

#### ADVANCED CROP & NUTRITION SIOUX CENTER, IOWA







## OUR PASSION IS TO SERVE YOU, BY ENHANCING THE PRODUCTIVITY AND PROFITABILITY OF YOUR FARMING OPERATION.



# ABOUT US

Advanced Crop and Nutrition is an industry leader in crop and livestock consulting. Our job is to educate producers and help them solve agriculture issues.

We work by balancing soil nutrients, building biology, and incorporating trace minerals, while working with producers and suppliers to create yearly cropping recommendations.

We offer products and programs that produce this year's crop and build the soils for the future. ACN produces an exclusive line of livestock products that include manure treatments, improved feed and forage, and promote animal health.

### STEWARDSHIP AND THE FUTURE OF FARMING

Advanced Crop and Nutrition is dedicated and always looking for new ways to promote stewardship in our future farmers, even in young future generation farmers.

Hank's great grandfather once said: "The soil we have been blessed to care for is all there will ever be; there won't be more. Be a good steward of the land and she'll be good to you".

Our goal at ACN is to help you protect and care for your most valuable resources while improving your operation's productivity – today, and in the future.

"Progressive farming" is a statement heard around the globe, but what does that mean?

World demand for food production continues to climb and the discussion is that we may need to feed two billion more mouths by 2050. This thought, coupled with the fact that some countries continue to demand a richer diet with more meat, dairy, and eggs, will mean an increased need for more corn and soybeans going toward the livestock sector of the food production industry, as well.

As farmers continue to look for economical ways to improve production in the future, our goals will evolve. How can we economically improve production with the land we care for? What does it look like to be better stewards of the soil, water, and air that we have been entrusted to care for?

That's where ACN comes along-side the farmer. We strive to be part of your team of experts (agronomists, nutritionists, veterinarians, loan officers, equipment dealers, farm managers, and family) that will help you continue to achieve your goals of production in the future. We believe the biology and health of your soil will be crucial to nutrient utilization, water conservation, and healthier, more productive plants, which enables the farmer to supply a higher quality produce or food to livestock and the consumer, while being courteous to our fellow man in the process.

Lofty goals = Great Responsibilities. ACN continues to research and develop our products on a continuous basis. In this ever-changing industry we desire to build, produce, and market the best product possible for the good of our clients and their operations, while being mindful of our neighbors and environment.

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# CHECK OUT THESE PRODUCTS ONLINE

### **KRUSTY**

Reduces soil compaction

### **BIO RELEASE**

A fertilizer (2-0-2) and soil additive that reduces nutrient tie-up in the soil making those nutrients plant available.

### **MOLYBDENUM 3%**

Soil micronutrient essential for Nitrogen conversions to amino acid and for Nitrogen fixing bacteria.

### **BIO-EMPRUV**

Boosts plant health to fight Goss' Wilt

## L-CBF BOOST™ 4-0-3-2S



#### **General Information**

QLF Agronomy L-CBF BOOST™ 4-0-3-2S (liquid carbon-based fertilizer) is a combination of balanced crop nutrients with complex carbon sources. Feeding soil biology and enhancing plant nutrient availability.

#### **Guaranteed Analysis**

Total Nitrogen (N)	4.0%
0.7% Ammoniacal Nitrogen	
3.3% Other Water-Soluble Nitrogen	
Soluble Potash (K2O)	3.0%
Sulfur (S)	2.0%
2.0% combined Sulfur (S)	

#### Ingredients

Derived from Sugar Cane Molasses, Urea, Ammonium Sulfate and Sulfuric Acid

#### Technical

Net Weight: Bulk as Invoiced
Weight Per Gallon Ibs/gal at 68°F 11.10
Specific Gravity1.324
pH at 68°F
Critical Low Temperature 20°F
Sugar

#### Characteristics

- **Provides a BOOST:** 30% sugars and packaged with a fermentation yeast extract in *L*-*CBF* BOOST<sup>™</sup> help increase soil microbes and support plant growth. Microbes help make nutrients more plant-available, improve soil structure and speed residue decomposition.
- Limit Risk of Leaf and Root Burn: When added to UAN, L-CBF BOOST™ can help reduce the risk of leaf and root burn often caused by UAN 28-32% N applications.
- **Reduce Losses to Drift:** Adding L-CBF BOOST™ to other liquids and sprays can limit losses to drift.
- All Major Crops: L-CBF BOOST<sup>™</sup> has a low pH (3.7) and can be applied to corn, soybeans, alfalfa and small grains. Ask your consultant for more information on dilution rates and application methods.

**Compatibility:** *L*-CBF BOOST™ is compatible with most other liquid fertilizers. Always perform a compatibility "jar" test before application.

**Application:** Combine *L*-*CBF BOOST™* with other liquids at a 10-20% inclusion rate (e.g. corn, wheat, grasses). Refer to soil test and your consultant for specific uses.

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## **PROOF POSITIVE**

**NORTHWEST IOWA** 

## **SUMMARY**

Rock Valley, IA & Lake Park, IA

#### FOLIAR APPLICATION

Product: L-CBF BOOST® Crop: Soybeans Application Timing: R3 Application Rate: 2 gal/acre

## DATA



\*ROI figured on \$8.50/bushel soybeans

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

## **SUMMARY**

Ireton, IA

#### IN-FURROW APPLICATION

Product: L-CBF 7-21-3 MKP Starter™ Crop: Soybeans Application Timing: Planting Application Rate: 2 gal/acre

## DATA



## **RETURN ON INVESTMENT**

\$15.25/ACRE



## **PROOF POSITIVE** SGS NORTH AMERICA - WYOMING, IL

## **SUMMARY**

Crop: Soybeans Planting Date: May 25, 2020 Product: L-CBF BOOST™ 4-0-3-2S Herbicide Application Date: June 11, 2020 Comparison Picture Date: July 1, 2020 Application Amount: 15 gal/acre Operation Pressure: 29 PSI Application Timing: Weeds at three inches or less.

Researchers observed that TRT B demonstrated less soybean injury to the leaves and stems than TRT A. TRT B plants also showed more significant physiological developments for both height and distinct growth phases. Measurements averaged over 6 replication blocks.



#### TRT A



#### Application Glyphosate 2,4-D

AMS WG

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

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

#### TRT B



Application Glyphosate 2,4-D AMS WG L-CBF BOOST

32 oz/acre 1.5 pt/acre 8.5 gal/100 gal **2 gal/acre** 

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## **SUMMARY**

The purpose of this study was to determine if L-CBF BOOST would have a synergistic effect with four distinctive herbicide programs. After reviewing the data, there were significant differences when L-CBF BOOST was added to the tank by demonstrating improvements in efficacy for weed control at seven, fourteen and twenty one days after treatment for Glufosinate, Glyphosate, Glyphosate Dicamba, and Glyphosate 2,4-D. The increase in efficacy also transitioned into more pods per plant, higher nodules per plant, yield and ROI.

Planting Date: May 1st	
Product: L-CBF BOOST	

Applciation Date: June 18th Rate: 2 gal/acre

Harvest Date: October 6th Location: Clarion, IA



## RESULTS



### **SUMMARY**

A Corn Yield and Nitrate Leaching Study along with soil health and microbiology measurements were performed at an independent research station in Martinsville, Illinois in 2020. The objective of the study was to verify if QLF's (Liquid Carbon-Based Fertilizer) L-CBF BOOST<sup>™</sup> with Urea Ammonium Nitrate-UAN will decrease nitrate (NO3-) leaching in field tile drainage water along with making nutrients readily available for the corn plants to uptake and gain yield advantages. Liquid nitrogen was applied both pre-emerge broadcast and post-emerge at V5 side-dress with Y-drop. This study compared rates of two applications at 40 gallons per acre of UAN 28% to rates of 36 gallons per acre of UAN 28% + BOOST at 4 gallons of per acre. The L-CBF BOOST treatments used 20 lbs. less (9% less) applied nitrogen per acre and demonstrated twenty-two percent reduction in NO3- leaching concentrations while gaining a twenty-two bushel per acre (12% more) increase in corn yield.

May 10th	May 12th	June 8th	Total N Applied
Broadcast N	Planting Date	Side Dress N	
40 GPA UAN 28%		40 GPA UAN 28%	238 LBS N
36 GPA UAN 28% 4 GPA BOOST		36 GPA UAN 28% 4 GPA BOOST	218 LBS N





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## Nitrogen + BOOST ROI's 3 Years Consecutive





## **PROOF POSITIVE**

**BRICKSTEAD DAIRY FARMS- GREENLEAF, WI** 

## **SUMMARY**

#### FOLIAR APPLICATION

Product: L-CBF BOOST® Crop: Alfalfa Application Timing: 4th Crop Application Rate: 6 gal/acre







## **RETURN ON INVESTMENT**



Alfalfa treated with L-CBF products showed a deeper green color, increase in forage and root mass (as shown above), and enhanced quality feed value. The ROI was calculated as a combination of increased yield and quality. The increase of RFQ (14%) may aid in the performance of livestock as fed. For dairy producers, this could mean more milk yield and increased profitability.

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

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# L-CBF AMINO 15-0-1 NITROGEN



QLF Agronomy **L-CBF AMINO 15-0-1** (liquid carbon based fertilizer) is a combination of balanced crop nutrients with complex carbon sources. It contains three sources of nitrogen (Amino, Urea, & Ammoniacal)

**L-CBF AMINO 15-0-1** provides plant available nitrogen to promote higher yields and overall plant health.

#### Characteristics

- Multiple Nitrogen Sources: L-CBF AMINO 15<sup>™</sup> delivers efficient foliar nitrogen from top tier sources, Urea and Amino Acid. Plant nitrogen uptake with L-form Amino Acids are energetically advantageous, utilizing and assimulating with no additional energy consumption.
- Versatility and Compatibility: L-CBF AMINO 15<sup>™</sup> is a costeffective tank partner with a proven return on investment utilized in multiple fertilizer and pesticide applications.
- All Major Crops: L-CBF Amino 15<sup>™</sup> is a supplemental foliar nitrogen source that can be applied to corn, soybeans, alfalfa, and small grains. Ask your consultant for more information o dilution rates and application methods.
- Lower pH: L-CBF AMINO 15<sup>™</sup> compliments better performance of slightly acidic foliar solutions for increased cuticle penetration and maximum leaf absorption.

#### Analysis

Total Nitrogen (N)	15.0%
15% Urea Nitrogen	
Soluble Potash (K2O)	. 1.0%

#### Ingredients

Derived from Sugar Cane Molasses, Urea, L-Amino Acids

#### Technical

Net Weight: Bulk as Invoiced	
Weight Per Gallon Ibs/gal at 68°F	10.0
pH at 68°F	.4.7
Sugar	10%

#### Application

L-CBF AMINO 15-0-1 Nitrogen can be applied using the following methods:

Crop	Placement	Rate Per Acre
Corn	Foliar	3-6 gal
Wheat	Foliar	3-6 gal
Soybeans	Foliar (R1-R3)	3-6 gal
Alfalfa	Foliar	3-6 gal
Pasture	Foliar	3-6 gal



#### **SUMMARY**

L-CBF Amino 15-0-1 proved to be an effective foliar nitrogen source at two growth stages and multiple applications. Product was applied foliar on Corn at V4, V10, and V4+V10, using a rate of 3 gallons per acre. All applications easily produced a return on investment. An average of all treatments resulted in positive 9.4 bushels gained and over \$24 per acre net return (ROI based on \$3.92/bushel). Additional spray passes include Pre-emergence (May 3) and Post-emergence (June 9) herbicide applications, along with a Fungicide application (July 19). The importance of Nitrogen (N) uptake prior to flowering cannot be overstated, as this N supports critical ear shoot development, kernel number and potential kernel size. N for grain development originates from both remobilized N from vegetative tissues and continued N uptake from the soil. Therefore, ensuring a season-long N supply and better plant health for more yield.

 Plant Date:
 05-06-2020

 Harvest Date:
 10-29-2020

 V4 Application:
 06-20-2020

 V10 Application:
 07-24-2020

## AVERAGE +9.4 BUSHELS RETURN ON INVESTMENT \$24.96/ACRE \*ROI figured on \$3.92 bu corn.

CORN YIELD



\*results may vary. always perform a jar test before application.



## **PROOF POSITIVE**

## **GREENBUSH, MN**

"The coverage on the leaf was exceptional! You could just see it glisten on the leaves, even when the sprayer was leaving the field." -Ross Waage

## **SUMMARY**

#### FOLIAR APPLICATION

Product: L-CBF AMINO 15 Nitrogen Crop: Spring Wheat Application Timing: Early Flower

These results were obtained on a 690 acre field with a total trial area of 128 acres located in Northern Minnesota. Each trial strip was 32 acres.

## **RETURN ON INVESTMENT**



\*ROI figured on \$4.75/bushel



## L-CBF 7-21-3 MKP STARTER



#### **General Information**

QLF Agronomy L-CBF 7-21-3 MKP Starter (liquid carbon-based fertilizer) is a combination of balanced crop nutrients with complex carbon sources. Feeding soil biology and enhancing plant nutrient availability. L-CBF 7-21-3 MKP promotes early plant and root growth for stronger starts and higher yields.

#### **Guaranteed Analysis**

Total Nitrogen (N)7.0%4.8% Ammoniacal Nitrogen2.2% Urea NitrogenAvailable Phosphate (P2O5)21.0%Soluble Potash (K2O)3.0%

#### Ingredients

Derived from Sugar Cane Molasses, Urea, Monopotassium Phosphate, Ammonium Polyphosphate Solution, Phosphoric Acid and Ammonium Hydroxide

#### Technical

#### Characteristics

- **High Orthophosphate Blend:** derived from the most concentrated 100% orthophosphate watersoluble fertilizer available, MKP (monopotassium phosphate) is over 50% P2O5 and 34% K2O.
- **Provides a BOOST in Growth:** 7% sugars derived from QLF Cane Molasses and packaged with a fermentation yeast extract to help increase soil microbes and support plant growth. Microbes help make nutrients more plant-available, improve soil structure and speed residue decomposition.
- All Major Crops: L-CBF 7-21-3 MKP is a stand-alone starter that can be applied to corn, soybeans, alfalfa and small grains. Ask your consultant for more information on dilution rates and application methods.

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## **SUMMARY**

#### **IN-FURROW APPLICATION**

Product: L-CBF 7-21-3 MKP STARTER™ Crop: Spring: Corn Application Timing: Planting Planting Date: 05-21-2019 Harvest Date: 10-28-2019



Treatment	Moisture	Yield	Cost	ROI
Check	17.2%	205.40	\$0	\$0
5 gals L-CBF 7-21-3 MKP	17.1%	212.60	\$20.00	\$3.89
5 gals L-CBF 7-21-3 MKP & 1 pint Kelpak	17.2%	217.80	\$25.63	\$17.76
5 gals L-CBF 7-21-3 MKP & 1 quart Biological	17.2%	214.50	\$27.50	\$3.51
Check	17.2%	207.60	\$0	\$0
5 gals 6-24-6	17.6%	207.45	\$17.50	\$-12.93

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



## ACN Program 2x vs Check on Corn



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# KELPAK

Kelpak is a natural biostimulant extracted from freshly harvested Ecklonia maxima kelp, a seaweed high in natural growth promoting compounds, scientifically proven to increase the health, quality and yield in a wide variety of crops. Kelpak is designed for use as a seed treatment, in fertilizer solutions, in furrow and as a foliar treatment.



#### Benefits

- Increase in root tips improves:
  - Plant nutrient and water uptake
  - Natural cytokinin production and subsequent foliar growth
- Reduces transplant shock
- Increases growth of seedlings and nursery plantouts
- Increases photosynthesis and carbohydrate production
- Reduces symptoms of aboitic stress
- Increased yields with better returns
- Improves shelf-life and produce quality during cold storage
- Kelpak is approved by WSDA Organic Program

#### Application

- Seed coating
- Root dip
- Soil drench
- Drip irrigation
- Foliar spray (conventional, electrostatic or aerial)

#### **Optimal Usage**

- Do not dilute more than 1:500
- Do not over dilute with drip irrigation application
- Apply as a pulse during last 10 minutes of irrigation cycle
- Do not apply more frequently than 7 days apart
- Compatible with most pesticides

## CORNSPIKE

#### **Guaranteed Analysis**

Boron (B)	,
Copper (Cu)	)
0.5% Chelated Copper (Cu)	
Iron (Fe)0.25%	)
0.25% Chelated Iron (Fe)	
Manganese (Mn) 1.0%	)
Zinc (Zn)	)
5.0% Chelated Zinc (Zn)	

Derived from boric acid, copper IDS,

iron EDTA, iron IDS, manganese EDTA, manganese IDS, zinc EDTA and zinc IDS.

#### Application

- All Major Crops: QLF CornSpike can be applied to all types of crops.
- Maintenance Rate: Apply 1 to 2 quarts per acre.
- Medium to Severe Deficiency Rate: Apply 3 to 4 quarts per acre.
- Applications should be made at or prior to planting or at the start of the growing season. Applications should be made every 7 to 28 days as needed throughout the season.

**Warning:** The use of Boron on any crops other than those recommended may result in injury to the crop. Contact your county agent or field representative before making application.





**Protect**+<sup>™</sup> is a new microbial seed treatment designed to provide protection from extreme ecological conditions. This technology uses a natural symbiotic process between plants and fungi that enables plants to flourish when facing water, temperature, and/or salt stress. Our methodology mimics how plants in nature adapt to stress and can be applied to a broad spectrum of agricultural crops. To accomplish this, we have developed proprietary methodologies to generate stress tolerance products that can be applied to many crop species.

**Protect**+<sup>™</sup> improves plant's fitness levels and creates robust root systems enabling crops the ability to handle Mother Nature's stresses. This novel breakthrough in seed treatment technology delivers protection from the elements enabling consistently high crop yields.

#### What makes us different?

There are a multitude of products on the market that use the same fungal species that is in **Protect+**<sup>™</sup>. So, what makes ours special? Just as humans are very different from one other, so are individuals of other species. We have capitalized on this by selecting for individuals, or fungal isolates, with great capacity for conferring stress tolerance & increasing agricultural yields.

#### **Key Differences:**

**Protect**+<sup>™</sup> was developed to reduce water consumption in crop plants & increase yields (2-30% depending on stress levels) without requiring any additional inputs.

**Protect**+<sup>™</sup> has been bred to reside and function entirely inside the plants. This means, as a true Class II endophyte, it does not establish in soils and therefore does not compete with established soil microorganisms.

**Protect**+<sup>™</sup> works similarly in diverse soil types & climate zones.

**Protect**+<sup>™</sup> confers stress tolerance (drought, salt and temperature) to a broad spectrum of agricultural crops. Using a proprietary process called **BioOpt**<sup>™</sup>, **Protect**+<sup>™</sup> is tailored to allow for more precise communication within plants, allowing for maximal yield benefits.

**Protect+**<sup>™</sup> is NOT a biopesticide. All other products on the market are used to protect plants against plant pathogens.

#### **Product Features:**

**Abiotic stress tolerance** -- gives plants the ability to prosper during times of drought, salinity, and cold & hot temperatures.

Increased plant health – increase in biomass & yields.

**Early growth vigor** -- enhanced growth response & seedling development.

**Decreased irrigation needs** -- plants require less water.

**Increased plant vigor** -- seed germination & longevity enhanced.

**Current seed treatment compatibility** -- all existing seed treatment equipment, commonly used fungicides & biologicals.

**Ease of application** -- liquid formulations applied as seed treatment, in-furrow or foliar spray.

Long shelf-life -- 1 year duration.

**Applicability** -- On all major monocots & eudicots crops including but not limited to corn, soy, wheat, rice, barley, millet, cotton, peas, alfalfa, potatoes, okra, onion, blueberries, mung bean, sesame, guar, cucumber, and leafy greens.

**Diverse Agricultural Regions** – including subtropical, desert and temperate climates.

**Formulations** – Liquid formulation containing 3-6 fungal endophyte strains. Powder formulation coming soon.

**Low Application Rates** -- Seed treatment – 0.5oz/100wt In- furrow – 1oz/10 acre.

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A Novel Biological Inoculant for Commercial Seed Treating That Helps Protect Crops Against Drought, Temperature and Salt Stresses

#### **Agricultural Benefits**

Better tolerance against drought, temperature and salt stresses Treat seeds with beneficial microbes Easy to use powder formulation Compatible with common seed treatment chemicals and microbes

#### Guaranteed Analysis CONTAINS NON-PLANT FOOD INGREDIENTS

Active Ingredient:	
Trichoderma harzianum (1x10 <sup>6</sup> cfu/g)	0.5%
Inert Ingredients:	
Organic FarmTalc Powder	99.5%
Total	100.0%

Lot # and Expiration Date: \_\_\_\_\_

#### Purpose

**Protect+FP** is a flowable powder seed treatment containing fungal endophytes that enhance drought, temperature and salt stress tolerance of crop plants. Once coated onto the surface of seeds, our formulation keeps the fungus inactive until the seed is planted and exposed to conditions that stimulate seed germination. Upon germination, the fungus activates and establishes a beneficial symbiosis with seedlings. The symbiotic plants become more tolerant to drought, temperature and salt stresses.

#### **Directions for Use**

To achieve optimal seed coverage, apply *Protect+FP* directly to dry seed alone or in combination with other powder inoculants and/or other registered seed treatments. Do not directly mix with products containing fungicides or biocides. When mixing with any other registered seed treatments, always read and follow all use directions, restrictions, and precautions of both *Protect+FP* and other products.

#### Seed Treatment:

*Protect+FP* can be applied to seed following one of two methods:

1) The product can be applied manually using a scoop as seed is being loaded into the planter hopper (CCS unit) or individual row unit. Make sure the product is evenly dispersed onto the seed as it fills the hopper or row unit. If applied at the individual row unit, a power drill with an auger bit can be used to evenly disperse the product onto the seed.

# COMPOSTING

Give your crops what they want. Composted Cattle Manure is the environmentally sound way to fertilize.

#### BENEFITS OF COMPOSTED CATTLE MANURE AS FERTILIZER

#### **#1 ORGANIC MATTER**

Use of composted cattle manure with our added proprietary blend of Compost Tea (which includes live/active bacteria, fungi, and protozoa) adds organic matter resulting in:

- Healthier soil
- Better moisture retention
- Better infiltration; less run off

#### **#2 HEALTHIER CROPS**

Composted cattle manure helps correct deficiencies in your soil.

- High levels of most nutrients
- Slow release nitrogen
- Other micronutrients that plants need

#### **#3 ENVIRONMENTAL QUALITY**

- Reduce odor
- Weed seed free
- Reduced pathogens

#### #4 BIG YIELDS!



Applications include third party recommendations and product verification by Nutrient Advisors, LLC.

#### A 4 TON PER ACRE APPLICATION GIVES YOUR FARM:

Analysis per ton: 21 N - 30 P - 35 K - 11 S - .25 ZN

80 Nitrogen	120 Phosphorus-P205	140 Potassium	45 Sulfur	1 Zinc
oortinogon	1201110301101031200	1 10 1 0103510111	10 001101	1 2010







## **BIO-AMEND & BIO-AMEND 2.0**



Bio-Amend used in cattle barn pits.



Bio-Amend used in hog barn pits.



Picture of a 3.5 million gallon, 1st stage lagoon, taken 08/2015. It had been treated with *Bio-Amend* for about a year. No crust and easy agitation during fall pumping. No odor.



This is the 2nd stage lagoon at the same operation, where they pull water for flushing the sand lane. During the summer this lagoon would get very stagnant and the odor would be very strong. It had been treated with *Bio-Amend* for about a year and the odor was gone, and the sand was cleaner because of cleaner water.

Bio-Amend is an outstanding pit and lagoon treatment product that contains 17 strains of active bacteria including 2 strains of purple, non-sulfur bacteria. This biological product works great in any anaerobic manure storage setting. Bio-Amend works in a way that it helps increase plant availability of the nutrients in the manure, as well as reduce odor, reduce flies, and regain capacity, among others. Simple application and ease of use, along with its great benefits, puts this product at the top of its league.

#### **General Information**:

BIO-AMEND contains 17 species of live active bacteria, including purple non-sulfur bacteria. BIO-AMEND is used on all forms of anaerobic manure storage and livestock species, including hog pits and lagoons, dairy lagoons and pits, and cattle pits.

#### Benefits in the Facility:

- Reduce to eliminate bottom solids
- Regain capacity
- Reduce to eliminate crusting
- Reduce pit odors and harmful gas production
- Reduce fly population
- Increase ease of pumping

#### **Benefits in the Field:**

- Increase manure consistency
- Pre-digest manure
- Increase plant available nutrients
- Nutrients stored in non-leachable organic compounds
- Inoculate soils with beneficial bacteria
- Reduce manure and soil salt levels
- Increase yield

#### Treatment Rate:

BIO-AMEND: 325 gallons per 1 million gallons of manure storage capacity per yearBIO-AMEND: Fall, after pump out: 150 gallons per million gallons manure capacitySpring, after warm up: 175 gallons per million gallons manure capacity

#### Concentrate :

BIO-AMEND 2.0: 32.5 gallons per 1 million gallons of manure storage capacity per yearBIO-AMEND 2.0: Fall, after pump out: 15 gallons per million gallons manure capacitySpring, after warm up: 17.5 gallons per million gallons manure capacity

Picture taken 9/20/16 of a 9 million gallon dairy lagoon treated with Bio-Amend 4/2016 for the 1st time. Very little crust, and owner said odor was areatly reduced from previous years.

# **BIO PRESERVE & BIO PRESERVE 2.0**

#### **General Information:**

*Bio Preserve* is an outstanding forage and alfalfa inoculate. It contains 13 strains of active bacteria including 8 Lactobacillus species, 3 Bifidobacterium species, 1 Bacillus species, and yeast species.

Bio Preserve is a leading inoculant in the industry with it's ability to enhance fermentation, prevent mold and toxin growth, and break down more Cellulose and Lignin within the forage, to make more nutrient availability (energy) for your livestock. *Bio Preserve* is produced in an active/ liquid state, never being frozen or dried. This product is grown in a consortium manner, allowing the bacteria to work as a team, with each member knowing their individual job during the fermentation, nutrient enhancement, and preservation process.

#### Feed Stuffs

- Corn silage
- Alfalfa
- Baleage
- Corn stalks

#### **Benefits**

- Enhances fermentation
- Prevents mold and toxin growth
- Aids in nutrient availability
- Breaks down cellulose and lignin

#### **Treatment Rates**

- BIO PRESERVE: 32 fluid ounces per ton of feed
- BIO PRESERVE 2.0: 1 fluid ounce per ton of feed through chopper

Bio Preserve comes in liquid form, (no mixing required) ready to put into your applicator for simple and timely application.

\*See our website for testing analysis of Bio Preserve 2.0



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5-Year Average Shrink on Corn Silage									
TREATMENT	AVERAGE SHRINK %	AVERAGE SHRINK % OVER 365 DAYS							
No Innoculant Year 1	2.32%	14.11%							
No Innoculant Year 2	2.07%	10.79%							
No Innoculant Year 3	1.47%	8.92%							
No Innoculant Year 4	1.14%	6.84%							
No Innoculant Year 5	1.47%	8.84%							
No Innoculant 5-Year Average	<u>1.69%</u>	<u>9.90%</u>							
Bio-Preserve Year 1	1.95%	11.86%							
Bio-Preserve 2.0 Year 2	1.65%	8.58%							
Bio-Preserve 2.0 Year 3	0.00%	0.00%							
Bio-Preserve 2.0 Year 4	0.56%	3.36%							
Bio-Preserve 2.0 Year 5	0.95%	5.68%							
Bio-Preserve 4-Year Average	<u>1.02%</u>	<u>5.90%</u>							
Competitor Year 1 Average	2.02%	12.29%							
Competitor Year 2 Average	1.85%	9.64%							
Competitor Year 3 Average	1.50%	9.13%							
Competitor Year 4 Average	0.73%	4.38%							
4-Year Competitor Average	1.53%	8.86%							

Every year we test a different competitor innoculant. In turn, these numbers show the average of each competitor for that year.

#### 2020 ACN Silage Innoculant Data

					BEEF	MILK					% SHINK
CONTROL	NDFD 30	Starch	ISSD7	TTNDFD	PER TON	PER TON	INITIAL	FINAL	lbs shrink	%	OVER 1 YEAR
1	59.45	28.92	82.68	44.68	212	3281	232	228	4	1.72%	10.34%
2	61.88	29.03	80.22	45.5	212	3245	227	223	4	1.76%	10.57%
3	60.07	33.96	77.89	41.77	218	3363	220	218	2	0.91%	5.45%
AVERAGE	60.47	30.64	80.26	43.98	214.00	3296.33	226.33	223.00	3.33	1.47%	8.84%
ENENGIZED B.P. 2.0											
1	63.11	35.17	80.14	43.72	233	3467	225	222	3	1.33%	8.00%
2	59.94	32.27	85.01	43.38	223	3353	218	215	3	1.38%	8.26%
3	67.28	34.49	82.61	46.62	250	3616	221	219	2	0.90%	5.43%
AVERAGE	63.44	33.98	82.59	44.57	235.33	3478.67	221.33	218.67	2.67	1.20%	7.23%
B.P. 2.0											
1	61.45	32.37	82.52	43.19	227	3444	241	239	2	0.83%	4.98%
2	64.21	36.73	80.28	43.96	258	3698	248	245	3	1.21%	7.26%
3	63.3	34.27	81.09	44.77	250	3605	250	248	2	0.80%	4.80%
AVERAGE	62.99	34.46	81.30	43.97	245.00	3,582.33	246.33	244.00	2.33	0.95%	5.68%

## **MASTERS CHOICE**

#### FLOURY GRAIN 101

In the United States nearly 40% of all corn grown is fed to livestock; it's the largest consumer of corn in the country, a fact that's often overlooked. Nearly all the corn hybrids sold here were developed for the once booming export market, resulting in tightly packed, hard endosperm kernels. However, those days are long gone, with exports making up less than 13% of the modern marketplace. As such a large part of the American ag economy, shouldn't we be breeding corn especially for livestock operations? We think so.

By now you've likely heard of floury grain and the benefits that it provides when fed. Masters Choice floury grain has up to 15% more available energy than standard corn hybrids due to its higher digestibility. A slower rate of passage is another contributing factor to the higher digestibility of Masters Choice floury grain, as it stays in the rumen up to twice as long as harder, slicker industry hybrids, even when both are ground to a fine dust (Because, let's be honest, when you grind a rock, it's still a rock).

Another benefit of floury grain, that you may not yet be completely familiar with, is the increased microbial yield being associated with floury corn hybrids. These microbial proteins greatly contribute to milk production on dairy operations.



#### 2019 ACN Masters Choice Test Plot

VARIETY	TONNAGE/ ACRE	TONS DM/ ACRE	MILK PER TON	MILK PER ACRE	GROSS INCOME PER ACRE	Rank	BEEF PER TON	BEEF PER ACRE	GROSS INCOME PER ACRE	Rank
MC 4884 VIP 3111	17.82	7.47	3044	22,728.27	\$4,318.37	12	180.98	1,351.30	\$1,891.82	12
Pioneer 9998 AMXT	18.15	6.95	3431	23,850.42	\$4,531.58	10	250.25	1,739.60	\$2,435.44	9
MC 4933 VIP 3111	17.89	7.60	3344	25,425.27	\$4,830.80	8	230.97	1,756.12	\$2,458.57	7
MC 5375 VIP 3122 E-Z	23.23	9.27	3266	30,271.80	\$5,751.64	2	220.97	2,048.12	\$2,867.37	2
Pioneer 0688 AM	19.94	7.34	3239	23,767.52	\$4,515.83	11	214.92	1,577.07	\$2,207.89	11
MC 5663 3000GT	20.97	7.89	3314	26,136.91	\$4,966.01	5	227.95	1,797.80	\$2,516.92	5
Pioneer 0950Q	22.15	7.49	3433	25,701.84	\$4,883.35	7	234.56	1,756.08	\$2,458.51	8
Pioneer 1108Q	23.15	7.29	3348	24,414.45	\$4,638.75	9	214.68	1,565.50	\$2,191.70	10
MC 6153 3000 GT	21.83	7.66	3366	25,769.36	\$4,896.18	6	229.52	1,757.15	\$2,460.02	6
Pioneer 1353 AMX	23.58	7.92	3431	27,183.40	\$5,164.85	4	227.15	1,799.68	\$2,519.56	4
MC 6365 VIP 3122 E-Z	24.47	9.44	3567	33,683.08	\$6,399.79	1	246.75	2,330.05	\$3,262.08	1
Pioneer 1366 AMXT	25.34	7.98	3426	27,346.67	\$5,195.87	3	234.5	1,871.80	\$2,620.52	3

#### 2020 ACN Masters Choice Test Plot

VARIETY	TONNAGE/ ACRE	TONS DM/ ACRE	MILK PER TON	MILK PER ACRE	GROSS INCOME PER ACRE	RANK	BEEF PER TON	BEEF PER ACRE	GROSS INCOME PER ACRE	RANK
MC 5663 3000GT	22.40	8.51	3301	28,091.51	\$5,337.39	2	229	1,948.79	\$2,728.31	2
MC 5375 VIP 3122 E-Z	20.41	7.74	3168	24,520.32	\$4,658.86	6	215	1,664.10	\$2,329.74	6
MC 5454 3111 VIP	20.99	8.12	3331	27,047.72	\$5,139.07	3	228	1,851.36	\$2,591.90	3
MYC 1890Q	18.49	6.47	3067	19,843.49	\$3,770.26	12	171	1,106.37	\$1,548.92	12
MC 6153 3000 GT	18.10	6.86	3023	20,737.78	\$3,940.18	11	179	1,227.94	\$1,719.12	11
P1138 AM	19.86	7.28	3378	24,591.84	\$4,672.45	5	237	1,725.36	\$2,415.50	5
P1366 Q	21.16	7.18	3395	24,376.10	\$4,631.46	7	228	1,637.04	\$2,291.86	7
Channel 213-19SS RIB	19.40	7.22	3362	24,273.64	\$4,611.99	8	225	1,624.50	\$2,274.30	8
MC 6365 VIP 3122 E-Z	21.86	7.94	3362	26,694.28	\$5,071.91	4	224	1,778.56	\$2,489.98	4
Becks 6368SS RIB	19.38	6.71	3130	21,002.30	\$3,990.44	10	192	1,288.32	\$1,803.65	10
MC 6583 3000GT	19.71	7.52	3025	22,748.00	\$4,322.12	9	184	1,383.68	\$1,937.15	9
MC 5663 3000GT	21.49	8.09	3658	29,593.22	\$5,622.71	1	266	2,151.94	\$3,012.72	1

#### 2021 ACN Masters Choice Test Plot

VARIETY	TONNAGE/ ACRE	TONS DM/ ACRE	MILK PER TON	MILK PER ACRE	GROSS INCOME PER ACRE	RANK	BEEF PER TON	BEEF PER ACRE	GROSS INCOME PER ACRE	RANK
MCX 19501	20.21	7.07	3433.00	24,280.81	\$4,613.35	11	282.34	1,996.92	\$2,795.69	11
Red Tail 51T57	23.77	8.32	3629.00	30,187.20	\$5,735.57	8	296.98	2,470.38	\$3,458.53	8
MC 5663 3000GT	25.60	8.96	3772.00	33,792.21	\$6,420.52	4	311.34	2,789.20	\$3,904.88	4
MCX 1906	19.98	6.99	3384.00	23,666.10	\$4,496.56	12	279.11	1,951.96	\$2,732.75	12
MC 6556	21.11	7.39	3685.00	27,231.91	\$5,174.06	10	297.62	2,199.39	\$3,079.15	10
Pioneer 1185Q	24.87	8.70	3867.00	33,661.48	\$6,395.68	5	312.19	2,717.55	\$3,804.57	5
Red Tail 57T85	23.69	8.29	3674.00	30,461.41	\$5,787.67	7	298.29	2,473.14	\$3,462.40	7
MC 6073	26.04	9.12	3909.00	35,631.47	\$6,769.98	2	326.26	2,973.94	\$4,163.51	2
Enogen	24.42	8.55	3774.00	32,261.96	\$6,129.77	6	310.24	2,652.08	\$3,712.91	6
MC 6367	27.55	9.64	4068.00	39,225.69	\$7,452.88	1	342.54	3,302.94	\$4,624.12	1
MC 5856	25.76	9.02	3910.00	35,256.98	\$6,698.83	3	322.86	2,911.27	\$4,075.78	3
Red Tail 63T13	21.88	7.66	3651.00	27,964.59	\$5,313.27	9	298.00	2,282.51	\$3,195.52	9



