

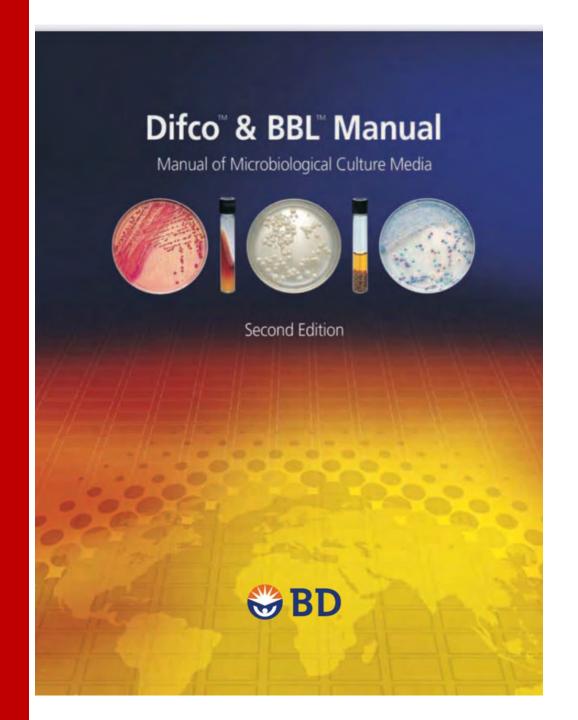
MORE THAN JUST SUGAR



Nutrient Profile of Cane Molasses Brix 84% TSI 42% Fructose 7.40% 3.4% Glucose 0.00% Lactose 0.00% Maltose 35% Sucrose Moisture 22.30% 77.70% Dry Matter Protein, Crude 4.87% 9.57% Ash Nitrogen 0.89% Phosphorus 0.05% Potassium 3.99% 0.41% Sulfur Magnesium 0.37% 0.86% Calcium Boron 3 ppm Sodium 0.07% 44.30 ppm Aluminum Cobalt 1.28 ppm 7.75 ppm Copper 101 ppm Iron 29.70 ppm Manganese Molybdenum 7.72 ppm 10.40 ppm Zinc

FOOD SOURCES + UNIQUE CHEMISTRY

- SUGAR CANE MOLASSES
- YEAST EXTRACTS
- MONOPOTASSIUM PHOSPHATE





"BIOLOICAL SOUP"

Complex carbon source...

- "the blood of the plant" much more to molasses than Carbs
- "biological enhancement" fermentation yeast ectract

Cane M	lolasses		
Brix	84%		
TSI	42% 7.40% 3.4% 0.00% 0.00% 35%		
Fructose			
Glucose			
Lactose			
Maltose			
Sucrose			
Moisture	22.30%		
Dry Matter	77.70%		
Protein, Crude	4.87%		
Ash	9.57%		
Nitrogen	0.89%		
Phosphorus	0.05%		
Potassium	3.99%		
Sulfur	0.41% 0.37% 0.86%		
Magnesium			
Calcium			
Boron	3 ppm		
Sodium	0.07%		
Aluminum	44.30 ppm		
Cobalt	1.28 ppm		
Copper	7.75 ppm		
Iron	101 ppm		
Manganese	29.70 ppm		
Molybdenum	7.72 ppm		
Zinc	10.40 ppm		



QLF MOLASSES 101

QLF's primary ingredient in most of its liquid supplements is domestically sourced sugar cane molasses. QLF holds a unique advantage with its consistent source and supply, as it stands as the largest user of domestic sugar cane molasses in the United States. This molasses is a byproduct of the sugar cane industry and has been a staple in livestock feed for over a century. It serves multiple roles in animal diets, contributing to nutrition, palatability, nutrient density, dust control, and improving the physical characteristics of mixed rations.

Research dating back to the 1950s, such as studies by Burroughs et al. (1950) and Bentley et al. (1954), highlighted the ability of sugar cane molasses to increase rumen microbial activity. Thanks to its positive impact on microbial growth and action, sugar cane molasses is also utilized in various biological processes. This inspired QLF to launch QLF Agronomy and develop soil products, including their L-CBF product line, Liquid Carbon Based Fertilizer, which prominently features sugar cane molasses as a consistent source and supply. QLF Agronomy has consistently demonstrated the benefits of crop performance by harnessing this abundant source of available carbon in all L-CBF formulations. Years of dedication to research and development have repeatedly shown the value of products like L-CBF BOOST.

Microbes exhibit extraordinary diversity and play a pivotal role in nurturing, supporting, and sustaining plant life. Soil microbes are responsible for vital processes such as soil

formation, nutrient conversion and transfer (e.g., nitrogen fixation), organic matter decomposition, pesticide degradation, and pathogen suppression. These microscopic, unicellular organisms represent the oldest form of life on Earth, comprising millions of species divided into six major types: Bacteria, Archaea, Protozoa, Fungi, Viruses, and Microbial Mergers. While some microbes may have detrimental effects, the majority are beneficial and serve as



essential components in all ecosystems. Without them, basic functions like respiration, digestion, waste decomposition, and plant growth would be severely compromised.

Greater microbe diversity leads to more effective enhancement of soil health and plant nutrient uptake. However, providing sucrose (table sugar) alone is insufficient for these tasks.

QLF MOLASSES 101

CANE MOLASSES VS. TABLE SUGAR

Cane molasses serves as an exceptional medium for not only nurturing soil biology but also enhancing fertilizer performance, ultimately leading to improved plant health, growth, and development. Molasses boasts a rich array of micro- and macro-nutrients, including major cations like calcium, magnesium, and potassium, as well as natural forms of nitrogen and sulfur. It also offers

proportionally higher concentrations of essential micronutrients such as Iron and boron, Often referred to as 'the blood of the plant,' cane molasses contains plant-protective compounds, including antioxidants, bioflavonoids, phenols, fats, lipids, and oils that form the plant's immune system.

In addition to providing an excellent source of carbohydrates for soil microbes, sugar cane molasses supplies free amino acids, oligopeptide chains, B Vitamins, enzymes, fatty acids, organic acids, and numerous unidentified nutrient growth factors. In contrast, table sugar primarily consists of a single molecule, sucrose. However, no living organism can thrive solely on a molecule comprised of carbon, hydrogen, and oxygen.

Sucrose, found naturally in many fruits, vegetables, grains, and sweets, is the predominant carbohydrate in cane molasses. As a disaccharide composed of one fructose and one glucose molecule, sucrose offers greater energy efficiency in both transportation and storage compared to monosaccharides like glucose or fructose. It has a significant impact on various aspects of plant metabolism, including its role in carbon and nitrogen assimilation and transport. Inside cells, sucrose can be converted back to glucose and fructose to provide energy when needed. Being a non-reducing sugar, sucrose doesn't undergo oxidation or intermediate reactions with other molecules during transport, ensuring efficiency. Furthermore, the sugar form predominantly found in cane molasses resembles the sugar supplied to soil life through plant root exudates—mainly sucrose.

Nutrient Profile of Cane Molasses				
Brix	8496			
TSI	42%			
Fructose	7,40%			
Glucose	3.4%			
Lactose	0.00%			
Maltose	0.00%			
Sucrose	35%			
Moisture	22.30%			
Dry Matter	77.70%			
Protein, Crude	4.87%			
Ash	9,57%			
Nitrogen	0.89%			
Phosphorus	0.05%			
Potassium	3,99%			
Sulfur	0.41%			
Magnesium	0.37%			
Calcium	0,86%			
Boron	3 ppm			
Sodium	0.07%			
Aluminum	44.30 ppm			
Cobalt	1.28 ppm			
Copper	7.75 ppm			
Iron	101 ppm			
Manganese	29.70 ppm			
Molybdenum	7.72 ppm			
Zinc	10.40 ppm			

HYDROGEN CARBON Sucrose Molecule (sugar)

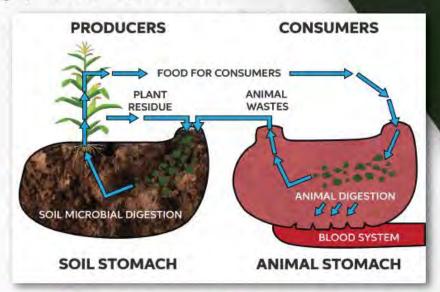
WHAT'S THE SIZE OF YOUR SUGAR?

Sucrose is incredibly minuscule at only 1.3 nanometers in length. To put this into perspective:

- A standard sheet of paper is roughly 100,000 nanometers thick.
- The diameter of a single strand of human DNA is approximately 2.5 nanometers.
- One inch contains 25,400,000 nanometers.
- A strand of human hair is relatively wide, measuring between 80,000 and 100,000 nanometers.



QLF MOLASSES 101



VALUABLE CROP FERTILIZER COMPONENTS

Available carbon energy derived from plant sugar Safer fertilizer connecting chemistry with biology Phytochemicals provide nutrient growth factors Complete nutritional package blended for microbiome. Enhanced natural sources of key essential minerals

VALUABLE FEED DIET COMPONENTS

Sugar energy for rapid carbohydrate availability
Fatty acids to stimulate rumen microbes
Palatability that encourages every animal to eat
Natural source of key essential minerals
Production benefits backed by research

HOW SOIL IS LIKE FEEDING A COW?

Soil and feeding a cow share a common principle of digestion and nutrient assimilation. In the soil, particularly in the rhizosphere (the area around plant roots), soil microbes perform a role similar to that of a cow's digestive system. They break down insoluble minerals and convert them into organic compounds that plants can readily utilize. This process mirrors how a cow's digestive system processes feed to make it accessible for absorption into the bloodstream. When plants receive nutrients that have been digested by soil microbes, they can efficiently and effectively absorb and utilize these nutrients, surpassing their ability to absorb ions directly from a solution.



Pump Up Organic Matter Feed Your Soil Like a Cow

WHAT IS TSIZ

In sugar cane molasses, there are three primary dissolved sugars:

1) sucrose, 2) glucose, and 3) fructose. TSI stands for "Total Sugars as Invert,"
Which is the comprehensive measurement of sucrose, a disaccharide, along
with reducing sugars, fructose and glucose, both of which are monosaccharides.
Sucrose is not considered a reducing sugar because it does not react
with a color reagent.

To assess the sucrose content, an invertase enzyme is introduced to break down sucrose into fructose and glucose. Simultaneously, another sample is collected from the same source and tested for fructose and glucose content using a color reagent that exclusively interacts with reducing sugars. By comparing the results from these two tests, it becomes possible to determine the percentage of sucrose in the source.

The formula for calculating TSI is as follows: TSI = ((% sucrose) / 0.95) + % reducing sugars.

WHAT IS HIGH BRIX MOLASSES?

OLF primarily begins its formulation process with high-quality, high brix cane molasses containing around 84% Brix. Brix is a measure of dissolved solids in a solution, typically in water, and it encompasses more than just soluble sugars. However, OLF does not measure Brix in finished products because it is not directly relevant. The composition of our L-CBF solutions involves a diverse range of materials, including sugar and cane molasses, among others. While Brix alone cannot equate to sucrose content, it can serve as an approximation for the total sugar content, often determined using tools such as a refractometer or density meter.

The Brix value, denoted as °Bx, is derived by referencing appropriate tables and signifies the amount of dry solids dissolved in a sample, assuming these dry solids consist exclusively of sucrose. However, this scenario is seldom the case. Each °Bx represents 1 gram of sucrose in 100 grams of the solution, indicating the solution's strength as a percentage by mass.

For example, a 10.9 °Bx measurement using a handheld instrument may correspond to an 11% by mass D-Glucose grape sugar solution. In the case of grape juice, which contains glucose,

fructose, acids, and various other components, °Bx cannot be directly equated with sucrose content, but it can offer a reasonable approximation of the total sugar content.

When a solution contains dissolved solids other than pure sucrose, °Bx serves as an estimate of the dissolved solid content. The °Bx measurement tradition is widely employed in various industries, including wine, sugar, carbonated beverages, fruit juices, maple syrup, and honey.



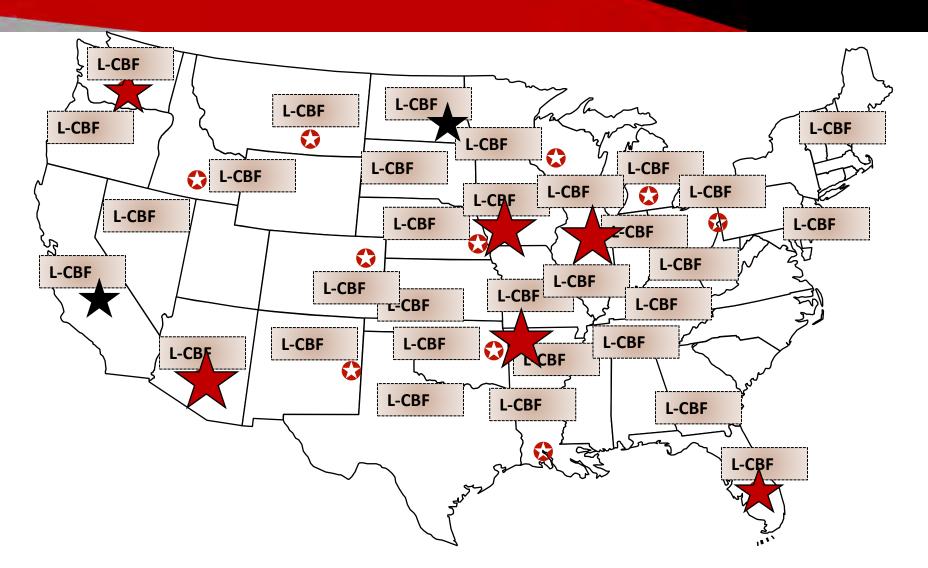


Large Storage Capacity

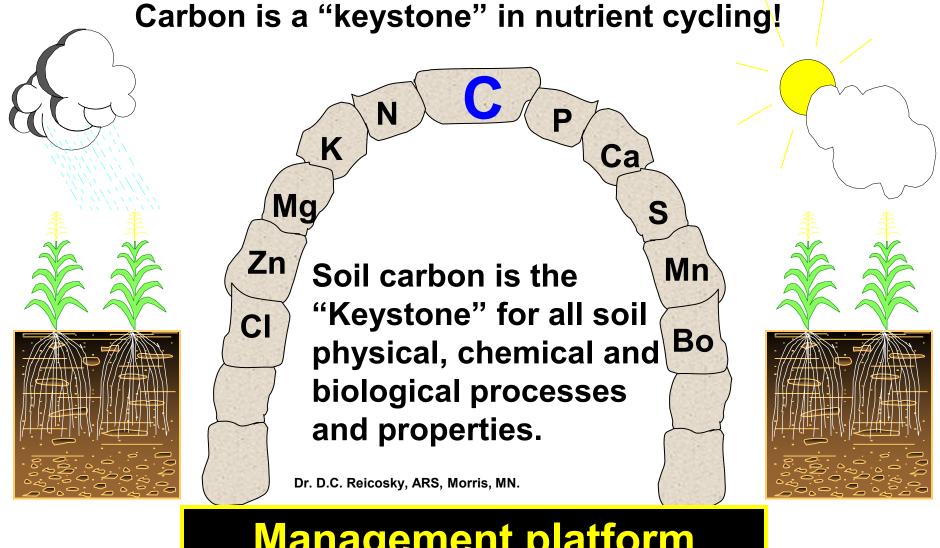
QLF has Built over 40,000,000 Million Gallons of Storage



QLF AGRONOMY LOCATIONS







Management platform



PRODUCTS

- L-CBF BOOST 4-0-3-2S
- L-CBF 7-21-3 MKP Starter
- L-CBF Amino 15-0-1
- L-CBF Triple5 MKP Foliar

- Kelpak & KelpakMaxx
- CornSpike (Zn blend)
- PowerAid (B blend)
- L-CBF TerraFed (organic)



PRODUCTS





15 INDEPENDENT TRIALS FOR 2024 SEASON

Trial Code	Name of Trial	State	Crop
₁ FR2401	Nitrogen and Manure	lowa	Corn
2 <mark>FR2402</mark>	LCBF Nitrogen Program	Missouri	Corn
₃ FR2403	Rice Cover Spray	Arkansas	Rice
4 <mark>FR2404</mark>	Kelpak Timing	Nebraska	Soybeans
₅ FR2405	Kelpak and Amino15	Iowa	Corn
₆ FR2406	Envita Corn	Iowa	Corn
₇ FR2407	Residue Trial	lowa	Corn Stalks
₈ FR2408	Rodney Fink Corn and Beans	Indiana	Soy and Corn
₉ FR2409	WeedNFeed Wheat	Washington	Wheat
₁₀ FR2410	Apple Frost Damage Trial	Michigan	Apples
₁₁ FR2411	Kelpak Seed Treatment	Wisconsin	Corn and Beans
₁₂ FR2412	Organic trial	Iowa	Organic Corn
₁₃ FR2413	Apple Trial vs 20-20-20	Michigan	Apples
₁₄ FR2414	Apple Trial add 0-0-7 K	Michigan	Apples
₁₅ FR2415	PTI Farm	Illinois	Corn/Beans

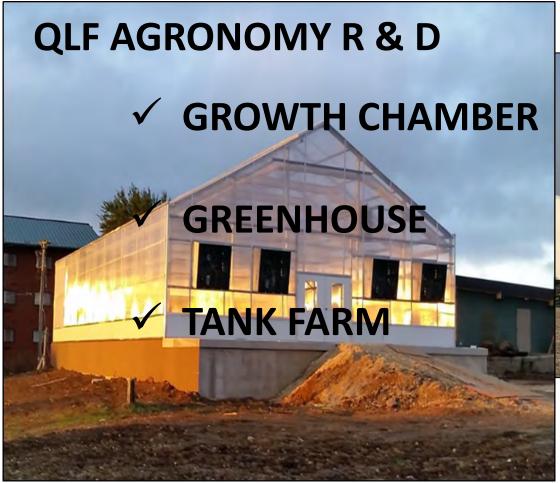


COMMITMENT TO RESEARCH



COMMITMENT TO RESEARCH





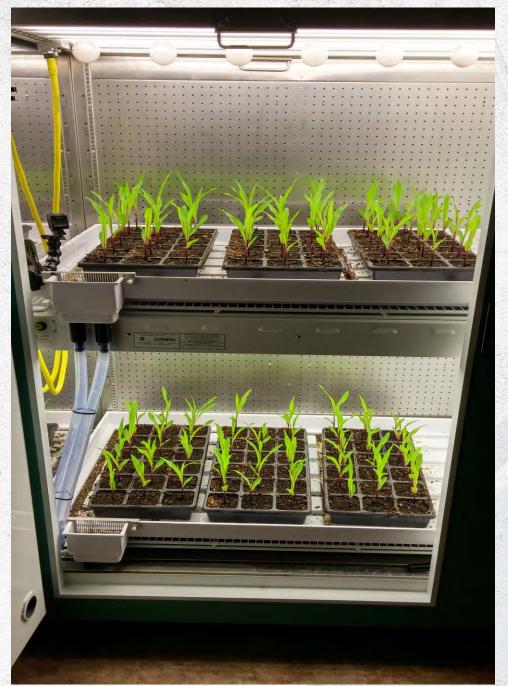










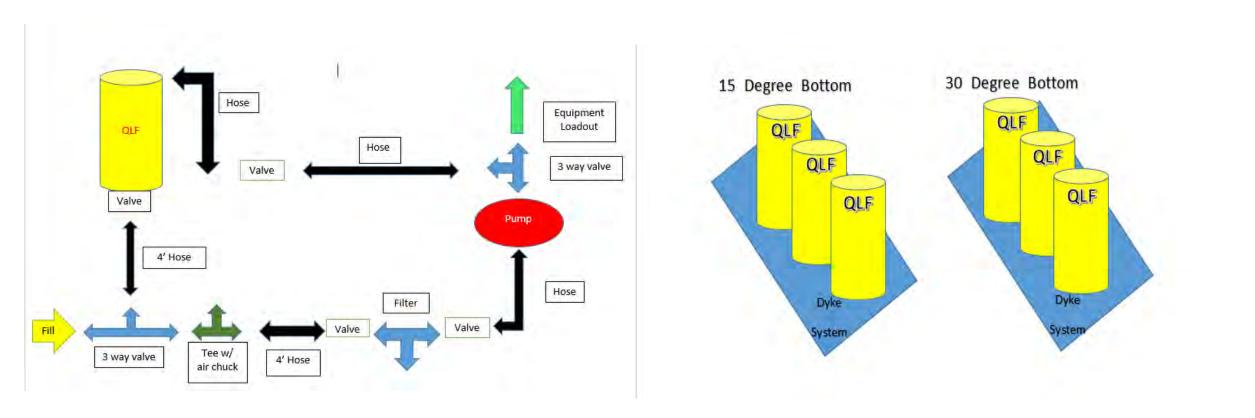








STORAGE AND HANDLING



Tank Farm Research for LCBF



STORAGE AND HANDLING





QLF

QLF

Dyke



SPRAY MIXTURES

Product	Application Rate (Gal)	Application Rate (oz)
Uan32%/Ats 80:20	5	0 6400
Water	2	5 3200
Keystone LA NXT	0.2812	5 36
Atrazine	.5#/A	#VALUE!
2-4D	0.12	5 16
Round-Up	0.37	5 48
		france of the





SPRAY MIXTURE WITHOUT BOOST



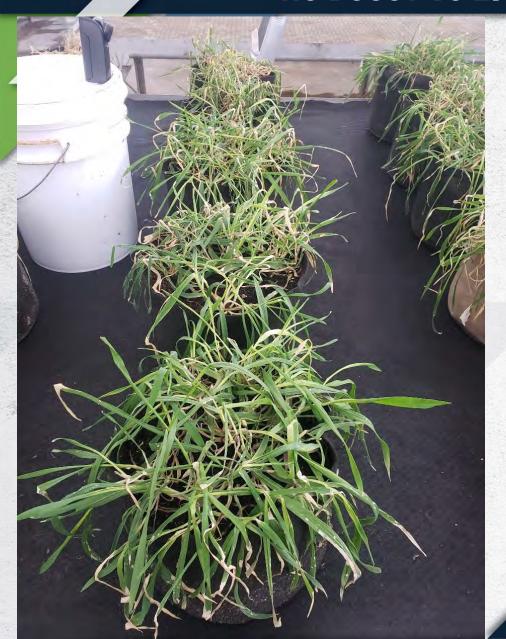


2.5 GALLON BOOST REPLACE 2.5 GALLON WATER



NO BOOST VS 2.5 GALLON BOOST



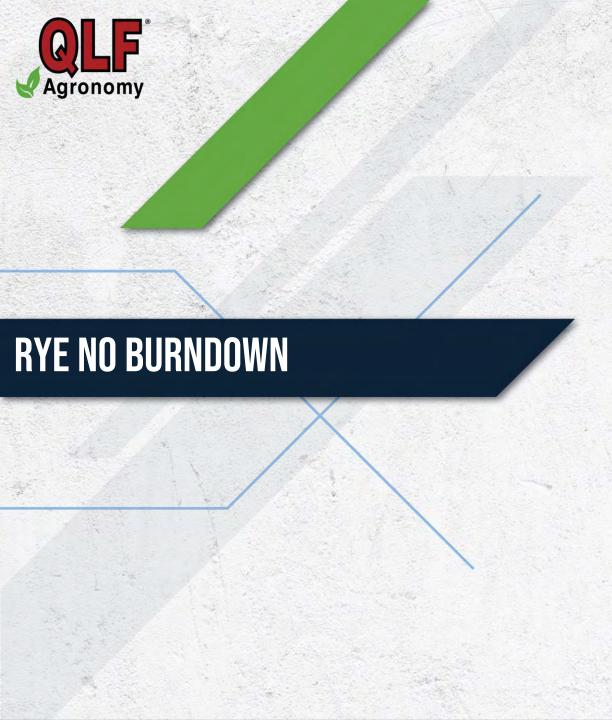






5 GALLON BOOST REPLACE 5 GALLON WATER







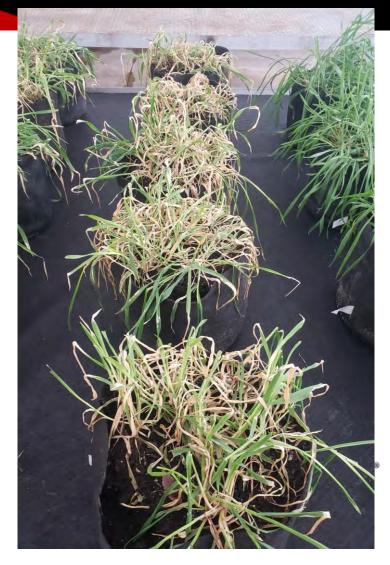
No Herbicide

28-0-0-5S @ 50 Gal/Acre

28-0-0-5S @ 50 Gal/Acre + BOOST @ 5 Gal/Acre



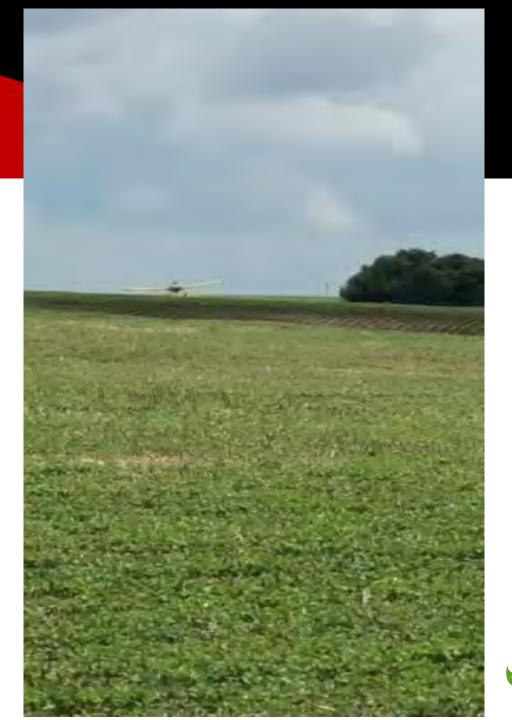




DRIFT CONTROL

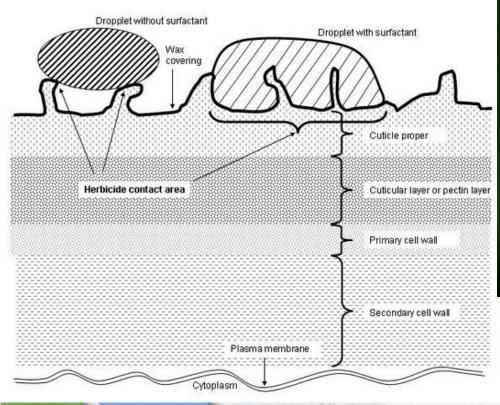
TANK PARTNER

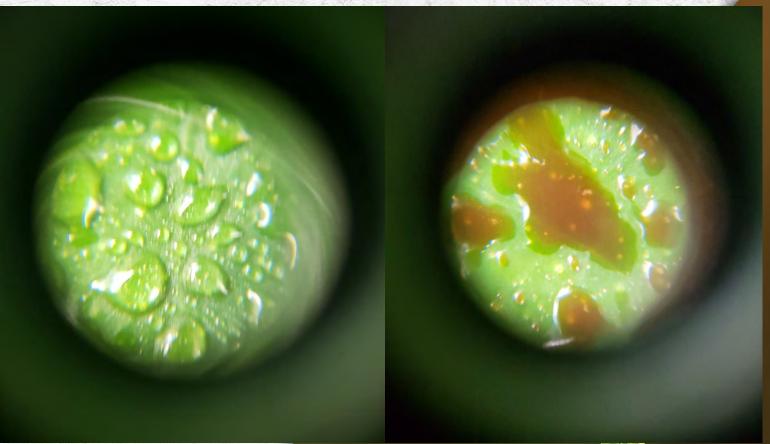
- ✓ Drift Control
- ✓ Humectant
- ✓ Improved Intake
- ✓ Metabolism
- ✓ Compatible





DROPLET PERFORMACE







UNIVERSITY OF NEBRASKA

PESTICIDE DRIFT CONTROL STUDY WITH L-CBF BOOST™ NORTH PLATTE, NE

- EPA launches the DRT(Drift Reduction Technology) XR11003 at 43.5 psi
- Distribution Curve and measuring droplet size (microns) increased droplet size across the board
- Relative Span (Dv90 Dv10/Dv50) uniformity measurement
- Reduction in the fraction of volume that drifts 4-7% improvement



Agronomy

Treatment	Dv10 µm	Dv50 µm	DV90 µm	Pct <105 µm	Pct <141 μm	Pct <150 µm	Pct <210 µm	Pot <730 µm	Relative Span
Roundup PowerMax	86 c	201 c	367 a	16.1 a	28.5 a	31.71 a	53.13 a	100 a	1.4 a
Roundup PowerMax+ L-CBF BOOST (1 gal)	96 b	213 b	377 a	12.7 b	24.6 b	27.69 b	49.03 b	100 a	1.32 b
Roundup Powermax+L-CBF BOOST (2 gal)	103 a	221 a	389 a	10.7 c	21.9 c	24.91 c	46.22 c	100 a	1.29 b

^{*}Results may vary. Always perform a compatibility jar test prior to application.



BOOSTMG PLANT METABOLISM

make every drop count

1. HITTING YOUR TARGET

BOOST has shown to improve spray droplet performance by creating uniform droplets, reducing drift, adhering to leaves, and maintaining hydration for longer periods.

2. STRESS MITIGATION

Enlist and BOOST treated plants display...

- Better color.
- Reduced cupping.
- Increased new vegetative growth

JRIFOLIATE-EFFECT

BOOST & Enlist on Soybeans

3. HERBICIDE BREAKDOWN

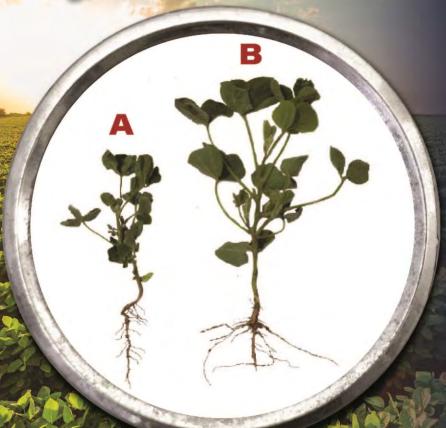
Plants have a 3-step process to metabolizing herbicides. Even when a plant has the genetics to metabolize herbicides they still have to break down, detoxify and store the herbicide.

BOOST has components to aid in this complex process.

SETTING THE STANDARD

SGS NORTH AMERICA

Wyoming, IL



Number of main stem nodes:

TRT A = 4.3 TRT B = 8.1

Number of trifoliate leaves:

TRT A = 12 TRT B = 20

+4.6 BU/ACRE YIELD ADVANTAGE

TREATMENT A



Application

Glyphosate 2,4-D AMS WG

32oz/acre 1.5 pt/acre 8.5gal/100 gal

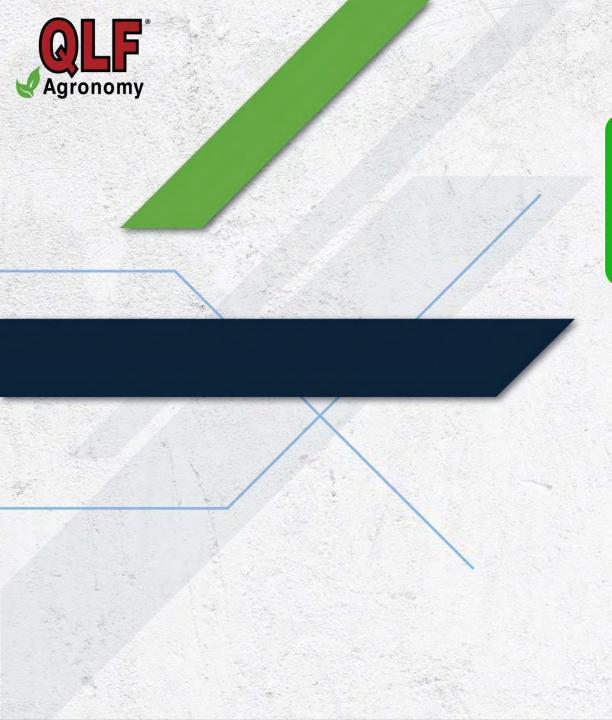
TREATMENT B



Application

Glyphosate 2,4-D AMS WG L-CBF BOOST 32oz/acre 1.5 pt/acre 8.5gal/100 gal 2 gal/acre





PLANT HERBICIDE METABOLISM

Phase 1:

Conversion/Metabolism

Phase 2: Conjugation

Phase 3:

Secondary Conversion and Transport into Vacuole



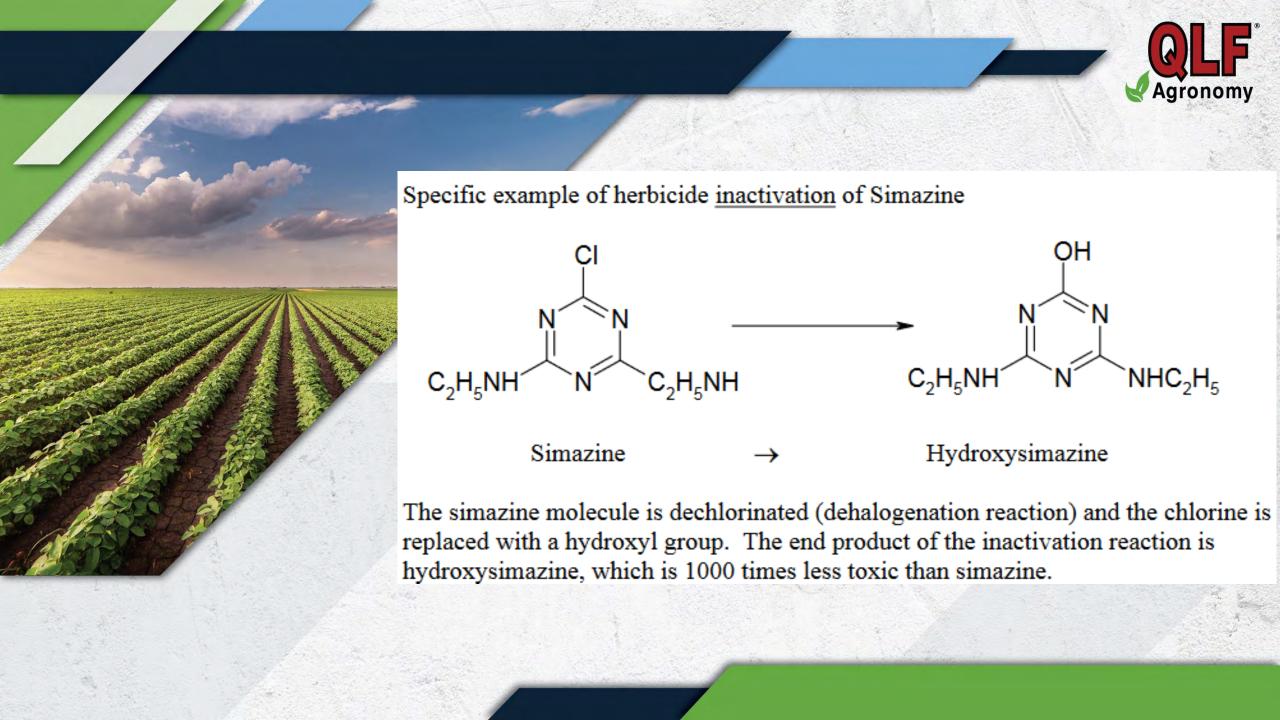
Conversion/Metabolism

AKA

•Disarm the Intruder

 Plants are immobile so the rely on redox and hydrolysis to protect itself

PHASE 1





PHASE 2

Conjugation

·AKA

 Binding the Intruder

Plants use sugars and amino acids to bind to foreign objects to help translocate them



PHASE 3

 Secondary Conversion /Transport into Vacuole

· AKA

Life sentence in Jail

Plants utilize vacuoles, cell walls and cellulose to dispose of foreign objects

DIFFERENCES IN METABOLISM

Table 1. Scepter selectivity due to differential metabolism in different plant species (Shaner and Robson, 1985, Weed Science 33:469–471).

Plant species	Scepter remaining in plants after 3 days	Scepter half-life in plants (days)	Plant response
Common cocklebur	99%	30	Very Susceptible
Soybean	.38%	3	Tolerant
Velvetleaf	89%	12	Susceptible



MORE THAN JUST SUGAR



WE CAN TEACH YOU HOW Agronomy



WHAT? LOW PH AND AVAILABLE CARBON (ENERGY)

WHY? STIMULATES SOIL BIOLOGY AND NUTRIENT AVAILABILITY

PURPOSE PROMOTE PLANT
HEALTH AND NUTRIENT CYCLING TO
FINISH HIGHER YIELDS

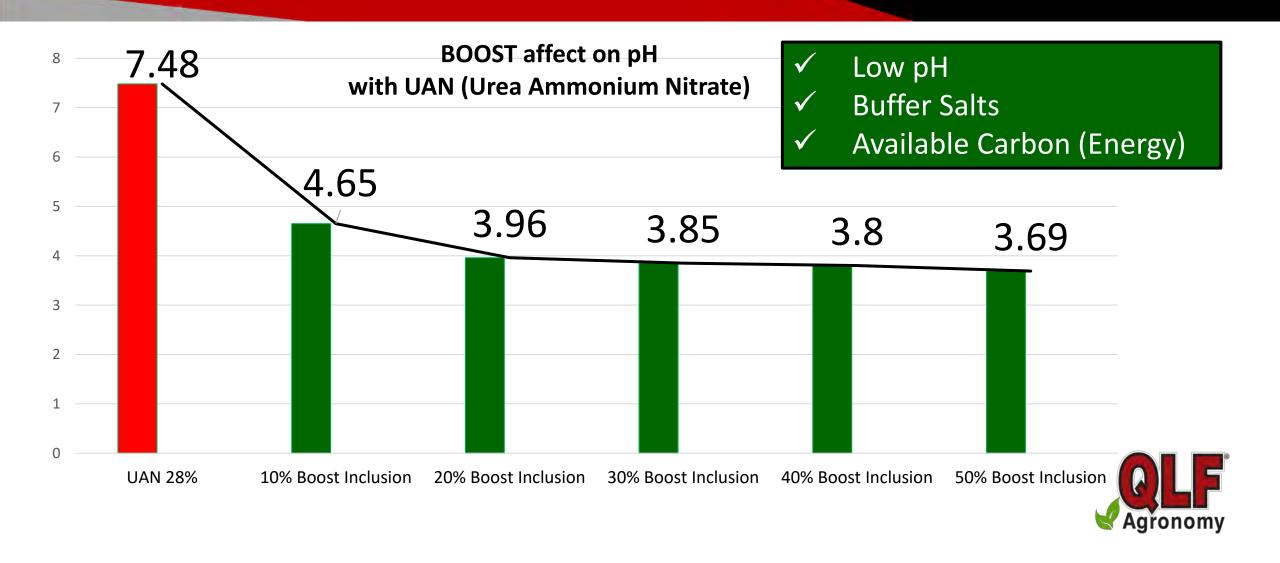


TREAT THE SOLUTION, NOT JUST THE ACRE





UREA AMMONIUM NITRATE + BOOST INCLUSION

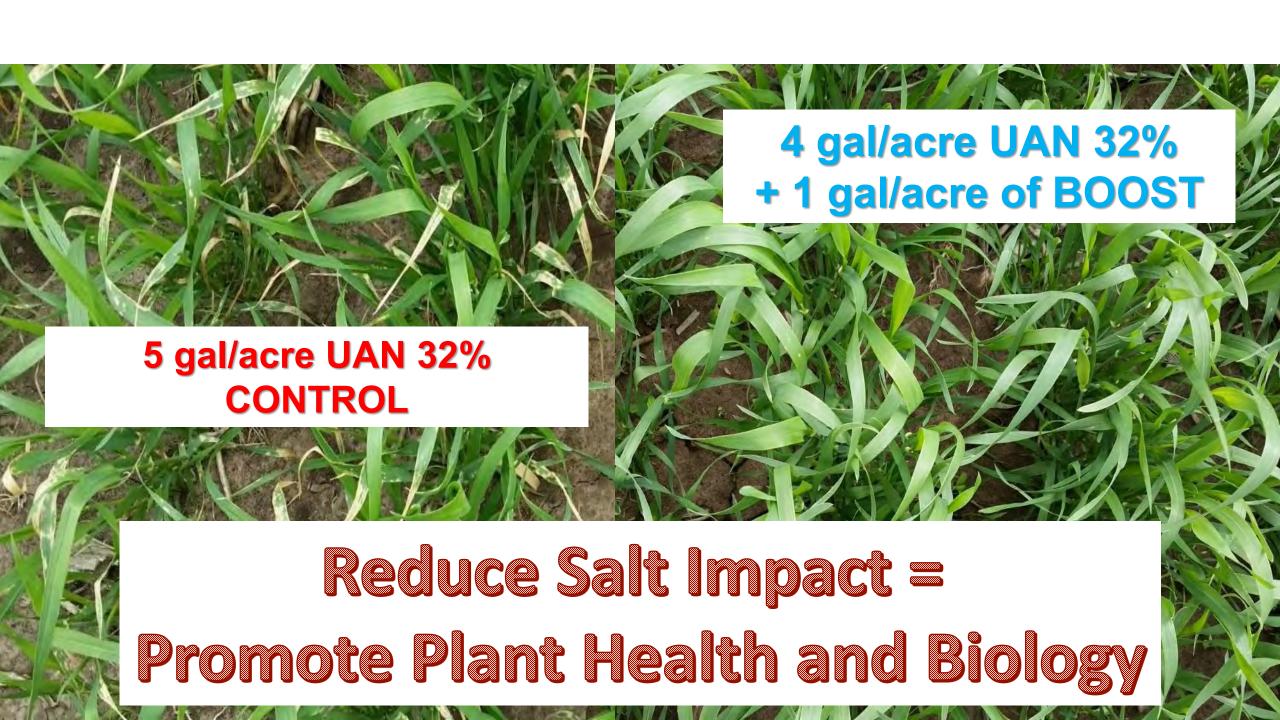




THE SMELL TEST

PRODUCT	Volatility			
PRODUCT	NH3 ppm			
L-CBF BOOST 4-0-3-2S	2			
NewGen BioCarb 30	29			
J-Mar Molasses	45			





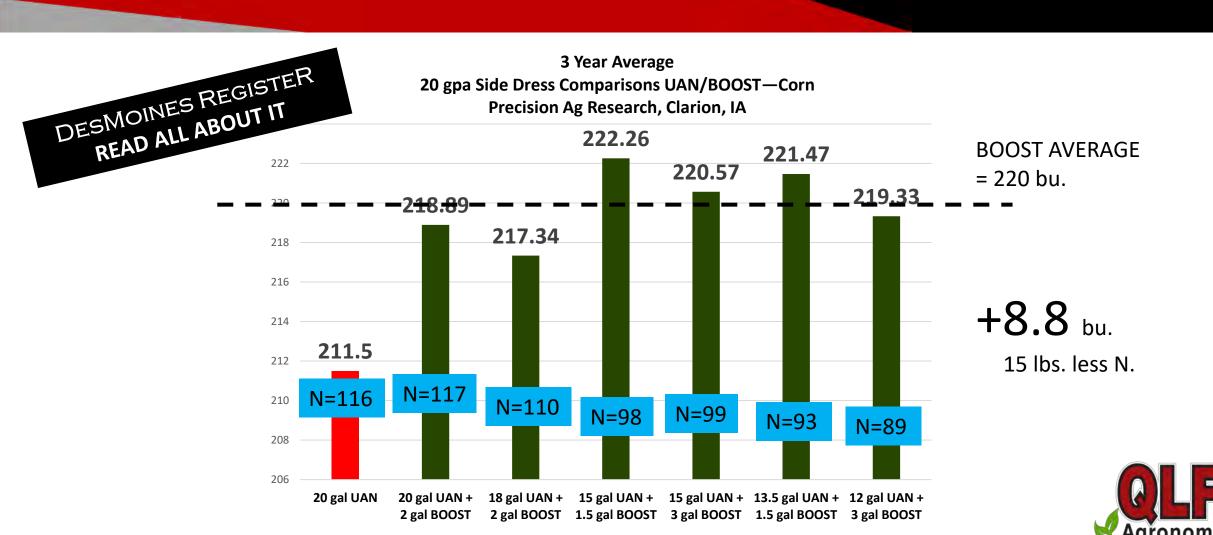






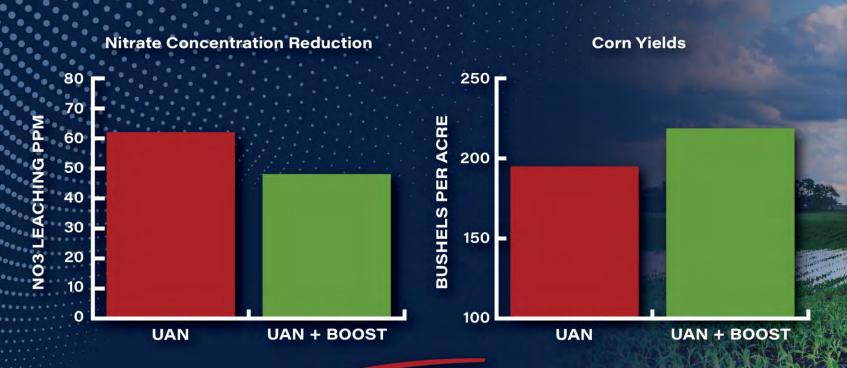


"IOWA FARMER SPLIT APPLIES 100 UNITS N --> REMOVES 220 BU CORN YIELDS! FOR 3 YEARS NOW WE'VE BEEN TAKING A CARBON BASED APPROACH WITH BOOST"



CORN YIELD & NITRATE LEACHING STUDY

Martinsville, IL



-17%
NITRATES

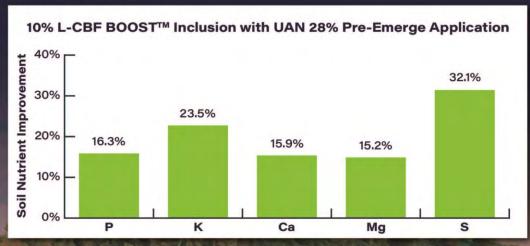
-20 LBS
APPLIED N

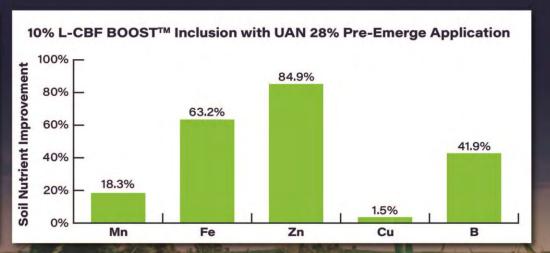
BOOST ADVANTAGE +\$50/ACRE NET RETURN +13
BUSHELS

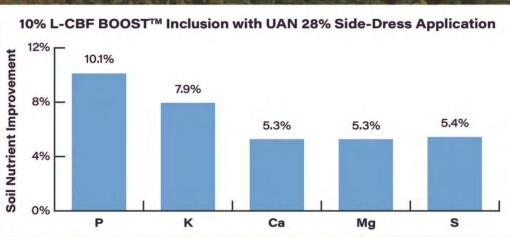


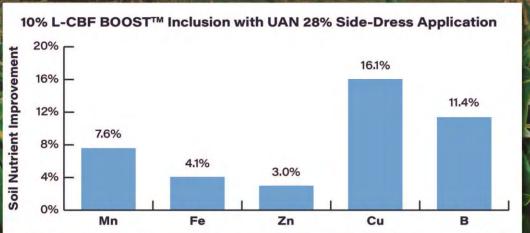
NUTRIENT USE EFFICIENCY STUDY

Multi-Year Soil Health Study Measuring Differences in Nutrient Availability Martinsville, IL









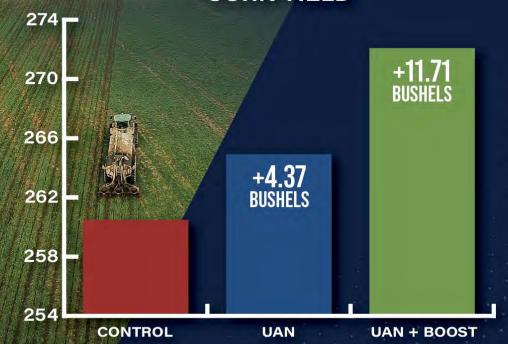
CONTINUED INNOVATION

NITROGEN & MANURE WITH L-CBF BOOST

HERITAGE AG RESEARCH Fairbanks, IA

Soil Test Results		Weak Bray Strong Bray				% Base Saturation						
рН	OM %	CEC	P1 ppm	P2 ppm	K ppm	Mg ppm	Ca ppm	K %	Mg %	Ca %	H %	Na %
7.1	6.9	21.2	63	114	462	539	3,083	5.6	21.3	73.1	0	0

CORN YIELD



APPLICATION					
PRE-PLANT	SIDE-DRESS				
0 Gallons UAN 0 Gallons BOOST	0 Gallons UAN 0 Gallons BOOST				
0.00 lbs					
20 Gallons UAN 0 Gallons BOOST	20 Gallons UAN 0 Gallons BOOST				
119 lbs					
8 Gallons UAN 16 Gall 2 Gallons BOOST 4 Gallor					
74	lbs				
	PRE-PLANT 0 Gallons UAN 0 Gallons BOOST 20 Gallons UAN 0 Gallons BOOST 119 8 Gallons UAN 2 Gallons BOOST				



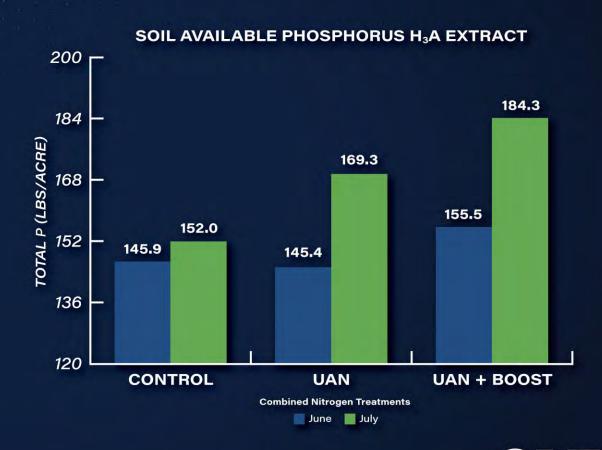
^{**}Results may vary. Always perform a compatibility jar test before application.

CONTINUED INNOVATION

NITROGEN & MANURE WITH L-CBF BOOST

HERITAGE AG RESEARCH Fairbanks, IA



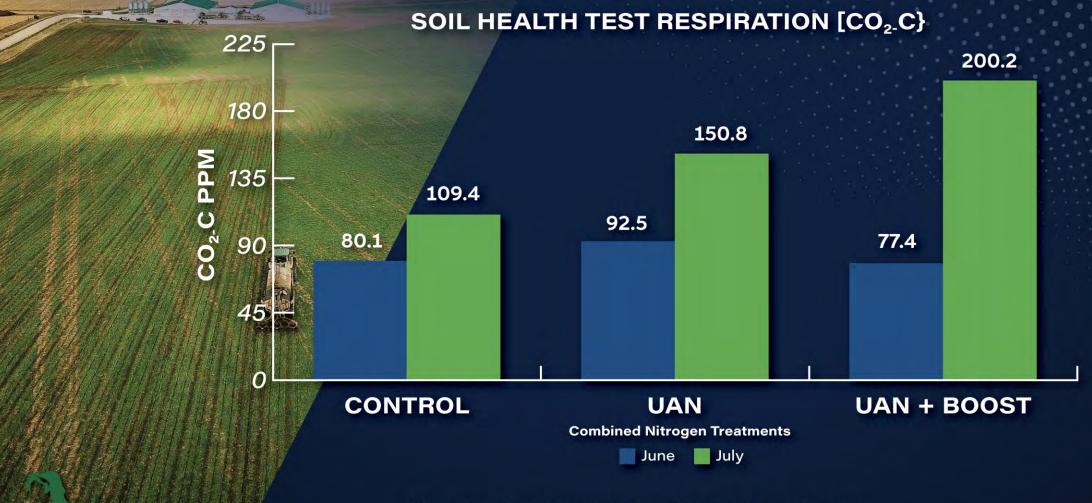




CONTINUED INNOVATION

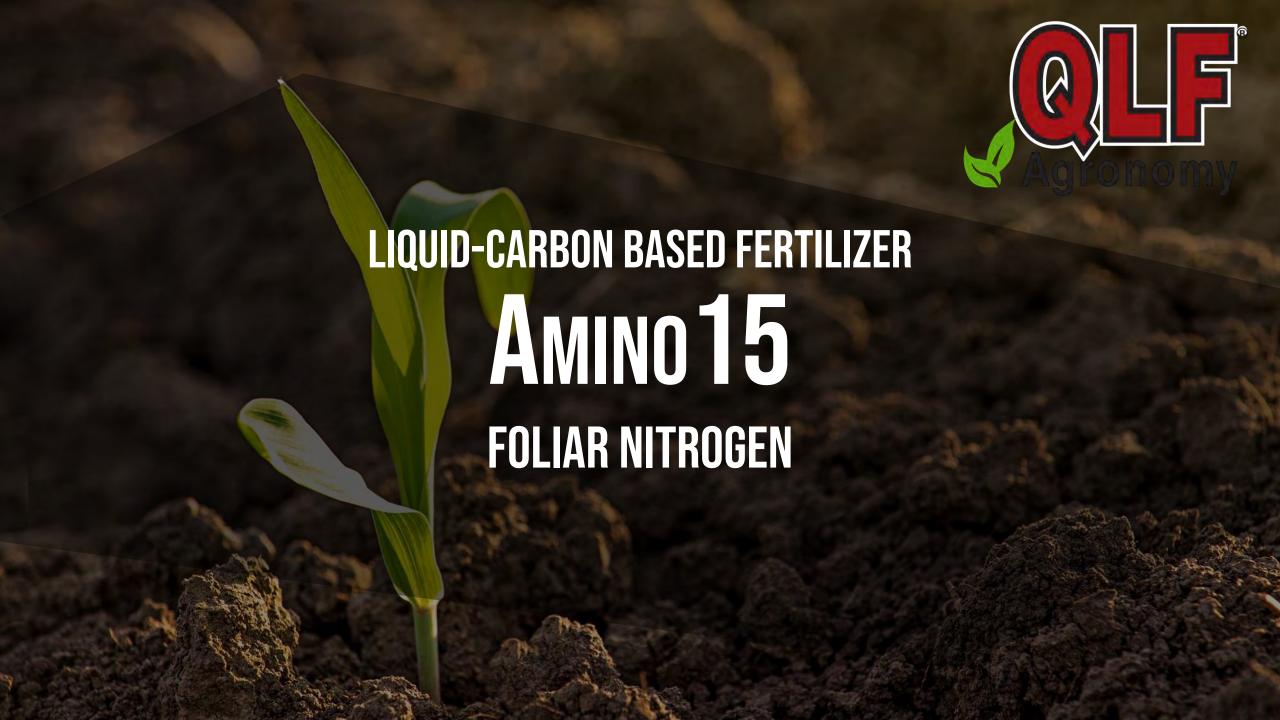
NITROGEN & MANURE WITH L-CBF BOOST

HERITAGE AG RESEARCH Fairbanks, IA





**Results may vary. Always perform a compatibility jar test before application.



WHAT? CONVENIENT BOOST PACKAGE UREA + L-AMINO ACID NITROGEN

WHY? SAFE ENERGY EFFICIENT FOLIAR NITROGEN AND TANK PARTNER

PURPOSE <u>DIVERSIFY</u> NITROGEN
PROGRAM FOR INCREASED EFFICIENCY,
<u>VEHICLE</u> TO DELIVERY MORE NUTRITION

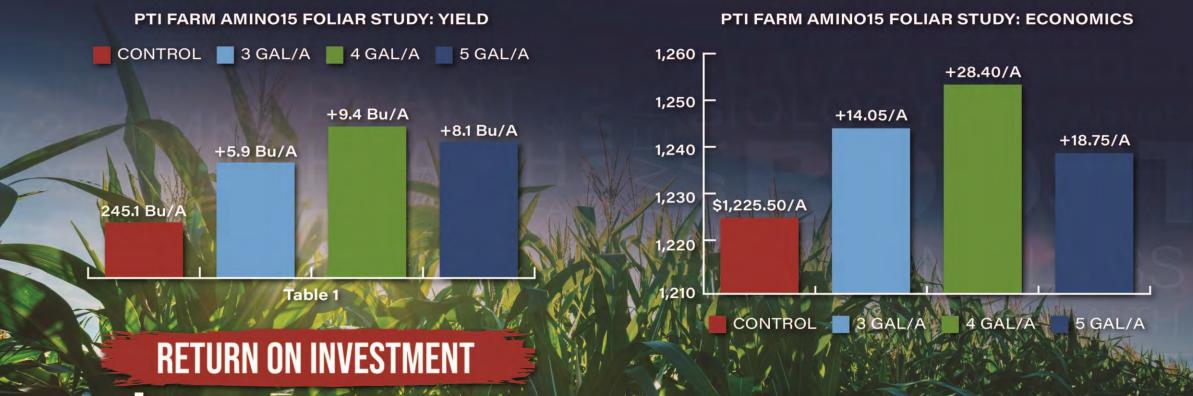


PRECISION TECHONOLGY INSTITUTE

Pontiac, IL

CORN FOLIAR APPLICATION STUDY:

\$28.40/ACRE





FOLIAR NITROGEN WITH FUNGICIDE

- +AMINO15 +POWERAID
- +KELPAK



FOLIAR NITROGEN WITH FUNGICIDE

+AMINO15 +POWERAID +KELPAK



PowerAid

Premium Liquid Fertilizer Solution

GUARANTEED ANALYSIS

Boron (B)
Copper (Cu)
0.5% Chelated Copper (Cu)
Cobalt (Co) 0.002%
Iron (Fe)
0.25% Chelated Iron (Fe)
Manganese (Mn) 1.0%
1.0% Chelated Manganese (Mn)
Molybdenum (Mo)
Zinc (Zn)
1.0% Chelated Zinc (Zn)

Derived From Borid Acid, Cobalt Sulfate, Copper PASP, Iron EDTA, Iron PASP, Manganese EDTA, Manganese PASP, Zinc EDTA, Zinc PASP, and Molybdic Oxide





WHAT? CONCENTRATED AND BALANCED CROP NUTRIENTS WITH AVAILABLE CARBON SOURCE

WHY? STIMULATES SOIL BIOLOGY AND NUTRIENT AVAILABILITY

PURPOSE PROMOTE EARLY AND UNIFORM PLANT AND ROOT GROWTH TO SET THE STAGE FOR HIGHER YIELDS



NUTRIENT USE EFFICIENCY - START TO FINISH









NUTRIENT USE EFFICIENCY – START TO FINISH









MONOPOTASSIUM PHOSPHATE (MKP)

- Unique orthophosphate source
 - MKP as a stand along product is an 0-52-34, 100% ortho
- Very plant safe, totally non-toxic, biologically friendly
- MKP is EPA labeled as NUTROL for soil and plant diseases

Unique <u>Phosphorous</u> and <u>Potassium</u> source, in a concentrated balanced formulation

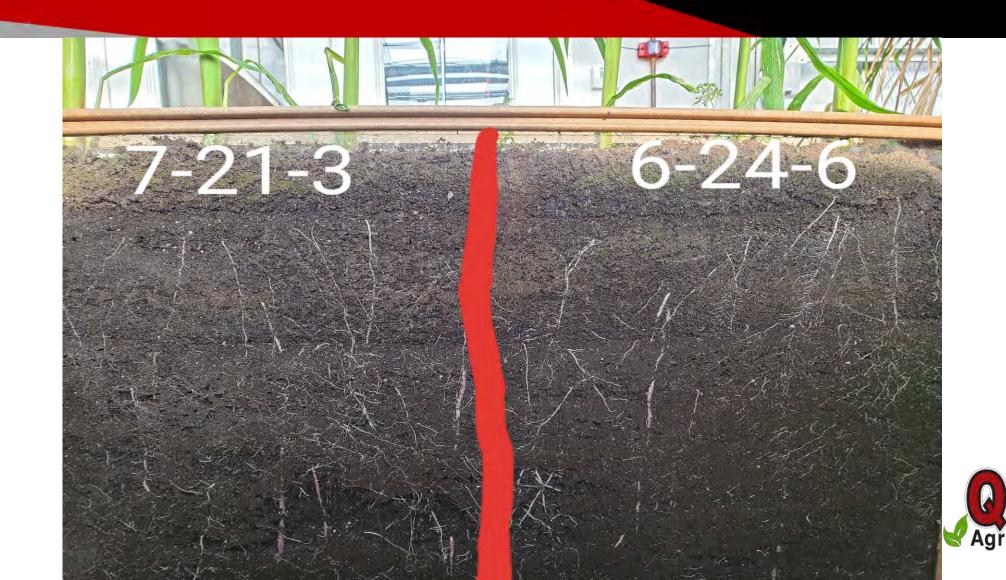


SHADOW BOX STARTER COMPARISON 11 DAYS AFTER PLANTING





LCBF 7-21-3 MKP STARTER MORE EXTENSIVE ROOT SYSTEM



WASHING ROOTS



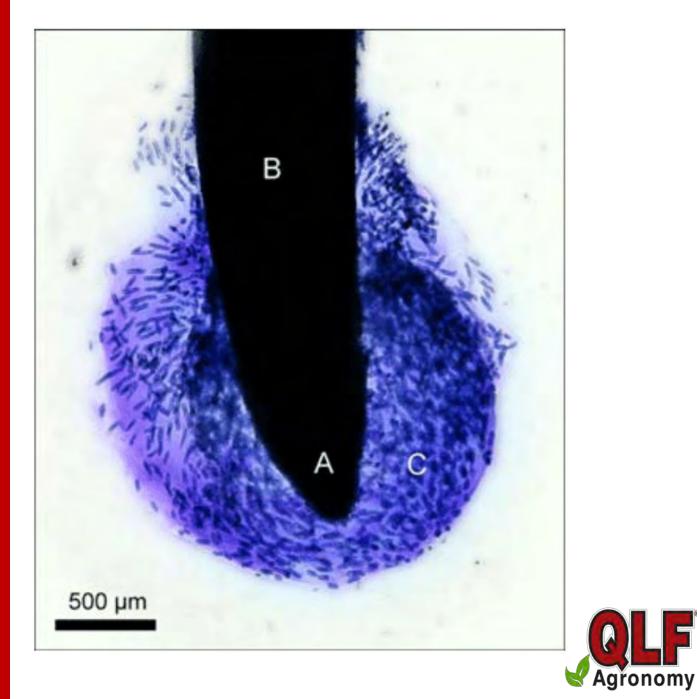


SOIL CLINGING TO ROOTS WITH 7-21-3 MKP





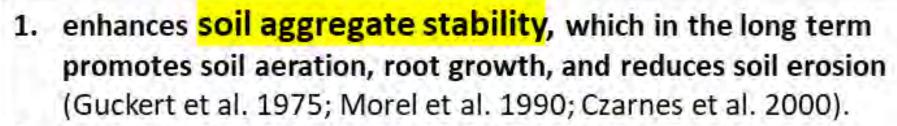
MUCILAGE



MEASURED BIOLOGICAL ACTIVITY



Mucilage (rhizosheaths) storage of <u>water</u> and <u>food</u>, seed <u>germination</u>



 possesses a high intrinsic affinity for water, when fully hydrated, water content 100,000 times greater than its dry weight (McCully and Boyer 1997)

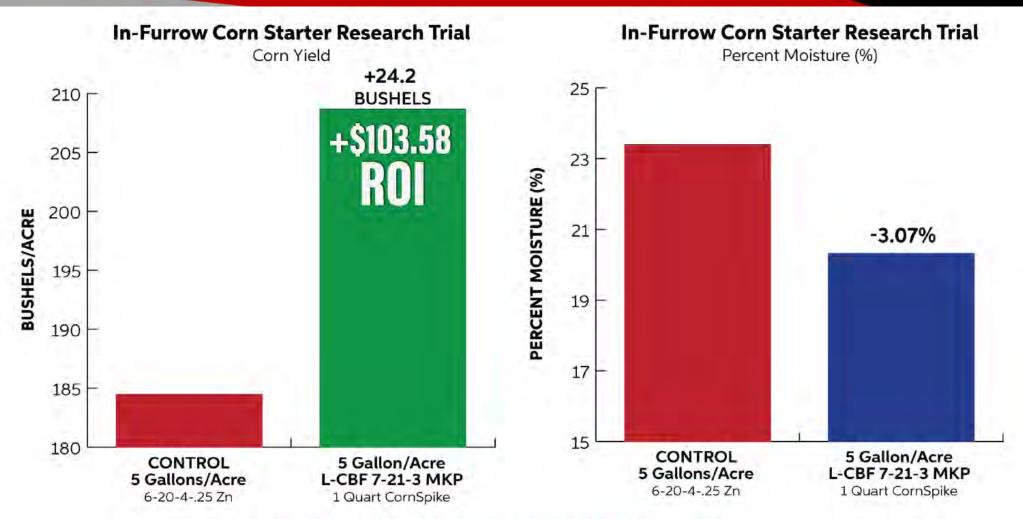
More soil clinging to roots, more biology!







SGS NORTH AMERICA - WYOMING IL - 2023





KANSAS CORN STARTER

SUMMARY

TREATMENT AND HARVEST INFORMATION

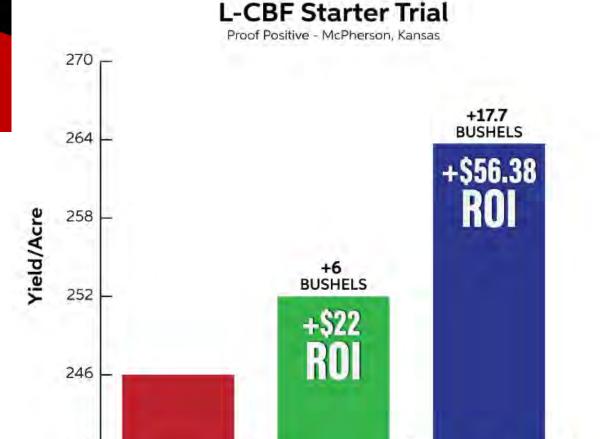
Product: L-CBF BOOST™ & L-CBF 7-21-3 MKP

Crop: Corn

Application Method/Timing: In-Furrow

Planting Date: April 21st

Application Date(s): April 21st **Harvest Date:** September 28th



** ROI Calculations based on \$3.75/bushel

10-34-0

4.5 Gallons/Acre

& L-CBF BOOST

0.5 Gallons/Acre

240

CONTROL

10-34-0

5 Gallons/Acre



L-CBF 7-21-3 MKP

5 Gallons/Acre

L-CBF WITH KELPAK CORN PROGRAM



IN-FURROW + FOLIAR TRIAL AGRI-TECH CONSULTING WHITEWATER, WI

SUMMARY

A randomized replicated corn trial was established in Whitewater, Wisconsin at the Agri-Tech Consulting research facility in 2022. The field research was examining the effects of Kelpsk, a liquid seaweed concentrate [derived from Ecklonia maxima kelp] with QLFs L-CBF7-21-3 MKP starter fertilizer in furrow as well as adding foliar nitrogen applications with QLF's L-CBF Amino15.

There was a mean of over twenty bushels per acre advantage when L-GBF 7-21-3 MKP was tank-mixed with Kelpak when compared to the check. Although there were no statistically significant differences in yield, there was a significant increase in return on investment and a strong upward trend establishing that Kelpak was enhanced with the addition of L-GBF 7-21-3 MKP as an in-furrow application and additional yield performance improvements were also realized by adding L-GBF Aminot 5 to the foliar Kelpak applications.

CORN YIELD AND RETURN ON INVESTMENT



QLF AGRONOMY | 800-236-2345

RT6534A

KelPak

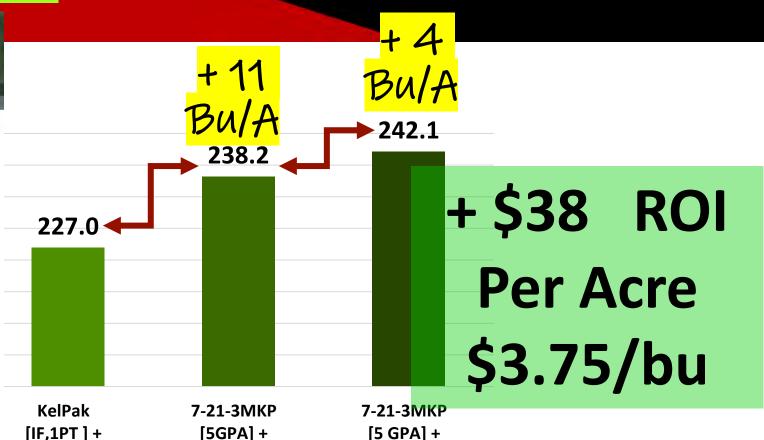
[Foliar, 2PT]

KelPak

[IF, 1PT]+

KelPak

[Foliar, 2PT]



KelPak

[IF,1PT]+

Amino 15-0-1

[3GPA] +

KelPak...

UNIQUE SOURCE OF KELP



Ascophyllum nodosum





ima Laminaria digitata





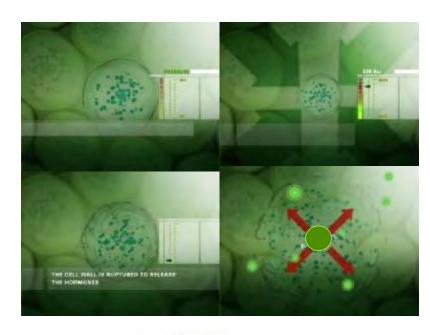
Durvillaea antarctica

Sargassum sp.

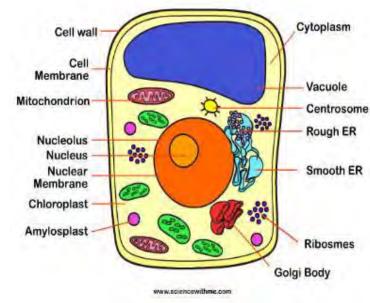


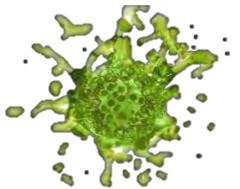


EXTRACTION PROCESS - PRESSURE DIFFERENCE



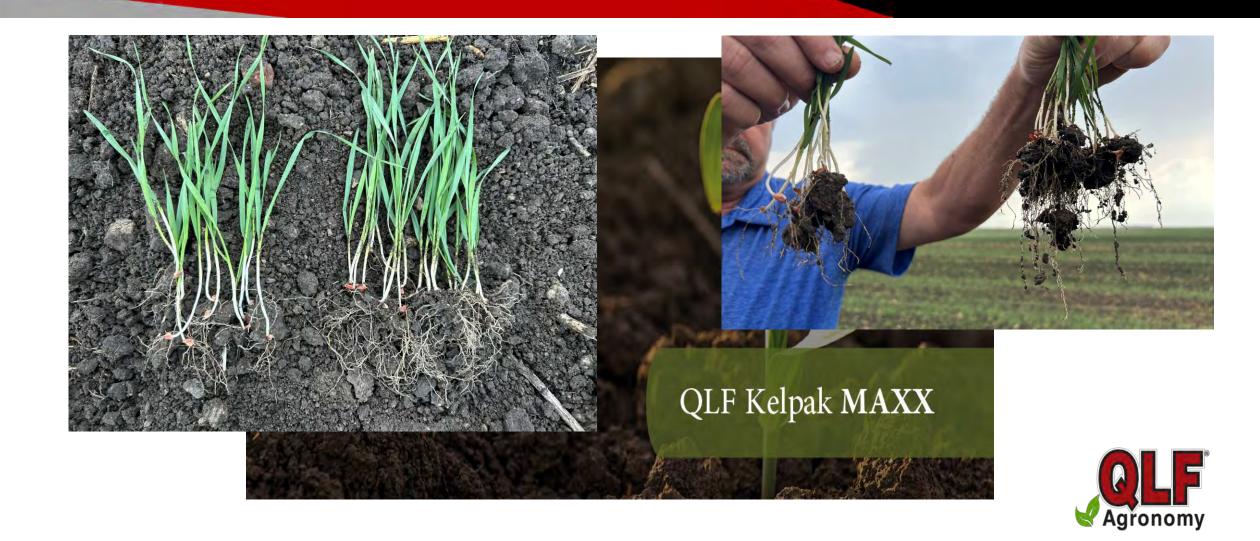




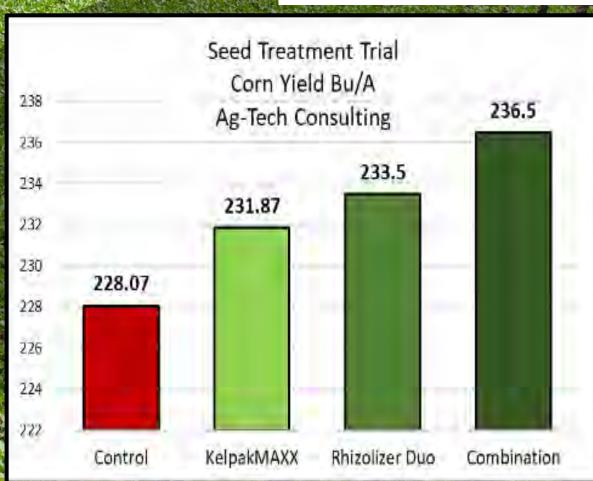


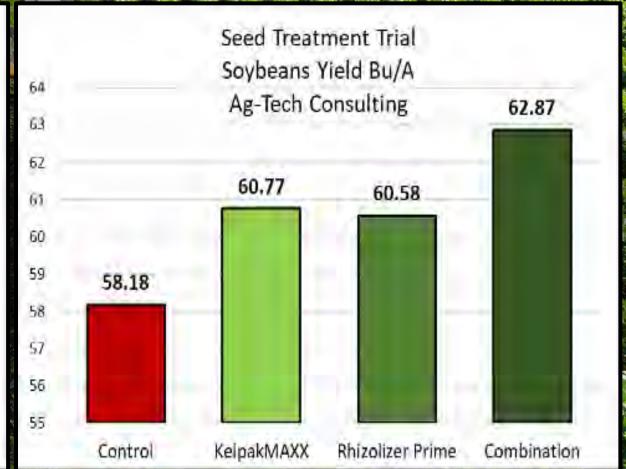


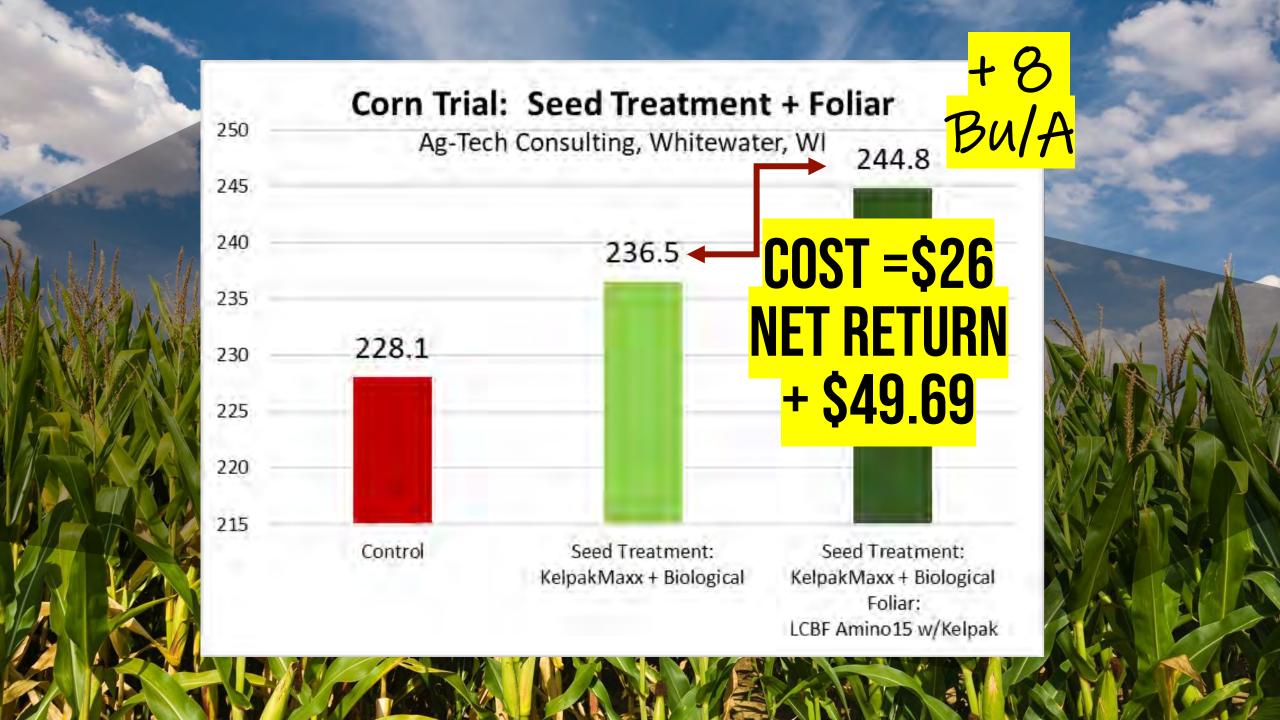
DOUBLE STRENGTH -> SEED TREATMENT FOCUS



3 oz. per 100 lbs. of seed, costing \$0.36/acre for corn and \$1.15/acre for soybeans, and delivering net returns of +\$16.74 to \$27.34 per acre.







ROW SUPPORT AND PLANT HEALTH

From the Soil Up

This classic guide teaches farmers how to coax the most from their crops through understanding the whole farm "system" – tillage, soil dynamics, fertility, aeration, soil moisture, and residue decay.



Donald L. Schriefer

put into the row, directly in the seed a liquid colostrum milk like package

Agriculture in Transition

With an emphasis on the crop's below-ground environment – soil biology, water, air and decay – one of eco-farming's top consultants reveals his insights, techniques and integrated systems of farming.



Donald L. Schriefer

portive materials for the sand root vigor to set ntial to help the crop potential as possible or Don Schriefer



BETTER CHEMISTRY

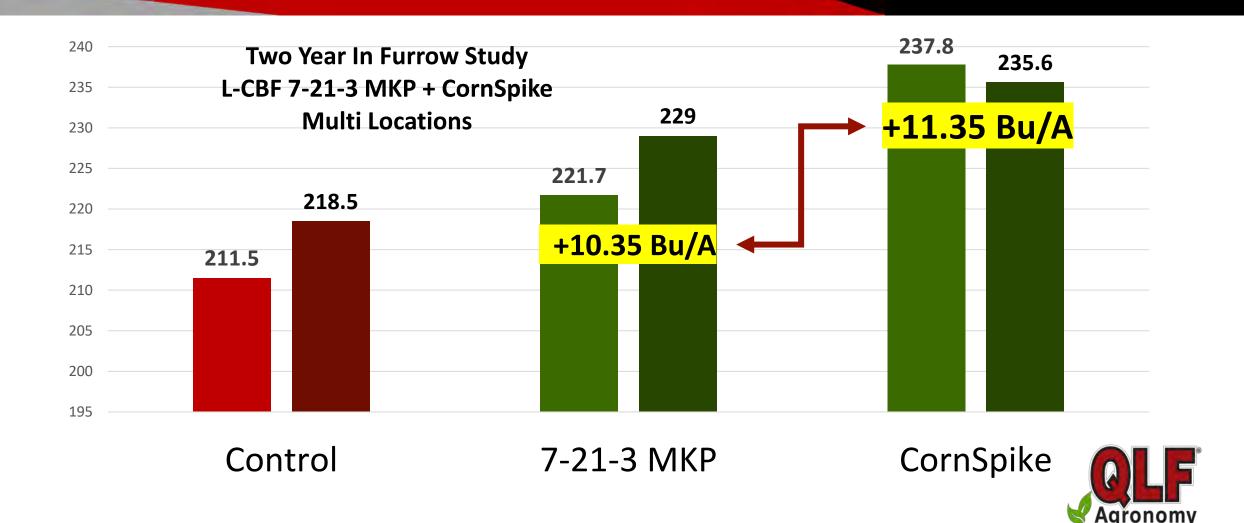
CONCENTRATED

SAFE

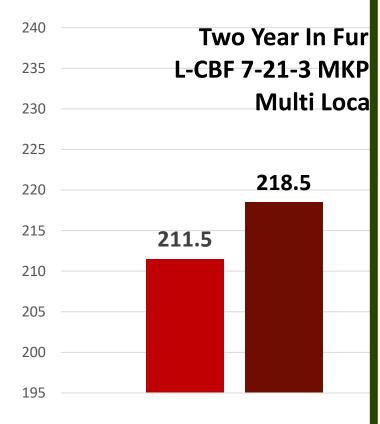




7-21-3 MKP + CornSpike Yr. 2020 & 2021



7-21-3 MKP +



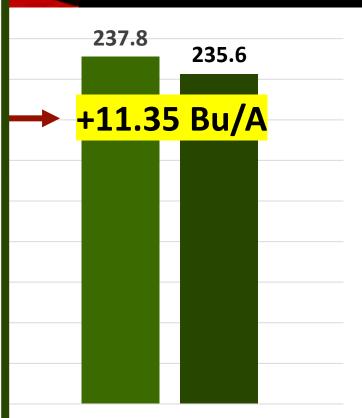
Control



CornSpike

Premium Liquid Fertilizer Solution

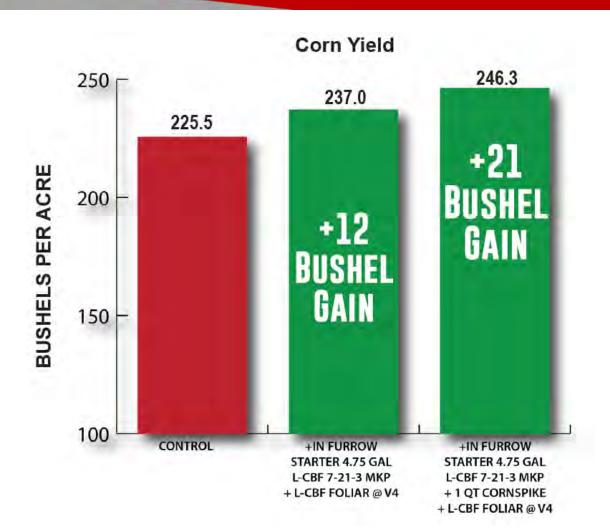
020 & 2021

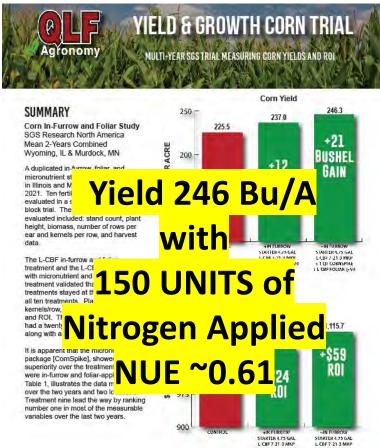


CornSpike

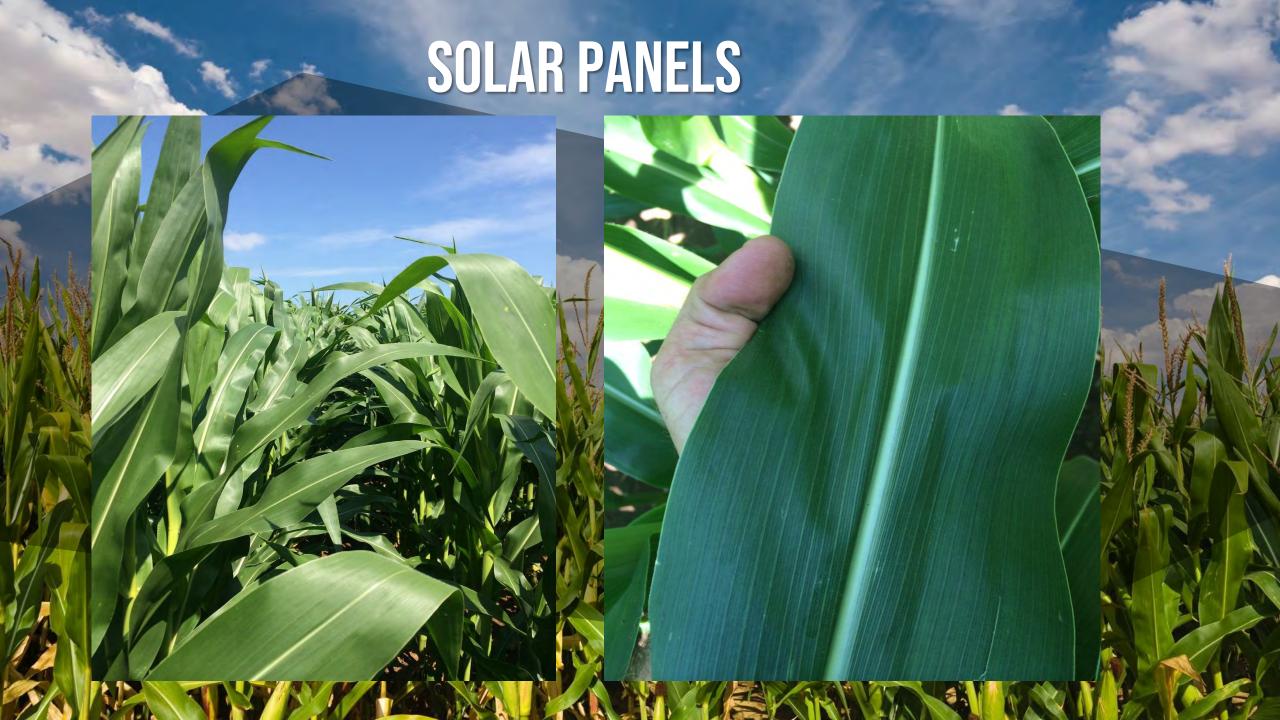


PROVEN PROGRAM AND REPEATED







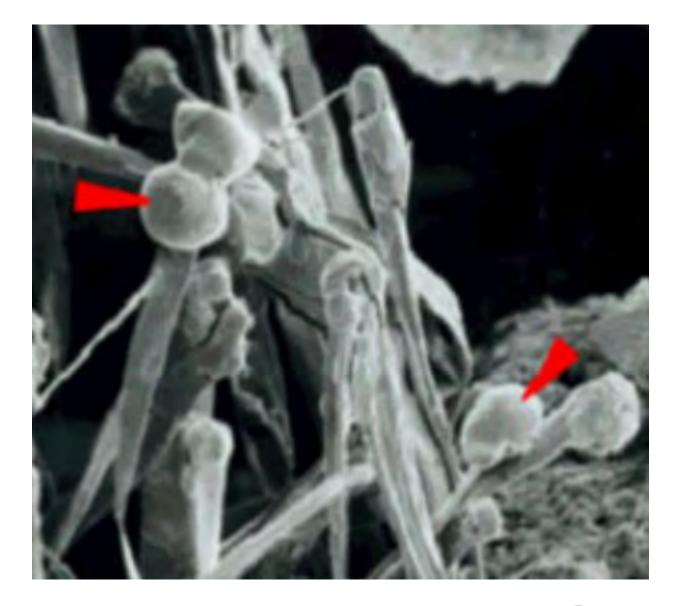


Victoria V. Roshchina Valentina D. Roshchina

The Excretory Function of Higher Plants

EXUDATES

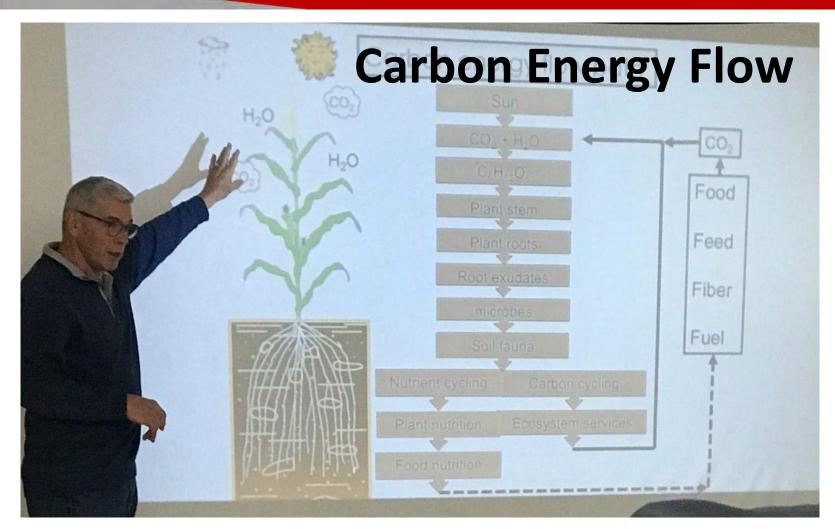
30-50% carbon produced by plant is excreted through roots





JERRY HATFIELD

SOIL ENERGETICS



"We need to make more lowa sugar"

"We <u>can</u> increase soil microbial protein levels"



CARBON CYCLE

measured biological activity

NUTRIENT RE-CYCLING

measured biological activity

MUCILAGE

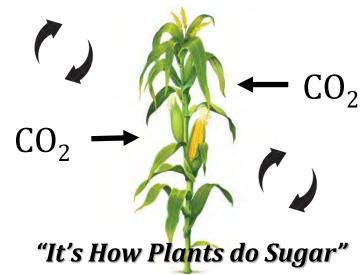


Mucilage (rhizosheaths) storage of <u>water</u> and <u>food</u>, better seed <u>germination</u>

- 1. enhances soil aggregate stability, which in the long term promotes soil aeration, root growth, and reduces soil erosion (Guckert et al. 1975; Morel et al. 1990; Czarnes et al. 2000).
- possesses a high intrinsic affinity for water, when fully hydrated, water content 100,000 times greater than its dry weight (McCully and Boyer 1997)

Photosynthesis

Glucose → Sucrose



 H_20 H_2

 $(C_6H_{12}O_6)$ + Other Plant Secondary Metabolites, Vitamins, Enzymes, etc.

RESPIRATION



Feed Soil Microbes

(sucrose + phytochemicals + metabolites)
Liquid Carbon-Based Fertilizer



How does **YOUR** fertilizer program affect **SOIL HEALTH**?

RESILIENCY

noun

the capacity to recover quickly from difficulties; toughness