



**IT'S THE TOTAL PACKAGE**





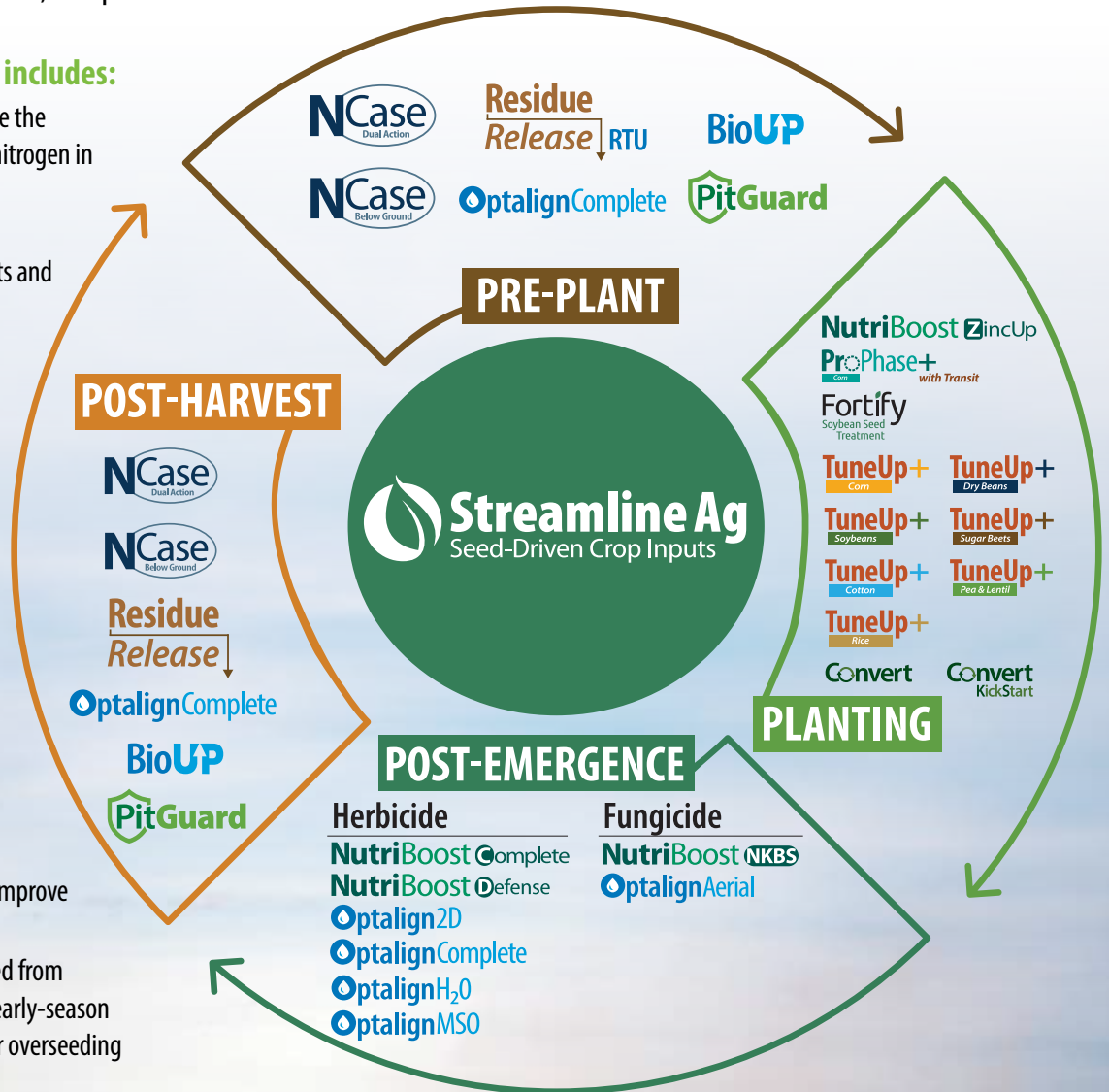
# SEED-DRIVEN CROP INPUTS TO INCREASE YOUR OUTPUT

With today's increasing yield demands and environmental challenges, it's critical to give every seed that's put in the ground all the advantages it needs to deliver on its true potential. That's where Streamline Ag comes into play.

Designed for every stage of growth and development, our products deliver precisely what's needed, when it's needed – at pre-plant, planting, in-season, and post-harvest.

## The Streamline Ag lineup includes:

- **Nitrogen stabilizers** that ensure the availability and accessibility of nitrogen in the soil
- **Adjuvants** that enhance the performance of spray tank inputs and reduce off-target loss
- **Foliar nutrition** to give plants what they need to optimize genetic potential
- **Custom solutions** that manage yield robbing residue, reduce nutrient tie-up, and improve planter performance, emergence, and stand establishment
- **Biological plant nutrition** provides nutritional boosting microbials that increase availability and solubility of nutrients to drive higher yields
- **Plant growth regulators** that improve growth and vigor
- **Seed treatments** to protect seed from pathogens and pests, enhance early-season vigor and eliminate the need for overseeding



# CROP SPECIFIC RECOMMENDATIONS & ALIGNMENT

## Build the Foundation



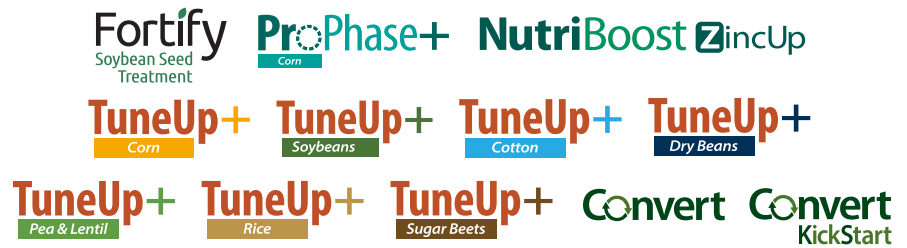
Lay the groundwork for improved planter performance, uniform emergence, and stand establishment



## Establish Early Strength



Drive fast, even emergence, a robust root system and above ground photosynthesis machine



## Optimize In-Season Genetic Potential



Provide essential nutrition and stress management solutions in-season













## Improve Tank Mix Performance












Enhance the performance of spray tank inputs and reduce off target loss



# USE RATE GUIDE

PRODUCT		TIMING	USE RATE
	<b>Dechlorination Tank Aid</b> <ul style="list-style-type: none"> <li>Formulated and produced to chemically neutralize both free and combined chlorine in water</li> <li>Enhances biological products success</li> </ul>	<b>Tank Mix Partner</b> Use with all biological applications with rural and municipality water sources	2 oz/100 gal of water
	<b>Concentrate Starter Fertilizer (12-58-0)</b> <ul style="list-style-type: none"> <li>Water Soluble Starter fertilizer that contains two enzymes Phosphatase and Mannanase</li> <li>Easy to use, very low salt index, replacement for liquid starter fertilizer</li> </ul>	<b>Planter</b> In-furrow/ banded at planting	Recommended Rate: 2.5 lbs of Convert dissolved in 5 gallons of water
	<b>Concentrate Starter Fertilizer (9-39-16-3S)</b> <ul style="list-style-type: none"> <li>Water Soluble Starter fertilizer that contains two enzymes Phosphatase and Mannanase</li> <li>Easy to use, very low salt index, replacement for liquid starter fertilizer</li> </ul>	<b>Planter</b> In-furrow/ banded at planting	Recommended Rate: 2.5 lbs of Convert KickStart dissolved in 5 gallons of water
	<b>Soybean Seed Treatment</b> <ul style="list-style-type: none"> <li>Early season protection of all common, seed-borne, and soil-borne diseases</li> <li>Powerful above and below ground insect control</li> </ul>	<b>Planting</b> Applied to Soybean seed	4.18 fl oz/cwt or 1.95 fl oz/140,000 seeds
	<b>Below Ground Nitrogen Stabilization</b> <ul style="list-style-type: none"> <li>Low use rate stabilizer, decreases Nitrogen leaching and keeps it in the root zone</li> <li>Non-corrosive Calcium based polymer that will not kill bacteria and is easy on equipment</li> </ul>	<b>Nitrogen Stabilizer</b> Add to your nitrogen pass Specially formulated for: UAN, NH3, Injected Liquid Manure	Anhydrous Ammonia: 6 oz. per 50 units of nitrogen  Liquid Fertilizer: 2qts/ton UAN Liquid Manure: 24-32oz/acre
	<b>Below and Above Ground Nitrogen Stabilization</b> <ul style="list-style-type: none"> <li>Control volatilization by preventing ammonia loss while Nitrogen is on the soil surface</li> <li>Reduce Nitrogen loss due to volatilization by inhibiting urease enzyme function</li> </ul>	<b>Nitrogen Stabilizer</b> Add to your nitrogen pass Specially formulated for: UAN & Liquid Manure	UAN Solution (28-32%): 1.5 qts/ton total solution  Liquid Manure: 13.5-18oz/acre
	<b>Stress Priming Biostimulant</b> <ul style="list-style-type: none"> <li>Shields impact of abiotic stresses to protect yield potential</li> <li>Promotes vegetative and reproductive growth</li> </ul>	<b>Foliar Application</b> Corn: V3-R2 Soybeans: V3-R4+ Alfalfa: after 3"-4" of regrowth Small Grains: early Vegetative stages	16-32 oz/ac
	<b>Late Season Foliar (2-0-15-4.5S) with B &amp; Mo</b> <ul style="list-style-type: none"> <li>An updraged formulation of 2-0-15-4.5S with a boost of boron and molybdenum</li> <li>Includes a high load surfactant package to maximize nutrient penetration into the plant</li> </ul>	<b>Foliar Application</b> Corn: V12-R3 Soybeans: R1-R4+ Cotton: Square - Boll Fill	32 oz/ac
	<b>Foliar 17% Sulfur</b> <ul style="list-style-type: none"> <li>Essential for chlorophyl production and enhances nitrogen use efficiency</li> <li>Aids in protien and enzyme synthesis</li> </ul>	<b>Planting-Foliar Application</b> In-furrow/banded With herbicide application with Fungicide application	32 oz/ac
	<b>In-Furrow 4% Chelated Zinc + Mannanase and Lipase</b> <ul style="list-style-type: none"> <li>Boosts root growth for more water and nutrient uptake while increasing mictrobial activity in the soil</li> <li>Converts organic matter into smaller digestible units</li> </ul>	<b>Planting</b> In-furrow/ banded at planting	Soil: 1qt/acre

PRODUCT		TIMING	USE RATE
	<b>Drift &amp; Deposition</b> <ul style="list-style-type: none"> <li>Delivers more active ingredient to the plant canopy with improved coverage</li> <li>Reduces fines to minimize off target drift</li> </ul>	<b>Tank Mix Partner</b> Approved For : Enlist Duo/ Enlist One XtendiMax* & Engenia	3-6 oz/acre @ 5-20 GPA 6-8 oz/acre @ 20-40 GPA 8-10 oz/acre @ 40-60 GPA
	<b>NPE-Free surfactant</b> <ul style="list-style-type: none"> <li>Increased coverage lower in the crop canopy, where diseases and insects are more prevalent</li> <li>Increased droplet retention and slower evaporation, allowing maximum uptake of systemic fungicides</li> </ul>	<b>Tank Mix Partner</b> Approved For : Enlist Duo* Enlist One*	Ground application – 6-10 oz per acre Aerial or Drone application – 1% v/v (use 3 oz per acre with 3 gallons of water or less)
	<b>NIS+AMS+Drift/Deposition</b> <ul style="list-style-type: none"> <li>All-in-one tank mix partner contains AMS-based Water Conditioner, Surfactant, DRA and humectants</li> <li>Creates ideal droplet size and spray pattern for optimum coverage</li> </ul>	<b>Tank Mix Partner</b> Approved For : Enlist Duo* Enlist One*	1 gallon per 100 gallons of spray volume with Roundup and Enlist  2 gallons per 100 gallons of spray volume with Liberty
	<b>NIS+AMS</b> <ul style="list-style-type: none"> <li>Tank aid premix with Nomionic Surfactant and 3.4lbs AMS includes water conditioner</li> <li>Designed to improve accuracy of products with high load AMS requirements (glyphosate and glufosinate)</li> </ul>	<b>Tank Mix Partner</b>	1- 2.5 gallons per 100 gallons of spray volume
	<b>Hi-Load Methylated Seed Oil</b> <ul style="list-style-type: none"> <li>Improves herbicide performance through increased uptake</li> <li>Increases canopy penetration and leaf surface coverage</li> </ul>	<b>Tank Mix Partner</b>	24 oz/acre
	<b>Manure Management</b> <ul style="list-style-type: none"> <li>Reduce odor from pits and while applying manure to fields</li> <li>Retains nutrient value in manure</li> </ul>	<b>Manure Pit Management</b> Apply to manure pit	Determine manure pit capacity. Apply PitGuard at .00005 x pit volume(gal) = gallons needed
	<b>In-Furrow PGR + Microbial</b> <ul style="list-style-type: none"> <li>4 way PGR to improve germination and promote early plant emergence</li> <li>Microbial package enhanced with strong nutritional boosting bacteria that increase availability of starter fertilizer</li> </ul>	<b>Planting</b> In-furrow/ banded at planting	3.04 oz of combined solution, once ProPhase+ liquid PGR is mixed with Transit ultra- concentrated microbial powder
	<b>Residue Breakdown and Nutrient Conversion</b> <ul style="list-style-type: none"> <li>Breakdown residue faster for better planting conditions</li> <li>Release more valuable nutrients earlier</li> </ul>	<b>Post Harvest-Preplant</b> Post Harvest Prior to Planting	12.8 oz/ac
	<b>Residue Breakdown and Nutrient Conversion with Ammonium Sulfate</b> <ul style="list-style-type: none"> <li>Breakdown residue faster for better planting conditions and reduced tillage</li> <li>Perfect Partner for water soluble burndown herbicides</li> </ul>	<b>Post Harvest-Preplant</b> Fall Burndown Spring Burndown	32 oz/ac

**Package Options** – 2x2.5 gallons and 250 gallon tote, except for the following:











Convert/Convert KickStart – 50 lb sack or 2,000 lb super sack

Fortify – 15 gallon tote

ProPhase+ – 2x2.5 gallon with 2x4 oz packet

TuneUp+ – 2 pail/case

BioUp – 4x1 gallon

PRODUCT		TIMING	USE RATE
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>80/20 talc/graphite + Mn + Fe + Zn with Microbial package</li> <li>Biological plant stimulant (Terrasym) for aggressive root and shoot development</li> <li>Delivers a high load of zinc to the seed, for rapid emergence</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 50 units of corn at 80k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>Includes Mannanase and Lipase enzymes</li> <li>80/20 talc/graphite + Mn + Fe + Zn with Microbial package</li> <li>Biological plant stimulant (Terrasym) for aggressive root and shoot development</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 50 units of corn at 80k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>Unique system that delivers live biology directly to the seed</li> <li>80/20 talc/graphite + Mn + Fe + Zn</li> <li>Contains microbes that solubilize nutrients and draw them into the roots</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 20 units of cotton at 240k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>80/20 talc/graphite + Mn + Fe + Zn</li> <li>Contains Industry-Leading Rhizobium Leguminosarum Biovar Phaseoli Inoculant</li> <li>Includes a biological plant stimulant to generate massive root structures</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 2,000 lbs of dry beans
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>Contains Rhizobium Leguminosarum Biovar Viciae Inoculant</li> <li>80/20 talc/graphite + Mn + Fe + Zn</li> <li>Contains microbes that solubilize nutrients and draw them into the roots</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 3,000 lbs of pea or lentil seed
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>Unique system that delivers live biology directly to the seed</li> <li>80/20 talc/graphite + Mn + Fe + Zn</li> <li>Contains Peanut-specific Bradyrhizobium Inoculant</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 6,400 lbs of peanut seed or 80 acres of all other crops
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>80/20 talc/graphite + Mn + Fe + Zn with Microbial package</li> <li>Rice specific biological plant stimulant for aggressive root and shoot development</li> <li>Delivers a high load of zinc to the seed, for rapid emergence</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 40 units of hybrid rice seed at 900k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>80/20 talc/graphite + Mn + Fe + Zn + with with Microbial package</li> <li>Triple stacked Bradyrhizobium for inoculation</li> <li>Unique system that delivers live biology directly to the seed</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 40 units of soybeans at 140k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>Includes Mannanase and Lipase enzymes</li> <li>80/20 talc/graphite + Mn + Fe + Zn + with Microbial package</li> <li>Triple stacked Bradyrhizobium for inoculation</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 40 units of soybeans at 140k seeds per unit
	<b>Dry Hopper Box Treatment</b> <ul style="list-style-type: none"> <li>80/20 talc/graphite + Mn + Fe + Zn</li> <li>Includes an EPA registered pesticide treatment to suppress nematodes</li> <li>Contains active Carbon bio-capsule to feed and energize microbial communities</li> </ul>	<b>Planting</b> Add to seed box just prior to planting	The combined products in each pail treat 10 boxes of sugar beets
<b>CRW</b>	<b>Corn Rootworm Bio-Capsule</b> <ul style="list-style-type: none"> <li>Suppression level management of corn rootworm</li> <li>Increases root growth to outgrow light feeding pressure</li> <li>Produces defense mechanism in the plant that confuses CRW larvae</li> </ul>	<b>Planting</b> Added to TuneUp+ Corn or TuneUp+ Corn with Ether	One biocapsule will treat 50 units of corn at 80K seeds per unit
<b>SCN</b>	<b>Soybean Cyst Nematode Bio-Capsule</b> <ul style="list-style-type: none"> <li>Creates an expanding living microbial zone of nematode protection</li> <li>No phytotoxic effects, eliminating the risk of product induced plant injury and stress</li> <li>Produces geosmin, a natural nematode repellent</li> </ul>	<b>Planting</b> Added to TuneUp+ Soybeans	One biocapsule will treat 40 units of soybeans at 140K seeds per unit
<b>First Defense* with Metalaxyl ST</b>	<b>First Defense Bio-Capsule</b> <ul style="list-style-type: none"> <li>Broad-spectrum biological fungicide</li> <li>Stimulates plants natural defenses</li> <li>Promote healthier roots and improves nutrient uptake</li> </ul> <b>Metalaxyl ST Bio-Capsule</b> <ul style="list-style-type: none"> <li>Industry standard systemic fungicide for phytophthora and phythium</li> <li>Systemic protection absorbed by the roots and translocated to the plant</li> <li>No resistance potential</li> </ul>	<b>Planting</b> Added to TuneUp+ Soybeans or TuneUp+ Soybeans with Ether	Each biocapsule will treat 40 units of soybeans at 140K seeds per unit

**Package Options** – 2x2.5 gallons and 250 gallon tote, except for the following:

Convert/Convert KickStart – 50 lb sack or 2,000 lb super sack

Fortify – 15 gallon tote

ProPhase+ – 2x2.5 gallon with 2x4 oz packet

TuneUp+ – 2 pail/case

BioUp – 4x1 gallon

\*Pending EPA naming approval







## One Product Solution to Reduce Nitrogen Losses Below Ground

Nitrogen is one of the costliest crop inputs. Regardless of how you are applying your Nitrogen – it is subject to potential losses due to many factors. The risk of this loss depends on the type of Nitrogen source being utilized, soil type, temperature, and management practices. NCASE Below Ground is specifically formulated to improve nitrogen efficiency in a range of conditions and is for use with anhydrous ammonia, UAN solutions and liquid manure.

### RECOMMENDED CROPS

Row crops

### FEATURES & BENEFITS

- Formulated to help build soil biological activity
- Non-toxic with no detrimental effects on soil bacteria and non-corrosive to equipment
- Specifically formulated for UAN, anhydrous ammonia and liquid manure
- Increases nitrogen efficiency, availability, and uptake
- Up to four weeks of below ground protection from leaching
- Reduces nitrogen loss below ground up to 47%
- Non-corrosive calcium based polymer

### DIRECTIONS FOR USE

NCASE Below Ground is intended for use as a penetrant with anhydrous ammonia, liquid fertilizers, and liquid manures. It is intended to be used as a supplement to a regular fertilizer program and will not, by itself, provide all nutrients required by crops and other plants.

#### Use Rate:

- ANHYDROUS AMMONIA: Use 6 oz. of NCASE Below Ground per 50 units of nitrogen – max rate of 24 oz.
- LIQUID FERTILIZERS: Use 2 qts (64 oz.) of NCASE Below Ground per ton of UAN (28%, 30% or 32%)
- LIQUID MANURES: Use 24 oz. to 32 oz. of NCASE Below Ground per acre

**Storage:** Store away from direct sunlight or ultraviolet light. Keep container tightly closed when not in use. Store in a dry place. Protect from atmospheric moisture. Avoid freezing.

#### Packaging:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Calcium .....	10.0%
Polyethylene Glycol, Co-Polymer.....	28.0%
Other Other Proprietary Ingredients .....	62.0%
<b>Total.....</b>	<b>100.0%</b>

**ALSO CONTAINS NON PLANT FOOD INGREDIENTS:**  
Carboxylic and Organic Acids

### IMPORTANT USE INSTRUCTIONS

#### ANHYDROUS AMMONIA:

- 1) Operator must follow all anhydrous safety precautions.
- 2) Inject NCASE Below Ground through liquid fill valve.
- 3) If pressure exceeds 150 psi, inject NCASE Below Ground through the liquid withdraw valve.
- 4) Proper maintenance is required. Flush valve thoroughly with anhydrous. Coat fill valve thoroughly with a petroleum or silicone based lubricant. Apply treated anhydrous using conventional anhydrous application equipment.

#### LIQUID FERTILIZERS:

NCASE Below Ground may be mixed with liquid fertilizers such as aqua ammonia or other liquid ammonical fertilizers. Liquid fertilizers containing high levels of phosphate should not be used with NCASE Below Ground.

If pesticides are added to the tank mix in conjunction with liquid fertilizers, a compatibility jar test should be performed prior to large-scale application to the field.

#### LIQUID MANURES:

NCASE Below Ground may be mixed with liquid animal manures. NCASE Below Ground may be applied to slurry pit or through an injection system as material is loaded into applicator.



## Nitrogen Management System

NCase Dual Action contains an active ingredient that successfully reduces the volatilization and leaching of nitrogen. NCase Dual Action protects urea nitrogen in both the liquid and dry granular fertilizer form by slowing down conversion to ammonia, allowing time for adequate moisture to move it into the soil. Profitable corn farming and environmental stewardship requires proper nutrient planning and use of a proven nitrogen stabilizer like NCase Dual Action.



### RECOMMENDED CROPS

Row crops

### FEATURES & BENEFITS

- Slow the hydrolysis of urea and control volatilization preventing ammonia (NH<sub>3</sub>) loss while the urea is on the soil surface or less than two inches deep in the soil
- Proven to significantly reduce urea nitrogen loss due to volatilization by inhibiting urease enzyme function
- Ease of use and low odor formulation. Approved for use with UAN and liquid manure
- Dual Action Protection
  - Up to three weeks of above ground protection from volatilization
- Increases nitrogen efficiency, availability and uptake
- Formulated to help build soil biological activity
- Non-toxic with no detrimental effects on soil bacteria and non-corrosive to equipment

### DIRECTIONS FOR USE

Recommended for surface, shallow-placed, shallow banded or shallow-incorporated (less than two inches) application of urea-containing fertilizers, including pre-plant, pre-emergence, sidedress, topdress or other post-planting applications.

#### Use Rate:

**UAN Solutions (28-32%):** 1.5 quarts per ton (2,000 lbs.) of UAN spray solution.

**Liquid Manure:** 13.5-18 oz per acre

**Other Considerations:** Fill spray tanks halfway with UAN and add NCase Dual Action directly to the UAN solution and agitate. Allow agitation to continue while adding the remainder of UAN solution until thoroughly mixed into the uniform solution. Most agricultural chemicals compatible with UAN solutions are compatible with NCase Dual Action. However, compatibility tests prior to use are recommended.

#### Storage:

Avoid freezing. Store at temperatures between 0°F and 100°F and avoid contact with water.

#### Packaging:

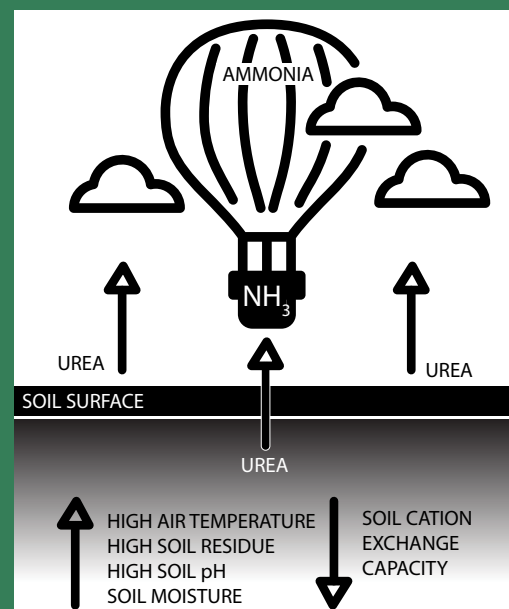
- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

NBPT (N-(n-Butyl)-thiophosphoric triamide) Solution (CAS No. 94317-64-3)..... 20.0%

### INACTIVE INGREDIENTS

Propylene Glycol, 1-methyl-2-pyrrolidone and Copolymer Surfactant ..... 80.0%  
TOTAL ..... 100.0%



### Risk Factors NH<sub>3</sub> Volatilization



## MANURE PIT MANAGEMENT



PitGuard reduces ammonia and hydrogen sulfide loss from animal manure pits. This results in less exposure to confined animals, improving animal health and a potential increase in rate of gain. It also increases the nutrient content of the manure and reduces solid formation. It greatly reduces odor at time of field spreading the manure. May be used in manure application with any crop and in any soil type where the use of animal manures is appropriate.

### BENEFITS INCLUDE

- Decreases solids in the pit
- Reduces odor in pits and during application
- Improves animal health
- Increases nutrient value of manure
- 65% reduction in of ammonia and hydrogen sulfide released into the air \*

### APPROVED FOR USE ON

- Hog, Dairy and Poultry Manure Systems

### USE AND PACKAGING

Determine manure pit capacity. Apply PitGuard at .00005 x pit volume.

*Example: a 400,000 gal. pit would require 20 gallons. Experience has shown 10 gallons PITGUARD in two applications 30-45 days apart works best.*

**Partially Filled Pits or Lagoons:** When a pit/lagoon is at least 25% full (or more), add the entire amount of product required to treat a full pit/lagoon. Distribute in several pens throughout the barn. Repeat application in 30-45 days, as pit fills up.

**Dry Manure (Litter):** Spread dry manure on field per current operating practices. Apply product by spraying 7.5 oz. per acre in a water/liquid fertilizer solution (minimum of 40 gallons of liquid fertilizer water or combination of water and fertilizer) over the dry manure.

*\*Iowa State University testing results*



# Residue Release

## Ultimate Residue Management and Nutrient Release

Residue Release by Streamline Ag is specifically designed to break down crop residue in the field, improving planter performance, creating stronger stands, and releasing valuable nutrients to feed the crop.

The patent-pending formulation of Residue Release is powered by the MICROBILIZE™ Microbe Technology Delivery System. This system provides the ideal carrier to ensure that microbes stay alive in the jug and have the optimum conditions to begin multiplying and breaking down residue.

### RECOMMENDED CROPS

Apply Residue Release to any crop residue

### FEATURES & BENEFITS

- Less labor
- Less fuel
- Less compaction
- Less skips
- More value from nutrients tied up in crop residue
- Improved soil health
- Fast emergence, stronger stands and healthier plants
- Season-long stress mitigation
- Surfactant system maximizes herbicide performance

### DIRECTIONS FOR USE

**Fall Applications** - Apply immediately after harvest for best performance.

**Spring Applications** - Apply with early pre-emergence herbicides. Ideal for terminating cover crops.

**Summer Applications** - Ideal for breaking down wheat stubble.

*Labeled for ground, aerial and chemigation*

**Use Rate:** Apply 12.8 oz per acre with 10 gal of water. Highly compatible tank mix partner with most herbicide and fertility programs.

#### Packaging:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

#### Guaranteed Analysis

Alkyl Polyglucoside (surfactant).....	35%
Organic Acids (pH buffer) .....	5%
Rheology and Dispersant Agents.....	5%
Fulvic Acid .....	1%

	CFU per ml(g)*
Bacillus Coagulans .....	5.54 x 10 <sup>7</sup>
Bacillus Amyloliquefaciens .....	6.24 x 10 <sup>7</sup>
Bacillus Licheniformis.....	2.12 x 10 <sup>8</sup>
Bacillus Megaterium.....	6.24 x 10 <sup>7</sup>
Bacillus Pumilus .....	1.62 x 10 <sup>8</sup>
<b>Total CFUs .....</b>	<b>5.55 x 10<sup>8</sup></b>

\* In the final liquid form, contains 2.1 Trillion total colony forming units (CFUs) per gallon (2.1 x 10<sup>12</sup> CFU/gal) of the above microbes (1 gm = 1 ml).

The consortium of microbes included in Residue Release are specifically designed to digest crop residue and cycle nutrients back to the soil profile. Additionally, these microbes build improved soil tilth, reduce disease pressure, and generate overall increased biological activity.



Breaking down residue faster will allow faster planting, stronger stands and fewer skips

**\$25/ac**



More nutrients available early

**\$39/ac**



Less tillage required

**\$18/ac**



Improve soil health

**12%+**  
in soil health index



# Residue Release RTU

## Ultimate Residue Management and Nutrient Release

Residue Release RTU, powered by Microbilize™, is the industry's most aggressive residue management tool. Adding AMS and a non-ionic surfactant makes it the perfect partner for water-soluble burndown herbicides like glyphosate.

The addition of AMS to the patent-pending Residue Release RTU formulation speeds up residue digestion, making more of the stubble nutrient capture available when the following crop needs it.

### RECOMMENDED CROPS

Apply Residue Release RTU to any crop residue

### FEATURES & BENEFITS

- Aggressive biological consortium to breakdown stubble faster
- Contains AMS and non-ionic surfactant, ideal for water-soluble herbicides like glyphosate
- Combines the benefits of Residue Release and Optalign H20 into one product, reducing space on the spray trailer
- Binds iron and calcium cations that are present in plant cells.
- Microbe consortium is designed to digest crop residue and cycle nutrients back to the soil profile
- Improves efficacy of cover crops

### DIRECTIONS FOR USE

**Fall Applications** - Apply immediately after harvest for best performance.

**Spring Applications** - Apply with early herbicide application or in the termination of cover crops.

**Summer Applications** - Ideal for breaking down wheat stubble. Specific timing for optimal use varies based on tillage practices, fertility levels and other factors. Contact your agronomist for specific recommendations.

*Works well with irrigation systems and drone applications.*

**Use Rate:** Apply 32 oz per acre with a minimum 10 gal of water.

32 oz = 13 oz Residue Release + 19 oz of liquid AMS (.5 lbs)

#### Packaging:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

#### Guaranteed Analysis

Ammonium Sulfate.....	21%
Alkyl Polyglucoside (surfactant).....	20%
Organic Acids (pH buffer).....	2%
Rheology and Dispersant Agents.....	5%
Fulvic Acid.....	1%

#### CFU per ml(g)\*

Bacillus Amyloliquefaciens .....	2.5 x 10 <sup>7</sup>
Bacillus Licheniformis.....	8.4 x 10 <sup>7</sup>
Bacillus Megaterium .....	2.5 x 10 <sup>7</sup>
Bacillus Pumilus .....	6.48 x 10 <sup>7</sup>
Bacillus Coagulans .....	2.22 x 10 <sup>7</sup>

The Microbilize™ Microbe Technology Delivery System provides the ideal carrier to ensure microbes stay alive in the jug and have optimum conditions to begin multiplying and breaking down residue once applied.

Add BioUp to protect your biology when using a chlorinated water source.



Residue Release RTU speeds up crop residue breakdown to make more nutrients available earlier



Less tillage required and improved planter performance with fewer skips



Improves soil health and increases overall biological activity

# Convert

## Water Soluble Fertilizer with Enzymes

Convert with Ether combines two enzymes specifically identified to increase phosphate availability, increase nutrient and water availability, boosting plant growth, while maximizing microbial activity.

This product is designed for dissolving in water and applying through fertilizing equipment into actively growing root zones, or injected near the seed during planting. It has a low salt index, so it is ideal for use as a starter or sidedress fertilizer applied directly to the soil.

Ether Enzyme Technology is designed to kick start the uptake of available soil nutrients and water, while maximizing microbial activity.



### RECOMMENDED CROPS

Multiple crops

### FEATURES & BENEFITS

- Supports germination and early vigor
- Aids in microbial activity
- Boosts root growth
- Increases nutrient availability and uptake
- Decreases starter fertilizer costs
- Phosphatase: Phosphatase enzymes release phosphate from organic phosphate sources in the soil, which increases nutrient availability and uptake.
- Mannanase: Mannanase enzymes break down starches that surround the outermost layer of the root tip. A chemical reaction increases the flow of water and nutrients to the root zone. This in turn boosts root growth and increases microbial activity.
- At the recommended rate of 2.5# of concentrated Convert per acre, dissolved in 5 gallons of water and applied in-furrow, will deliver 1.45# of orthophosphate (H<sub>2</sub>PO<sub>4</sub>-) to the crop.

### DIRECTIONS FOR USE

Replacement for 10-34-0 starter fertilizer: For every 1 gallon of 10-34-0 fertilizers, replace with 0.5 lbs of Convert dissolved into 1 gallon of water.

A maximum of 2 lbs Convert can be dissolved per gallon. However, longer mix times and agitation are required.

**Use Rate:** Starter or side-dress fertilizer. Row crop: Recommended rate is 2.5 lbs. of Convert dissolved into 5 gallons of water per acre.

*May be run through irrigation systems.*

#### Packaging:

- 50 lb bag, 40 bags per pallet
- 2,000 lb super sack



### BASE INGREDIENTS

#### GUARANTEED ANALYSIS 12-58-0

Total Nitrogen .....	12.0%
12.0% Ammoniacal nitrogen	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> ).....	58.0%
<small>Derived from monoammonium phosphate.</small>	

#### ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Phosphatase.....	5.0 x 10 <sup>2</sup> μUnits/g
Mannanase .....	2.2 x 10 <sup>6</sup> μUnits/g

# Convert KickStart

## Water Soluble Fertilizer with Enzymes

This product is designed for dissolving in water and applying as starter fertilizer near the seed during planting or with fertilizing equipment into actively growing root zones. It has a low salt index, so it is ideal for use as a starter fertilizer.

Convert KickStart with Ether Enzyme Technology combines two enzymes specifically identified to increase phosphate availability, increase nutrient and water availability, boost plant growth, while maximizing microbial activity.



### RECOMMENDED CROPS

Multiple crops

### FEATURES & BENEFITS

- Promote early vigor and germination
- Supports healthier root growth
- Increase microbial activity
- Enhance nutrient uptake and availability
- Phosphatase: Phosphatase enzymes release phosphate from organic phosphate sources in the soil, which increases nutrient availability and uptake.
- Mannanase: Mannanase enzymes break down starches that surround the outermost layer of the root tip. A chemical reaction increases the flow of water and nutrients to the root zone. This in turn boosts root growth and increases microbial activity.

### DIRECTIONS FOR USE

Replacement for liquid starter fertilizer: For every 1 gallon of liquid fertilizer, replace with 0.5 lbs of Convert KickStart dissolved into 1 gallon of water.

A maximum of 2 lbs Convert can be dissolved per gallon. However, longer mix times and agitation are required.

**Use Rate:** Row crops: For starter and side-dress applications apply 2 to 5 lbs per acre dissolved in adequate water. Ration of .5 lbs of Convert KickStart dissolved into 1 gallon of water.

*May be run through irrigation systems.*

#### Packaging:

- 50 lb bag, 40 bags per pallet
- 2,000 lb super sack

### BASE INGREDIENTS

#### GUARANTEED ANALYSIS 9-39-16 3S

Total Nitrogen .....	9.00%
8.0% Ammoniacal Nitrogen	
1.00% Nitrate Nitrogen	
Available Phosphate (P <sub>2</sub> O <sub>5</sub> ).....	39.0%
Soluble Potash (K <sub>2</sub> O).....	16.0%
Sulfur (S).....	3.0%

Derived from monoammonium phosphate, potassium nitrate, potassium sulfate and muriate of potash.

#### ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Phosphatase .....	5.0 x 10 <sup>2</sup> μUnits/g
Mannanase .....	2.2 x 10 <sup>6</sup> μUnits/g



# Fortify

Soybean Seed Treatment

## Maximize Genetic Yield Potential

Fortify maximizes genetic yield potential of every soybean seedling in all conditions for faster, stronger, more uniform emergence.

### RECOMMENDED CROPS

Soybeans

### FEATURES & BENEFITS

- New mode of action with unmatched Pythium and Phytophthora protection in soybeans
- Early season protection of all common, seed-borne, and soil-borne diseases
- Powerful above and below ground insect control
- Establish early stand and uniformity for planting in cool wet soil or later in warmer conditions
- Improves translocation of nutrients within the plant for early development, both above and below ground
- Exceptional flowability and handling

### DIRECTIONS FOR USE

#### Use Rate:

- 4.18 fl oz/cwt or 1.95 fl oz/140,000 seeds
- Treats 984 units per 15-gallon drum

#### Other Considerations:

- Always read and follow label instructions. Some products may not be registered for sale or use in all states or counties, please check with your local extension service to ensure registration status.
- Fortify Soybean Seed Treatment is powered by CruiserMaxx® APX. See CruiserMaxx APX Seed Treatment label and SDS for reference.

#### Package Options:

- 15-gallon drum

### ACTIVE INGREDIENTS

Product	%AI	Rate fl oz per cwt*
Thiamethoxam	16.30%	1.28
Mefenoxam	2.45%	0.32
Picarbutrazox	0.82%	0.098
Fludioxonil	0.82%	0.08
Sedaxane	0.82%	0.098
Other Ingredients	78.79%	

\* Applied premix at labeled rate.

9.38 lbs/gal





# NutriBoost **ZincUp**

## Improve Nutrition

NutriBoost ZincUp is designed for use on all soil types through drip, sprinkler or furrow irrigation systems or in band or in furrow fertilizer applications. The mannanase enzyme releases sugars from polysaccharide chains. Lipase enzymes break down lipids in the soil.

It is a fully chelated solution recommended for the prevention and/or correction of zinc deficiency in all crops when used as part of a fertility program.

### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

### FEATURES & BENEFITS

- High concentration of enzymes for boosting nutrient availability
- Converts organic matter into smaller, digestible units, creating a rich soil environment for seed
- More water and nutrient uptake
- Boosts root growth
- Increased microbial activity
- Stress and drought tolerance
- Increased yield

### DIRECTIONS FOR USE

The rates given below are based on banded, in furrow or fertigated application. Utilizing a fast lap on center pivots or adding at the end of an irrigation cycle is preferred to keep adequate product near the root zone. If broadcast applications are made, higher use rates may be needed to get into the root zone or near the seed.

#### Use Rate:

#### Soil Applications

**Apply Field and Row Crops:** 1 quart per acre in furrow or banded either as a stand alone or in combination with liquid NPK starter fertilizers at planting or 1 quart per acre banded in the strip till not more than 2 weeks before planting.

**Vegetable Crops:** 3 quarts per acre at planting or in transplant solution applied in the root zone through fertigation.

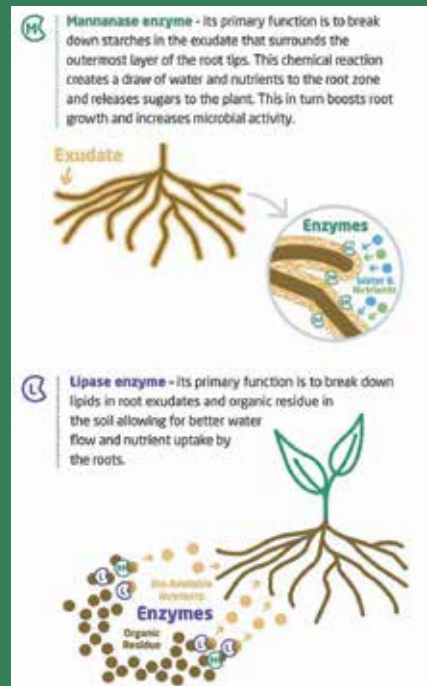
**Potato, Sweet Potato:** 2-3 quarts per acre in furrow or banded either as a stand alone or in combination with liquid NPK starter fertilizers.

#### Package Choices:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Zinc (Zn) .....	4.00%
4.00% Chelated zinc	
<i>Derived from zinc EDTA.</i>	
<b>Also Contains Non-Plant Food Ingredients</b>	
Lipase .....	2.0 x 10 <sup>3</sup> μUnits/mL
Mannanase .....	1.0 x 10 <sup>6</sup> μUnits/mL





# ProPhase+

Corn

*with Transit*

## An In-Furrow PGR and Microbial Combining ProPhase and Transit for Building Root Mass and Optimizing Nutrient Uptake

In a convenient, easy-to-use application, ProPhase+ combines an EPA registered four-way plant growth regulator (PGR) with Transit that improves germination, promotes early plant emergence in cool conditions, and drives root growth and seedling development. ProPhase+ is a best-in-class microbial package enhanced with strong nutritional boosting bacteria that increase availability, solubility and mobility of nitrogen, potassium, calcium, magnesium, phosphorus and zinc during the growing season.

### RECOMMENDED CROPS

Corn

### FEATURES & BENEFITS

- Makes NPK and other essential micronutrients plant-ready
- Designed to work with your existing starter program to provide the plant food and micros essential to build robust plants fast
- ProPhase+ with Transit can be used with all starter fertilizers because of its patented hard spores
- Builds a massive root structure to maximize intake of made-ready nutrients 8 microbes focusing on all nutrients in the soil, in addition to nitrogen
- The microbes included in ProPhase+ with Transit deliver 1000x more CFUs than most competitors

### DIRECTIONS FOR USE

ProPhase+ with Transit is designed for farmers that apply liquid fertilizer as part of the planter pass.

**Use Rate:** 3.04 oz of combined solution per acre, once ProPhase liquid PGR is mixed with Transit ultra-concentrated microbial powder packet.

Pour one 4 oz packet of Transit into 2.5 gallons of ProPhase to Create ProPhase+. Shake well for 2 minutes.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** ProPhase+ is available in easy-to-use 2x2.5 gallon packaging (5 gallon case) with the corresponding amount (2-4 oz/packets) of Transit pre-measured in an easy-to-use pouch adhered to each jug.

### ACTIVE INGREDIENTS

#### ProPhase+

Cytokinin (as kinetin).....	0.009%
Gibberellic Acid .....	0.005%
Indole-3-butyric Acid.....	0.005%
Indole-3-acetic Acid.....	0.005%
Other Ingredients.....	99.976%
<b>TOTAL.....</b>	<b>100%</b>

Contains 0.002698 grams cytokinin/oz  
 Contains 0.001499 grams gibberellic acid/oz  
 Contains 0.001499 grams indole-3-butyric acid/oz  
 Contains 0.001499 grams indole-3-acetic acid/oz

#### Transit

Bacillus Formis.....	2.2 x 10 <sup>9</sup> CFU/Gm
Bacillus Composti .....	2.2 x 10 <sup>9</sup> CFU/Gm
Bacillus Azotofixans .....	2.2 x 10 <sup>9</sup> CFU/Gm
Bacillus Ligniniphilus .....	2.2 x 10 <sup>9</sup> CFU/Gm
Thiobacillus Sulfooxidans.....	2.2 x 10 <sup>9</sup> CFU/Gm
Thiobacillus Ferrooxidans .....	2.2 x 10 <sup>9</sup> CFU/Gm
Azotobacter Chroococcum .....	2.2 x 10 <sup>9</sup> CFU/Gm
Bradyrhizobium Denitrificans .....	2.2 x 10 <sup>9</sup> CFU/Gm

In the final liquid form, contains no less than 650 billion total colony forming units (CFU's) per gallon of soil health microbes (1gm = 1 ml).

For best results, use in conjunction with Residue Release to manage residue, build stronger stands and unlock early-season nutrients, plus NutriBoost ZincUp to feed the crop in-season.



# TuneUp+

Corn

## Planter Box Treatment and Microbial System for Building Root Mass and Optimizing Nutrient Uptake

TuneUp+ Corn is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. Can take the place of any seed fluency agent.

The base product also includes 1.35 pounds of Zinc plus Iron and Manganese. These micronutrients are essential building blocks to drive fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Corn

### FEATURES & BENEFITS

- Most convenient method to deliver a high-volume load of zinc to the furrow
- Generates massive root structure
- Increases early-season iron, manganese and zinc uptake
- Puts corn plants in the position to manage season-long stressors and optimize genetic potential
- Helps plants fix nitrogen and solubilize nutrients

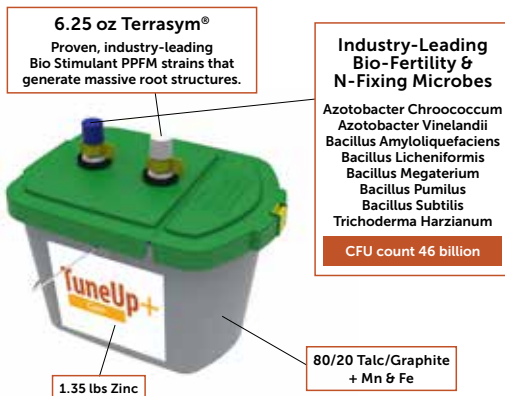
### DIRECTIONS FOR USE

Remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to activate the biologicals and release them into the base. Shake aggressively to blend. Do not activate Bio-Capsules until ready to use. If activated, apply and plant within 7-10 days for maximum performance.

**Use Rate:** The combined products treat 50 units of corn at 80k seeds per unit.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** Sold in a 2-pail case to treat 100 units of corn. Each pail is capable of treating 50 units of corn.



### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	4.00%

\*Derived from Ferrous Oxide and Manganese Oxide.

**BASE INGREDIENTS CONTAIN 27% IONLOCK™ ZINC**  
IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	6.8x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.4x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	6.8x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	1.1x10 <sup>9</sup> CFU/g
Bacillus Subtilis .....	6.8x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	4.5x10 <sup>5</sup> CFU/g
Methylobacterium Gregans .....	1x10 <sup>9</sup> CFU/g

For best results, use in conjunction with Residue Release to manage residue, build stronger stands and unlock early-season nutrients.

TuneUp+ Corn is powered by Bio-Capsule Technology (BCT) - a patented delivery system that helps farmers save time, labor and fuel. The BCT carrier system allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

The TuneUp+ Corn Bio-Capsules are charged with Terrasym® and industry-leading consortium of bio-fertility & N-fixing microbes.

NET WEIGHT (per pail): 5.78 lbs (2.62 kg)



# TuneUp+

Corn

Powered by **ETHER**

## Planter Box Treatment and Microbial System for Building Root Mass and Optimizing Nutrient Uptake

TuneUp+ Corn with Ether is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters.

The base product includes 1.35 pounds of Zinc plus Iron and Manganese. Ether Enzyme Technology is designed to kick start the uptake of available soil nutrients and water, while maximizing microbial activity.

### RECOMMENDED CROPS

Corn

### FEATURES & BENEFITS

- Most convenient method to deliver a high-volume load of zinc to the furrow
- Generates massive root structure
- Increases early-season iron, manganese and zinc uptake
- Puts corn plants in the position to manage season-long stressors and optimize genetic potential
- Helps plants fix nitrogen and solubilize nutrients

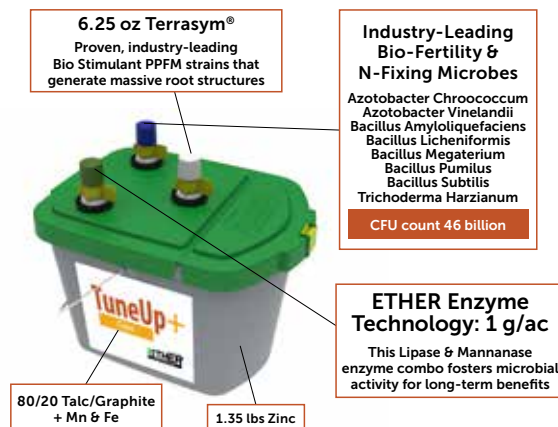
### DIRECTIONS FOR USE

Remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to activate the biologicals and release them into the base. Shake aggressively to blend. Do not activate Bio-Capsules until ready to use. If activated, apply and plant within 7-10 days for maximum performance.

**Use Rate:** The combined products treat 50 units of corn at 80k seeds per unit.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** Sold in a 2-pail case to treat 100 units of corn. Each pail is capable of treating 50 units of corn.



### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe).....	0.70%
Manganese (Mn).....	0.90%
Zinc (Zn).....	4.00%

\* Derived from Ferrous Oxide and Manganese Oxide.

### BASE INGREDIENTS CONTAIN 27% IONLOCK™ ZINC

IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	6.8x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.4x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	6.8x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	1.1x10 <sup>9</sup> CFU/g
Bacillus Subtilis .....	6.8x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	4.5x10 <sup>5</sup> CFU/g
Mannanase .....	2.5 x 10 <sup>9</sup> μUnits/g
Lipase .....	5.0 x 10 <sup>4</sup> μUnits/g
Methylobacterium Gregans .....	1x10 <sup>9</sup> CFU/g

For best results, use in conjunction with Residue Release to manage residue, build stronger stands and unlock early-season nutrients.

TuneUp+ Corn is powered by Bio-Capsule Technology (BCT) - a patented delivery system that helps farmers save time, labor and fuel. The BCT carrier system allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

The TuneUp+ Corn Bio-Capsules are charged with Terrasym® and industry-leading consortium of bio-fertility, N-fixing microbes, and Ether Enzyme Technology.

NET WEIGHT (per pail): 6.05 lbs (2.74 kg)



# TuneUp+

Cotton

## Nutrient and Microbial Planter Box Delivery System

TuneUp+ Cotton is a best-in class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. It can take the place of any seed fluency agent.

The base includes 0.475 pounds of Zinc plus Iron and Manganese. These micronutrients are essential for fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Cotton

### FEATURES & BENEFITS

- Ensures strong stand and emergence vigor
- Enhances germination and root growth
- Increases early-season iron, manganese and zinc uptake
- Puts cotton plants in the position to manage season-long stressors and optimize genetic potential

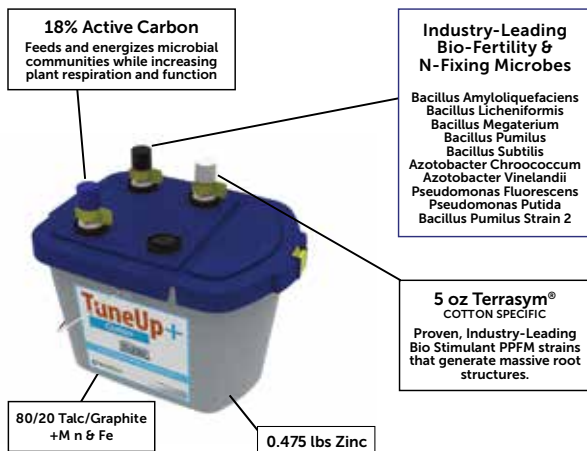
### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents.

**Use Rate:** The combined products treat 20 units of cotton at 240k seeds per unit.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** Sold in 2-pail cases to treat 40 units of cotton. Each pail is capable of treating 20 units of cotton.



Actual product packaging may be different than this visual

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	4.00%

\* Derived from Manganese Oxide, Ferrous Oxide and Zinc Sulfate.

BASE INGREDIENTS CONTAIN 27% IONLOCK™ ZINC IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Bacillus Amyloliquefaciens.....	4.50x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	9.00x10 <sup>8</sup> CFU/g
Bacillus Megaterium.....	4.50x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	7.50x10 <sup>8</sup> CFU/g
Bacillus Subtilis .....	4.50x10 <sup>8</sup> CFU/g
Azotobacter Chroococcum .....	5.00x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.00x10 <sup>7</sup> CFU/g
Pseudomonas Fluorescens .....	5.00x10 <sup>8</sup> CFU/g
Pseudomonas Putida .....	5.00x10 <sup>8</sup> CFU/g
Bacillus Pumilus Strain 2.....	5.00x10 <sup>8</sup> CFU/g
Methylobacterium Radiotolerans .....	1x10 <sup>9</sup> CFU/g
Active Carbon.....	18%

NET WEIGHT (per pail): 3.22 lbs (1.46 kg)



# TuneUp+

## Dry Beans

### Nutrient and Microbial Planter Box Delivery System

TuneUp+ Dry Beans is a best-in-class 80/20 talc/graphite combination that can take the place of any seed fluency agent.

The base product includes Iron and Manganese – with the added benefit of 0.43 pounds of Zinc. The Rhizobium Leguminosarum Biovar Phaseoli is specifically selected for the Dry Beans pail.

### RECOMMENDED CROPS

Black beans, Navy beans, Great Northern beans, Snap beans, Scarlet Runner beans, Wax beans, Pinto beans, Pink beans, Kidney beans, Garden or String beans, Field or Canning beans, Cranberry beans

### FEATURES & BENEFITS

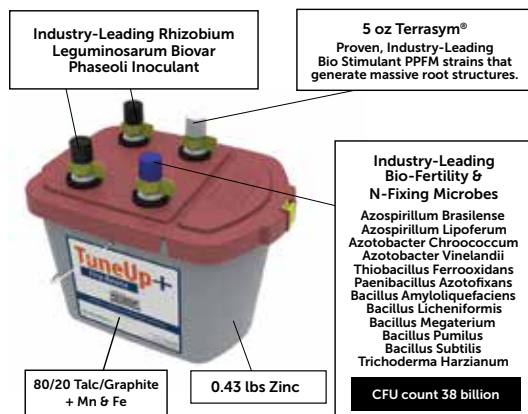
- Stimulate n-fixation and early season nodulation
- Develop stronger healthier plants and vast roots
- Allows dry beans to optimize their potential while managing stressors

### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents.

**Use Rate:** For a single row unit planters: use the enclosed scoop to measure out blended contents. One scoop treats 1 unit dry beans at 50 lbs of seed per unit.

**Packaging:** Sold in 2-pail cases to treat 80 units of dry beans. Each pail is capable of treating 40 units of dry beans.



Actual product packaging may be different than this visual

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	1.58%

Derived from Ferrous Oxide, Manganese Oxide, and Zinc Sulfate.

### BASE INGREDIENTS CONTAIN 10.8% IONLOCK™ ZINC

IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Rhizobium Leguminosarum Biovar Phaseoli ..	1.0x10 <sup>5</sup> CFU/g
Azospirillum Brasilense .....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Thiobacillus Ferrooxidans.....	5.0x10 <sup>7</sup> CFU/g
Paenibacillus Azotofixans.....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	5.3x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.1x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	5.3x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	8.8x10 <sup>8</sup> CFU/g
Bacillus Subtilis .....	5.3x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	3.5x10 <sup>5</sup> CFU/g
Methylobacterium Hispanicum .....	1x10 <sup>9</sup> CFU/g

TuneUp+ Dry Beans is powered by Bio-Capsule Technology™ – a patented delivery system that helps farmers save time, labor and fuel. The Bio-Capsule carrier system allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting. A mineralization microbial package improves nutrient availability and multiple forms of nitrogen-fixating microbes to feed genetic potential in today's high-yielding dry beans.

NET WEIGHT (per pail): 6.05 lbs (2.74 kg)



# TuneUp+

Pea & Lentil

## Nutrient and Microbial Planter Box Delivery System

TuneUp+ Pea & Lentil is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. It can take the place of any seed fluency agent.

The base product includes Iron and Manganese – with the added benefit of 0.43 pounds of Zinc. These micronutrients are essential for fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

All varieties of garbanzo and chickpeas

### FEATURES & BENEFITS

- Drives early-season taproot nodulation and N-fixation
- Builds stronger, healthier plants fast & massive roots
- Puts peas & lentils in the position to manage season long stressors and optimize genetic potential

### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents. The combined products (1 pail) treat 3,000 lbs of pea or lentil seed.

**Use Rate:** For a single row unit planters: use the enclosed scoop to measure out blended contents. Scoop treats 1 unit dry beans.

**Packaging:** Sold in 2-pail cases to treat 6,000 lbs of pea or lentil seed. Each pail is capable of treating 3,000 lbs of pea or lentil seed.

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	1.58%

Derived from Ferrous Oxide, Manganese Oxide, and Zinc Sulfate.

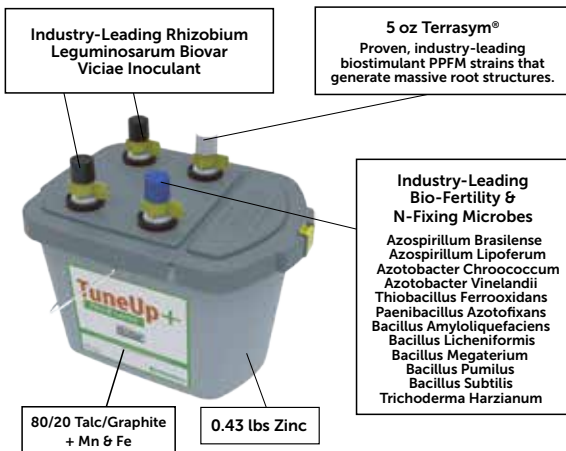
### BASE INGREDIENTS CONTAIN 8% IONLOCK™ ZINC

IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Azospirillum Brasilense .....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Thiobacillus Ferrooxidans.....	5.0x10 <sup>7</sup> CFU/g
Paenibacillus Azotofixans.....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	5.3x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.1x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	5.3x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	8.8x10 <sup>8</sup> CFU/g
Bacillus Subtilis .....	5.3x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	3.5x10 <sup>9</sup> CFU/g
Mesorhizobium Ciceri .....	3.5x10 <sup>6</sup> CFU/g
Rhizobium Leguminosarum Biovar Viciae.....	3.5x10 <sup>6</sup> CFU/g
Methylobacterium Hispanicum .....	1x10 <sup>9</sup> CFU/g



TuneUp+ Pea & Lentil is powered by Bio-Capsule Technology™ – a patented delivery system that helps farmers save time, labor and fuel. The Bio-Capsule carrier system allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

NET WEIGHT (per pail): 4.81 lbs (2.18 kg)



# TuneUp+

Peanuts

## Nutrient and Microbial Planter Box Delivery System

TuneUp+ Peanuts is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in high-speed planters. It can take the place of any seed fluency agent.

The base includes 0.43 pounds of Zinc plus Iron and Manganese. These micronutrients are essential for fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Peanuts, Acadia, Adzuki bean, Alyce clover, Asparagus bean, Black-eyed peas, Centrosema, Common lespedeza, Cowpea, Crowder peas, Desmodium spp., Hairy indigo, Jack bean, Joint vetch (Aeschynomene), Korean lespedeza, Kudzu, Mung bean, Lima Bean, Partridge pea, Pigeon pea, Purple hull peas, Sericea lespedeza, Siratro, Slender bush clover, Striped crotalaria, Sunn crotalaria, Tepary bean, Velvet bean, Wild indigo, Winged bean, Winged crotalaria

### FEATURES & BENEFITS

- Increases seed germination for strong stand
- Maximizes nodulation for increased yield potential
- Activates soil nutrient uptake
- Synthesizes natural plant hormones
- Season-long endophytic organism that does not fall off when pegging and seed development occurs
- Improves seed grade for higher bases

### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents.

**Use Rate:** The combined products (1 pail) treat 40 acres at 160 lbs per acre. For a single row unit planter, measure out 0.82 oz of blended contents per 50 lbs of peanut seed.

All other crops, except Peanuts, the combined products (1 pail) treat 80 acres. For a single row unit planter, measure out 1.32 oz of blended contents per Acre.

**Packaging:** Sold in 2-pail cases. Each pail is capable of treating 6,400 lbs of peanut seed or 80 acres of all other crops, except Peanuts.

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	1.58%

Derived from Ferrous Oxide, Manganese Oxide, and Zinc Sulfate.

**BASE INGREDIENTS CONTAIN 10.8% IONLOCK™ ZINC**  
IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Bradyrhizobium Spp. (Vigna) .....	2x10 <sup>5</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	4.5x10 <sup>9</sup> CFU/g
Bacillus Licheniformis .....	9.0x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	4.0x10 <sup>9</sup> CFU/g
Bacillus Pumilus .....	5.8x10 <sup>10</sup> CFU/g
Bacillus Subtilis .....	4.5x10 <sup>9</sup> CFU/g
Pseudomonas Putida .....	5.0x10 <sup>8</sup> CFU/g
Pseudomonas Fluorescens .....	5.0x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	3.0x10 <sup>6</sup> CFU/g
Methylobacterium Radiotolerans .....	1x10 <sup>9</sup> CFU/g

TuneUp+ Peanuts is powered by Bio-Capsule Technology™ - a patented delivery system that helps farmers save time, labor and fuel. Bio-Capsule allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

NET WEIGHT (per pail): 6.57 lbs (2.98 kg)





# TuneUp+

Rice

## Nutrient and Microbial Planter Box Delivery System

TuneUp+ Rice includes a best-in-class 80/20 talc/graphite combination that ensures optimum performance in high-speed planters. It can take the place of any seed fluency agent.

The base includes 1.08 pounds of Zinc plus Iron and Manganese. These micronutrients are essential for fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Rice

### FEATURES & BENEFITS

- Increases seed germination for strong stand
- Maximizes growth potential and internode elongation of the crop
- Increases tillering and panicle density
- Improves Nitrogen and Boron uptake and utilization
- Drives stronger plant emergence
- Equipped to service rice crop from seed germination to end of vegetative stage

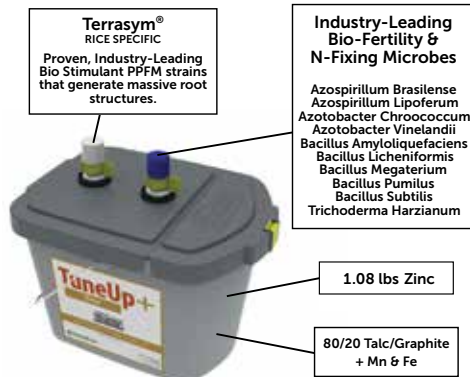
### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents. The combined products (1 pail) treat 40 units of hybrid rice seed at 900k seed per unit.

Before each application, aggressively shake contents to ensure the correct volume is applied.

For single row or center-fill unit planters, use the enclosed scoop to measure out blended contents. One scoop treats 1 unit (900k seed unit) rice.

**Packaging:** Sold in 2-pail cases to treat 80 units of hybrid rice. Each pail is capable of treating 40 units of hybrid rice seed.



Actual product packaging may be different than this visual

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	4.00%

Derived Ferrous Oxide, Manganese Oxide and Zinc Sulfate.

**BASE INGREDIENTS CONTAIN 27% IONLOCK™ ZINC**  
IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Azospirillum Brasilense .....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	6.0x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.2x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	2.0x10 <sup>9</sup> CFU/g
Bacillus Pumilus .....	1.5x10 <sup>9</sup> CFU/g
Bacillus Subtilis .....	6.0x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	7.5x10 <sup>7</sup> CFU/g
Methylobacterium Gregans .....	1x10 <sup>9</sup> CFU/g

TuneUp+ Rice is powered by Bio-Capsule Technology™ - a patented delivery system that helps farmers save time, labor and fuel. Bio-Capsule allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

NET WEIGHT (per pail): 4.50 lbs (2.04 kg)



# TuneUp+

Soybeans

## Planter Box Treatment and Inoculation System for Building Root Mass and Optimizing Nutrient Uptake

TuneUp+ Soybeans is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. Specifically designed to fix Nitrogen and enhance overall crop performance while taking the place of any seed fluency agent.

The base product also includes Zinc, Iron and Manganese. These micronutrients are essential building blocks to drive fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Soybeans

### FEATURES & BENEFITS

- Drives early-season taproot nodulation and nitrogen fixations
- Builds strong, healthy plants fast
- Generates massive root structure
- Puts soybean in the position to manage season-long stressors and optimize genetic potential
- Herbicide tolerant Bradyrhizobia strain (patent #8772576)

### DIRECTIONS FOR USE

Remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to activate the biologicals and release them into the base. Shake aggressively to blend. Do not activate Bio-Capsules until ready to use. If activated, apply and plant within 7-10 days for maximum performance.

**Use Rate:** The combined products treat 40 units of soybeans at 140k seeds per unit.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** Sold in a 2-pail case to treat 80 units of soybeans. Each pail is capable of treating 40 units of soybeans.

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	1.58%

\* Derived from Manganese Oxide and Ferrous Oxide.

**BASE INGREDIENTS CONTAIN 10.8% IONLOCK™ ZINC** IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

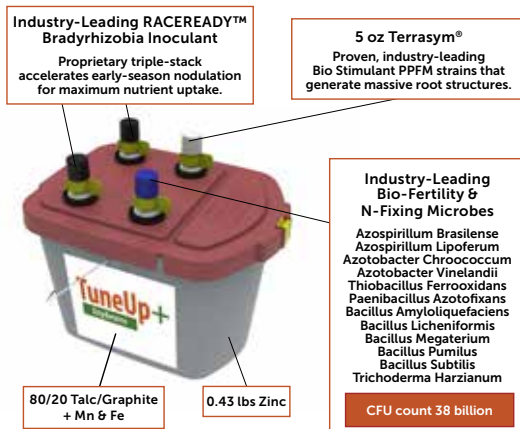
### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Bradyrhizobium Japonicum .....	2.0x10 <sup>5</sup> CFU/g
Azospirillum Brasilense.....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Thiobacillus Ferrooxidans.....	5.0x10 <sup>7</sup> CFU/g
Paenibacillus Azotofixans.....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens.....	5.3x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.1x10 <sup>9</sup> CFU/g
Bacillus Megaterium.....	5.3x10 <sup>8</sup> CFU/g
Bacillus Pumilus .....	8.8x10 <sup>8</sup> CFU/g
Bacillus Subtilis .....	5.3x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	3.5x10 <sup>5</sup> CFU/g
Methylobacterium Hispanicum .....	1x10 <sup>9</sup> CFU/g

For best results, use in conjunction with Residue Release to manage residue, build stronger stands and unlock early-season nutrients.

NET WEIGHT (per pail): 5.43 lbs (2.40 kg)





# TuneUp+

Soybeans

Powered by **ETHER**

## Planter Box Treatment and Inoculation System for Building Root Mass and Optimizing Nutrient Uptake

TuneUp+ Soybeans with Ether is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. Specifically designed to fix Nitrogen and enhance overall crop performance while taking the place of any seed fluency agent.

The base product includes .43 pounds of Zinc, Iron and Manganese. Ether Enzyme Technology is designed to kick start the uptake of available soil nutrients and water, while maximizing microbial activity.

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe).....	0.70%
Manganese (Mn).....	0.90%
Zinc (Zn).....	1.58%

\* Derived from Ferrous Oxide and Manganese Oxide.

#### BASE INGREDIENTS CONTAIN 10.8% IONLOCK™ ZINC

IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Bradyrhizobium Japonicum.....	2.0x10 <sup>5</sup> CFU/g
Azospirillum Brasilense.....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum.....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum.....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii.....	5.0x10 <sup>7</sup> CFU/g
Thiobacillus Ferrooxidans.....	5.0x10 <sup>7</sup> CFU/g
Paenibacillus Azotofixans.....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens.....	5.3x10 <sup>8</sup> CFU/g
Bacillus Licheniformis.....	1.1x10 <sup>9</sup> CFU/g
Bacillus Megaterium.....	5.3x10 <sup>8</sup> CFU/g
Bacillus Pumilus.....	8.8x10 <sup>8</sup> CFU/g
Bacillus Subtilis.....	5.3x10 <sup>8</sup> CFU/g
Trichoderma Harzianum.....	3.5x10 <sup>5</sup> CFU/g
Mannanase.....	2.5 x 10 <sup>9</sup> μUnits/g
Lipase.....	5.0 x 10 <sup>4</sup> μUnits/g
Methylobacterium Hispanicum.....	1x10 <sup>9</sup> CFU/g

For best results, use in conjunction with Residue Release to manage residue, build stronger stands and unlock early-season nutrients.

NET WEIGHT (per pail): 5.52 lbs (2.50 kg)

### RECOMMENDED CROPS

Soybeans

### FEATURES & BENEFITS

- Drives early-season taproot nodulation and nitrogen fixations
- Builds strong, healthy plants fast
- Generates massive root structure
- Puts soybean in the position to manage season-long stressors and optimize genetic potential
- Herbicide tolerant Bradyrhizobia strain (patent #8772576)

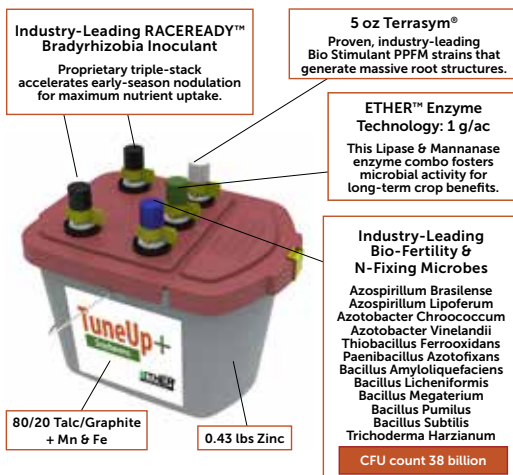
### DIRECTIONS FOR USE

Remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to activate the biologicals and release them into the base. Shake aggressively to blend. Do not activate Bio-Capsules until ready to use. If activated, apply and plant within 7-10 days for maximum performance.

**Use Rate:** The combined products treat 40 units of soybeans at 140k seeds per unit.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

**Packaging:** Sold in a 2-pail case to treat 80 units of soybeans. Each pail is capable of treating 40 units of soybeans.





# TuneUp+

## Sugar Beets

### Nutrient and Microbial Planter Box Delivery System

TuneUp+ Sugar Beets is a best-in-class 80/20 talc/graphite combination that ensures optimum performance in today's high-speed planters. It can take the place of any seed fluency agent.

The base includes 0.43 pounds of Zinc plus Iron and Manganese. These micronutrients are essential for fast emergence and strong, healthy plants.

### RECOMMENDED CROPS

Sugar Beets

### FEATURES & BENEFITS

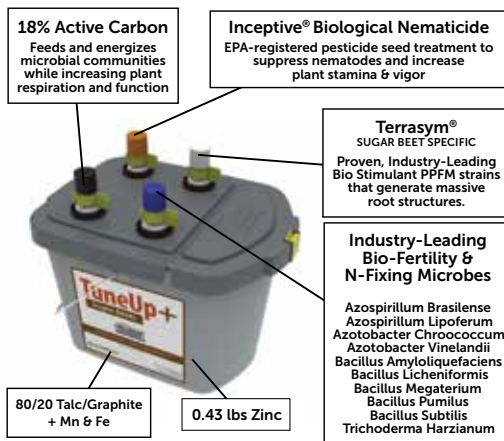
- Ensures early-season vigor and uniform plant development across diverse regions and climates
- Increases emergence and stand establishment
- Enhances nitrogen, phosphorus, and boron uptake and utilization
- Provides natural nematode suppression

### DIRECTIONS FOR USE

Once ready to plant, remove the safety clips from the Bio-Capsules. Push down on the buttons atop the pail to release the biologicals into the base. Seal the pail and shake aggressively to blend the contents.

**Use Rate:** For a single row unit planter, use the enclosed scoop to measure out blended contents. One scoop treats 1 unit (50K seeds) sugar beets.

**Packaging:** Sold in 2-pail case to treat 20 boxes of sugar beets. Each pail is capable of treating 10 boxes of sugar beets.



Actual product packaging may be different than this visual

### BASE INGREDIENTS

80/20 TALC, GRAPHITE AND MICRONUTRIENT BLEND

#### GUARANTEED ANALYSIS

Iron (Fe) .....	0.70%
Manganese (Mn) .....	0.90%
Zinc (Zn) .....	1.58%

Derived from Ferrous Oxide, Manganese Oxide, and Zinc Sulfate.

#### BASE INGREDIENTS CONTAIN 10.8% IONLOCK™ ZINC

IONLOCK ZINC is designed to increase singulation performance, adhere microbes to seed coats, and provide valuable early emergence nutrition.

### BIO-CAPSULE INGREDIENTS

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

Azospirillum Brasilense .....	5.0x10 <sup>7</sup> CFU/g
Azospirillum Lipoferum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Chroococcum .....	5.0x10 <sup>7</sup> CFU/g
Azotobacter Vinelandii .....	5.0x10 <sup>7</sup> CFU/g
Bacillus Amyloliquefaciens .....	6.0x10 <sup>8</sup> CFU/g
Bacillus Licheniformis .....	1.2x10 <sup>9</sup> CFU/g
Bacillus Megaterium .....	1.2x10 <sup>9</sup> CFU/g
Bacillus Pumilus .....	1.0x10 <sup>9</sup> CFU/g
Bacillus Subtilis .....	6.0x10 <sup>8</sup> CFU/g
Trichoderma Harzianum .....	7.5x10 <sup>7</sup> CFU/g
Methylobacterium Hispanicum .....	1x10 <sup>9</sup> CFU/g
Active Carbon .....	18%

### INCEPTIVE®

Harpinaß Protein .....	1%
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EPA Reg No. 71771-3-92738

TuneUp+ Sugar Beets is powered by Bio-Capsule Technology™ - a patented delivery system that helps farmers save time, labor and fuel. The Bio-Capsule carrier system allows for the addition of multiple biological solutions safely packaged for convenient deployment at planting.

NET WEIGHT (per pail): 4.98 lbs (2.25 kg)



## CORN ROOTWORM BIO-CAPSULE (NewLeaf TS201)

NewLeaf TS201 is an EPA registered Pink Pigmented Facultative Methylotroph product that mitigates corn rootworm feeding damage and helps to maintain and improve yield when rootworms are present. When conditions are conducive to high corn rootworm pressure, use NewLeaf TS201 in combination or in a rotational program with other registered insecticides effective against corn rootworm.

### BENEFITS INCLUDE

- Suppression level management of corn rootworm
- Increases root regeneration to outgrow light feeding pressure
- Produces defense mechanism in the plant that confuses CRW larvae

### APPROVED FOR USE ON

#### Crops

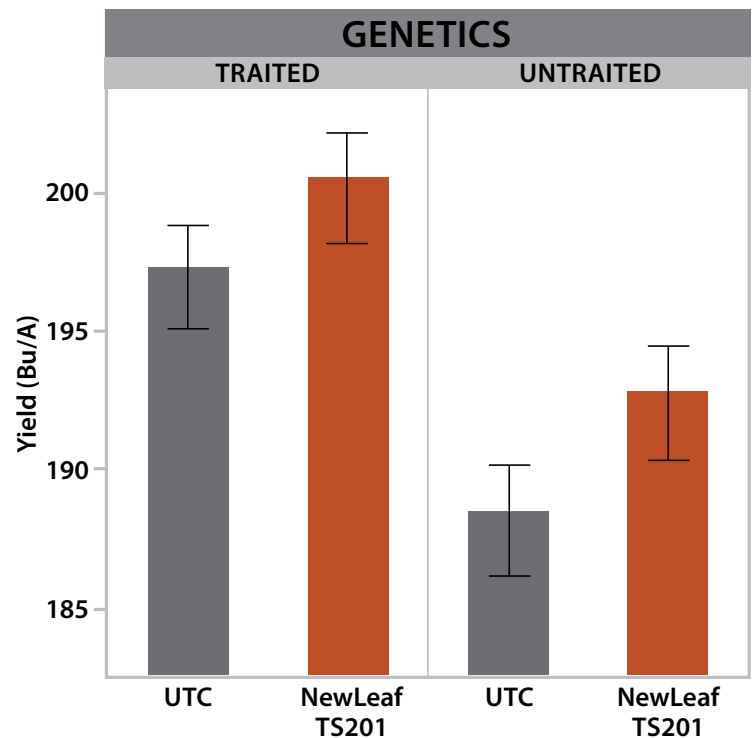
- Corn

#### Pests

- Northern Corn Rootworm
- Western Corn Rootworm
- Southern Corn Rootworm
- Other CRW variants

### USE AND PACKAGING

- Available in Bio-Capsule technology to be used in TuneUp+ Corn and TuneUp+ Corn with Ether



*Traited: 14 trials over 5 years  
(2016-2019; 2021)*

*Untraited: 22 trials over 7 years  
(2016-2022)*

**TREATMENT**  
 ■ UTC  
 ■ TS201  
 ┆ Standard Error

EPA Reg. No. 95699-2

Source: NewLeaf Symbiotics



## SOYBEAN NEMATODE BIO-CAPSULE (biotrinsic® Z15 FP)

An EPA registered living non-sporulating bacteria that inhibits the reproductive life cycle of plant parasitic nematodes. It promotes the growth and development of roots and above-ground vegetation enhancing the crops resistance to nematode attack and promoting season-long health benefits and yield performance.

### BENEFITS INCLUDE

- Creates an expanding living microbial zone of nematode protection
- Produces geosmin, a natural nematode repellent
- Does not impact beneficial nematodes in the soil
- No phytotoxic effects, eliminating the risk of product induced plant injury and stress
- Enhances root and plant growth to sustain crop development during times of drought stress and promote yield improvement

### APPROVED FOR USE ON

#### Crops

- Soybean

#### Pests

- Root Knot Nematode *Meloidogyne spp.*
- Cyst Nematode *Heterodera spp.*

### USE AND PACKAGING

- Available in Bio-Capsule technology to be used in TuneUp+ Soybeans



#### Microbial Seed Treatment for the Suppression of Listed Nematodes

<b>ACTIVE INGREDIENT</b>	
<i>Streptomyces</i> sp. strain SYM00257 .....	3.00%
<b>OTHER INGREDIENTS .....</b>	
	97.00%
<b>TOTAL .....</b>	<b>100.00%</b>

\*Contains a minimum of 1 x 10<sup>6</sup> cfu/g

EPA Reg. No. 95213-A



## FIRST DEFENSE BIO-CAPSULE

TuneUp+ First Defense\* is a plant growth-promoting rhizobacteria (PGPR) that activates plants induced systemic resistance (ISR) defense/immune system. TuneUp+ First Defense stimulates healthier roots and improves nutrient uptake providing both anti-fungal and anti-bacterial activity. It is a broad-spectrum biological fungicide for prevention, control or suppression of many soil-borne diseases.

### MODES OF ACTION

TuneUp+ First Defense has multiple modes of action in preventing, controlling or suppressing plant diseases. Its active ingredient, *Bacillus amyloliquefaciens* strain ENV503, produces broad-spectrum antibiotic lipopeptides (iturin) that disrupt pathogen cell-wall formation and is competitive, fast-colonizing rhizosphere bacterium that occupies the plant's root hairs and leaves. It also prevents the growth and antagonistic effects of soilborne and foliar pathogens. *Bacillus amyloliquefaciens* strain ENV503 is known to stimulate phytohormones, which trigger the plant's systemic resistance to disease (ISR), the defense mechanisms of the plant for prolonged periods of time.

### SOYBEAN DISEASES

#### Damping-off fungus control

- *Rhizoctonia* spp.
- *Pythium* spp.

#### Fusarium seedling blight control

- *Fusarium* spp.

### BENEFITS INCLUDE

- Improved control of soil-borne diseases
- Directly attacks pathogens
- Stimulates plants natural defenses
- Promotes plant growth and overall yield
- Forms protective barrier around roots
- No resistance potential

### USE AND PACKAGING

Available in Bio-Capsule™ Technology to be used in TuneUp+ Soybeans or TuneUp+ Soybeans with Ether. Must be used in conjunction with Metalaxyl ST. Please consult the product label for more details.

\* Pending EPA name approval



## METALAXYL ST BIO-CAPSULE

Metalaxyl ST is a systemic fungicide that contains the chemical metalaxyl, which interferes with fungal RNA synthesis. Metalaxyl ST is intended for use as a planter box treatment in combination of a broad-spectrum fungicide.

### MODES OF ACTION

Metalaxyl ST is one of the best systemic fungicides against oomycetes. It is widely used as a seed treatment for the control of pythium and phytophthora seed rot and damping-off. Metalaxyl ST is water soluble and is translocated readily from roots throughout the plant.

### SOYBEAN DISEASES

#### Damping-off Control

- Pythium

#### Early Season Control

- Phytophthora

### BENEFITS INCLUDE

- Metalaxyl is an industry standard systemic fungicide for phytophthora and pythium
- Contains protective and curative properties
- Systemic protection absorbed by the roots and translocated to the plant
- Protects the seed and root structure during early stages
- No resistance potential

### USE AND PACKAGING

Available in Bio-Capsule™ Technology to be used in TuneUp+ Soybeans or TuneUp+ Soybeans with Ether. Must be used in conjunction with First Defense. Please consult the product label for more details.





## NutriBoost Complete

### Reduce Plant Stress – Protect and Enhance Genetic Potential

NutriBoost Complete is a first-pass solution specifically formulated to protect and reduce yield loss of crops under abiotic stress conditions.

By combining nutrients with stress mitigation ingredients, NutriBoost Complete allows growers to see more value in the nutrients made available to the plant.

#### RECOMMENDED CROPS

Corn, soybeans, wheat, grain sorghum, and alfalfa.

#### FEATURES & BENEFITS

- Improved plant health during critical growth stages
- Shields impact of abiotic stresses, to protect yield potential
- Promotes vegetative and reproductive growth during key rain events on stressed acres
- Aids in herbicide metabolization within the plant
- Reduced risk of micronutrient deficiencies to drive for higher yields

#### MICRONUTRIENTS

- Sulfur aids in protein and enzyme synthesis
- Boron is essential to new growth, pollination, and reproduction. Stabilizes cell walls, which provides plant structure and integrity.
- Manganese aids in herbicide metabolism, chlorophyll formation and plant respiration.
- Molybdenum drives root nodulation growth and enhances nitrogen utilization
- Zinc helps plants withstand environmental stress

#### DIRECTIONS FOR USE

1st application made during early vegetative stages. May repeat applications at 7-10 day intervals as required. Compatible with many herbicide and / or fungicide tank mix partner products. Read individual product labels for instructions

##### Use Rate:

- Apply 1 qt/acre and repeat as needed.
- For best results apply prior to stress events or during rapid growth.

##### Other Considerations:

- Spray volume (ground application): Minimum 10 gallons per acre (GPA)
- Spray volume (aerial application): Minimum 2 gallons per acre (GPA)
- Labeled for Chemigation
- Avoid freezing

#### ACTIVE INGREDIENTS

Nitrogen (N).....	5.00%
4.0% Urea Nitrogen	
1.0% Other nitrogen	
Sulfur (S).....	1.00%
Boron (B) .....	0.13%
Manganese (Mn) .....	0.50%
Molybdenum (Mo).....	0.013%
Zinc (Zn) .....	0.50%

*Derived from urea, zinc sulfate, manganese sulfate, boric acid, sodium molybdate.*

##### ALSO CONTAINS NON-PLANT FOOD INGREDIENTS

L-Proline.....	5,000 ppm
Phenolic Acids.....	19,800 ppm

#### STRESS MITIGATION VALUE

**L-Proline:** an anti-stressor (osmotic regulator) amino acid accumulated by plants to fight off abiotic stresses. Plants primed with Proline are tolerant to stress before the event occurs. Proline is an antioxidant that regulates the balance of active oxidation in plant cells through a synergistic relationship.

**Phenolic Acid Compounds:** metabolites play an important role as local or systemic resistance builders in protecting plants against pathogens. Phenolic Acid compounds are more potent than humic and fulvic as they are naturally released from the plant's seeds, roots, and/or residue decomposition to improve tolerance to stress and signal cell wall growth.



# NutriBoost **NKBS**

## The Ultimate Foliar Feed Solution for Maximizing Yields

When striving to maximize genetic potential in your fields, it is critical to maintain season-long plant health. One of the most efficient ways to supply nutrition to achieve that is through foliar feeding crops during critical growth stages. NutriBoost NKBS is ideal for that late-season nutrient applications on row crops and is an excellent tank mix partner. This upgraded formulation contains Nitrogen and Potassium as well as Sulfur, Boron and Molybdenum.

### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes, cotton and alfalfa

### FEATURES & BENEFITS

- Market leading tank mix compatibility formulation
- Excellent tank-mix partner with fungicide applications
- Maximize nutrient mobility and efficiency, allowing for a lower application rate per acre
- Low salt index and low impurities
- Contains a proprietary, high efficiency boron

### MICRONUTRIENTS

- Sulfur: important for chlorophyll formation, nodulation, enzyme activation, and S-containing amino acids. Also aids in protein and enzyme synthesis.
- Boron: essential to new growth, pollination and reproduction. Stabilizes cell walls, which provides plant structure and integrity. Also aids in nitrogen assimilation and root nodulation formation, which enhances nitrogen uptake and utilization.
- Molybdenum is utilized by select enzymes, that are used in nitrogen utilization and nitrogen fixation.

### DIRECTIONS FOR USE

#### Use Rate:

- Apply 1-2 quarts per acre per application throughout the growing season. More frequent applications at 1 pint per acre may be needed to correct deficiencies once they occur.
- For best results, apply in late vegetative stages and/or early reproductive stages.

#### Other Considerations:

- Spray volume (ground application): Minimum 10 gallons per acre (GPA)
- Spray volume (aerial application): Minimum 2 gallons per acre (GPA)
- Labeled for Chemigation
- Recommend spray carriers: commercial liquid fertilizers, herbicides, fungicides, adjuvants and water
- Avoid freezing

#### Package Choices:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Nitrogen (N).....	2.00%
2.0% Urea Nitrogen	
Soluble Potash (K <sub>2</sub> O).....	15.00%
Boron (B).....	2.50%
2.5% Water soluble boron	
Sulfur (S).....	4.50%
4.5% Water soluble sulfur	
Molybdenum (Mo).....	0.25%

*Derived from urea, potassium sulfate, sodium molybdate, potassium borate.*

One of the only products on the market with 15% potassium combined with nitrogen, sulfur, boron and molybdenum in a highly stable and tank-mix friendly formulation. This formulation allows plants transitioning from vegetative to reproductive stages to gain access to potassium that becomes difficult to mineralize from soils, while bringing in critical micronutrients for grain establishment and fill.



# NutriBoost S-17

## Improve Nutrition

NutriBoost S-17 is specifically formulated for foliar delivery of sulfur.

Sulfur is important for chlorophyll formation, nodulation, enzyme activation, and S-containing amino acids.

### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

### FEATURES & BENEFITS

- Essential for chlorophyll production
- Aids in protein and enzyme synthesis
- Enhances nitrogen use efficiency
- Ultimate tank mix partner
- Maximum nutrient mobility and efficiency, allowing for a lower application rate per acre
- Low salt index and low impurities

### DIRECTIONS FOR USE

Optimum rate of application will vary depending on soil properties (such as pH, organic matter content, texture), weather conditions, time of year, plant species and general health. For best results, follow soil/tissue test recommendation.

#### Use Rate:

##### **Foliar**

Apply 1/2–4 quarts per acre per application throughout the growing season. More frequent applications at 1–2 pints per acre may be needed to correct deficiencies once they occur.

##### **Soil Applications**

Field and Row Crops: 2–4 quarts per acre banded either as a stand alone or in combination with liquid NPK starter fertilizers at planting or as a side-dress during the season.

#### Package Choices:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

#### Guaranteed Analysis

Nitrogen (N).....	8.00%
0.14% Urea Nitrogen	
7.86% Ammonical Nitrogen	
Sulfur (S).....	17.00%

*Derived from urea and ammonium thiosulfate.*

For best results, use in conjunction with a prior application of Residue Release, early-post-emerge and/or with late vegetative to early-reproductive stages.



## DECHLORINATION TANK AID

# BioUP

BioUP is a water pre-treatment that reverses the negative effects chlorine has on biological products. BioUP turns chlorine into the safer chloride form, which is an essential plant nutrient, and is no longer harmful to beneficial microbes. Chlorine is added to both municipal and rural water sources to kill microbes and make it safe to drink. When you use these water sources to fill your sprayer that have been treated with chlorine, it can harm any living organisms you are adding to the tank.

### FEATURES & BENEFITS

- Use with rural and municipality water sources that include biological applications
- Formulated and produced to neutralize both free and combined chlorine in water
- Provide a consistent reduction or elimination of residual chlorine without affecting water quality
- Enhances biological products success

### USE WITH

- Residue Release
- Residue Release RTU
- ProPhase+ with Transit
- Any other Biological products

### USE RATE

- 2 oz/100 gal of water

### PACKAGING

- 4x1 gallon jugs



## Optalign 2D

### More Active Ingredients On Target

Optalign 2D is an Enlist®, Engenia® and Xtendimax®\* approved multi-purpose adjuvant. It minimizes drift, and improves deposition and spreading of spray droplets on the leaf.

#### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

#### FEATURES & BENEFITS

- Low use rate and labeled for a broad range of herbicides, fungicides and insecticides
- Approved for use with Enlist®, Engenia® and Xtendimax®\* technologies
- Reduces fines and the negative effects associated with off target drift
- Provides more droplets in the desired diameter
- Enables delivery of more active ingredients to the plant canopy and consistently improves leaf coverage
- Increased control of target pest(s)

#### DIRECTIONS FOR USE

Always follow label instructions.

**Use Rate:** For use with herbicides, insecticides and fungicides.

- 3-6 oz. per acre in 5-20 GPA applications
- 6-8 oz. per acre in 20-40 GPA applications
- 8-10 oz. per acre in 40-60 GPA applications

**Other Considerations:**

- Approved for ground and aerial application

**Storage:** Store in a closed, dry area and in original container and keep sealed. Avoid freezing.

**Packaging:**

- 2x2.5 gallon jugs
- 250-gallon totes

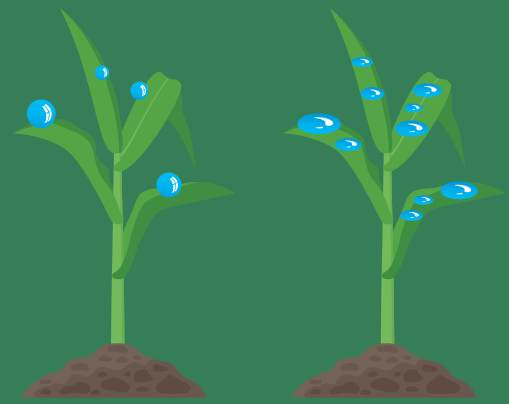
#### ACTIVE INGREDIENTS

Methylated soybean oil and proprietary surfactant blend .....100%

*All ingredients are exempt from the requirement of a tolerance in 40 CFR 180.*

**Surfactant content: 18%**

Decrease driftable fines by 25% and create the perfect droplet size for optimal coverage.



Without

With Optalign

\* Pending approval



# Optalign Aerial

## Providing More Product Where It Is Needed

Optalign Aerial is an adjuvant that helps optimize droplet adhesion, which reduces bounce and increases droplet spreading for improved contact, coverage and canopy penetration. These features enhance overall agronomic performance, providing more fungicide and insecticide where it is most needed.

Optalign Aerial contains an NPE-free surfactant and is designed to enhance fungicide and insecticide applications. It may be used with herbicides and other crop protection products.

### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

### FEATURES & BENEFITS

- Functionally similar to the industry-leading drift and deposition agent
- Increased coverage lower in the crop canopy, where diseases and insects are more prevalent
- Increased droplet retention and slower evaporation, allowing maximum uptake of systemic fungicides
- Reduces spray drift and evaporation of pesticides
- Improves spray deposition

### DIRECTIONS FOR USE

Add Optalign Aerial after pesticides or other adjuvants are added but prior to complete filling of the spray tank.

May be used through direct, in-line injection.

Do not mix Optalign Aerial with other adjuvants in an induction system or container when all the products are undiluted. Once mixed in water, all products are compatible.

#### Use Rate:

- Ground application – 6-10 oz per acre
- Aerial or Drone application – 1% v/v (use 3 oz per acre with 3 gallons of water or less)

**Storage:** Store above 32°F.

#### Packaging:

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Modified soybean oil, ethoxylated soybean oil, and proprietary surfactant blend.....100%

*All ingredients are exempt from the requirement of a tolerance in 40 CFR 180.*

Surfactant Content: 24%

# Optalign Complete

## AMS-Based Water Conditioner and Surfactant System with Oil Based Drift Control

Optalign Complete is an all-in-one approved tank mix partner for Enlist One®, Enlist Duo®, Liberty® Herbicide and Roundup®.

Optalign Complete is a blend of water conditioning agent (ammonium sulfate), surfactants, drift reduction agents and humectants. Optalign Complete contains antifoaming agent to minimize foaming.

Optalign Complete may be used with pesticides that either require or suggest the use of surfactants and/or ammonium sulfate as the recommended adjuvant.



### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

### FEATURES & BENEFITS

- Increased weed kill
- All-in-one technology with superior performance
- Ultimate convenience at the spray trailer
- Designed for glyphosate, glufosinate, Enlist and other herbicides requiring a high load of AMS
- Approved tank mix partner for Enlist One, Enlist Duo, Liberty and Roundup
- Pre-dissolved liquid ammonium sulfate means reduced nozzle plugging and sediment and performance
- Creates ideal droplet size and spray pattern for optimum coverage

### DIRECTIONS FOR USE

Always follow label instructions.

**Use Rate:** Optalign Complete should be used at a rate of 1 gallon per 100 gallons of spray volume with Roundup and Enlist. Use a rate of 2 gallons per 100 gallons of spray volume with Liberty.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Avoid freezing.

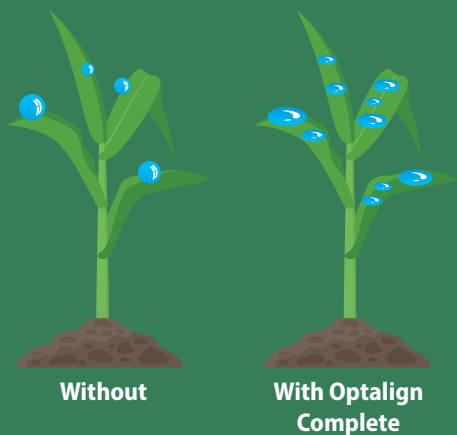
**Packaging:**

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Ammonium Sulfate, Humectant, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside, modified vegetable oil, amine salts of organic acids, organic acids.....	41.6%
Constituents ineffective as spray adjuvant.....	58.4%
<b>TOTAL.....</b>	<b>100%</b>
Components exempt from the requirement of a tolerance in CFR 40 180, 920, 930, 940, 950, 960 & 25B	

Decrease driftable fines by 25% and create the perfect droplet size for optimal coverage.





# Optalign H<sub>2</sub>O

## Optimize Your Tank for Spray Consistency

Optalign H<sub>2</sub>O is a single product tank-aid that contains Ammonium Sulfate, Non-ionic Surfactant, and Compatibility Aids in a defoaming formulation. Operational efficiency and spray formulation efficacy can both be achieved when choosing a complete tank-aid solution like Optalign H<sub>2</sub>O.

### RECOMMENDED CROPS

Row crops, cereals, specialty crops, forages, sod, and turfgrass.

### FEATURES & BENEFITS

- Combination tank-aid that contains nonionic surfactant and 3.4 lbs. AMS in a convenient premix.
- Pre-dissolved liquid ammonium sulfate with built in water conditioner and defoaming formulation.
- Scientifically designed to support herbicide applications that require a high load of AMS, such as those containing glyphosate and glufosinate.
- Enhanced accuracy and speed of operations with a single product vs. multiple tank mix partners.
- Improved water conditioning in the spray tank that provides leaf activity to move herbicide into the plant.

### DIRECTIONS FOR USE

The addition of adjuvants to some pesticides and or fertilizers and their tank mixes may cause phytotoxicity to the foliage and/or fruit of desirable crops. Before using Optalign H<sub>2</sub>O, the applicator or crops advisor must have experience with the pesticide combination, including Optalign H<sub>2</sub>O, or must have conducted a phytotoxicity test.

**Use Rate:** Optalign H<sub>2</sub>O should be used at a rate of 1.0-2.5 gallons per 100 gallons of spray volume. The highest rates are used with Liberty® herbicide and in tougher growing conditions.

#### Other Considerations:

- Spray Volume (Ground Application): Minimum 10 Gallons per Acre (GPA)
- Spray Volume (Aerial Application): Minimum 2 Gallons per Acre (GPA)
- Chemigation: Not Labeled
- Recommend Spray Carriers: commercial liquid fertilizers, water

**Storage:** Store in original container in a closed, dry area and keep sealed. Do not contaminate food, water or feed by storage or cleaning of equipment.

#### Packaging:

- 2 x 2.5 gallons per case
- 250-gallon mini bulk

### ACTIVE INGREDIENTS

#### SURFACTANT SYSTEM

Humectant, substituted fatty alkylammonium alkylcarboxylate, alkyl poly glucoside and Di-ammonium sulfate .....53.0%  
 Constituents ineffective as spray adjuvant ... 47.0%  
 Total ..... 100.0%

Components exempt from the requirement of a tolerance in CFR 40 180, 920, 930, 940, 950, 960 & 25B

Surfactant Content.....24.0%

**AMMONIUM SULFATE**.....34%

Each gallon contains the equivalent of 3.4 lb. of dry ammonium sulfate.







# OptalignMSO

## High-Load Methylated Seed Oil

Optalign MSO is a high-load methylated seed oil and surfactant formulation by Streamline Ag.

### RECOMMENDED CROPS

Corn, soybeans, wheat, edible beans, grain sorghum, sugar beets, potatoes and alfalfa

### FEATURES & BENEFITS

- High-load methylated soy oil for improved performance of herbicides requiring a methylated seed oil
- Superior surfactant system for increased pesticide uptake and effectiveness
- 50% of the use rate of ordinary methylated seed oils and crop oil
- Increases canopy penetration and leaf surface coverage
- Helps herbicides perform when weeds are under stressful, hot, dry weather conditions
- Improves performance of a wide range of herbicide tank mixes

### DIRECTIONS FOR USE

Always follow label instructions.

**Use Rate:** Use 2 quarts per 100 gallons of spray solution or a minimum of 12 ounces per acre. Recommended rate is 24 ounces per acre.

**Storage:** Store in a closed, dry area and in original container and keep sealed. Avoid freezing.

**Packaging:**

- 2x2.5 gallon jugs
- 250-gallon totes

### ACTIVE INGREDIENTS

Modified Vegetable Oil.....	60%
Proprietary blend of (non APE/NPE) Emulsifier .....	40%
<b>TOTAL.....</b>	<b>100%</b>

*All ingredients are exempt from tolerance requirements under 40 CFs 180.100(d)*





