



OTTAWA COOP



AGRONOMY GUIDE

2023-2024



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 TRUTERRA™

A LAND LAKES INC. Company

Working together to scale on-farm conservation practices.

As a Truterra™ farmer, you join a network of like-minded farmers, leading the way in sustainability. By working with Truterra and your local ag retailer, you'll gain deeper insights into your operation that will help you participate in emerging markets like soil health, carbon, other ecosystem services markets, and sustainably produced commodities.

Put meaningful insights to work in your fields right away.



Truterra™ Sustainability Tool

Access the farmer-driven sustainability tool that provides profitability, stewardship and cost-share opportunities on a field-by-field basis.



Realize Cost-Share Opportunities

Explore conservation practices for your farm and identify cost-share opportunities to implement or trial new practices.



Data-Backed Insights

Test-drive potential changes via a modeling tool before making the switch on-farm.



Enhanced Soil Health

Unlock powerful insights about your fields that will help you improve soil health long term while maximizing profitability.



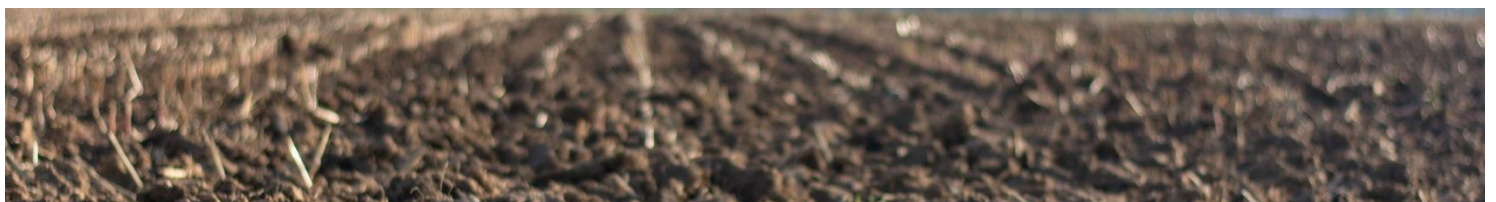
Prepare For New Markets

Access help to prepare your farm to benefit in current and future ecosystem markets like carbon and water quality credits.



Protect Your Right To Farm

Run reports easily to share your stewardship story with your community, landlords, bankers, and more.



Nitrogen Stabilizers

N-Serve Nitrogen Stabilizer for Anhydrous

What it does:

- Reduces Nitrogen loss
- Improves standability
- Provides healthier corn and consistently higher yields
- Reduces risk of stalk rot
- Enables quicker crop dry down
- Reduces leaching of nitrates and denitrification
- Keeps nitrogen available for corn crop and helps protect water quality

When to use it:

- Add with anhydrous ammonia in fall and spring
- Rates: Add 1 qt. per acre



With N-Serve

Without N-Serve

N-Serve®

PROTECTS NITROGEN AT THE PLANT ROOT ZONE

NITROGEN STABILIZER

N-Serve® Nitrogen Stabilizer

- Active ingredient is nitrapyrin
- Oil based formulation that mixes well with anhydrous ammonia
- Optimizes yield potential of corn when used with anhydrous ammonia
- Proven and trusted technology for over 35 years

How Does N-Serve® Work?

N-Serve® inhibits the Nitrosomonas bacteria in the soil keeping Nitrogen in the stable ammonium form longer and protected from leaching and denitrification.



Application Rates

Fall applications

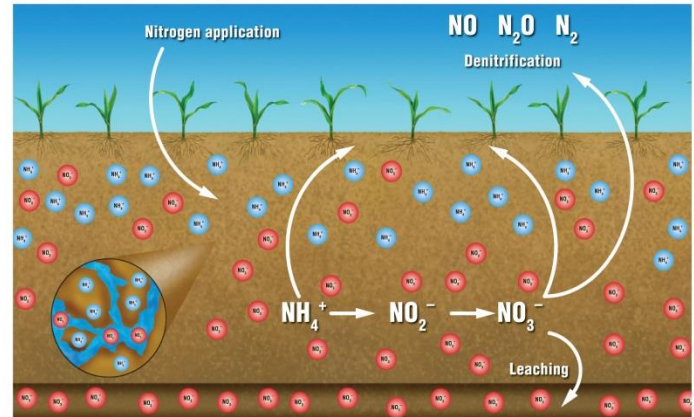
1 quart per acre

Spring applications

Pre-emerge: 1 quart per acre

Sidedress: 0.5 to 1 quart per acre

What Happens to Unstabilized Nitrogen?



When Do Nitrogen Losses Occur?

Most Nitrogen Losses occur during the Spring:

- Spring Rains and warm soil temperatures lead to heavy losses through both leaching and denitrification.
- Stabilizing with N-Serve® greatly reduces both leaching and denitrification protecting nitrogen in the root zone.

Stronger, Healthier Plants

- Increased yield
- Improved standability
- Reduced risk of stalk rot
- Increased grain protein
- Faster crop drydown

For more information about N-Serve® visit www.NitrogenStabilizers.com or contact your local Dow AgroSciences sales representative.



Vigor 2 Yield Plant Performance Profile

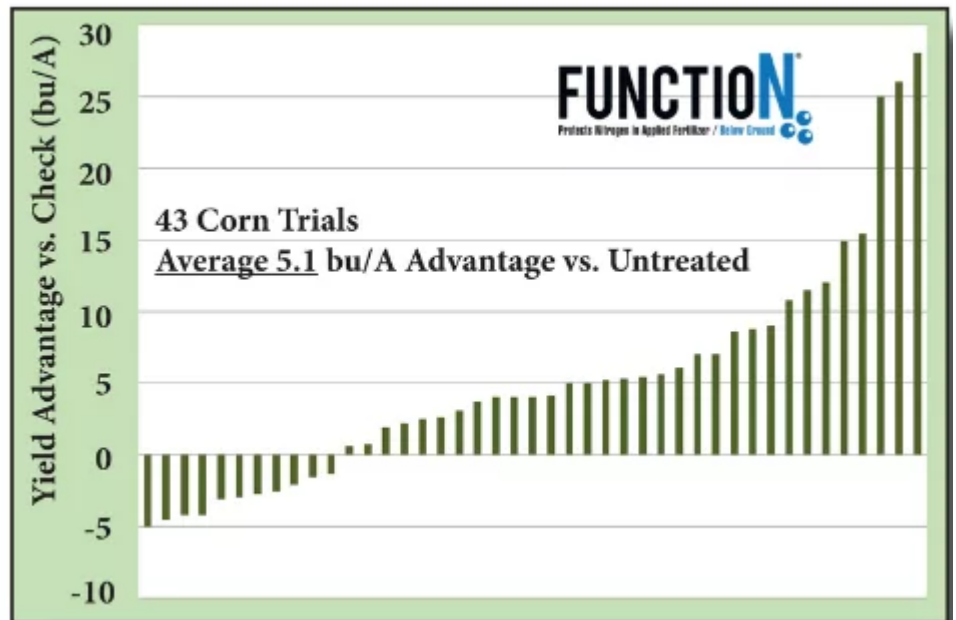


Protects applied nitrogen from below ground losses.

FunctionN is a proprietary DCD formulation with a unique solvent system, easy-to-use and patent pending formulation. Keep your nitrogen available at crucial growth stages.

Roughly 80% of a corn plant's total nitrogen need occurs 75 days after emergence!

Use Rates
Rate: 1.5-3 pt/A
9.7 lbs/gallon
pH 7.7



Anhydrous Ammonia

Applications of FunctionN



- ✓ Non- Corrosive, excellent cold weather handling, NRCS approved
- ✓ Can be pumped through most commercial NH₃ injection systems
- ✓ Can be used in any sidekick system on the market

Switching Nitrification Inhibitors in an Injection System

1. Previous Nitrification Inhibitor
2. Rinse with Diesel
3. Rinse with UAN
4. FunctionN

NUTRISPHERE-N® HV

A VERDESIAN NUE SOLUTION™

NutriSphere-N® HV Nitrogen Liquid Fertilizer Manager keeps more nitrogen available for plant uptake and impacts all three forms of N loss. This helps contribute to higher yield potential and can reduce the amount of nitrogen that winds up in surface or ground water through runoff and leaching.

CHEMISTRY

- Shields nitrogen on a molecular level by inhibiting enzymes and keeping more nitrogen in the more immobile ammonium form for a longer period of time
- Provides long-lasting protection against volatilization and leaching
- Provides long-lasting protection for high volume liquid fertilizers

KEY BENEFITS

- Formulated specifically for liquid nitrogen fertilizers
- Protects against three forms of nitrogen loss
- Protects soil health and water quality

HANDLING AND APPLICATION

- NutriSphere-N HV was designed for high-volume UAN application rates of 15 gallons per acre or greater
- Easy to use, easy to handle
- Easy application via applicator or fertigation

OTHER KEY POINTS

- Used on more than 46 million acres in 40 states
- 3.6 ROI in responsive sites



REGION

All



CROP

Row and Specialty Crops



TIMING

Preplant, Post Plant Broadcast, Siddress, Post Direct (V-Drill)



RATE

.64 oz/gal UAN up to 18 oz./ac.



PACKAGE

2.5 gal, 250 Gal. Tote, Bulk



ASK US ABOUT THE VERDESIAN

**PERFORMANCE
GUARANTEE**

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UNTREATED CHECK 60GPA 28-0-0-5



NUTRISPHERE-N HV 18OZ/A 60GPA 28-0-0-5



NutriSphere-N and HV combined Trials 2013-2017

25

20

50 Sites (~200 replications)
37 wins (74%)
5.65 bu/a increase all sites
9.98 bu/a increase responsive sites

15

10

5

0

-5

-10

-15

-20

-25

-30

-35

-40

-45

-50

-55

-60

-65

-70

-75

-80

-85

-90

-95

-100

-105

-110

-115

-120



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AVAIL[®]T5

A VERDESIAN NUE SOLUTION™

AVAIL[®] T5 uses patented polymer technology to make applied phosphorus (P) more available for plant uptake, speeding early growth, making crops healthier and boosting yields – while continuing to reduce the amount of P lost to the environment. The improved formulation also means better handling, storage and ease-of-use.

IMPROVED PHOSPHORUS EFFICIENCY

- More phosphate uptake means stronger roots/shoots and better early performance
- Better stress tolerance for early-season performance
- On average, 45% more P available depending on soil type

POWERED BY NEW GENERATION T5 (TETRA) POLYMER

- More Effective Charge (8-24% in agronomic pH range)
- AVAIL T5 has a negative charge that provides the material with a high cation exchange capacity (CEC), about 4x that of humic acids
- Enhanced 3D polymer structure

IMPROVED FORMULATION AND APPLICATION

- Improved efficacy across range of soil pH and more consistent across all soil types
- Better handling, storability, and ease-of-use
- Use to treat broadcast, banded, and in-furrow Phosphorus applications
- Available in both liquid and granular formulations



REGION

Midwest



CROP

Corn, cereals,
soybeans and cotton



TIMING

Pre-season, Planting, In-Season



RATE

Granular: 2 qt./ton
Liquid: 2 qt./100 Gal.



PACKAGE

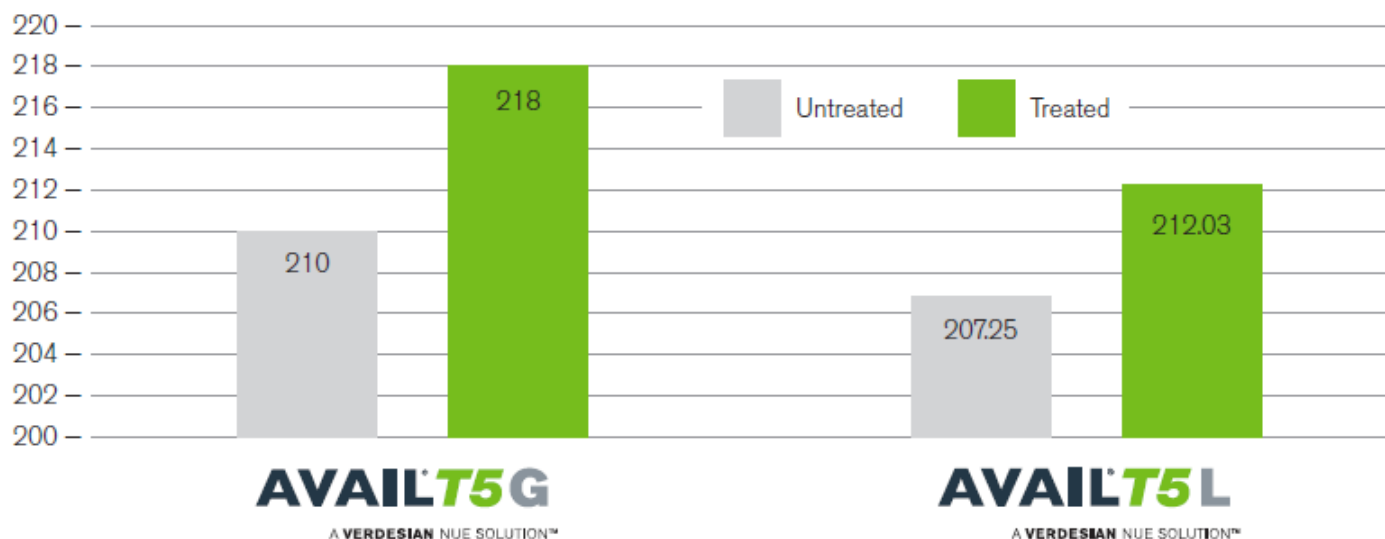
2.5 Gal., 250 Gal. Tote, Bulk

AVAIL T5 G: USE GUIDELINES FOR GRANULAR P FERTILIZER AT FULL RATE

pH	SOIL TEST PHOSPHORUS RATING				
	Very Low	Low	Medium	High	Very High
< 5.0	5	5	4	3	3
5.1-5.7	5	5	4	3	2
5.8-6.2	5	4	3	2	2
6.2-6.8	3	3	3	2	1
6.8-7.4	5	4	3	2	2
7.4-8.0	5	5	4	3	2
> 8.0	5	5	4	3	3

FULL RATE PHOSPHORUS		
AVAIL T5 ROI Rating	Expected Probability of Positive ROI	Expected ROI
5	> 95%	5x +
4	> 90%	3x-5x
3	> 80%	2x-4x
2	> 60%	1.5x-2x
1	> 40%	.5x-1.5x

2018 CORN DEMO TRIALS FROM 30 SITES (79% WIN RATE):



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MicroSync Pro™

MicroSync Pro™ Granular Micronutrient Fertilizer is formulated for use in broad acre crops and designed to be blended with NPK granular fertilizer programs. This combination micronutrient formulation is a free flowing, low dust, and uniform granular fertilizer, which contains a unique combination of Sulfates and Sucrates for enhanced microbial activity and bioavailability. MicroSync Pro boosts soil fertility programs by providing a superior balance of nutrients precisely formulated to prevent or correct micronutrient deficiencies.

WHY MICROSUNC PRO?

- **Verdesian Polymer Technology** and carboxylates synergize micronutrient and sulfur availability for plant uptake
- **Nutripaction® Technology** — Uniformly blended combinations of finely divided particles compacted together produces homogeneous granules consistent in particle size and analysis. In the soil, Nutripaction® granules are activated by soil moisture creating millions of particles within the root zone for conversion and uptake
- **Balanced nutrient formulations** designed with your crop in mind, delivering three critical micronutrients and sulfur
- **Ideal for blending** with NPK fertilizers with an ideal spread pattern at 10-40 lbs. per acre
- **Matches particle size and bulk density** of most dry fertilizers for a more uniform distribution of critical nutrients

DIRECTIONS FOR USE:

MicroSync Pro is intended for use in mixing or blending with other fertilizer materials. This product is recommended for correction of multiple deficiencies, as determined by tissue analysis and soil testing, on any agricultural or horticultural crop where a deficiency of Boron, Manganese and/or Zinc may exist. When deficiencies exist, use the following table or consult your local agricultural extension professional or your local professional consultant. This product is for soil application only.

Amount of MicroSync Pro per Acre will provide "x" lbs of nutrient per acre				
	10 Lbs/Acre	20 Lbs/Acre	30 Lbs/Acre	40 Lbs/Acre
Sulfur	0.95	1.90	2.85	3.80
Zinc	0.75	1.50	2.25	3.00
Manganese	0.50	1.00	1.50	2.00
Boron	0.12	0.25	0.37	0.50



GUARANTEED ANALYSIS:

Calcium (Ca)	7.0%
Sulfur (S)	9.5%
Boron (B)	1.25%
Manganese (Mn)	5.0%
Zinc (Zn)	7.5%

Derived from: Ammonium Sulfate, Calcium Sulfate, Sodium Borate, Manganese Sucrate, Manganese Sulfate, Zinc Sucrate and Zinc Sulfate

APPLICATION RATES PER ACRE:

- MILD** deficiency 10-15 lbs.
- MODERATE** deficiency 15-25 lbs.
- SEVERE** deficiency 25-40 lbs.

The information and statements herein are believed to be reliable but are not to be construed as a warranty or representation for which we assume legal responsibility. Users should undertake sufficient verification and testing to determine the suitability for their own particular purpose of any information or products referred to herein.

NO WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS MADE.

Micro Products, Macro Results®

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Tomorrow's Science Delivering Today's Returns

WARNING! Excessive amounts of Boron may cause injury to crops. This product is intended for use in further blending with agricultural grade fertilizers and should be applied evenly. Application equipment should be calibrated to insure targeted rates of application. Information regarding the contents and levels of metals in this product is available on the internet at <http://www.aapfco.org/metals.htm>. MicroSync Pro is a trademark and Nutripaction is a registered trademark of Verdesian Life Sciences. Important: Always read and follow label use directions. © 2017 Verdesian Life Sciences. All rights reserved. VLS 170391





Take Off[®] LS

BUILD BIGGER PLANTS FROM THE INSIDE OUT



**Plant health is the key to higher yields.
Set your crop up for success with our revolutionary
new nutrient management technology that helps
build bigger, stronger plants from the inside out.**

ENERGIZE YOUR CROPS WITH TAKE OFF LS

It works inside the plant to increase nutrient uptake, resulting in:



**Faster germination
and emergence**



**Stronger,
healthier plants**



**More efficient
use of nutrients**



**Greater yield
potential**

Take Off[®] LS



HOW IT WORKS

By mimicking a naturally-occurring molecule that optimizes a plant's nitrogen acquisition, Take Off LS allows plants to more efficiently assimilate nitrogen and carbon to build a bigger, more vigorous plant. The end result is more overall nutrient uptake and nutrient use efficiency, leading to more bushels per acre produced per unit of nutrients applied to or present in the soil.

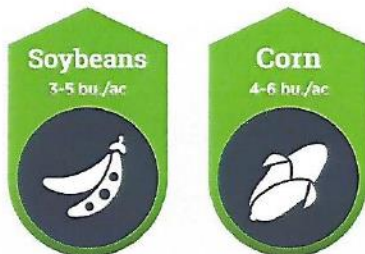
BENEFITS

A stronger, more uniform crop emergence and more rapid early growth, resulting in treated plants that have more biomass and that are one or more growth stages ahead of untreated plants by mid-season
(IN-FURROW APPLICATION)

Greener, taller plants with more leaf area than untreated counterparts (FOLIAR APPLICATION)

Vigorous, darker green corn that reaches reproductive stage several days before untreated plants
(SIDE-DRESS-APPLIED WITH UAN)

PROVEN RESULTS



Trials conducted in 2015 in the U.S. and Canada showed that soybeans and corn treated with a foliar application of Take Off LS at post-emergence yielded significantly more bushels per acre than their untreated counterparts.

APPLICATION GUIDELINES

	In-furrow applications	Foliar	Side-dress/ layby fertilizer
Corn	✓	✓	✓
Soybeans	✓	✓	
Wheat, rice, barley & other cereals		✓	
Cotton	✓	✓	
Alfalfa hay & forage crops		✓	
Canola		✓	

Take Off LS is a flexible nutrient use efficiency product that can be applied at multiple timings, either alone or in a tank mix with commonly-used fertilizers or crop protection products.

Our data shows that the most consistent yield performance and ROI has come from applications made at planting to mid-season, regardless of the crop.

While you don't need to apply more than once per season, field experience and trial data indicate that multiple applications throughout the year can provide additional benefits in plant health and yield.

RECOMMENDED APPLICATION RATES

	Single application	Multiple applications
Low rate: 1 pt/ac		✓
High rate: 2 pt/ac	✓	✓

FOR MORE INFORMATION

Call **800.868.6446** or visit **vlsci.com** to find your local specialist.



Fall Spraying Recommendations

Pasture

Remedy Ultra	1 pt/ac
Milestone	5 oz/ac
Pasturegard HL	1 ½ pt/ac
Grazon P+D	1 qt/ac
Tordon	1 pt/ac
Grazon Next HL	2 pt/ac
Chaparral	3 oz/ac

All products should be mixed with surfactant.



DuraCor™
HERBICIDE

GrazonNext® HL
HERBICIDE

Chaparral™
HERBICIDE

Visit us at rangeandpasture.com

Wheat Programs

Greenup


	<u>Rate/Acre</u>
Urea	80 lbs. N + NutriSphere + 1 pint TAKEOFF LS
UAN	70 units with Nutrisphere HV + 1 pint Takeoff LS
Finesse	.3 oz/acre

Wheat Hi-Yield Program

1st topdress 70 lbs. N + NutriSphere + 1 pint TAKEOFF LS

2nd trip: Fungicide + 1 pint TAKEOFF LS

At Flag Leaf

Trivapro	Fungicide	 Trivapro TM
or		
Priaxor	Fungicide	Priaxor [®]

Wheat Fungicide Application Timing

<u>Fungicides</u>	<u>Apply at</u>	<u>Rate</u>
Priaxor	Feekes 4-6	4 fl oz/ac
Trivapro	Feekes 8	13.7 oz/ac

Wheat Recommendations

Starter Recommendations

50-46-60-15-2 with AVAIL

18-46-60-15-2 with AVAIL

Burndown/Preplant

Finesse	.3 oz/ac
Powermax	30 oz
Affinity Broadspec	.5oz/ac

Fungicide

Trivapro	13.7 oz/ac
Priaxor	4 oz/ac
Prosaro	6.5-8.2 oz/ac
Stratego Yield	2-4 oz/ac

All fungicide to be applied at flagleaf to full head emergence.

Corn Recommendations

Starter for Grain

100 bushel removal	15-38-30-10-3 with AVAIL
120 bushel removal	18-46-36-10-3 with AVAIL
140 bushel removal	21-53-42-15-3 with AVAIL
160 bushel removal	24-61-48-15-3 with AVAIL
180 bushel removal	26-68-54-15-3 with AVAIL
200 bushel removal	30-76-60-15-3 with AVAIL

Starter for Silage

10 ton/ac	10-27-65-9-3 with AVAIL
20 ton/ac	21-54-130-18-3 with AVAIL
30 ton/ac	31-80-195-27-3 with AVAIL

Fall Spraying

Atrazine 4L	1 qt/ac
Atrazine 90 DF	1.1 lbs/ac
Autumn Super	.5 oz/ac
Valor SX	2 oz/ac
Basis blend	.825 oz/ac

**All products to be applied with 1 pt/ac of Dicamba or
1 qt/ac 24D LV6.**

**A soil sample is highly recommended to achieve
the appropriate fertilizer recommendation.**

Soybean Recommendations

Starter

40 bushel removal	12-32-56-10 with AVAIL
50 bushel removal	15-40-70-11 with AVAIL
60 bushel removal	19-48-84-13 with AVAIL

Fall Spraying

Sonic	5-6 oz/ac
Valor XLT	3 oz/ac
Metribuzin	16 oz/ac
Blanket 4F	4-6 oz/ac
Autumn Super	.5 oz/ac

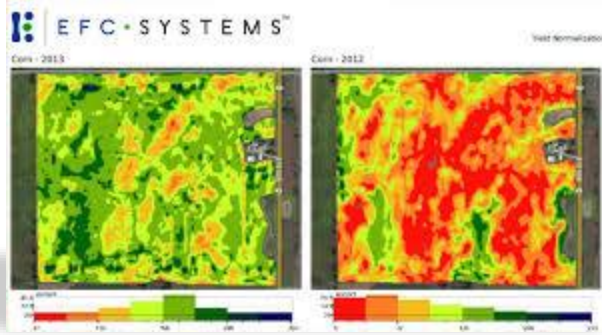
**All products to be applied with 1 pint/acre Dicamba or
1 quart/acre 24D LV6.**

**A soil sample is highly recommended to achieve
the appropriate fertilizer recommendation.**



Field Advantage

OTTAWA COOP

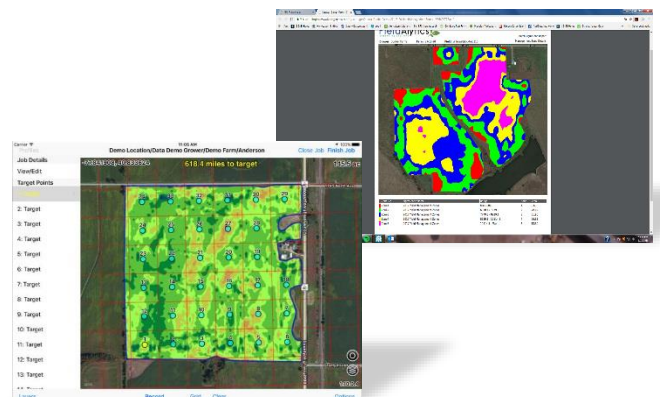


Why Precision Farming?

- Take inventory of fertility on each field.
- Stop throwing fertilizer \$ where it is not needed.
- Variable rate application technologies allow you to place the products only where needed to maximize crop productivity.
- Utilize Yield data and make it useful in fertility, seed, and production.
- Know the right placement of seed hybrids for maximum profitability.
- To be an overall better manager of all farming practices.

Solutions for Better Decision making.

- Maximize economic yields by utilizing information based on sound decision making.
- Utilized multi years of information trends for decision making.
- Make hybrid/variety decisions based on your operations performance.
- Utilize multi-layers of information in analysis process.



SEED



Cover Crops

Cereal Rye: \$17/bag (50lb bags)
 \$16/50lbs (Bulk Price)

Turnips/Radish: \$15/5lb bag
 \$110/50lb bag

Cover Crop Blend: \$26/50lbs (Bulk Pricing)

Minimum 1000 lbs and must take in Black Box

Mix Contains 46lbs Rye, 2lbs Turnip, 2lbs Radish

50lbs/acre recommended plant rate.

**Cover crops can be applied by plane or ground rig through us if needed.
Application charges will apply. Special mixes can be ordered, call for pricing
and availability.**

Cal Wenger
Seed Manager
calw@ottawacoop.com
620-504-2135

Corn Seed Treatment

Any amount of corn can be treated. All treated corn will be delivered in a black box even if only a small amount is treated. All treated corn is non-returnable.

Tripidity

- Blend of growth additives, sugars, amino acids, and micronutrients
- Enhances uniformity and quickness of germination
- Offsets early season nutrient deficiencies
- Contains an optimal combination of nutrients and plant hormones
- Reduces negative effects caused by environmental stresses
- Boosts early plant growth and development for higher yield potential

\$18/unit (Approx \$6/acre depending on plant population)

Wheat Seed

Hard Red Winter Wheat

Rockstar: \$21/unit

AP18 Coaxium Wheat: \$23/unit

Everest: TBD

Bob Dole: TBD

Current supply is very limited, there may be no supply of Everest or Bob Dole but please contact your local sales representative for information.

Soft Red Winter Wheat

Barbie 15: \$29/unit

Price includes Fungicide/Insecticide Treatment

Seed Treatment

Fungicide Only: \$3/unit

Fungicide/Insecticide: \$6/unit

All Wheat is Sold in 50lb units. Limited quantities available on all varieties, call your local Sales Representative to book your wheat seed now.

Corn Seed Treatment



TRIPIDITY™ ST

Tripidity ST biostimulant is a uniquely designed seed treatment that provides essential nutrients and biostimulant additives which can maximize early seedling vigor and crop development, for maximizing yield potential.

- Tripidity ST is a unique blend combining essential macro and micro nutrients and a proprietary blend of plant extracts to stimulate seed germination and to maximize early seedling growth and vigor. Tripidity ST also includes a balanced ratio of three hormones designed to work together to enhance seed germination and seedling establishment, provide stress reduction in cold soils, enhance cell elongation, and increase nutrient uptake for higher yield potentials.
- Multiple factors start affecting yield the moment the seed is planted. Treating seeds with an industry leading fungicide and insecticide, coupled with effective biostimulants will drive and increase yield.
- Germinating seedlings can only draw from the energy within the seed until the start of photosynthesis. Tripidity ST provides the building blocks for cell walls, membranes, and the components of key growth processes before the plant can create its own.

Balanced Ratio of Hormones

Cytokinin (Kinetin)

Stimulates cell division, involved in shoot growth, delays leaf senescence and activates dormant buds.

Gibberellic Acid (GA)

Stimulates seed germination, shoot elongation, flowering, and regulates production of hydrolytic enzymes in grains.

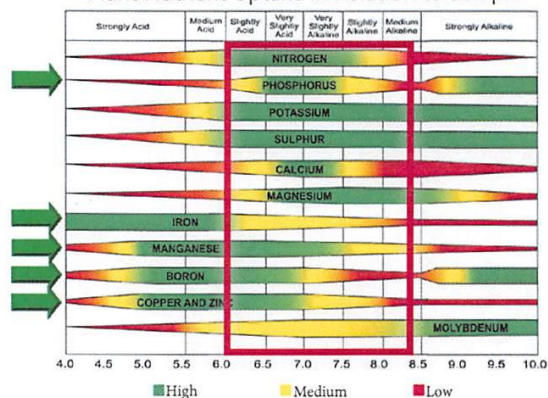
Indole-3-Butyric Acid (IBA)

IBA is an auxin that enhances root growth; involved in apical dominance, stimulates cell elongation, enhances fruit and seed development.

GUARANTEED ANALYSIS 0-0.70-0

Available Phosphate (P ₂ O ₅)	0.70%
Manganese (Mn)	0.05%
0.05% EDTA Chelated Manganese	
Boron (B)	0.50%
Iron (Fe)	0.10%
0.10% EDDHA Chelated Iron	
Zinc (Zn)	0.50%
0.50% EDTA Chelated Zinc	
Derived from: Diammonium phosphate, Manganese EDTA, Boron ethanolamine, Ortho-Ortho Iron EDDHA & Zinc EDTA.	
EDTA is ethylenediaminetetraacetic acid.	

Plant Nutrient Uptake in Relation to Soil pH



Biostimulants can increase yield by allowing the crop to perform at an optimum level, even under stress.





CO-OP MERCHANDISE



SHOP SCREEN PRINT OPTIONS AND
CUSTOMIZABLE MERCHANDISE ONLINE!

Scan to
Shop!



Clean fields mean higher yields
and more money in your pocket.
Let us help you get there with our
selection of industry-leading
herbicide solutions that are tough
on weeds.

