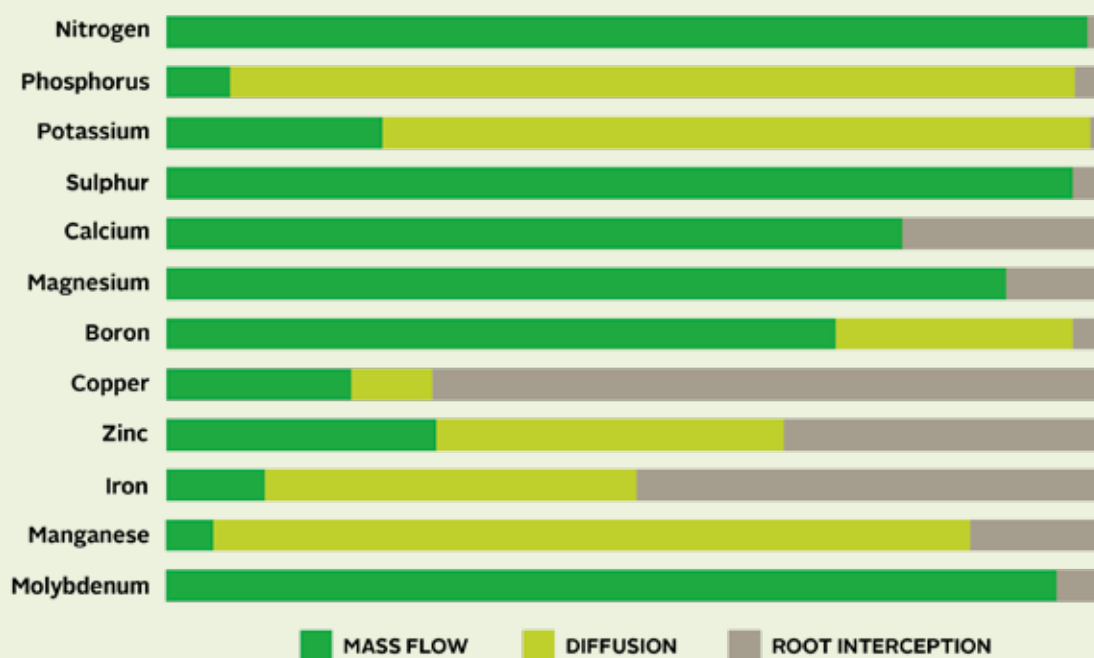
**Nutrients must come in contact with the root surface in order to be absorbed by the root. There are three ways in which soil nutrients can reach the root surface: diffusion, mass flow, and root interception.**

**Diffusion:** The movement of nutrients in the soil solution along a concentration gradient. As crops take up nutrients, an area of lower nutrient concentration is created around the root zone. Nutrients then move from areas of higher concentration outside the root zone into the root zone along this concentration gradient.

**Mass flow:** The movement of nutrients in soil solution to the surface of the roots through the flow of water. The flow of the water is a result of wetting and drying, or transpirational water uptake by the plants. The rate at which nutrients are taken up by mass flow is determined by the water in the soil and by the amount of water being taken up by the crop.

**Root Interception:** The movement of roots through the soil and the absorption of nutrients as the roots come in contact with nutrients. Nutrient uptake by root interception is enhanced by a growing root system and by mycorrhizal infections.

Mass flow and diffusion supply a significant portion of the macronutrients to the root surface, but are negatively influenced by a number of soil factors, such as clay content and moisture levels. Clay can prevent the easy movement of nutrients into the soil solution, thus preventing the movement of nutrients to the root surface. Low moisture levels lead to reduced transpiration by crops, meaning that less water is taken up from the soil and therefore fewer nutrients for the plant.





# FOLIAR FEEDING PURPOSES



1

## Improve plant health and development

when nutrient uptake from the root system is suppressed or delayed.



2

## Alleviate physiological stress

after or before exposure of the plant to unfavorable weather events, or pesticide and/or herbicide applications.



3

## Supplement overall nutritional status

of plants grown under intensive conditions or low soil fertility conditions.



4

## Supplement nutrient supplies

during critical peak demand periods.

# FOLIAR FEEDING CONSIDERATIONS



**DO NOT ATTEMPT** to completely replace a properly constructed soil fertilizer program with foliar feeds. This is because a plant cannot absorb sufficient quantities of most nutrients via the foliage to satisfy its full requirements for those nutrients.

**AVOID** applying foliar feeds during the warmest period of the day, during hot weather conditions, or to wilted plants.

**DO NOT** apply foliar feeds with lime sulphur, Bordeaux mixture, or other potentially damaging substances.

**DO NOT** apply foliar feeds with certain stickers.

# FACTORS INFLUENCING PENETRATION AND ABSORPTION



## Temperature

Foliar sprays dry quickly when applied at high temperatures, reducing absorption of the nutrients in solution.



## Light

High light intensities can improve foliar uptake.



## Humidity

High humidity favors nutrient uptake through the leaves in two ways: by decreasing the rate of drying of the applied nutrient solutions, and by causing the cuticle to absorb water from the atmosphere and swell, which results in the formation of more polar pores.



## pH of the Spray Solution

The pH of the spray solution can influence solubility, uptake, and penetration of the plant nutrients.



## Leaf Age

Aging leaves develop thick cuticles that hinder foliar uptake, while young developing leaves have thin cuticles and are therefore more efficient at foliar uptake.



## Wettability

Wetting agents improve foliar uptake by enhancing leaf coverage, leading to greater foliar uptake. Surfactants reduce the surface tension of the solution, overcoming cuticular barriers and improving foliar uptake.



## Uniform Application

Higher spray volumes result in more uniform coverage and more effective foliar feeding. Foliar applications should wet the entire canopy, especially the new leaves.



## Concentration

As the concentration of the foliar spray increases, uptake also increases. However, lower spray water volumes generally result in less uniform spray coverage and less effective foliar feeding.

# TISSUE ANALYSIS AFTER FOLIAR NUTRIENT APPLICATIONS



Foliar nutrient applications pose special problems for using tissue analysis to determine crop nutritional status. Regardless of the form of foliar applied nutrients, assume that all sprayed leaves remain contaminated with applied nutrients to varying degrees.

**Leaf washing prior to analysis will not entirely solve this contamination problem for several reasons:**

Most foliar nutrient products contain effective stickers that are persistent on leaf surfaces.

Less mobile nutrients such as iron and calcium accumulate in sprayed leaves even if they are totally absorbed into leaf tissues, thus making sprayed leaves an inaccurate indicator of the total plant status.

Fine particulates in wettable powders and liquid flowable suspensions can lodge into leaf cuticles, where they resist washing off while offering little to no nutritional value to the plant. The above factors leave two ways to use tissue analysis as a valid tool: sample sprayed leaves with the understanding that the analysis will inaccurately (excessively) report tissue levels of the elements provided in foliar sprays, or sample only leaves that were not sprayed; that is, new growth that has occurred after a foliar nutrient application.



## TISSUE AND SOIL ANALYSIS THE BEST TOOLS FOR FERTILITY INPUT DECISIONS

Sampling either sprayed (contaminated) or uncontaminated leaves each has its drawbacks. While neither option is perfect, it is important to use the tools at our disposal and work within our given constraints. Tissue analysis, along with soil analysis, remains our most valuable means of determining nutritional requirements from which to make informed decisions for fertility inputs.

# SAMPLING LEAVES SPRAYED WITH FOLIAR NUTRIENTS

In sampling sprayed (contaminated) leaves, disregard analysis data from those nutrients that were applied in foliar sprays, even if the leaves were washed at the lab.

**A valid rule of thumb is to question any nutrient levels that appear relatively high or excessive. Investigate reasons for the high levels. Often, historical spray reports will reveal reasons for high nutrient levels other than actual plant nutrient status.**

Contamination from wettable powders (WP) and flowable suspensions (FS) is particularly problematic because they are insoluble precipitates. Although they tend to be high in nutrient concentration, very small amounts of the nutrients in WPs and FSs actually absorb into tissues. Contrary to this, analyses of sprayed and lab-washed leaves can indicate misleadingly high nutrient levels.

For decades, it was commonly accepted that manganese (Mn) levels in our tree crops are excessive because analysis reports often indicate levels of up to 200 PPM or higher. Yet, those same sampled leaves could exhibit manganese deficiency. This is most often because the main active ingredients in many WP and FS fungicides (such as Dithane® and maneb) are Mn and/or Zn, thus contaminating sprayed tissues with those elements. While some Mn and Zn in these fungicides may enter tissues, entry is minimal to nonexistent. These products are generally formulated to remain on leaf surfaces, as they are topical rather than systemic fungicides. Introduction of newer fungicide chemistries that do not contain Mn or Zn have allowed us to better realize the actual status of those elements, which is now often found to be at deficient levels.

## SAMPLING UNSPRAYED LEAVES

**Analytical data derived from sampling uncontaminated leaves that have emerged after a foliar application can provide a more complete interpretation than data from sprayed leaf samples.**

However, this too can be impractical, as nearly all crop analysis guidelines are developed around nutrient levels in mature leaves, which

differ from those of growing leaves. Many progressive growers now apply foliar nutrients at frequent intervals, which does not allow ample time for leaf tissues to grow to full expansion between foliar applications. Some guidelines have, however, been developed around expanding leaf tissues. NutriAg has usable guidelines based on expanding leaf tissues for some crops, allowing sampling of less than mature leaves.

Fairly precise methods for comparing foliar nutrient effectiveness have been developed. These are most useful in controlled environments such as greenhouses and growth chambers, but can also be effectively used in field comparisons; for example to compare competitive products to each other and/or to a control. Foliar applied nutrients generally translocate from sprayed leaves to growth

meristems. New shoot growth from different treatments can be sampled and analyzed about one week after foliar application. The resulting data will not be consistent with accepted crop nutrient guidelines as discussed prior. The nutrient levels can, however, be compared for relative effectiveness, as long as it is understood that the differences may be very slight.

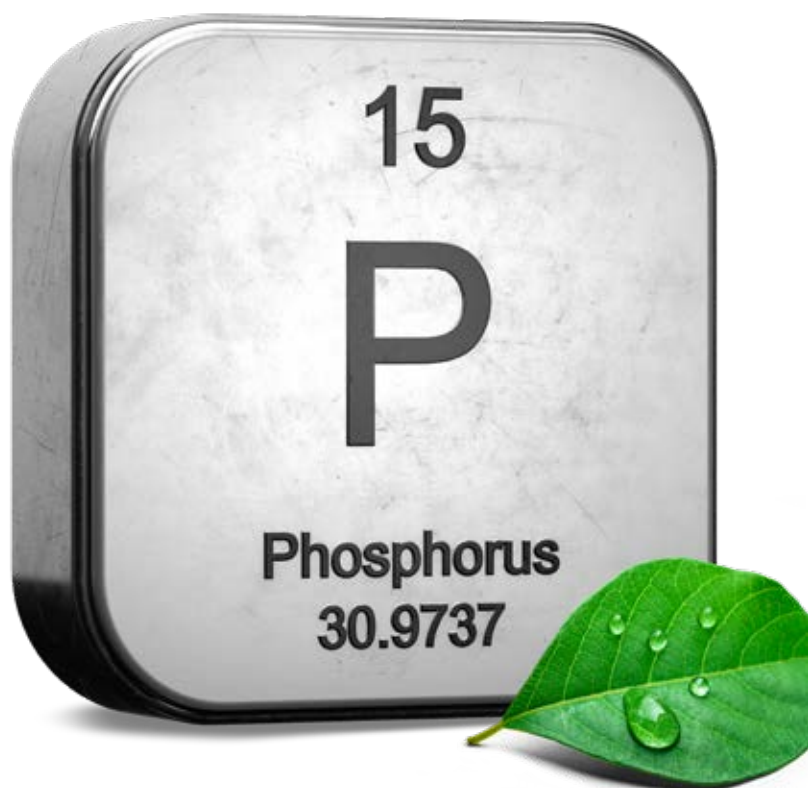
## MOBILE NUTRIENTS

**Another important fact that influences how to interpret tissue analysis reports is that highly mobile elements can exit leaves and dilute into all plant tissues within a few days after application.**

This is quite a different problem from foliar contamination in that analysis may not reflect a change in value, even shortly after application. For example, some forms of well-formulated ionized phosphorus (in true solution) quickly absorb into leaves, are very mobile once they have entered plant tissues, and exit leaves within a few days after application. Differences in sprayed and unsprayed tissues can therefore quickly become negligible due to dilution. Keep in mind that although ionic forms of phosphorus can be easily absorbed and mobilized, spraying WP and FS products that contain phosphorus will still cause erroneous excess P readings on analysis reports.

Some authorities have contended for years that foliar applied phosphorus is ineffective because they are unable to detect P level increases

in sprayed leaves just days after application. This erroneous contention indicates a general lack of understanding of nutrient mobility and physiological processes. Interestingly, the same experts attribute effectiveness of P containing phosphite and glyphosate compounds to their rapid uptake and mobility properties.



# IMPROVING THE UPTAKE AND MOBILITY OF FOLIAR APPLIED NUTRIENTS

The cuticle provides plants with a layer of protection surrounding their stems, leaves, fruits, and flowers, which can be compared, in many ways, to our skin. The function of this cuticle is to control the flow of gases in and out of the plant and to maintain optimal levels of transpiration (the evaporation of water from the leaves). The primary obstacle to efficient foliar feeding is effective movement through the cuticle and into the plant tissue.

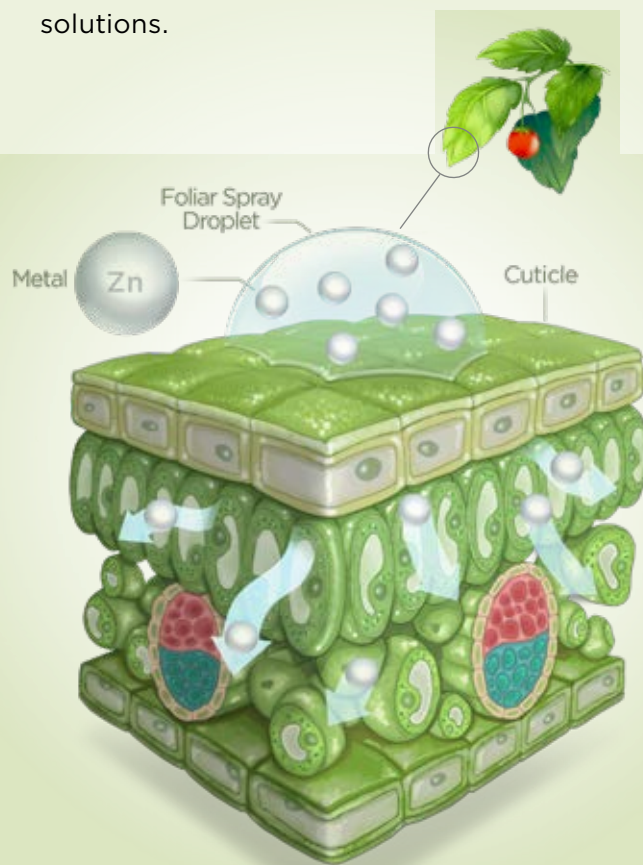
## Two primary points of entry through the cuticle:

**Stomata:** Openings in the cuticle that open and close to control the exchange of gases and transpiration (water loss). Foliar applied nutrients can pass through the stomata and thus through the cuticle. However, this process is inefficient as stomata are primarily located on the underside of leaves. Also, stomata have the ability to open and close throughout the day and are frequently closed during optimal foliar spray times.

**Polar Pores:** Areas of water absorbing compounds in the cuticle that form pathways and allow certain nutrient sprays to diffuse through the cuticle and into the leaf.

Many foliar fertilizers on the market are inefficient at being taken up by the leaves for a number of reasons. Foliar fertilizers must be soluble in order to readily move through the cuticle. Additionally, many fertilizers on the market (such as humates and lignosulfonates)

are restricted from uptake via the polar pores due to their large molecular size. The efficient use of polar pores requires fully dissolved true solutions.



**NutriAg's fertilizers use high quality ingredients to deliver fully soluble nutrients for efficient uptake and use by the plant.**

Nutrients in true solutions can effectively diffuse through polar pores. Once in the leaf, the nutrients are easily absorbed and metabolized by the plant.

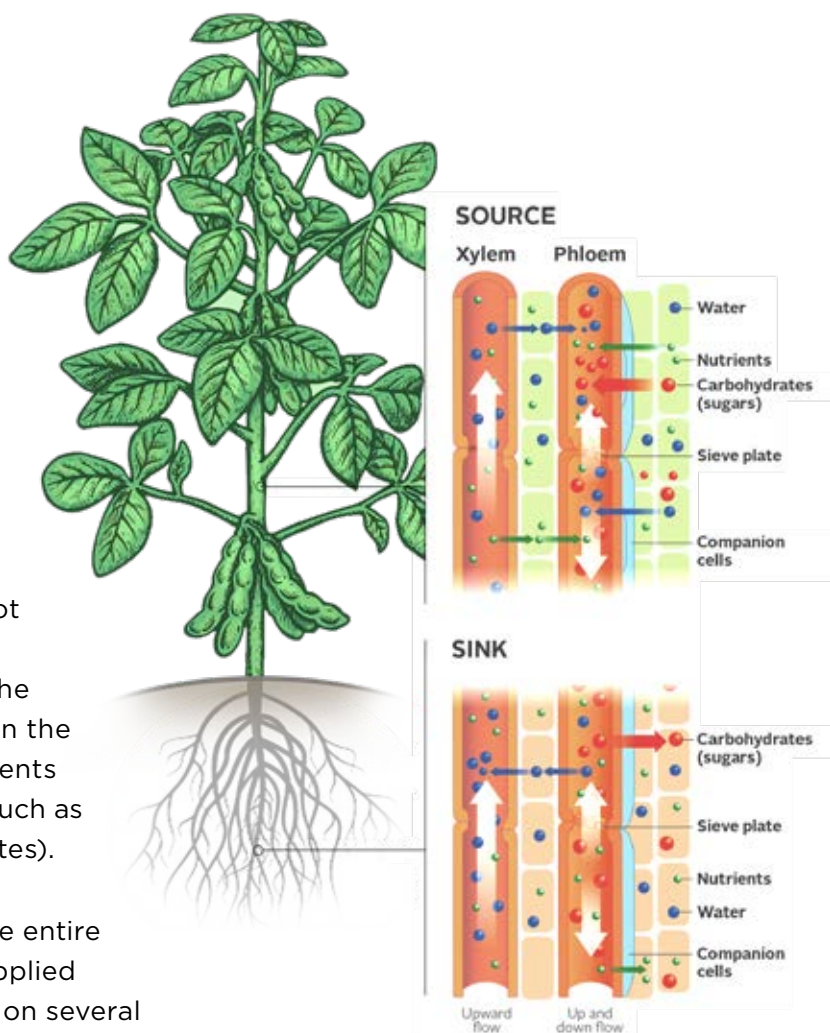


# ENHANCING NUTRIENT MOBILITY

Nutrients are transported (translocated) throughout the plant by way of the xylem and phloem. The xylem and phloem are a series of interconnected tubes that move water and various compounds throughout the plant.

The xylem is a hollow set of tubes that passively move water and nutrients from the roots to the shoots, whereas the phloem is made of living cells that actively move nutrients in all directions. Movement of nutrients in the phloem is highly regulated; some nutrients do not move via the phloem, while others are readily transported to other parts of the plant. For some nutrients, movement in the phloem can only occur when the nutrients are chelated to particular compounds such as carbohydrates (e.g., boron-polyol chelates).

Foliar fertilizers provide nutrients to the entire leaf canopy. The movement of these applied nutrients to developing tissue depends on several factors, including the nutritional status of the plant and the developmental stage of the plant. For example, nutrients generally move more freely or are re-translocated, from older growth to new growth during the reproductive stages of plant growth. Efficient foliar feeds, such as NutriAg's products, effectively load the crop with nutrition that is utilized upon application and that may be remobilized during the reproductive stages.



## Xylem and Phloem Translocation

The phloem is the main transport mechanism for movement of nutrients throughout the plant. The phloem is only able to transport compounds that are recognized by the plant, such as carbohydrates and nutrients.

# MAX™ LINE

LIQUID FOLIAR FERTILIZER

## A TRUE SOLUTION IS BEST SOLUTION.



The Max Line formulations are highly compatible with crop protection chemicals and other nutrients, making them easy to use. Max Line-delivered nutrients ensure crops reach their maximum yield and quality.

The high-quality products in our Max Line are designed for efficient foliar fertilization. The nutrients are fully soluble and effectively penetrate the cuticle for rapid nutrient uptake.

### Benefits:

- A variety of formulations to supply the right nutrients at the right time.
- Soluble nutrients effectively penetrate the cuticle.
- Nutrients are recognized and easily metabolized by the plant.
- Formulated to be crop-safe, and tank mix compatible with most crop protection chemicals.



# THE EFFECTIVE AND SAFE WAY TO FOLIAR FEED

To successfully foliar feed, fertilizers must be true solutions. High-analysis suspension formulations on the market deliver insoluble nutrients that are not easily available to the crop. Our Max Line products supply fully dissolved nutrition in true solutions for safe and effective foliar feeding.



Water



Zinc Oxide  
Suspension  
(Cloudy and  
insoluble)



ZincMax  
in Water  
(A true solution!)



## Products:

### BoronMax<sup>®</sup>

8.1% B | 0.2-0.5 L/ac

### CalciMax<sup>®</sup>

8.0% Ca, 0.5% B | 1.0-2.0 L/ac

### CelluMax<sup>®</sup>

9.0% K<sub>2</sub>O, 10.3% Si(OH)<sub>4</sub> | 1.0 L/ac

### CuMax<sup>™</sup>

4.2% Cu | 0.25-0.5 L/ac

### FeMax<sup>™</sup>

4.0% Fe | 0.5-1.0 L/ac

### K-Max Extra<sup>™</sup>

24.0% K<sub>2</sub>O | 0.5-2.0 L/ac

### MagMax<sup>™</sup>

6.0% Mg, 0.5% B | 0.5-2.0 L/ac

### ManMax<sup>™</sup>

5.5% Mn, 0.5% Mo, 0.45% B | 0.5-2.0 L/ac

### MolyMax<sup>™</sup>

5.0% Mo | 1.0 L/ac

### NickelMax<sup>™</sup> (Pending Registration)

5.0% Nickel | 0.5 L/ac

### S-Max<sup>™</sup>

19.0% N, 5.0% K<sub>2</sub>O, 15.0% S | 1.0 L/ac

### SiliCalMax<sup>™</sup>

7.6% Ca, 0.47% B, 2.75% Si(OH)<sub>4</sub> | 1.0-1.5 L/ac

### SproutMax<sup>™</sup>

3.0% Mg, 1.0% B, 1.3% Zn, 0.03% IBA,  
0.001% Kinetin | Activated by PGE | 1.0 L/ac

### ZincMax<sup>®</sup>

10.2% Zn, 0.5% B | 0.5-1.0 L/ac

### ZinManMax<sup>™</sup>

5.1% Zn, 2.7% Mn, 0.5% B, 0.25% Mo  
0.5-1.0 L/ac

# BoronMax<sup>®</sup>

A boron true solution for foliar feeding to promote seed set.



#### GUARANTEED ANALYSIS:

Boron (B)

8.1%



#### SUGGESTED FOLIAR RATES:

0.25-1.0 L/ac

A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0 L/ac

A maximum of 4 applications per season.

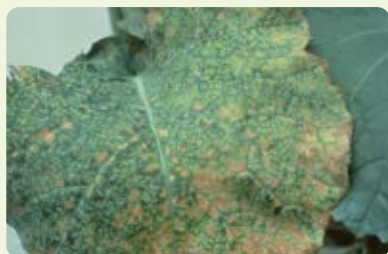
## Additional Info:

### Benefits:

- **Soluble nutrients** effectively penetrate the cuticle.
- **Nutrients are recognized** and easily metabolized by the plant.
- **Formulated to be crop-safe, and tank mix compatible** with most crop protection chemicals.
- **Boron strengthens cell walls and cell membranes**, playing a vital role in crop quality.
- **Supports reproductive processes** to improve seed set and yield.

### Boron Deficiency:

Boron deficiency first affects the youngest leaves, causing them to appear stunted and curled. As the deficiency progresses, the leaves become necrotic and die. Boron deficiency can lead to various physiological disorders across different crops, including crooked stem in celery, hollow heart in potato, corky core in apple, and heart rot in sugar beet. Often seen in light textured soils.



Canola



Corn

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A copper true solution to promote grain set and crop resilience.



#### GUARANTEED ANALYSIS:

Copper (Cu) 4.2%



#### SUGGESTED FOLIAR RATES:

0.33 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Copper Deficiency:

Copper deficiency can be difficult to visually identify. Symptoms typically appear first in the young growth and may include wilting, interveinal chlorosis, necrosis of leaf tips and margins, and stunting of the plants. In cereals, copper deficiency can impair pollen development and release. This impairs pollination and can lead to ears trapped in sheaths that eventually emerge with white tips and blind spikelets, with delayed maturity of any grains present. In cereals copper deficiency results in reduced yields and delayed maturity; this can occur without visual symptoms. Curling of the flag leaf is a symptom in wheat, barley and other cereals. This is often called "pig tailing".



Corn



Wheat

### Data from the field:

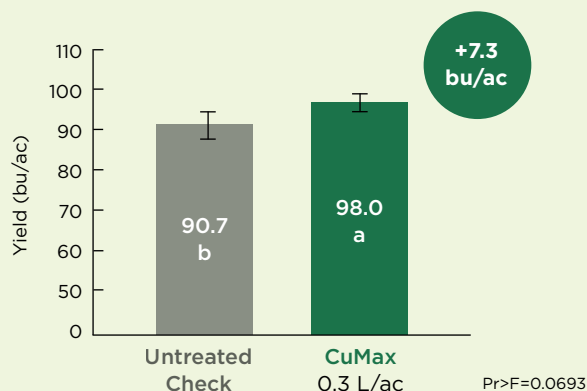
**Crop:** Wheat (Viewfield)

**Year:** 2022

**Location:** St. Brieux, SK

**Design:** RCBD, 6 reps

**Method:** Untreated check plots were compared to plots treated with a foliar application of CuMax (0.3 L/ac) at herbicide timing (4-5 leaf stage). A soil test at the site indicated that Cu was low in the field (0.4 ppm), pH was 7.5 and organic matter was 6.5%.



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# CelluMax™ 0-0-9

A potassium and silicon true solution to promote crop resilience.



## GUARANTEED ANALYSIS:

Potassium ( $K_2O$ )	9.0%
Silicon ( $Si(OH)_4$ )	10.3%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Contains high-quality ingredients in a true solution** for rapid uptake by the crop.
- **Silicon naturally fortifies the cuticular barrier** to help prevent water loss and is important for structural support.
- **Combines the power of potassium and silicon** to promote stalk strength.
- **Formulated without sulfate, nitrate, or chloride counter ions** for maximal crop safety.
- **Tank mix compatible** with most crop protection chemicals.

### Silicon Strong:

Silicon naturally strengthens cell walls, making your crops more resilient against stress. It is deposited within the carbohydrate matrix of cell walls, providing structural support. This tends to occur most in the outer layer of cells (epidermal cells), helping form a protective barrier against environmental factors, pests, and diseases. Silicon is actively being studied as both a growth-promoting element, and as a protective element against several types of environmental stress, including drought, salinity, and heavy metal toxicity.

# CalciMax<sup>®</sup>

A calcium true solution with boron to promote crop quality.



#### GUARANTEED ANALYSIS:

Calcium (Ca)	8.0%
Boron (B)	0.5%



#### SUGGESTED FOLIAR RATES:

1.0-5.0 L/ac  
A maximum of 8 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 8 applications per season.

## Additional Info:

### Benefits:

- **Foliar calcium sprays are known to improve** crop quality, and help crops fight the effects of heat stress.
- **Formulated with soluble nutrients** to ensure efficient foliar uptake, maximizing nutritional benefits.
- **Foliar fertilizers supply nutrients at the right time, avoiding uptake issues** caused by soil temperature, pH, and nutrient interactions.
- **Tank mix compatible** with most crop protection chemicals and extremely safe for crops.

### Calcium Deficiency:

Because it is an immobile nutrient, calcium deficiency presents first in the tips of the new leaves. Symptoms include browning at the tips, causing leaf curl, and newly emerging leaves sticking together at the margins, resulting in a shredded appearance.



Tomato



Lettuce



Corn

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# FeMax™

An iron true solution to avoid iron deficiency chlorosis.



#### GUARANTEED ANALYSIS:

Iron (Fe)

4.0%



#### SUGGESTED FOLIAR RATES:

0.5-1.0 L/ac

A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac

A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- Ensures efficient uptake of iron for maximum nutritional benefits.
- Uses plant-derived carbohydrates to deliver easily metabolized iron to the crop.
- Delivers nutrients in a true solution providing the highest crop safety and tank mix compatibility.

### Iron Deficiency:

Iron deficiency typically first appears in the terminal leaves. Signs include interveinal chlorosis of young foliage (where veins remain green), twig dieback, and stunted growth.



Soybean



Corn

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# K-Max Extra™ 0-0-24

A potassium true solution to promote grain filling grain filling and test weight.



#### GUARANTEED ANALYSIS:

Potassium (K<sub>2</sub>O)

24.0%



#### SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac

A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-6.0 L/ac

A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Potassium is known to improve photosynthesis and crop performance under drought** and is vital for the movement of sugars from leaves into developing fruits and grains.
- **High quality foliar fertilizer for efficient delivery and uptake of potassium** for maximum nutritional benefits.
- **Foliar fertilizers supply nutrients at the right time and avoid uptake issues** associated with soil temperature, pH, and nutrient interactions.
- **Formulated for the highest crop safety** and tank mix compatibility.

### Potassium Deficiency:

Potassium deficiency appears first in the lower leaves as leaf scorching along the leaf margins. Ongoing potassium deficiency causes increased lodging, slow growth and overdeveloped root systems. Crops are also more susceptible to diseases and water stress when there is insufficient potassium.



Corn



Wheat



Potato

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# MagMax<sup>TM</sup>

A magnesium true solution to maintain chlorophyll production and crop growth.



#### GUARANTEED ANALYSIS:

Magnesium (Mg) 6.0%  
Boron (B) 0.5%



#### SUGGESTED FOLIAR RATES:

0.5-2.0 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- Provides a highly available source of magnesium for efficient uptake by the canopy, leading to a rapid crop response.
- Supplies magnesium to support chlorophyll production, as well as nutrient uptake and translocation.
- Formulated without sulfate, nitrate, or chloride counter ions, ensuring maximal crop safety.
- Tank mix compatible with most crop protection chemicals.

### Magnesium Deficiency:

Magnesium deficiency first appears in the lower leaves, as magnesium is a mobile nutrient. The initial signs are yellowing or interveinal chlorosis. In severe cases, the deficiency may also affect young tissue leading to necrosis.



Corn



Grape



Pepper

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# ManMax™

A manganese true solution to support photosynthesis and stress-tolerance.



#### GUARANTEED ANALYSIS:

Manganese (Mn)	5.5%
Molybdenum (Mo)	0.5%
Boron (B)	0.45%



#### SUGGESTED FOLIAR RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Formulated with soluble, high-quality ingredients** to ensure the efficient uptake of manganese, molybdenum, and boron for maximum nutritional benefits.
- **Foliar fertilizers supply nutrients at the right time avoiding uptake issues** associated with soil temperature, pH, and nutrient interactions.
- **Tank mix compatible** with most crop protection chemicals.

### Manganese Deficiency:

Manganese deficiency first appears in the younger leaves as interveinal chlorosis. While the veins usually remain green, the leaves will begin to pale, turning from green to yellow as the deficiency progresses.



Wheat



Soybean



Corn

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# MolyMax™

A molybdenum true solution to support nitrogen metabolism.



#### GUARANTEED ANALYSIS:

Molybdenum (Mo) 5.0%



#### SUGGESTED FOLIAR RATES:

0.25-1.0 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Supports nitrogen fixation** in nodules of legumes.
- **Prevents molybdenum deficiency** in cruciferous crops, and in crops grown on acid soils.
- **Formulated with high-quality ingredients** to ensure efficient uptake for maximum nutritional benefits.
- **Compatible** with most crop protection products for ease of use.

### Data from the field:

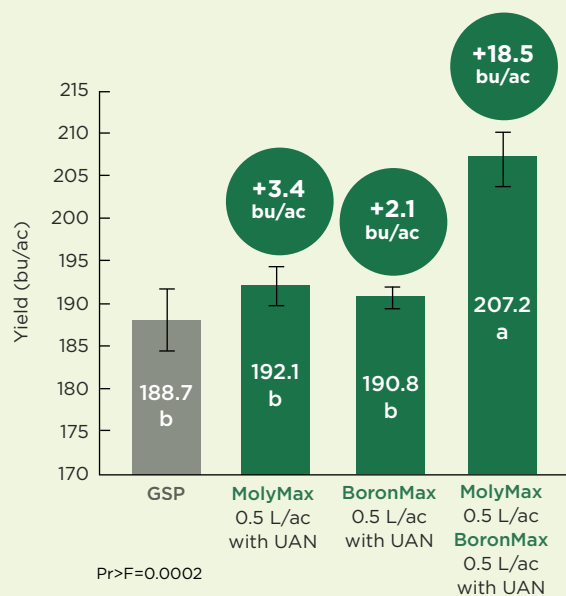
**Crop:** Corn (D50VC09RIB)

**Year:** 2022

**Location:** Quantico, MD

**Design:** RCBD, 4 reps (30' x 100')

**Method:** All plots received the grower standard practice (GSP) of 42 gal/ac UAN (30% N) coulter injected at sidedress (V6). GSP plots were compared to plots with MolyMax, BoronMax, or both products applied with the UAN.



# NickelMax<sup>TM</sup>

A nickel true solution for foliar feeding.



#### GUARANTEED ANALYSIS:

Nickel (Ni)

5.0%



#### SUGGESTED FOLIAR RATES:

Up to 0.5 L/ac

A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

Up to 0.5 L/ac

A maximum of 4 applications per season.

Max Line

## Additional Info:

### Benefits:

- **Provides a safe and effective source of nickel for the urease enzyme**, which is involved in nitrogen metabolism and supports nitrogen use efficiency.
- **Formulated with high-quality ingredients** to ensure efficient uptake for maximum nutritional benefits.
- **Compatible** with most crop protection products for ease of use.





# S-Max™ 19-0-5

A nitrogen, potassium, and sulphur true solution for foliar feeding.



#### **GUARANTEED ANALYSIS:**

Nitrogen (N)	19.0%
Potassium (K <sub>2</sub> O)	5.0%
Sulphur (S)	15.0%



#### **SUGGESTED FOLIAR RATES:**

1.0 L/ac  
A maximum of 4 applications per season.



#### **SUGGESTED SOIL/FERTIGATION RATES:**

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## **Additional Info:**

### **Benefits:**

- **Formulated with high-quality ingredients** to deliver easily metabolized sulphur to the crop.
- **Foliar applied sulphur can be used to limit deficiency** at any point during the growing season.
- **Tank mix compatible** with most crop protection chemicals.

### **Sulphur Deficiency:**

Sulphur plays a key role in the antioxidant system, helping crops better withstand stress. Nitrogen and sulphur have a strong influence on the quality and quantity of wheat storage proteins. Foliar applications of N and S during wheat flowering can boost grain protein content and improve bread-making qualities.

Sulphur deficiency symptoms are typically not uniform across the field and can occur on slopes, eroded areas or spots where soils are colder or wetter. Deficiency symptoms begin with the youngest tissue and include yellowing between leaf veins, cupped leaves and stunting. Purpling of leaf edges can develop if the deficiency is severe.



Canola

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# SiliCalMax™

A calcium and boron true solution with silicon to improve crop quality and reduce the impact of abiotic stress.



#### GUARANTEED ANALYSIS:

Calcium (Ca)	7.6%
Boron (B)	0.47%
Silicon (Si(OH) <sub>4</sub> )	2.75%



#### SUGGESTED FOLIAR RATES:

1.0-1.5 L/ac  
A maximum of 8 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 8 applications per season.

## Additional Info:

### Benefits:

- **Contains high-quality ingredients** to deliver easily metabolized calcium to developing tissue.
- **Silicon naturally fortifies the cuticular barrier to help prevent water loss** and is important for structural support.
- **Silicon is emerging as an important nutrient** for improving crop tolerance to environmental stress.
- **Formulated without sulfate, nitrate, or chloride counter ions** for maximal crop safety.
- **Tank mix compatible** with most crop protection chemicals.

### Silicon:

Several studies have demonstrated the positive effects of soil-applied silicon in potatoes.<sup>1-2</sup> In general, crops treated with silicon resulted in larger, healthier tubers, particularly under drought conditions. It has also been shown that Si can improve nutrient use efficiency and increase overall tuber quality.

### Calcium Deficiency:

Because it is an immobile nutrient, calcium deficiency first appears in the tips of the new leaves. Symptoms include browning at the tips causing them to curl. Newly emerging leaves may stick together at the leaf margins, causing them to appear shredded.



Canola



Corn



Potato

<sup>1</sup>Crusciol C.A.C., Pulz A.L., Lemos L.B., Soratto R.P., Lima G.P.P. Effects of silicon and drought stress on tuber yield and leaf biochemical characteristics in potato. Crop Sci. 2009; 49:949-954

<sup>2</sup>Khan M.A., Vinod G., Neeru J. Impact of ortho silicic acid formulation on yield and disease incidence of potatoes; Proceedings of the 7th International Conference on Silicon in Agriculture; Bengaluru, India. 24-28 October 2017; p. 137.

# SproutMax™

A magnesium, boron, and zinc foliar fertilizer with IBA and kinetin to promote growth.



#### GUARANTEED ANALYSIS:

Magnesium (Mg)	3.0%
Boron (B)	1.0%
Zinc (Zn)	1.3%
IBA (Indole-3-butyric acid)	0.03%
Cytokinin (as kinetin)	0.001%



#### SUGGESTED FOLIAR RATES:

1.0 L/ac  
A maximum of 3 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-1.5 L/ac  
A maximum of 3 applications per season.

## Additional Info:

### Benefits:

- **Speeds up the filling process in new fields**, reducing the time it takes to achieve a maximum-producing blueberry crop.
- **PGE™ technology is formulated with plant growth stimulants** that work synergistically to improve sprout development and uniformity.
- **Compatible with most foliar fertilizers and pesticides** for seamless incorporation into spray programs.
- **Fully dissolved nutrients for efficient uptake** and rapid response in the crop.

### Data from the field:

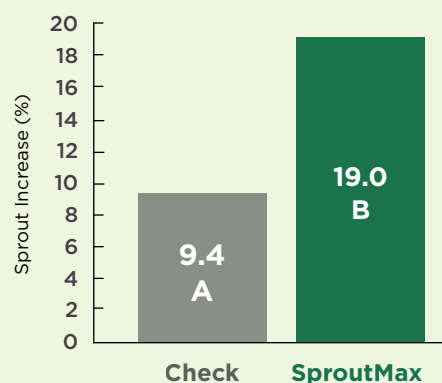
The trial below demonstrates the effectiveness of SproutMax in newly developing fields. SproutMax delivered a 9.7% increase in sprout numbers compared to the check.

**Crop:** Blueberry (Lowbush)

**Year:** 2015

**Location:** Kouchibouguac, NB

**Method:** SproutMax (1.0 L/ac) was applied after mowing during early sprout development. Treated plots were counted for sprouts/shoots prior to application on July 2, and again on Aug 28.



Pr>F: 0.0141

# ZincMax<sup>®</sup>

A zinc true solution with boron for foliar feeding to promote growth and crop resilience.



#### GUARANTEED ANALYSIS:

Zinc (Zn)	10.2%
Boron (B)	0.5%



#### SUGGESTED FOLIAR RATES:

0.5-1.0 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **A fully soluble zinc source**, ensuring efficient uptake and metabolism for maximum nutritional benefits.
- **Foliar fertilizers supply nutrients at the right time avoiding uptake issues** associated with soil temperature, pH, and nutrient interactions.
- **Free from nitrates, sulphates, or chlorides** for maximum crop safety.
- **Tank mix compatible** with most crop protection chemicals.

### Zinc Deficiency:

Zinc deficiency first appears in the younger leaves as interveinal chlorosis, giving the crop a banded appearance. In fruit trees and potato, zinc deficiency can lead to rosetting and dieback. Zinc is an enzyme cofactor for many plant enzymes. Without Zn, many enzymes function poorly, including enzymes involved in defence against environmental stress. It is very important to address Zn issues early on in crop development.



Potato



Soybean



Corn

#### Deficiency Photograph/s on this page:

IPNI Crop Nutrient Deficiency Image Collection. Prepared and distributed by the International Plant Nutrition Institute (IPNI)  
Copyright © 2014 - Re-use of the images within is allowed with the understanding that appropriate credit be given to this source.  
You may not alter, transform, or build upon this work. IPNI, 3500 Parkway Lane, Suite 550, Norcross, GA 30092 USA [www.ipni.net](http://www.ipni.net)

# ZinManMax™

A zinc, manganese, boron, and molybdenum true solution for situations where an acidic pH, multi-micronutrient product is ideal.



#### GUARANTEED ANALYSIS:

Zinc (Zn)	5.1%
Manganese (Mn)	2.7%
Boron (B)	0.5%
Molybdenum (Mo)	0.25%



#### SUGGESTED FOLIAR RATES:

0.5-1.0 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Provides the additional nutrients glyphosate-tolerant crops need** to reach their maximum yield potential.
- **Formulated with high-quality, soluble ingredients** to ensure the efficient uptake of zinc, manganese, boron, and molybdenum for maximum nutritional benefits.
- **Foliar fertilizers supply nutrients at the right time and avoid uptake issues** associated with soil temperature, pH, and nutrient interactions.
- **Tank mix compatible** with most crop protection chemicals.

### Zinc Deficiency:

Zinc deficiency appears first in the new leaves as interveinal chlorosis giving the crop a banded appearance. In fruit trees and potato, zinc deficiency leads to rosetting and die back. Zinc is an enzyme cofactor for many plant enzymes. Without Zn, many enzymes function poorly. It is very important to address Zn issues early on in crop development.



Potato



Soybean



Corn

### Manganese Deficiency:

Manganese deficiency appears first in the younger leaves as interveinal chlorosis. While the veins tend to remain green, the leaves become pale green and then yellow.



Wheat



Soybean



Corn







# TRUPHOS® LINE

LIQUID FOLIAR FERTILIZER

## AVOID P DEFICIENCY WITH IMMEDIATELY AVAILABLE 100% ORTHOPHOSPHATE



Our advanced manufacturing process employs unique sequestering technology, which allows for the simultaneous inclusion of **100% orthophosphate** with other nutrients while maintaining a true solution for immediate uptake.

The TruPhos Line uses our unique Matrix Ortho-Deprotonation™ technology to produce liquid phosphate foliar fertilizers that contain a combination of macro and micronutrients.

### Benefits:

- MOD™-formulated orthophosphoric acid is fully and immediately available to the crop for foliar uptake.
- Once absorbed into the leaf, orthophosphate is extremely mobile throughout the plant.
- Incorporates essential nutrients into a concentrated, liquid orthophosphate fertilizer.



## PLANTS DEplete THE P SUPPLY AROUND THEIR ROOTS AND BECOME NUTRIENT DEFICIENT.

The soil alone rarely supplies sufficient phosphorus for optimum production.

Roots are often unable to take up sufficient phosphorus due to low soil temperatures and wet soils.

A large amount of soil-applied phosphorous becomes tied up and unavailable for efficient plant uptake.

## GIVE YOUR CROPS AN ADVANTAGE WITH TRUPHOS' 100% ORTHOPHOSPHATE WHICH IS QUICKLY ABSORBED BY THE CANOPY AND RAPIDLY DELIVERED TO TISSUES THAT NEED IT MOST.

Many phosphorus products are poor choices for foliar application because they form cloudy suspensions in spray tanks due to their low solubility. There are two types of phosphorus that form true solutions: orthophosphate and polyphosphate. Although there are many different forms of phosphorus, orthophosphate is the only form that is immediately available to the plant.

### Products:

#### TruPhos® Advanced™

5-18-2, 0.5% Mg, 0.1% B, 0.1% Cu, 0.1% Fe, 0.05% Mn, 0.05% Mo, 0.8% Zn, 0.003% kinetin, 0.001% GA3, 0.002% IBA  
Activated by MOD, PGE | 0.67 L/ac

#### ManZinPhos DX™

6-20-5, 1.8% S, 3.0% Mn, 1.0% Zn | Activated by MOD, EBN | 1.0 L/ac  
\*Pending registration

#### TruPhos® Calcium™

0-23-3, 3.0% Ca | Activated by MOD | 1.0-2.0 L/ac

#### TruPhos® Magnesium™

0-29-5, 4.0% Mg | Activated by MOD | 1.0-2.0 L/ac

#### TruPhos® Zinc™

6-20-0, 4.0% Zn | Activated by MOD | 1.0 L/ac

# TruPhos<sup>®</sup> Advanced<sup>™</sup> 5-18-2

A liquid fertilizer with nitrogen, phosphorous, potassium, micronutrients, and plant growth regulators.



## GUARANTEED ANALYSIS:

Nitrogen (N)	5.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	18.0%
Potassium (K <sub>2</sub> O)	2.0%
Magnesium (Mg)	0.5%
Boron (B)	0.1%
Cobalt (Co)	0.05%
Copper (Cu)	0.1%
Iron (Fe)	0.1%
Manganese (Mn)	0.05%
Molybdenum (Mo)	0.05%
Zinc (Zn)	0.8%
Cytokinin (as kinetin)	0.003%
Gibberellic acid (GA3)	0.001%
IBA (Indole-3-butyric acid)	0.002%



## SUGGESTED FOLIAR RATES:

0.7 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

Boost your yields by adding nutrition to your herbicide and fungicide sprays. Supplementing the crop with a foliar application of TruPhos Advanced<sup>™</sup>, will ensure the crop continues to build the sugars that will ultimately move to the seeds. Since close to 80% of accumulated P moves into the seed, the in-season application of an orthophosphate-containing TruPhos product is the right P source at the right time for maximum benefit. Adding BoronMax<sup>®</sup> into the tank will help ensure your crop has enough boron for strong seed-set, and for maintaining the membranes required to move sugars and nutrients into the developing seeds.

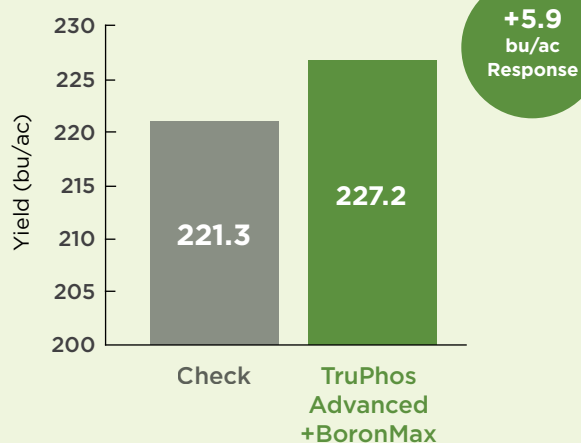
### Data from the field:

**Crop:** Corn

**Year:** 2021-2022

**Location:** 30 sites across Ontario (averaged)

**Method:** Check plots were compared to plots treated with 0.7 L/ac TruPhos Advanced and 0.5 L/ac BoronMax at V8.



# ManZinPhos-DX™

A phosphate true solution with manganese and zinc to help crops develop and support roots through to maturity.



## GUARANTEED ANALYSIS:

Total Nitrogen (N)	6.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	20.0%
Potassium (K <sub>2</sub> O)	5.0%
Sulphur (S)	1.8%
Manganese (Mn)	3.0%
Zinc (Zn)	1.0%



## SUGGESTED FOLIAR RATES:

1.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.5 L/ac  
A maximum of 4 applications per season.

\*Pending registration

## Additional Info:

### Benefits:

- **Formulated with Matrix Ortho-Deprotonation (MOD™) Technology** to produce a multi-nutrient solution packed with phloem-mobile orthophosphate.
- **Contains EBN™ technology to stimulate crop development** and improve nutrient use efficiency.
- **Foliar fertilizers supply nutrients at the right time and avoid uptake issues** associated with soil temperature, pH, and nutrient interactions.
- **Tank mix compatible** with most crop protection chemicals, including post-emergent herbicides.

### Data from the field:

**Crop:** Wheat

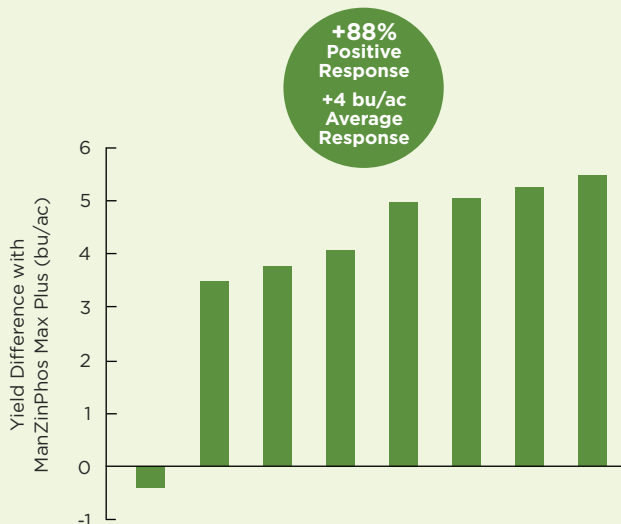
**Year:** 2013-2021

**Location:** 8 locations across Canada & USA

**Design:** Split field & RCBD

**Method:** Wheat grown according to grower standard practices was compared to wheat that also received a foliar application of ManZinPhos Max Plus (1.0 L/ac) at herbicide timing.

ManZinPhos Max Plus is the precursor to ManZinPhos-DX



# TruPhos<sup>®</sup> Calcium<sup>™</sup> 0-23-3

A phosphate and calcium true solution for soil or foliar application.



#### GUARANTEED ANALYSIS:

Phosphorus (P <sub>2</sub> O <sub>5</sub> )	23.0%
Potassium (K <sub>2</sub> O)	3.0%
Calcium (Ca)	3.0%



#### SUGGESTED FOLIAR RATES:

1.0 L/ac  
A maximum of 4 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Delivers the essential nutrition needed for crop development**, including grain filling and bulking.
- **Uses MOD<sup>™</sup> technology to incorporate K and Ca in a 100% orthophosphate liquid fertilizer**, providing maximum nutrition to the crop.
- **Uniquely formulated true solution provides fully available crop nutrition** with the highest crop safety and tank mix compatibility.
- **Suitable** for use with pulse crops at planting.

**Phosphorus** - Foliar-applied orthophosphate P increases photosynthetic rate and sugar synthesis, boosting carbohydrate production necessary for optimum crop yields.

**Potassium** - K is the most critical element for carbohydrate transport from the canopy to the seed, and often the crop demand for K exceeds the supply from the roots.

**Calcium** - essential for tissue strength and cell membrane stability, deficiencies often lead to deformed and eventually necrotic tissues.



# TruPhos<sup>®</sup> Magnesium<sup>™</sup> 0-29-5

A phosphate and magnesium true solution for foliar application.



## GUARANTEED ANALYSIS:

Phosphorus (P <sub>2</sub> O <sub>5</sub> )	29.0%
Potassium (K <sub>2</sub> O)	5.0%
Magnesium (Mg)	4.0%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Delivers the essential nutrition needed to crop development**, including grain filling and bulking.
- **Uses MOD<sup>™</sup> technology to incorporate K and Mg in a 100% orthophosphate liquid fertilizer**, which provides maximum nutrition to the crop.
- **Uniquely formulated true solution provides fully available crop nutrition** with the highest crop safety and tank mix compatibility.

**Phosphorus** - Foliar-applied orthophosphate P increases photosynthetic rate and sugar synthesis, boosting carbohydrate production necessary for optimum crop yields.

**Potassium** - K is the most critical element for carbohydrate transport from the canopy to the seed, and often the crop demand for K exceeds the supply from the roots.

**Magnesium** - As the central atom to chlorophyll, Mg is often in high demand and short supply late in the growing season when crops are sizing and finishing.

# TruPhos<sup>®</sup> Zinc<sup>™</sup> 6-20-0

A phosphate true solution to promote sugar production.



## GUARANTEED ANALYSIS:

Nitrogen (N)	6.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	20.0%
Zinc (Zn)	4.0%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Delivers essential nutrition needed** for seedling growth, particularly in cool soils.
- **Uses MOD<sup>™</sup> technology** to incorporate N and Zn in a liquid fertilizer containing 100% orthophosphate.
- **Uniquely formulated true solution provides fully available crop nutrition** with the highest crop safety and tank mix compatibility.

**Nitrogen** – An essential macronutrient key for building the protein and chlorophyll that support crop growth. Access to soil N early in the season can be challenging due to lower rates of mineralization.

**Phosphorus** – Orthophosphate is the plant-available form of P. Placing it near emerging roots gives seedlings a boost of what can be a tough nutrient to access due to unfavourable soil conditions.

**Zinc** – An important micronutrient for ensuring your crop can tolerate stressful conditions, elongate its roots, expand its leaves, and maintain healthy growing points.

### Data from the field:

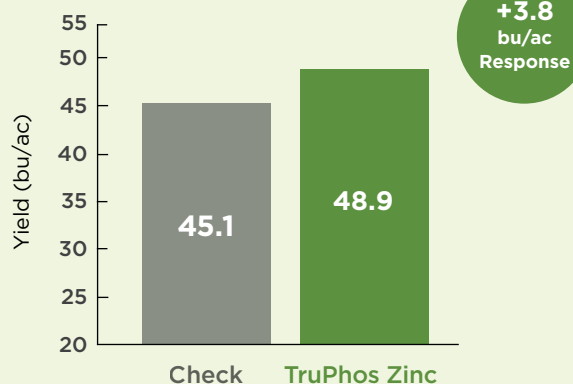
**Crop:** Canola (L130)

**Year:** 2014

**Location:** North Battleford, SK

**Design:** Strip Trial

**Method:** Canola treated with TruPhos Zinc (1.0 L/ac) tank mixed with Liberty and Arrow 240EC herbicides at the 3-4 leaf stage was compared to canola that received herbicides only (Check).









# PLANT ACTIVATOR™ LINE

LIQUID FOLIAR FERTILIZER

## ENHANCE ABIOTIC STRESS TOLERANCE TO PROTECT YOUR YIELD.



Our exclusive LEX™ technology activates the physiological and biochemical processes that crops rely on to minimize the negative effects of abiotic stress. The combination of LEX and Essential BioNutritional (EBN™) technology ensure a high quality, productive, and resilient crop.

### Benefits:

- Improves tolerance to abiotic stresses like drought, salinity, and extreme temperatures.
- Delays leaf senescence to ensure continued photosynthesis.
- Promotes improved nutrient uptake, particularly in saline soils.
- Improves photosynthesis and carbon fixation for a more productive crop.
- Biomolecules provided as EBNs fuel continued growth and increase vigor.

Protect your crops from the stresses brought on by potential future pressures that negatively impact growth and yield.

# PREVENT & REPAIR

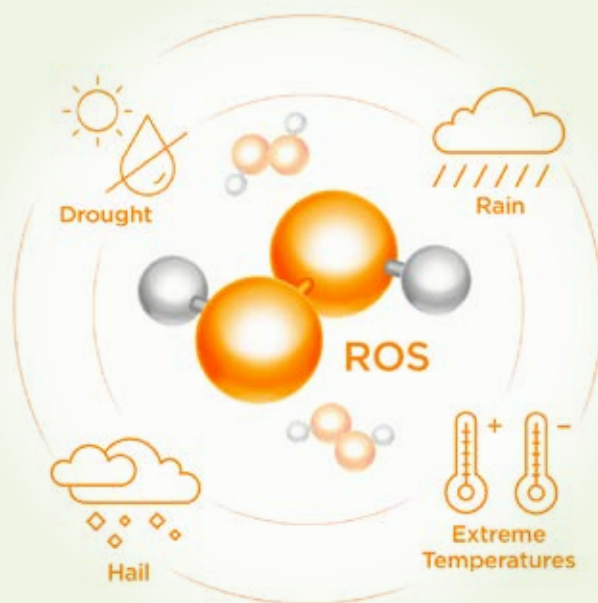


Hail damaged potato plant (Nutri Lex applied)



Less than a week later

LEX-treated crops are able to tolerate a wide range of abiotic stress, regardless of unforeseen events and growing conditions.



## ENVIRONMENTAL STRESS INCREASES REACTIVE OXYGEN SPECIES (ROS) PRODUCTION.

Every season growers experience lower yields and reduced crop quality due to abiotic stresses such as drought, hail, excess rain and extreme temperatures. These stressors cause high levels of ROS to accumulate in plant tissues which cause oxidative damage, also known as cellular damage. ROS accumulate to reduce plant vitality and vigor — decreasing growth, yield, and ultimately, revenue.

### Products:

#### Nutri Lex™

0-0-8, 2.4% Ca, 0.8% Mg, 0.2% B  
Activated by LEX, EBN | 0.5-1.0 L

#### Crop Finish™

0-0-6, 2.0% B, 1.0% Cu | 0.75-1.0 L/ac

#### FertiBoost 7-14-7™

7-14-7, 0.05% B, 0.05% Cu, 0.05% Mn,  
0.005% Mo, 0.05% Zn, 1.0% EDTA (minimum) | 1.0 L/ac

# Nutri Lex<sup>TM</sup> 0-0-8

A multinutrient foliar fertilizer with biostimulants to boost abiotic stress tolerance.



#### **GUARANTEED ANALYSIS:**

Potassium (K <sub>2</sub> O)	8.0%
Calcium (Ca)	2.4%
Magnesium (Mg)	0.8%
Boron (B)	0.2%
Amino acids	0.7%
Chitosan	0.1%
Salicylic acid	0.1%



#### **SUGGESTED FOLIAR RATES:**

1.0-1.5 L/ac  
A maximum of 4 applications  
per season.



#### **SUGGESTED SOIL/FERTIGATION RATES:**

1.0-4.0 L/ac  
A maximum of 4 applications  
per season.

### **Additional Info:**

**By harnessing our exclusive LEX<sup>TM</sup> and EBN<sup>TM</sup> technologies, Nutri Lex directly stimulates plant defence pathways for a more resilient crop.**

Our next-generation LEX technology stimulates the plant's own defences to help limit the harmful effects of all forms of environmental stress. The amino acids in Nutri Lex are derived from our EBN Technology, which ensures superior product performance by providing the plant with the building blocks for proteins and enzymes needed to promote growth and development. Combining our classic anti-stress nutrient package with LEX and EBN technologies results in a game-changing product to boost crop yields and protect crops from extreme weather.



# Crop Finish™ 0-0-6

A potassium, boron, and copper foliar fertilizer ideal for a variety of prairie crops.



## GUARANTEED ANALYSIS:

Potassium (K <sub>2</sub> O)	6.0%
Boron (B)	2.0%
Copper (Cu)	1.0%



## SUGGESTED FOLIAR RATES:

0.75-1.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- A customized foliar fertilizer designed to meet the mid-season nutritional needs of broadleaf and cereal crops
- Potassium and copper work synergistically to maintain photosynthesis and reduce the negative effects of stress
- Crop Finish contains boron to strengthen cell walls and cell membranes, as well as support both pollen development and seed set.
- Tank mix compatible with most crop protection chemicals.

### Data from the field:

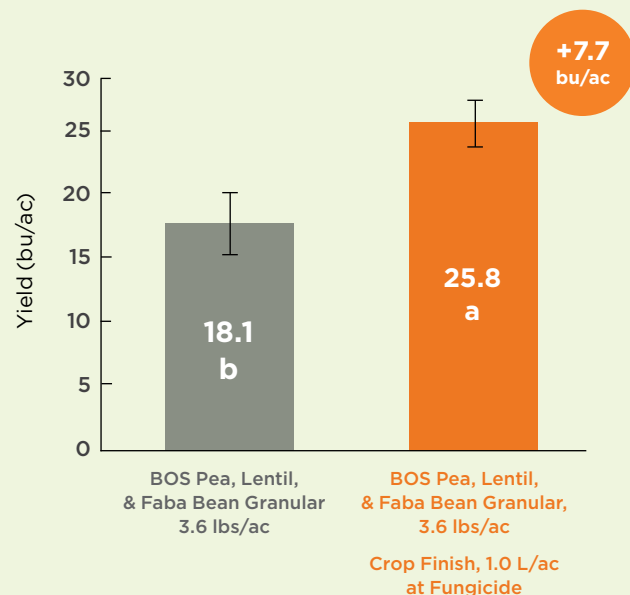
**Crop:** Lentil (CDC Proclaim)

**Year:** 2023

**Location:** St. Brieux, SK

**Design:** RCBD, 6 reps

**Method:** All plots were treated with BOS Pea/Lentil Granular inoculant at planting. Inoculant alone was compared to inoculant plus a foliar application of Crop Finish (1.0 L/ac) at fungicide timing.



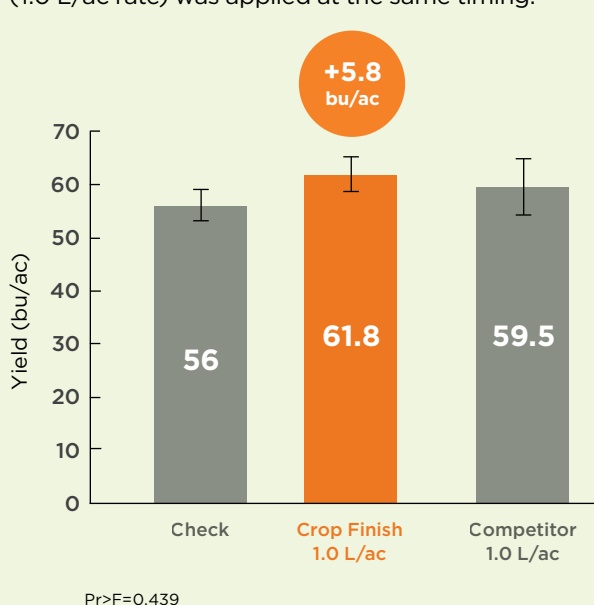
**Crop:** Canola (LL 345 PC)

**Year:** 2022

**Location:** St. Brieux, SK

**Design:** RCBD, 6 reps

**Method:** Control plots were compared to plots that received a foliar application of Crop Finish (1.0 L/ac) applied at 20% flowering or to plots where a competitor's biostimulant product (1.0 L/ac rate) was applied at the same timing.



# FertiBoost 7-14-7™

A NPK formulation with chelated micronutrients for tank mixes with pH-sensitive products.



## GUARANTEED ANALYSIS:

Nitrogen (N)	7.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	14.0%
Potassium (K <sub>2</sub> O)	7.0%
Boron (B)	0.05%
Copper (Cu)	0.05%
Manganese (Mn)	0.05%
Zinc (Zn)	0.05%
Molybdenum (Mo)	0.005%
EDTA (chelating agent) (minimum)	1.0%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- A **safe, easy-to-use foliar NPK fertilizer** with a comprehensive blend of chelated essential micronutrients.
- **Contains 100% plant-available orthophosphate** to support growth.
- **The micronutrient package includes copper, manganese, and zinc**—key nutrients for enzymes responsible for limiting the effects of stress.
- **Formulated with a neutral pH for enhanced tank mix compatibility** with crop protection chemicals.
- **Free from nitrates, sulphates or chlorides** for maximum crop safety.

### Data from the field:

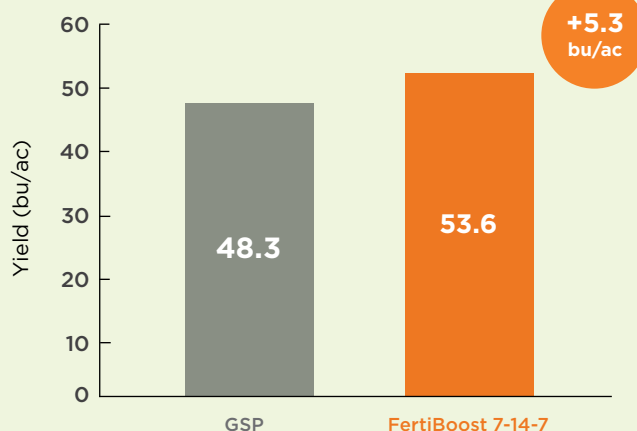
**Crop:** Peas (Yellow)

**Year:** 2017

**Location:** Mossleigh, AB

**Design:** Split field

**Method:** A field was sprayed with Viper herbicide, and half of the field received a tank mix of Viper with FertiBoost 7-14-7 (1.0 L/ac).







# BOS™ LINE

DUAL STRAIN INOCULANTS

## BUILD STRONGER PEAS, LENTILS, AND OTHER LEGUMES FROM START TO FINISH.

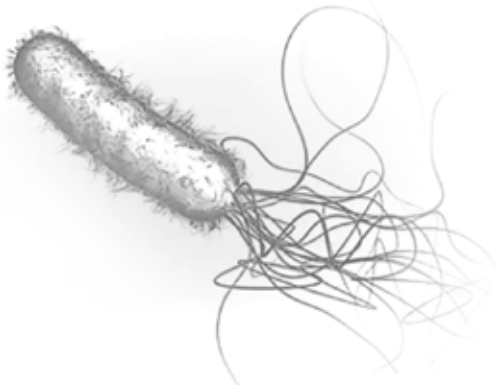
The BOS Line of dual-strain inoculants contain unique bioactives that go well beyond your typical product to maximize yield potential from start to finish. It begins with the dual strains of a crop-specific *Rhizobium* and an exclusive *Pseudomonas* soil microbe for multiple yield-boosting benefits. All of the microbial strains used in BOS inoculants are native to North American soils.



Our Inoculant Line is activated by our exclusive Bioactive Organic Soil-Microbes™ Technology. BOS™ inoculants enhance nitrogen fixation, phosphate solubilization, micronutrient availability, and crop-stress tolerance, maximizing yield potential.

# PSEUDOMONAS -BONUS!

*Pseudomonas* is our proprietary beneficial biological included in all BOS inoculants.



This unique plant growth-promoting bacteria provides several additional benefits to your legumes.

## Benefits:

- MORE Rhizobia to increase nitrogen fixation
- Promotes seedling growth for better establishment
- Improved availability and uptake of phosphate and micronutrients
- Reduced yield loss from crop stress
- Production of crop-growth promoting compounds including auxin

**MORE  
RHIZOBIA\***  
THAN THE COMPETITION  
GIVES YOU MORE  
N FIXATION

\*BOS Inoculants have up to 150% more CFU/g than competitor brands.

## Products:

### BOS™ Pea, Lentil, Faba Bean Granular

Minimum of  $2 \times 10^8$  CFU/g of *Rhizobium leguminosarum* biovar *viciae* and  $1 \times 10^4$  CFU/g of *Pseudomonas* sp.  
**Ecocert approved**

### BOS™ Pea, Lentil, Faba Bean Peat

Minimum of  $9 \times 10^8$  CFU/g of *Rhizobium leguminosarum* biovar *viciae* and  $1 \times 10^4$  CFU/g of *Pseudomonas* sp.  
**Ecocert approved**

### BOS™ Pea, Lentil, Faba Bean Liquid

Minimum of  $1 \times 10^9$  CFU/mL of *Rhizobium leguminosarum* biovar *viciae* and  $1 \times 10^6$  CFU/mL of *Pseudomonas* sp.

### BOS™ Soybean Granular

Minimum of  $2 \times 10^8$  CFU/g *Bradyrhizobium japonicum* and  $1 \times 10^4$  CFU/g of *Pseudomonas* sp.  
**Ecocert approved**

### BOS™ Soybean Peat

Minimum of  $2 \times 10^9$  CFU/g *Bradyrhizobium japonicum* and  $5 \times 10^8$  CFU/g of *Pseudomonas* sp.  
**Ecocert approved**

### BOS™ Dry Bean Peat

Minimum of  $8 \times 10^8$  CFU/g of *Rhizobium leguminosarum* biovar *phaseoli* and  $1 \times 10^5$  CFU/g of *Pseudomonas* sp.  
**Ecocert approved**

Only BOS Granular and Peat formulations are currently available for organic crop production





# M-BOS™

BIOLOGICAL PLANT GROWTH  
BREAKTHROUGH

## ACCELERATE GROWTH RATES AND INCREASE TOLERANCE TO STRESS.



1x10<sup>7</sup> CFU/mL  
*Methylobacterium  
organophilum*

NutriAg's M-BOS with *Methylobacterium organophilum* increases production of essential compounds like Cytokinins, Amino Acids, Sugars, Nucleic Acids, Vitamins, and Coenzymes.

**Cytokinins regulate** seed germination, cell division, nutrient mobilization, and plant defence.

M-BOS can be applied as a seed treatment, or in-furrow with liquid starters.



### *Methylobacterium organophilum*™

M-BOS is a unique bacterium that utilizes methanol and oxalic acid as a carbon source. Once applied this special bacteria produces metabolites that assist plant defences against abiotic stress, and improve crop growth by delaying leaf senescence, and improving nutrient utilization.

### Benefits:

- Accelerates growth rate.
- Fortifies environmental stress tolerance, particularly resistance to drought.
- Enhances nutrient uptake.
- Improves yield in multiple crops.
- Plants stay green for longer!



# M-BOS™

A biological solution to stimulate crop growth and yield, suitable for use at planting, or for transplants.



**GUARANTEED ANALYSIS:**

*Methylobacterium organophilum* 1 X10<sup>7</sup> CFU/mL



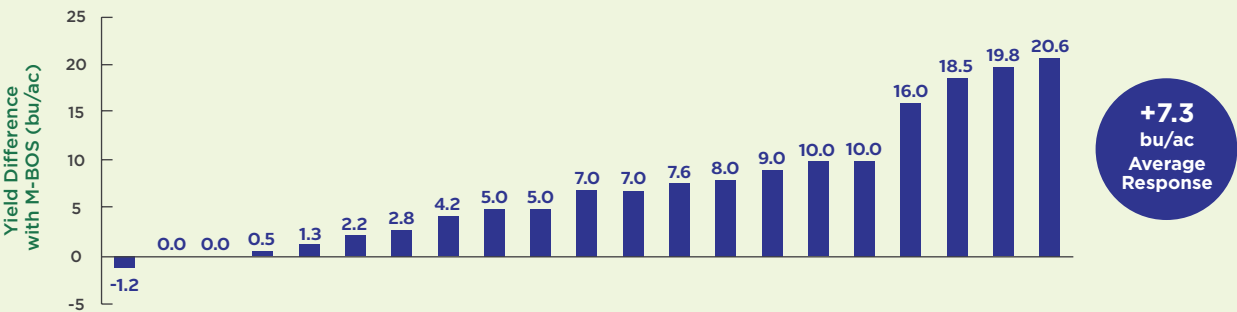
**SUGGESTED SOIL/FERTIGATION RATES:**

10 mL/ac

**Data from the field:**

**Crop:** Corn  
**Years:** 2020-2023  
**Location:** 21 Sites across Canada & USA  
**Design:** Split field & RCBD

**Method:** Corn grown with liquid starter fertilizer placed in-furrow was compared to corn growth with M-BOS added to the starter at a rate of 10 mL/ac.



# M-BOS ST™

A biological seed treatment to promote growth and yield of many crops.



**GUARANTEED ANALYSIS:**

*Methylobacterium organophilum* 1 X10<sup>6</sup> CFU/mL



**SEED APPLICATION INSTRUCTIONS:**

125 mL M-BOS ST plus 375 mL water per 100 kg seed.

**M-BOS for Seed Treatment:**

125 mL M-BOS/100 kg seed plus 375 mL non-chlorinated water. Can be applied up to 3 months pre-planting.

**Storage:**

4-22°C, 6 month shelf-life

CROPS	3 L Pack Treats		
	kg seed	bu seed	acres*
Canola	2400	106	1057
Wheat	2400	88	44
Barley	2400	110	40
Oats	2400	156	44
Peas	2400	88	29
Lentils	2400	88	59
Corn	2400	109	250
Soybean	2400	120	120

\*At typical seeding rates

# BIONUTRITIONAL™ LINE

LIQUID FOLIAR  
FERTILIZER

## IMPROVE GROWTH WITH ESSENTIAL BIONUTRITION.



Essential BioNutritionals biofortify NutriAg fertilizers with proprietary natural biomolecules to provide elemental and molecular nutrition to support the development of your crop.



Our Essential Bionutritional complexes are natural metabolites that improve the nutritional quality of our fertilizers leading to superior performance and higher yields.

### Benefits:

- Biofortification with EBN™ technology improves the nutritional properties of the fertilizer to improve crop quality and increase yield.
- EBN compounds include cofactors, extracts, amines, amino acids, carbohydrates, and antioxidants.
- A variety of EBN packages are available to complement soil and foliar applied fertilizer formulations to support early crop development and maximize yield potential.

# FERTILIZERS CONTAINING EBNs SUPPLY ADDITIONAL BIOMOLECULES TO SUPPORT CROP GROWTH.

The benefits: the crop utilizes the biomolecules provided and can direct more of its resources towards growing yield.

Plants need light, air, water, and soil to grow. They use these resources to trap energy, fix carbon, and to produce the biomolecules used to build new cells and tissues.

## Products:

### FertiBoost-DX™

3-0-3, 2.0% Mn, 2.0% Zn | Activated by EBN | 1.0 L/ac  
\*Pending registration

### Direct-Flo 5-10-5™

5.0% N, 10.0% P<sub>2</sub>O<sub>5</sub>, 5.0% K<sub>2</sub>O, 0.05% B, 0.2% Cu, 0.05% Mn, 0.005% Mo, 0.2% Zn, 2.21% EDTA (minimum) | 2.0 L/ac

### MaxiBoost™

1.05% Mg, 1.34% S, 0.25% B, 0.25% Cu, 0.5% Fe, 0.25% Mn, 0.004% Mo, 0.14% Zn | 26.9% Seaweed extract, 5.93% EDTA (minimum) | Activated by EBN | 1.0 L/ac

### N-Finity™

28% N: 8% urea nitrogen, 20% slow-release urea-triazone | 1.0 L/ac



# FertiBoost-DX™ 3-0-3

A true solution containing macronutrients & micronutrients.



## GUARANTEED ANALYSIS:

Nitrogen (N)	3.0%
Potassium (K <sub>2</sub> O)	3.0%
Manganese (Mn)	2.0%
Zinc (Zn)	2.0%



## SUGGESTED FOLIAR RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per season.

\*Pending registration

## Additional Info:

### Benefits:

- Provides highly available nutrition for efficient uptake by the canopy, resulting in a rapid crop response.
- Provides vital zinc and manganese to support crop growth and enhance resilience.
- EBN™ Technology supplies building blocks for new cells and improves nutrient availability and uptake.
- Ideal tank mix partner for post-emergent herbicide application on corn, soybeans, and other row crops.
- Suitable for use with herbicides sensitive to low pH.

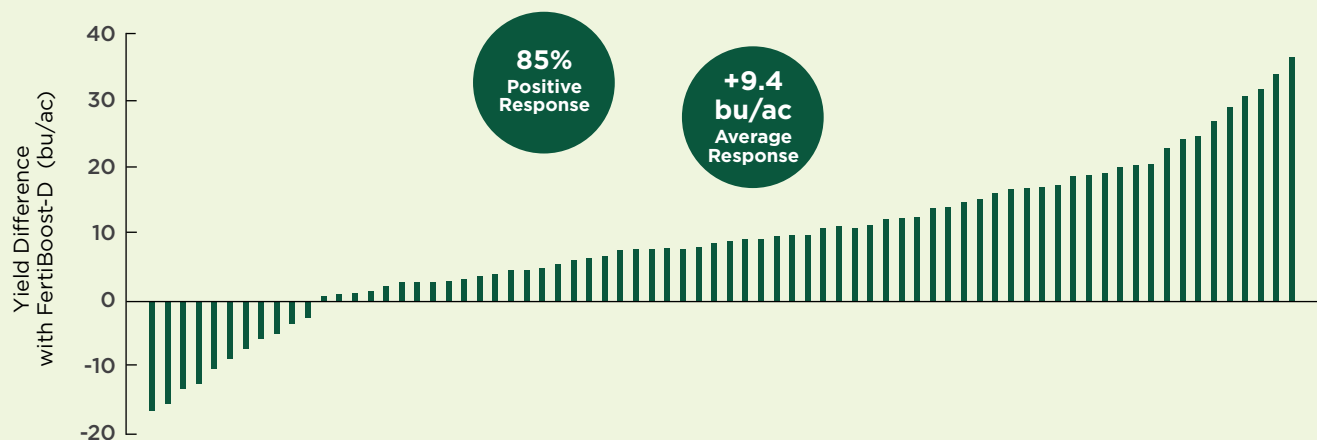
### Data from the field:

**Crop:** Corn

**Year:** 2019-2023

**Location:** 74 Trials in Canada & US (Split field & 3rd Party RCBD)

**Method:** Yields were compared between controls and plots or strips treated with FertiBoost-D (the precursor to FertiBoost-DX).



# Direct-Flo 5-10-5™

A NPK formulation with chelated micronutrients for tank mixes with pH-sensitive products.



## GUARANTEED ANALYSIS:

Nitrogen (N)	5.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	10.0%
Potassium (K <sub>2</sub> O)	5.0%
Manganese (Mn)	0.05%
Boron (B)	0.05%
Zinc (Zn)	0.05%
Copper (Cu)	0.05%
EDTA (chelating agent)	2.21%



## SUGGESTED FOLIAR RATES:

2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- The nutrients in Direct-Flo 5-10-5 help improve quality and boost yields in your crop.
- Contains 100% orthophosphate for immediate phosphorus availability.
- Can be applied at either herbicide or fungicide timing.
- Formulated with a neutral pH for enhanced tank mix compatibilities.

### Data from the field:

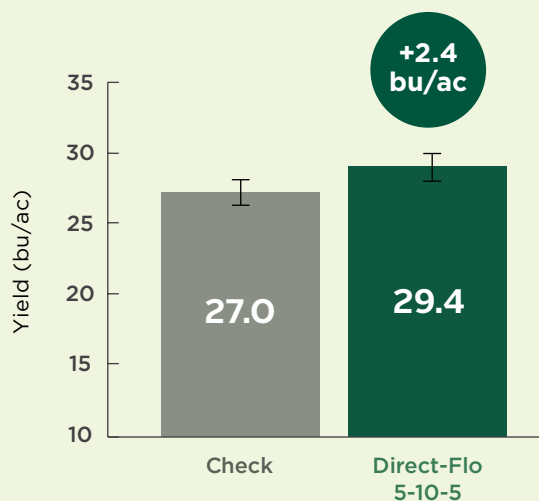
**Crop:** Canola (var. LL252)

**Years:** 2021

**Location:** St. Brieux, SK

**Design:** RCBD, 6 reps

**Method:** Direct-Flo 5-10-5 (2.0 L/ac) was sprayed on plots at the 3-4 leaf stage (herbicide timing) and was compared to untreated check plots.





# MaxiBoost®

A true solution with potassium, micronutrients and seaweed.



## GUARANTEED ANALYSIS:

Magnesium (Mg)	1.05%
Sulphur (S)	1.34%
Boron (B)	0.25%
Copper (Cu)	0.25%
Iron (Fe)	0.5%
Manganese (Mn)	0.25%
Molybdenum (Mo)	0.004%
Zinc (Zn)	0.14%
Seaweed extract ( <i>Ascophyllum nodosum</i> )	26.9%
EDTA (chelating agent) (minimum)	5.93%



## SUGGESTED FOLIAR RATES:

1.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- Suitable for application with liquid starter fertilizer, with transplant water, or with UAN as a sidedress.
- Provides essential nutrients in fully available form for maximum nutrient uptake and utilization.
- Creates a strong, well-developed root system that supports the crop through to yield.

### Data from the field:

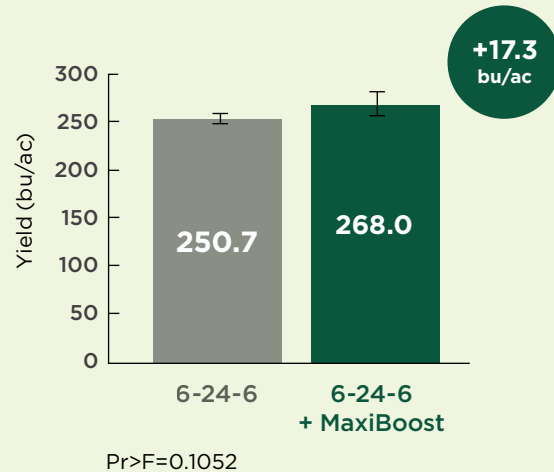
**Crop:** Corn (P9998AM)

**Year:** 2021

**Location:** Bright, ON

**Design:** RCBD

**Method:** Plots were treated with 6-24-6 (5 gal/ac) in-furrow alone, or mixed with MaxiBoost (1.0 L/ac).



# N-Finity™ 28-0-0

A plant safe slow release foliar nitrogen fertilizer.



#### GUARANTEED ANALYSIS:

Total Nitrogen (N) 28.0%  
Slow-release Nitrogen (20.0%)  
Urea Nitrogen (8.0%)



#### SUGGESTED FOLIAR RATES:

1.0-8.0 L/ac  
A maximum of 10 applications per season.



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-8.0 L/ac  
A maximum of 10 applications per season.

## Additional Info:

### Benefits:

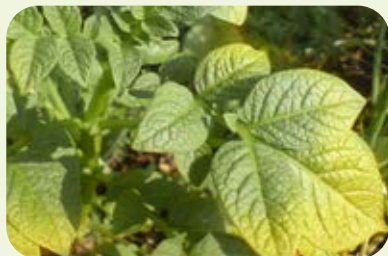
- Uses triazone technology to deliver 20% slow-release nitrogen.
- A true solution with a neutral pH to provide the highest level of tank mix compatibility.
- Low salt index for superior crop safety.

### Triazone Technology:

N-Finity uses triazone technology to provide a stable, slow-release nitrogen fertilizer that is safe for both soil and foliar application. Triazone technology reduces nitrogen leaching and volatility while increasing nitrogen uptake and mobility in the crop.

### Nitrogen Deficiency:

Nitrogen is a mobile nutrient, so deficiency symptoms first appear in the older leaves. Leaves turn light green to yellow and the discoloration progresses throughout the plant as the condition persists. Nitrogen deficient plants mature earlier and have reduced quality and yield.



Potato



Soybean



Corn

Deficiency Photograph/s on this page:

IPNI Crop Nutrient Deficiency Image Collection. Prepared and distributed by the International Plant Nutrition Institute (IPNI)  
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You may not alter, transform, or build upon this work. IPNI, 3500 Parkway Lane, Suite 550, Norcross, GA 30092 USA [www.ipni.net](http://www.ipni.net)

# A TRUE SOLUTION IS THE BEST SOLUTION.



The Enviro Line provides high-quality micronutrient nutrition for organic crops. Nutrients in the enviro line are fully soluble and effectively penetrate the cuticle for rapid nutrient uptake and utilization.

Enviro Line formulations are highly compatible tank mix partners, making them easy to use. Enviro Line-delivered nutrients ensure organic crops reach their maximum yield and quality by penetrating the cuticle for rapid delivery to plant cells.

## Benefits:

- A variety of organically certified formulations to supply the right nutrients at the right time.
- Soluble nutrients effectively penetrate the cuticle.
- Nutrients are recognized and easily metabolized by the plant.
- Formulated to be crop-safe, and tank mix compatible with most crop protection chemicals.

# THE EFFECTIVE AND SAFE WAY TO FOLIAR FEED

To successfully foliar feed, fertilizers must be true solutions. We use the highest-quality, organically certified ingredients in the Enviro Line for superior crop safety.

Enviro Line products deliver safe, easily metabolized nutrients to the crop while maintaining excellent tank mix compatibility.



Water



Zinc Oxide  
in Water  
(Cloudy and  
insoluble)



Enviro Zinc  
in Water  
(A true solution!)

## Products:

### Enviro 14-0-0™

14.0% N, 1.0% Seaweed Extract | Activated by EBN  
0.5-2.0 lbs/ac

\*Pending registration

### Enviro Boron™

16.5% B | 0.2-2.0 lbs/ac

### Enviro Calcium™

8.1% Ca | 1.0-2.0 L/ac

### Enviro Ca-4™

4.0% Ca | 1.0-2.0 L/ac

### Enviro Copper™

4.0% Cu | 0.33 L/ac

### Enviro Iron™

4.0% Fe | 0.5-1.5 L/ac

### Enviro K-6™

0-0-6, 11% Seaweed Extract  
Activated by EBN | 1.0-2.0 L/ac

### Enviro Lex™

8.0% K<sub>2</sub>O, 2.0% Ca | 0.5-1.0 L/ac

### Enviro Magnesium™

4.0% Mg | 0.5-2.0 L/ac

### Enviro Manganese™

5.5% Mn | 0.5-1.5 L/ac

### Enviro PentaMix™

0.75% B, 0.5% Cu, 1.5% Mn, 0.1% Mo, 2.0% Zn,  
0.1% Fulvic acid | Activated by EBN | 0.5-1.0 L/ac

### Enviro Potassium™

14.0% K<sub>2</sub>O | 1.0-2.0 L/ac

### Enviro Trio™

1.0% Fe, 2.0% Mn, 4.0% Zn, 0.10% *Yucca schidigera*  
1.0-4.0 L/ac

### Enviro Zinc™

8.5% Zn | 0.5-1.0 L/ac

## Enviro 14-0-0™

\*Pending registration

A soluble nitrogen fertilizer with seaweed for use in organic production.



### GUARANTEED ANALYSIS:

Nitrogen (N) 14.0%  
Seaweed extract  
(*Ascophyllum nodosum*) 1.0%



### SUGGESTED FOLIAR RATES:

0.9-4.5 lbs/ac  
A maximum of 3 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

0.9-8.9 lbs/ac  
A maximum of 3 applications per year.

## Enviro Boron™

A soluble boron fertilizer for use in organic production.



### GUARANTEED ANALYSIS:

Boron (B) 16.5%



### SUGGESTED FOLIAR RATES:

0.45-3.5 lbs/ac  
A maximum of 3 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

6.5 lbs/ac  
A maximum of 3 applications per year.

## Enviro Ca-4™

A chloride-free calcium true solution for use in organic production.



### GUARANTEED ANALYSIS:

Calcium (Ca) 4.0%



### SUGGESTED FOLIAR RATES:

1.0-4.0 L/ac  
A maximum of 26 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-4.0 L/ac  
A maximum of 26 applications per year.

## Enviro Calcium™

A calcium true solution for use in organic production.



### GUARANTEED ANALYSIS:

Calcium (Ca) 8.1%



### SUGGESTED FOLIAR RATES:

1.0-4.0 L/ac  
A maximum of 8 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 8 applications per year.

## Enviro Copper™

A copper true solution for use in organic production.



### GUARANTEED ANALYSIS:

Copper (Cu) 4.0%



### SUGGESTED FOLIAR RATES:

0.33 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

## Enviro Iron™

An iron true solution for use in organic production.



### GUARANTEED ANALYSIS:

Iron (Fe) 4.0%



### SUGGESTED FOLIAR RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.



## Enviro K-6<sup>TM</sup> A potassium true solution for use in organic production.



### GUARANTEED ANALYSIS:

Potassium (K <sub>2</sub> O)	6.0%
Seaweed extract ( <i>Ascophyllum nodosum</i> )	11.0%



### SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

## Enviro Lex<sup>TM</sup> A potassium and calcium true solution to promote crop health and resilience in tough organic growing conditions.



### GUARANTEED ANALYSIS:

Potassium (K <sub>2</sub> O)	8.0%
Calcium (Ca)	2.0%



### SUGGESTED FOLIAR RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

## Enviro Magnesium<sup>TM</sup> A magnesium true solution for use in organic production.



### GUARANTEED ANALYSIS:

Magnesium (Mg)	4.0%
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### SUGGESTED FOLIAR RATES:

0.5-2.0 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-3.0 L/ac  
A maximum of 4 applications per year.

## Enviro Manganese<sup>TM</sup> A manganese true solution for use in organic production.



### GUARANTEED ANALYSIS:

Manganese (Mn)	5.5%
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### SUGGESTED FOLIAR RATES:

0.5-1.5 L/ac  
A maximum of 4 applications per year.



### SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

## Enviro PentaMix<sup>TM</sup> A preformulated multi-micronutrient in true solution for use in organic production.



### GUARANTEED ANALYSIS:

Boron (B)	0.75%
Copper (Cu)	0.5%
Manganese (Mn)	1.5%
Molybdenum (Mo)	0.1%
Zinc (Zn)	2.0%
Fulvic acid	0.1%



### SUGGESTED FOLIAR RATES:

0.5-1.0 L/ac



### SUGGESTED SOIL/FERTIGATION RATES:

If being added to water alone, it should be diluted to 1:20 (fertilizer to water).

All Enviro Line products are approved for use in organic production.



# Enviro Potassium™

A potassium true solution for use in organic production.



## GUARANTEED ANALYSIS:

Potassium (K<sub>2</sub>O) 14.0%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

# Enviro Trio™

An iron, manganese, and zinc true solution for use in organic production.



## GUARANTEED ANALYSIS:

Iron (Fe) 1.0%  
Manganese (Mn) 2.0%  
Zinc (Zn) 4.0%  
*Yucca schidigera* 0.10%



## SUGGESTED FOLIAR RATES:

1.7-4.5 L/ac  
A maximum of 4 applications per year.



## SUGGESTED SOIL/FERTIGATION RATES:

1.2-2.3 L/ac  
A maximum of 4 applications per year.

# Enviro Zinc™

A zinc true solution for use in organic production.



## GUARANTEED ANALYSIS:

Zinc (Zn) 8.5%



## SUGGESTED FOLIAR RATES:

0.5-1.0 L/ac  
A maximum of 4 applications per year.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per year.

All Enviro Line products are approved for use in organic production.









# TERRA™ LINE

LIQUID SOIL-APPLIED  
NUTRIENT ENHANCER

## ENHANCED PENETRATION WITH LIQUID, SOIL-APPLIED NUTRIENTS



Our Terra Line products are highly effective liquid, soil-applied fertilizers packed with nutrition. These exceptional products are highly effective as additives to most liquid starter fertilizers, side dresses, or transplant water solutions.



Our exclusive Plant Growth Enhancer (PGE™) Technology, featured in TerraDrive™, contains a unique combination of plant growth stimulants that work together to stimulate root growth for improved nutrient uptake and overall crop development.



# IMPROVE EARLY GROWTH WITH ZINC!

## **Terra Core™**

It's essential to build a strong foundation with available nutrition in the soil. Terra Core provides crops with readily available phosphorus, nitrogen, and zinc, right when they need them most. Ideal pop-up starter option for both row and vegetable crops; it contains EBN Technology to improve nutrient uptake from the soil leading to improved crop growth and development.

7-21-0, 0.2% Zn, 5.0% Humic substances | Activated by EBN | Foliar: 1.0-2.0 L/ac | Soil applications: 4.0-40.0 L/ac  
Fertigation: 3.0-8.0 L/ac

# AVAILABLE K

## **Terra-K™**

Terra-K's unique liquid formulation allows for accurate placement of potassium during planting, minimizing waste, and maximizing potassium availability for the crop. Terra-K represents an improvement over granular potash sources; it contains EBN Technology to improve nutrient uptake from the soil to promote more vigorous growth.

0-0-28, 0.1% Fulvic acid | Activated by EBN | In-furrow/Fertigation: 1.0-2.0 L/ac

# INCREASE BIOMASS!

## **TerraDrive™**

The Plant Growth Enhancer technology in TerraDrive™ helped deliver a 75% increase in root biomass and 26% increase in shoot biomass in our tomato trial. 1.0 L/ac TerraDrive was applied at transplant, and plants were harvested 3 weeks later.

0.25% B, 1.3% Cu, 2.9% Mn, 0.25% Mo, 1.5% Zn, 0.057% IBA, 1.0% Seaweed extract | Activated by PGE  
In-furrow/Fertigation: 1.0-2.0 L/ac | Foliar: 1.0 L/ac

# IRONCLAD PERFORMANCE

## **Terra Ferra™**

Spring can be a challenging time for roots to obtain enough iron to meet crop demands, often resulting in iron deficiency, chlorosis, and reduced yields. Soils with high pH, excess free lime, and high salinity are particularly challenging. Terra Ferra is formulated to make iron available to your crop in challenging soils, ensuring a strong start to the season.

3.5% S, 4.0% Fe | In-furrow/Fertigation: 1.0-2.0 L/ac

# Terra Core™ 7-21-0

A concentrated fertilizer with nitrogen, phosphorus, and zinc.



## GUARANTEED ANALYSIS:

Nitrogen (N)	7.0%
Phosphorus (P <sub>2</sub> O <sub>5</sub> )	21.0%
Zinc (Zn)	0.2%
Humic substances	5.0%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac with a maximum concentration of 1:5 Terra Core 7-21-0 to water.  
A maximum of 10 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

4.0-40.0 L/ac  
A maximum of 10 applications per season.  
Field and row crops, vegetables, and fruit crops: Apply 4.0-38.0 L/ac in a surface or subsurface band.  
Orchards and vineyards: Inject 4.0-38.0 L/ac 3 to 5 inches deep at the drip line, or surface band and water into the soil.  
A maximum of 1 application per season.

## Additional Info:

### Benefits:

- **Ideal pop-up starter option for row and vegetable crops** featuring chelated zinc for maximum nutritional benefit.
- **EBN™ Technology supplies humic substances** to improve nutrient uptake, growth, and development.
- **Exceptional tank mix compatibility** compared to competitors, even in hard water.
- **Low salt index** for superior crop safety.
- **Contains a blend of orthophosphate and polyphosphate** to ensure immediate availability of phosphorus for better seedling establishment.

### Data from the field:

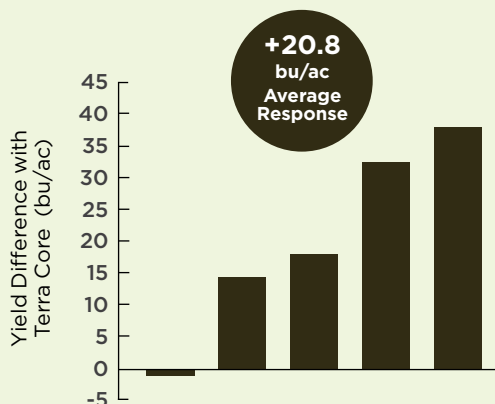
**Crop:** Corn

**Year:** 2021-2022

**Location:** 5 Sites in Canada & USA

**Design:** RCBD

**Method:** At each site the grower standard practice (typical starter fertilizers) was compared to Terra Core applied at 5 gal/ac.



# Terra Ferra<sup>TM</sup>

An iron fertilizer designed for applications in high pH or iron deficient soils.



#### GUARANTEED ANALYSIS:

Sulphur (S)	3.4%
Iron (Fe)	4.0%



#### SUGGESTED SOIL/FERTIGATION RATES:

1.0-5.0 L/ac

## Additional Info:

Iron uptake is reduced in soils with high pH, excess free lime, and high salinity, leading to iron deficiency chlorosis (IDC).

### Benefits:

- Terra Ferra is the perfect solution at planting for high pH soils to avoid iron uptake issues.
- Terra Ferra delivers available iron to your crop to ensure it stays green and can deliver big yields.
- Compatible with most liquid starter fertilizers.
- Manufactured from quality ingredients for the highest crop safety.

### Iron Deficiency:

Iron deficiency typically shows up first in terminal leaves. Signs include interveinal chlorosis of young foliage, where veins remain green, twig dieback, and stunted growth.



Soybean

Deficiency Photograph/s on this page:

IPNI Crop Nutrient Deficiency Image Collection. Prepared and distributed by the International Plant Nutrition Institute (IPNI)  
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You may not alter, transform, or build upon this work. IPNI, 3500 Parkway Lane, Suite 550, Norcross, GA 30092 USA [www.ipni.net](http://www.ipni.net)

# TerraDrive™

A liquid micronutrient fertilizer containing seaweed and the plant stimulant IBA used to promote root growth and development.



## GUARANTEED ANALYSIS:

Boron (B)	0.25%
Copper (Cu)	1.30%
Manganese (Mn)	2.90%
Molybdenum (Mo)	0.25%
Zinc (Zn)	1.50%
IBA (Indole-3-butyric acid)	0.057%
Seaweed Extract ( <i>Ascophyllum nodosum</i> )	1.0%



## SUGGESTED FOLIAR RATES:

1.0 L/ac  
A maximum of 3 applications per season.



## SUGGESTED SOIL/FERTIGATION/ IN-FURROW RATES:

1.0-1.5 L/ac  
A maximum of 3 applications per season.  
1.0-2.0 L/ac  
A maximum of 3 applications per season.

## Additional Info:

TerraDrive is an excellent addition to liquid starter fertilizers applied in-furrow at planting. It delivers five essential micronutrients that support greater nutrient use efficiency of soil-applied macronutrients. Additionally, it supplies a source of auxin to drive lateral root development, helping to establish a strong root system—the foundation of a well established, high-yielding crop.

## Data from the field:

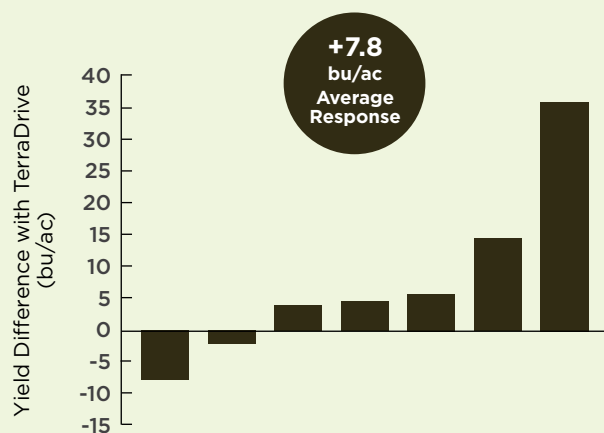
**Crop:** Corn

**Year:** 2019-2021

**Location:** 7 Sites across Canada

**Design:** Split field & RCBD

**Method:** The grower standard practice of liquid starter alone was compared to liquid starter mixed with TerraDrive (1.0 L/ac) applied as a pop-up starter.





# Terra-K™ 0-0-28

A liquid potassium fertilizer for soil application with fulvic acid.



## GUARANTEED ANALYSIS:

Potassium (K <sub>2</sub> O)	28.0%
Fulvic acid	0.1%



## SUGGESTED FOLIAR RATES:

1.0-2.0 L/ac  
A maximum of 4 applications per season.



## SUGGESTED SOIL/FERTIGATION RATES:

1.0-6.0 L/ac  
A maximum of 4 applications per season.

## Additional Info:

### Benefits:

- **Formulated with acetate** to increase soil microbial activity
- **EBN™ package** to both enhance nutrient availability and stimulate root growth
- **Compatible** with most liquid starter fertilizers
- **Supplies potassium in a low salt-index formulation** to fortify growth and improve yield

### Potassium Deficiency:

Potassium is an important macronutrient for crop development. Symptoms of potassium deficiency can include chlorosis (leaf yellowing), which typically starts at the margins and often affects older leaves. Over time this can progress to necrosis, giving a burnt appearance. Deficient crops may also display stunted growth and are more prone to wilting compared to crops with an adequate supply of potassium. Cereals deficient in potassium may also have weak stems, leading to increased lodging.



Canola



Barley



Soybean



Wheat

Deficiency Photograph/s on this page:

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You may not alter, transform, or build upon this work. IPNI, 3500 Parkway Lane, Suite 550, Norcross, GA 30092 USA [www.ipni.net](http://www.ipni.net)

# VIGORMAX<sup>®</sup> LINE

LIQUID FOLIAR FERTILIZER

## SEED TREATMENT FOR STRONGER ROOTS.



The high-quality nutrients in our seed treatment line ensure a strong start for early root development and even stand establishment.

VigorMax<sup>®</sup> and VigorMax<sup>®</sup> Plus<sup>™</sup> provide available micronutrients to the seed immediately after imbibition, giving developing roots the boost they need for the strongest start possible.

Both products are formulated to deliver safe, easily metabolized nutrition to the crop. Overall, the result is strong seedling growth, more even establishment, and, ultimately, higher yield potential.



# PROTECT YOUR INVESTMENT WITH EFFICIENT NUTRITION

## Coats every seed

for efficient micronutrient distribution and uptake, even in tough conditions.

## Formulated to ensure efficient uptake of nutrients

for maximum nutritional benefits.

**Promotes strong root development,**  
even in cold soils.

**Supports early-season development** to maximize yield potential.

## Products:

### VigorMax®

10.2% Zn, 0.5% B | 325-500 mL/100 kg seed

### VigorMax® Plus™

5.1% Zn, 0.5% B, 2.7% Mn, 0.25% Mo | 325-500 mL/100 kg seed

# VigorMax<sup>®</sup>

A true solution zinc seed primer to promote crop emergence and vigor.



#### GUARANTEED ANALYSIS:

Zinc (Zn)	10.2%
Boron (B)	0.5%



#### SUGGESTED SEED APPLICATION RATES:

325-500 mL/100 Kg seed

## Additional Info:

### Benefits:

- **Coats every seed with micronutrients** for outstanding distribution across the field, and easy access, even in cool soils.
- **Provides soluble nutrition to the seed** to support root development, seedling establishment, and early growth.
- **Maximizes yield potential at a minimal cost** to deliver an excellent return on investment.
- **Formulated with high-quality ingredients** to deliver crop-safe nutrition.

Zinc is an enzyme cofactor for many plant enzymes. Without Zn, many enzymes function poorly. It is very important to address Zn issues early on in crop development.

### Data from the field:

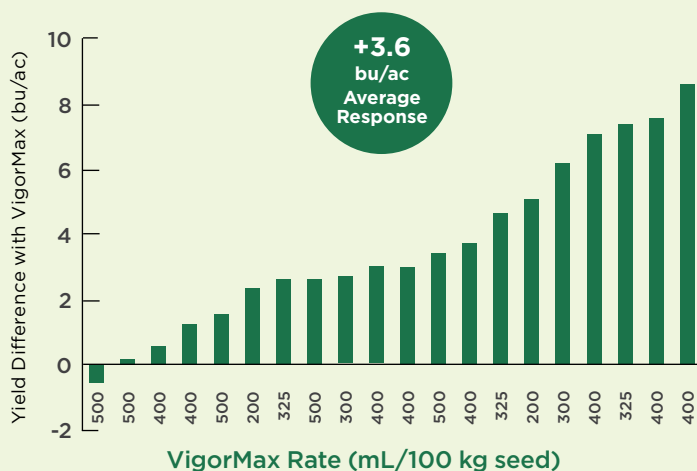
**Crop:** Wheat

**Year:** 2008-2023

**Location:** 20 sites across Canada

**Design:** Split field & RCBD

**Method:** Untreated seed was compared with seed treated with 200-500 mL VigorMax per 100 kg of seed.



# VigorMax<sup>®</sup> Plus<sup>™</sup>

A true solution multinutrient seed primer to activate plant enzymes and bolster crop emergence and vigor.



#### GUARANTEED ANALYSIS:

Zinc (Zn)	5.1%
Boron (B)	0.5%
Manganese (Mn)	2.7%
Molybdenum (Mo)	0.25%



#### SUGGESTED SEED APPLICATION RATES:

325-500 mL/100 Kg seed

## Additional Info:

### Benefits:

- **Coats every seed with micronutrients** for outstanding distribution across the field, and easy access, even in cool soils.
- **Provides soluble nutrition to the seed** to support root development, seedling establishment, and early growth.
- **Maximizes yield potential at a minimal cost** to deliver an excellent return on investment.
- **Formulated with high-quality ingredients** to deliver crop-safe nutrition.

### Data from the field:

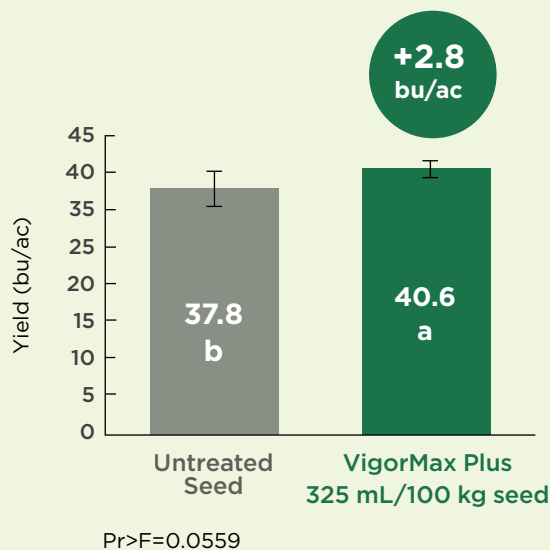
**Crop:** Lentils (Impulse)

**Year:** 2022

**Location:** Vulcan, AB

**Design:** RCBD, 6 reps

**Method:** Untreated seed was compared with seed treated with VigorMax Plus (325 mL/100 kg). All plots also received the label rate of granular Pea, Lentil, & Faba Bean BOS inoculant at planting.





# FERTICARE® LINE

LIQUID MICRONUTRIENT COATINGS  
FOR GRANULAR FERTILIZER

## COAT EVERY GRANULE FOR EVEN DISTRIBUTION OF ESSENTIAL NUTRITION.

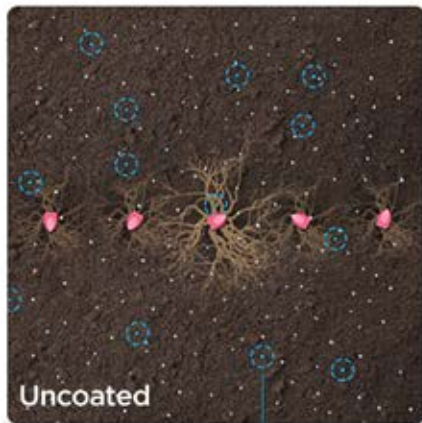


Maximize nutrient use efficiency with our liquid fertilizer coatings for granular fertilizer. FertiCare is packed with soluble and available micronutrients for rapid uptake and maximum benefit.

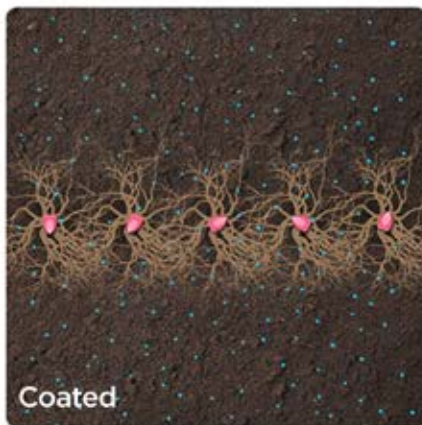
### Benefits:

- FertiCare Products are formulated with soluble and available nutrients, ensuring efficient and immediate uptake and metabolism for maximum nutritional benefits.
- Our micronutrient coatings are designed to enhance the performance of existing NPK, and soil-applied fertilizers.
- Improve ROI and achieve higher yields with lower nutrient application rates compared to other coatings.
- Convenient and easy-to-use water-based formulations eliminate dusting and micronutrient loss during application.

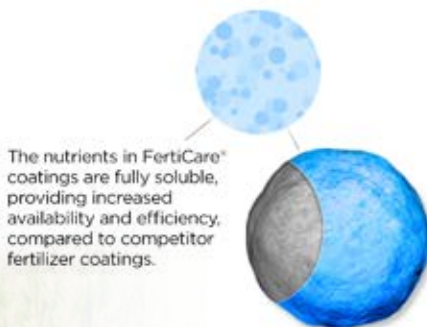
**To coat or  
not to coat?**



**Traditional granular fertilizer blends** result in uneven micronutrient distribution and poor crop growth.



**FertiCare Liquid Micronutrient Coatings** coat every granule for uniform nutrient distribution to maximize crop growth.



The nutrients in FertiCare® coatings are fully soluble, providing increased availability and efficiency, compared to competitor fertilizer coatings.

## ENHANCE THE PERFORMANCE OF YOUR SOIL-APPLIED NPK FERTILIZER BY COATING EVERY GRANULE WITH ESSENTIAL MICRONUTRIENTS, ENSURING EVEN DISTRIBUTION ACROSS YOUR FIELD, IMMEDIATE UPTAKE, STRONG EARLY ROOT GROWTH, AND HIGHER YIELDS.

Soil tests that call for many pounds of micronutrients are often not properly calibrated and are seldom correlated to yield. When they are linked to crop responses, the recommendations are coming from fields where inefficient granular micronutrient sources were used, which inflates the soil test recommendations. These inefficiencies come from both the inconsistent placement of granular micronutrients across a field and from fertilizer sources that have limited availability or low solubility, such as oxides and oxysulfates.

### Products:

#### FertiCare® AllCoat

6.0% Zn, 2.0% Mn, 0.5% B, 0.05% Mo, 0.1% IBA, 0.02% kinetin  
Activated by PGE | 1.0 - 4.0 L/tonne of granular fertilizer\*

#### FertiCare® BoronCoat

8.1% B | 1.0-4.0 L/tonne of granular fertilizer\*

#### FertiCare® CuCoat

4.2% Cu | 1.0-4.0 L/tonne of granular fertilizer\*

#### FertiCare® FeCoat

4.0% Fe | 1.0-4.0 L/tonne of granular fertilizer\*

#### FertiCare® ManCoat

5.5% Mn, 0.45% B, 0.5% Mo | 1.0-4.0 L/tonne of granular fertilizer\*

#### FertiCare® ZincCoat

10.0% Zn, 0.5% B | 1.0-4.0 L/tonne of granular fertilizer\*

\*1.0-2.0 L/MT on urea,

\*1.0-4.0 L/MT on NPK Blends. Consult NutriAg Representative

Consult your NutriAg Representative for more information on coating granular blends with FertiCare.

# FertiCare® AllCoat

A liquid micronutrient coating for granular fertilizer with PGE Technology to stimulate root development.



## GUARANTEED ANALYSIS:

Zinc (Zn)	6.0%
Manganese (Mn)	2.0%
Boron (B)	0.5%
Molybdenum (Mo)	0.05%
IBA (Indole-3-butyric acid)	0.1%
Cytokinin (as kinetin)	0.02%



## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.

# FertiCare® BoronCoat

A liquid boron coating for granular fertilizer.



## GUARANTEED ANALYSIS:

Boron (B)	8.1%
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## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.

# FertiCare® CuCoat

A liquid copper coating for granular fertilizer.



## GUARANTEED ANALYSIS:

Copper (Cu)	4.2%
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## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.



# FertiCare® FeCoat

A liquid iron coating for granular fertilizer.



## GUARANTEED ANALYSIS:

Iron (Fe) 4.0%



## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.

# FertiCare® ManCoat

A liquid manganese, molybdenum, and boron coating for granular fertilizer.

## GUARANTEED ANALYSIS:

Manganese (Mn) 5.5%  
Boron (B) 0.45%  
Molybdenum (Mo) 0.5%



## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.

# FertiCare® ZincCoat

A liquid manganese and boron coating for granular fertilizer.



## GUARANTEED ANALYSIS:

Zinc (Zn) 10.0%  
Boron (B) 0.5%



## SUGGESTED RATES:

1.0-4.0 L per metric ton of granular fertilizer  
A maximum of 3 applications per year.

# WATER CONDITIONER LINE

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## REDUCE THE EFFECTS OF WATER HARDNESS.



Water quality is one of the most important aspects of foliar sprays, and if overlooked, it can interfere with the effectiveness of the products in your tank. That's why it's essential to condition your water before you spray. But, not all water conditioners are equal in their efficiency, so it's important to identify which product will work best.

Water hardness is the measurement of the total amount of  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  ions in water. The higher the concentration of these ions, the harder the water. EC measurements show the electrical conductivity of a solution. The higher the concentration of hard water ions, the higher the EC. Only Disclose pH® shows a reduction of EC, indicating the sequestering effects of the product and the ability to reduce the effects of water hardness.

Our Water Conditioner Line is designed to condition your water to ensure the effectiveness of your spray efforts.

### Benefits:

- **Decreases effects of water hardness:** Ties up excess salts found in hard water that can interfere with the performance of agricultural sprays.
- **Acidifies alkaline water:** Reduces spray-water pH to the ideal level (pH 5), which helps to prevent the decomposition of many agricultural sprays.
- **Built-in pH indicator:** Contains a unique, patented, visual colour indicator. It signals once the optimal pH has been reached by instantly turning the spray water yellow at pH 5.
- **Buffering:** Acts as a buffer to prevent over-acidification if too much is added to the spray water.
- **Utility modifier:** Widens the conditions under which a control product is useful and maintains the integrity of the spray solution.



## Patented built-in pH indicator

Visually signals once the optimal pH has been reached by instantly turning the spray water yellow at pH 5.



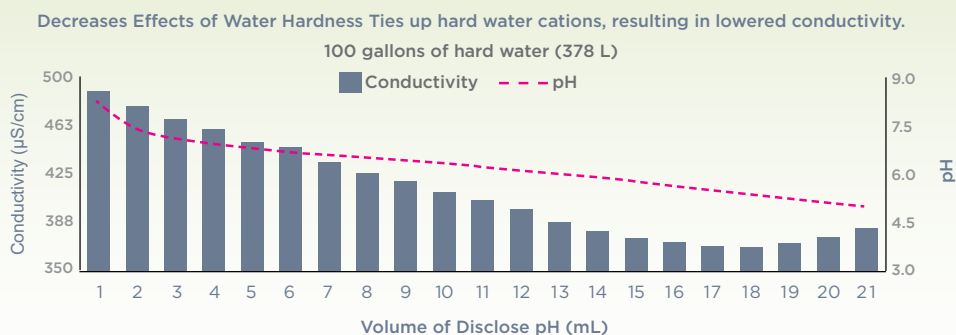
## Competitive Comparison:

	Disclose pH®	Acidifier Competitor	AMS/LAS®	AMS-Based Competitor
pH adjustment	✓	✓	✗	✗
Volume to Adjust Hard Water** to pH 5	85 mL	95 mL	N/A	N/A
Conductivity/effects hardness	✓	✗	✗	✗
Buffering	✓*	✗	✓	✗
Colour Indicator	✓	✗	✗	✗

\*Buffers spray solution at pH 3 if excessive amount of product is added. \*\*100 L at 1560 ppm CaCO<sub>3</sub>

## The Importance of Water hardness:

- Acidifies alkaline water: Disclose pH® reduces spray water pH to the ideal level (pH 5), which helps to prevent the decomposition of many agricultural sprays (Alkaline Hydrolysis).
- Water hardness is the measurement of the total amount of Ca<sup>2+</sup> and Mg<sup>2+</sup> ions in water.
- The higher the concentration of these ions, the harder the water.
- EC measurements show the electrical conductivity of solutions.
- The higher the concentration of hard water ions, the higher the EC.
- Only Disclose pH shows a reduction of EC, indicating the sequestering effects of the product and its ability to reduce the effects of water hardness.





**NUTRIANALYTICS®**

# UNLOCK AND INTERPRET YOUR DATA FOR BETTER QUALITY, YIELD, AND MORE PROFITABILITY.

NutriAnalytics specializes in big data for agronomy with over a decade of practical experience. We work alongside your team and focus on maximizing the impact of your agronomic decisions.



## **NUTRIANALYTICS IS POWERED BY ARTIFICIAL INTELLIGENCE ENGINEERED BY NUTRIAG AGRONOMISTS AND SCIENTISTS**

Our data scientists are also agronomists and farmers. This unique combination of skills ensures tools are developed by people who understand agriculture. We focus on building actionable insights for day to day operations in the field while keeping an eye on the big picture of the needs of your organization.

For more information, visit [nutrianalytics.com](https://nutrianalytics.com)

## LET US INTERPRET YOUR GROWING DATA.

Whether you struggle with improving precocity, interpreting nutrient concentrations, establishing fertigation programs, determining the optimum genetics, or whatever questions you have: We can provide insights.

Do you have data collected with no way of pulling it all together? Trying to understand how these complex systems interact in your agricultural ecosystem? We work with your team to build tailor-made tools that help you see the interactions most importantly, we identify action points to improve the outcomes important to you.

## WE BUILD SYSTEMS TO HELP PREDICT RELATIONSHIPS BETWEEN FIELD MANAGEMENT DECISIONS AND YOUR FINAL RETURNS.

We break down your yield by looking at the factors affecting quality metrics and total yields. We work with your team to establish the crop goals for your organization.

Optimization isn't the same for everyone. What are the costs versus the estimated returns for an input decision as it relates to yield? How does water quality affect your nutrient requirements? There are so many considerations unique to your organization. We work with your team to optimize your input decisions.

## ONCE YOUR DATA IS UNLOCKED, YOU CAN EASILY VISUALIZE IT WITH YOUR PERSONAL DASHBOARD.

Access your crop profile anywhere. You can easily review soil tests, tissue tests, and any datasets important to your group. You can also display your unique custom models for everyone in your group to use.



### Deficiency Values:

NutriAnalytics vs historical critical values

### Comparison:

Side-by-side nutrient levels








### Major Deficiencies:

Precise nutrient reports

# ALFALFA

## NUTRIAG CROP PROGRAM

FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89

ESTABLISHMENT	EARLY VEGETATIVE	LATE VEGETATIVE	EARLY FLOWER	LATE FLOWER	CUT	REGROWTH
SOIL RECOMMENDATIONS						
FOLIAR RECOMMENDATIONS						
<div> <div>  </div> <div>  </div> <div>  </div> <div>  </div> <div>  </div> <div>  </div> <div>  </div> </div>						
<div> <div> <b>Terra Core™</b> 4.0-40.0 L/acre                 </div> <div> <b>ManZinPhos-DX™</b> 1.0-2.0 L/acre Or <b>FertiBoost 7-14-7™</b> 1.0-2.0 L/acre                 </div> </div>						
<div> <div> <b>Terra Core™</b> 4.0-40.0 L/acre                 </div> <div> <b>ManZinPhos-DX™</b> 1.0-2.0 L/acre Or <b>FertiBoost 7-14-7™</b> 1.0-2.0 L/acre                 </div> </div>						



Fall Application Prior to Frost: Apply a potassium-containing product like K-Max Extra (0.5-1.0 L/ac) or Crop Finish (0.75-1.0 L/acre) to promote winter hardiness."



# CORN

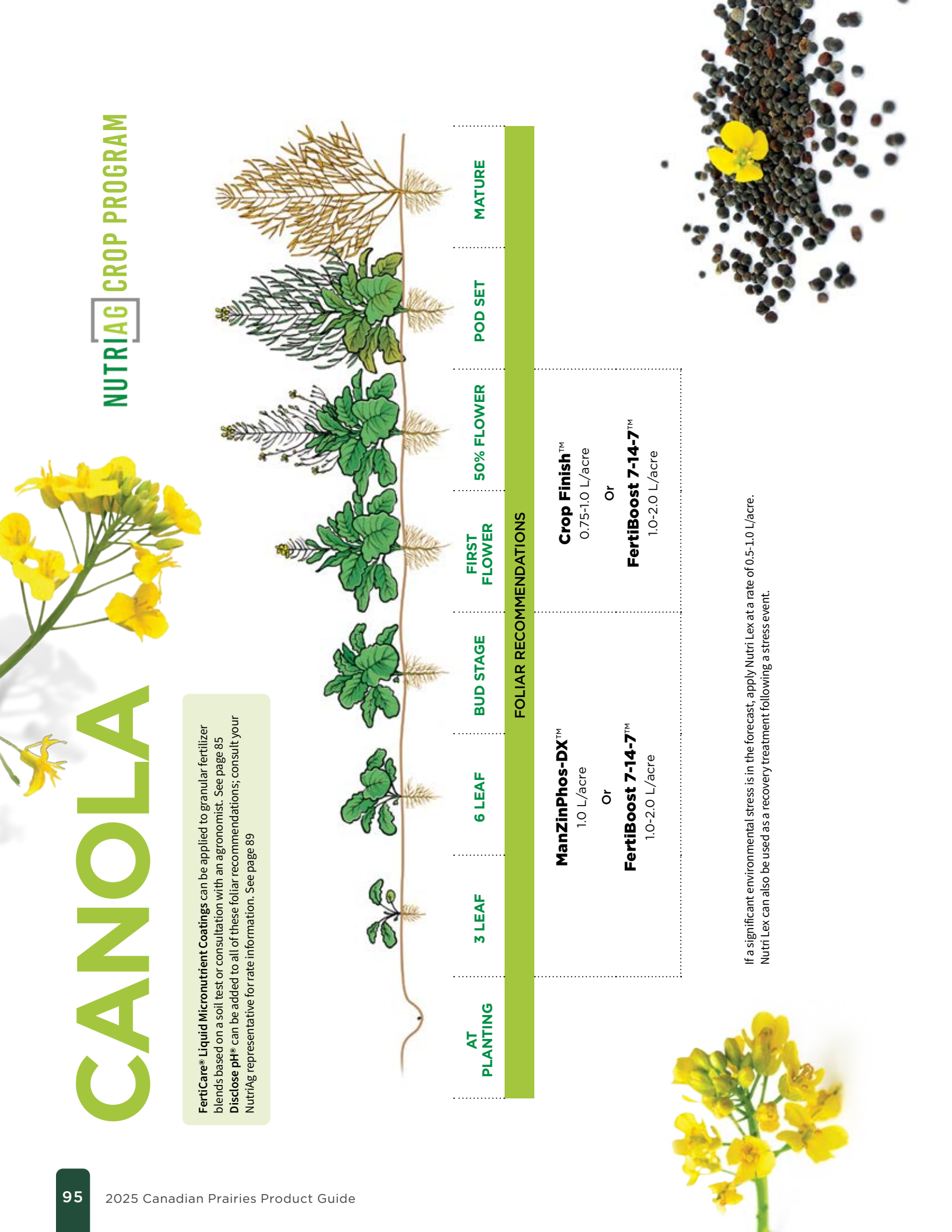
## NUTRIAG CROP PROGRAM



FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
**Disclose pH®** can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89  
**These spray tank mixes are fully compatible** with no other components included in the mix, forming a true solution in 5 gallons of water per acre.

AT PLANTING	HERBICIDE	V6	VT	R1
SOIL RECOMMENDATION				
<b>Terra Core™</b> 4.0-40.0 L/acre				
FOLIAR RECOMMENDATIONS				
<b>ManZinPhos-DX™</b> 1.0 L/acre (with glyphosate)	<b>ManZinPhos-DX™</b> 1.0 L/acre (with glyphosate)	<b>ManZinPhos-DX™</b> 1.0 L/acre (with glyphosate)	<b>K-Max Extra™</b> 1.0 L/acre	If a significant environmental stress is in the forecast, apply Nutri Lex at a rate of 0.5-1.0 L/acre. Nutri Lex can also be used as a recovery treatment following a stress event.
<b>FertiBoost-DX™</b> 1.0 L/acre (with herbicides sensitive to low pH)	<b>FertiBoost-DX™</b> 1.0 L/acre (with herbicides sensitive to low pH)	<b>FertiBoost-DX™</b> 1.0 L/acre (with herbicides sensitive to low pH)	<b>N-Finity™</b> 1.0 L/acre	





# CANOLA

NUTRIAG CROP PROGRAM

FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89

AT PLANTING	3 LEAF	6 LEAF	BUD STAGE	FIRST FLOWER	50% FLOWER	POD SET	MATURE
FOLIAR RECOMMENDATIONS							
<b>ManZinPhos-DX™</b> 1.0 L/acre Or <b>FertiBoost 7-14-7™</b> 1.0-2.0 L/acre			<b>Crop Finish™</b> 0.75-1.0 L/acre Or <b>FertiBoost 7-14-7™</b> 1.0-2.0 L/acre				

If a significant environmental stress is in the forecast, apply Nutri Lex at a rate of 0.5-1.0 L/acre. Nutri Lex can also be used as a recovery treatment following a stress event.



# CEREALS

NUTRIAG CROP PROGRAM

FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89



## FOLIAR RECOMMENDATIONS

**Crop Finish™**  
0.75-1.0 L/acre

**ManZinPhos  
-DX™**  
1.0 L/acre  
Or  
**FertiBoost  
7-14-7™**  
2.0 L/acre  
Or  
**CuMax™**  
0.25-0.5 L/acre  
Or  
**\*ZincMax®**  
0.5 L/acre

**VigorMax®  
Plus™**  
325-500 mL/  
100kg seed  
Or  
**VigorMax®**  
325-500 mL/  
100kg seed

If a significant environmental stress is in the forecast, apply Nutri Lex at a rate of 0.5-1.0 L/acre. Nutri Lex can also be used as a recovery treatment following a stress event.

\*If deficient as per tissue test



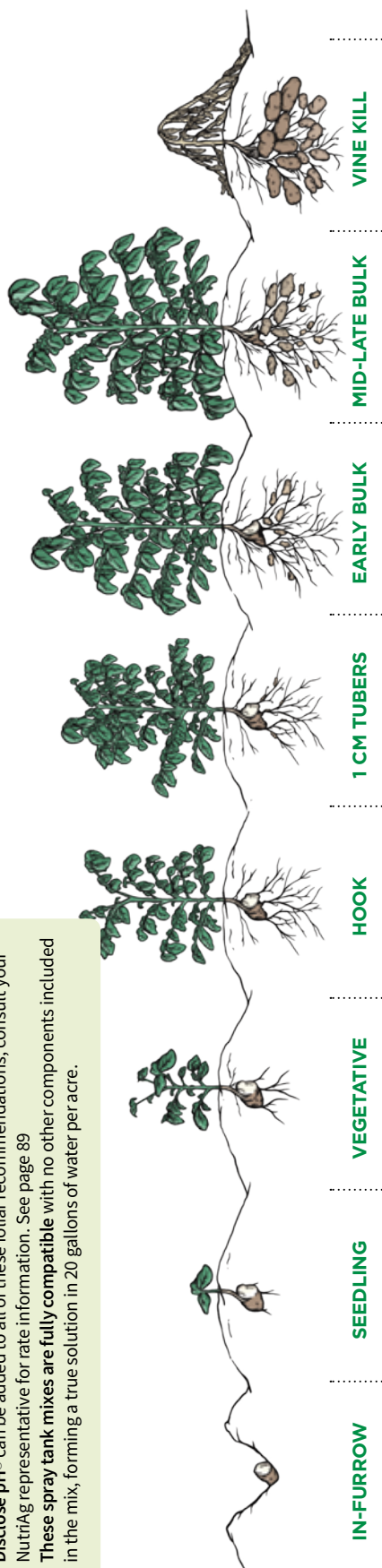
# POTATO

## NUTRIAG CROP PROGRAM

FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85

Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89

These spray tank mixes are fully compatible with no other components included in the mix, forming a true solution in 20 gallons of water per acre.



### SOIL RECOMMENDATIONS

**CalciMax®**  
3.0 L/acre

**ZincMax®**  
1.0 L/acre

### FOLIAR RECOMMENDATIONS

<b>*SiliCalMax™</b> 1.0 L/acre	<b>*SiliCalMax™</b> 1.0 L/acre	<b>*SiliCalMax™</b> 0.5 L/acre	<b>TruPhos® Magnesium™</b> 2.0 L/acre
<b>ZincMax®</b> 0.5 L/acre	<b>Nutri Lex™</b> 0.5 L/acre	<b>BoronMax®</b> 0.3 L/acre	<b>N-Finity™</b> 1.0 L/acre
<b>ManZinPhos- DX™</b> 1.0 L/acre	<b>ManZinPhos- DX™</b> 1.5 L/acre	<b>TruPhos® Magnesium™</b> 1.5 L/acre	<b>K-Max Extra™</b> 1.0 L/acre



\*Add products to the tank in the order shown above



# PULSE

NUTRIAG CROP PROGRAM

FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89

If a significant environmental stress is in the forecast, apply Nutri Lex at a rate of 0.5-1.0 L/acre. Nutri Lex can also be used as a recovery treatment following a stress event.



**ON-SEED**  
SEED TREATMENT

**VigorMax®**  
325-500 mL/  
100 kg seed  
Or  
**VigorMax® Plus™**  
325-500 mL/  
100 kg seed

**FIRST NODE**

**THIRD NODE**

**SIXTH NODE**

**EARLY FLOWERING**

**POD FILL**

**FULL POD**

FOLIAR RECOMMENDATIONS

**ManZinPhos-DX™**  
1.0 L/acre

Or

**FertiBoost  
7-14-7™**  
1.0 L/acre

(with herbicides sensitive to low pH)

Or

**\*SiliCalMax™**  
1.0 L/acre

\*For other pulse crops apply any of these products with a herbicide application

**Crop Finish™**  
0.75-1.0 L/acre

**BOS Pea, Lentil, & Faba Bean Inoculants**

**ON SEED OR IN-FURROW**

**Peat:** each 1.5 kg bag inoculates 900 kg of peas/faba beans, or 562 kg of lentils.

**Granular:** 12.25 kg bag treats 8.2 acres, 196 kg bag treats 131 acres,

both at 10 inch row spacing.

**Liquid:** apply 75 mL per 60 lbs seed (Each 3.0 L bladder treats 40 bu peas/lentils, or 10-12 acres in-furrow depending on row spacing).

All BOS Granular and Peat products are certified for organic production with Ecocert.

A BOS formulation for chickpea is unavailable at this time.



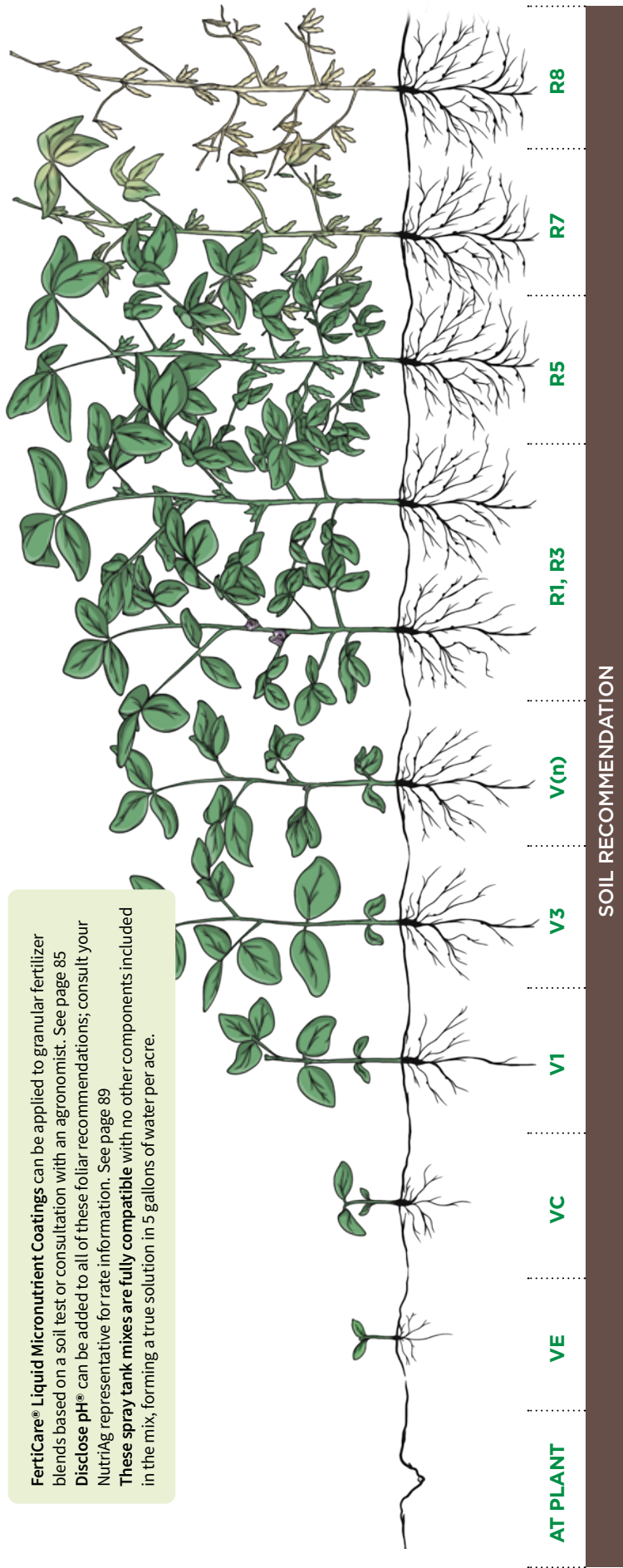


# SOYBEAN

NUTRIAG CROP PROGRAM



FertiCare® Liquid Micronutrient Coatings can be applied to granular fertilizer blends based on a soil test or consultation with an agronomist. See page 85  
 Disclose pH® can be added to all of these foliar recommendations; consult your NutriAg representative for rate information. See page 89  
 These spray tank mixes are fully compatible with no other components included in the mix, forming a true solution in 5 gallons of water per acre.



**Terra Core™**  
 4.0-40.0 L/acre

## FOLIAR RECOMMENDATIONS

**ManZinPhos-DX™**  
 1.0 L/acre

Or

**FertiBoost-DX™**  
 1.0 L/acre  
 (with herbicides sensitive to low pH)

**ManZinPhos-DX™**  
 1.0 L/acre

**K-Max Extra™**  
 1.0-2.0 L/acre

If a significant environmental stress is in the forecast, apply Nutri Lex at a rate of 0.5-1.0 L/acre. Nutri Lex can also be used as a recovery treatment following a stress event.

