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Fall Spraying Recommendations

Pasture

Tordon 1 pint/acre

Milestone 5 ounces/acre

Grazon P + D 1 quart/acre

Wheat

Finesse .3 ounces/acre

Quelex .75 ounces/acre

Soybeans

Blanket 4F 4-6 ounces/acre

Sonic 5 ounces/acre

Glory or Tricor 16 ounces/acre

Valor XLT 3 ounces/acre

Boundary 1 ½ pint/acre

Corn

Atrazine 4L 1 quart/acre

Hornet 4 ounces/acre

Soybeans or Corn

Autumn Super .5 ounces/acre

Valor SX 2 ounces/acre

All burndown products should be sprayed with a pint of clarifier for optimal weed



Wheat Programs

Greenup Rate/Acre

Urea 80 lbs. N + NutriSphere

Finesse .3 oz/acre
Harmony Extra .6 -.9 oz/acre

At Flag Leaf

Quilt Xcel Fungicide

or

Twinline Fungicide



Wheat Hi-Yield Program

1st topdress 70 lbs. N + NutriSphere

2nd trip: Fungicide

Wheat Fungicide Application Timing

| <u>Fungicides</u> | Apply at | <u>Rate</u> |
|-------------------|-------------|---------------|
| Headline | Feekes 4-6 | 6 fl oz/ac |
| Priaxor | Feekes 4-6 | 4 fl oz/ac |
| Twinline | Feekes 9 | 7-9 fl oz/ac |
| Caramba | Feekes 10.5 | 13.5 fl oz/ac |

Quilt Xcel 10.5 oz from full flag leaf emergence (10 Feekes) through full head emergence (10.5 Feekes)

SUSTAIN

A WIN FOR FARMERS. A WIN FOR THE PLANET.

WHAT IS LAND O'LAKES SUSTAIN™?

Land O'Lakes SUSTAIN™ is making stewardship matter by leveraging our farm-to-fork footprint and farmer ownership to drive meaningful, quantifiable on-farm conservation. In partnership with WinField United, we provide farmers with the tools to best protect the planet's air, soil and water. In short, better management and care for the production of crops helps ensure a more sustainable future.

IT'S EASY TO GET STARTED.

The single most important part of conservation is for farmers to get started. They can begin by simply selecting a technology, practice and/or product from the Conservation Agronomy framework — always working toward continuous improvement. If desired, they can add new practices each season to build on where they started.

Regardless of how farmers move forward, we'll work with them to make implementation seamless.

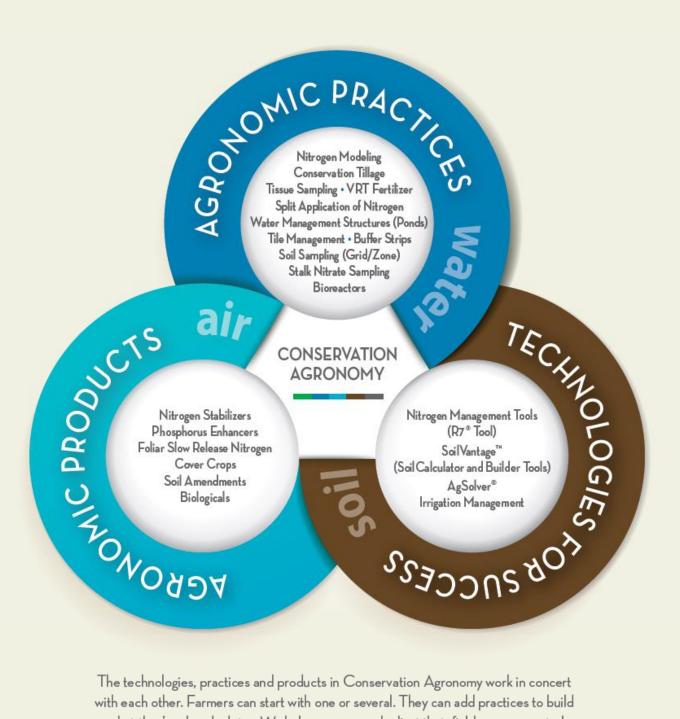
A TRUE MEASURE OF SUCCESS.

Once farmers decide where to start, we provide them with the tools to best measure the impact on the farm and the planet. Timely measuring lets them see how well they're doing. It also helps us make necessary adjustments and modifications to their practices to get the best results.

Ultimately, implementing Conservation Agronomy will help lead to healthier profits for farmers, as well as produce a healthier planet for everyone to enjoy.



HELP BUILD A SUSTAINABLE FUTURE TODAY.



The technologies, practices and products in Conservation Agronomy work in concert with each other. Farmers can start with one or several. They can add practices to build on what they're already doing. We help measure and adjust their field management plan to achieve the best return on investment for the bottom line and the planet.

Why Stabilize your Nitrogen?

- More nitrogen available for plant uptake by slowing the conversion of nitrogen into forms that can be lost through volatilization, leaching and denitrification
- Ensures longer period of increased nitrogen availability for plant uptake
- · Maintaining N improves potential for maximizing yield
- Stabilizing N protects the environment
 - Prevents leaching nitrate into surface and ground water
- Protects applied nitrogen for a full 10-12 months
- Provides flexibility in application schedules

OUR UREA IS 100% TREATED







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

NutriSphere Nitrogen Stabilizer for Urea

- Add NutriSphere to urea to keep the nitrogen from leaching, volatilization and denitrification
- Topdress corn with urea + NutriSphere at V4 to V8 stages





Providing long-lasting protection of anhydrous ammonia

NutriSphere-NH3[™] is a new formulation specifically designed to protect nitrogen applied as anhydrous ammonia from being lost through nitrification.

NEW WAY TO PROTECT N

NutriSphere-NH3 provides a number of performance benefits and advantages, including:

- Protects anhydrous ammonia applications against loss through nitrification; reducing nitrate leaching and denitrification
- · Application rate of 32 Fl. Oz./A creates a fixed, cost-efficient investment per acre
- Easy to handle and use formulation with very little odor
- Unique dual-injection delivery system is specifically designed for optimum application and ease of use with anhydrous ammonia

PROVEN NUTRISPHERE-N® PERFORMANCE

- NutriSphere-N* Nitrogen Fertilizer Manager is a proven technology that has been used on more than 34 million acres
- NutriSphere-N protects against loss to volatilization, leaching and denitrification by keeping more nitrogen in its stable ammonium form for a longer period of time
- Long lasting protection up to 10-12 months



APPLYING NUTRISPHERE-NH3 WITH DUAL INJECTION

- · Equipment Details:
 - -The dual application system features special knives (shown below) and application tubes allowing for precise placement of NutriSphere-NH3 one-half inch above the anhydrous in the soil.
 - -The SureFire Ag Systems' constant flow pump and electromagnetic flowmeter allow for precise amounts (98%+ accuracy) of material to be applied regardless of speed.

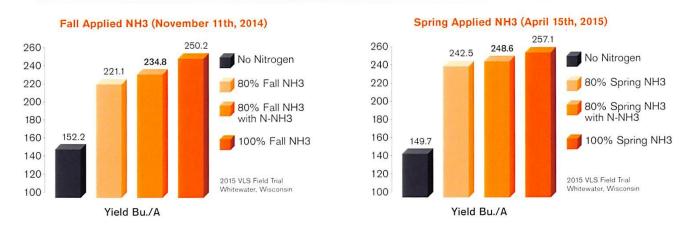


Dual application knife from Shield Ag Equipment.





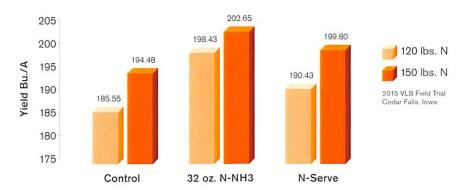
RIGHT APPLICATIONS AT THE RIGHT TIME



Timing is critical - Fall N loss was high, resulting in a high return for NutriSphere-NH3.

SPRING APPLIED ANHYDROUS AMMONIA

NutriSphere-NH3 - Spring Applied on April 15, 2015







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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 stabile ammonium form longer and protected from leaching and denitrification.



Application Rates

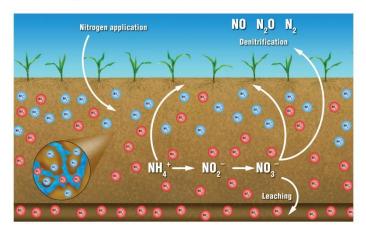
Fall applications

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 standibility
- 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.





The strongest phosphorus protection available

HELP YOUR CORN REACH ITS FULL POTENTIAL

AVAIL* Phosphorus Fertilizer Enhancer increases the efficiency of your phosphorus (P) fertilizer no matter how - or when - you apply it. This gives you application flexibility and a better return on your phosphorus investment. When as much as 75-95% of untreated phosphorus can become fixed in the soil, AVAIL keeps it more available to your corn.

AVAIL PROVIDES:

- · Increased efficiency of applied P in your soil for increased P uptake in the plant
- · Stronger roots, healthier start and stronger finish
- · More flexibility in your application schedule
- · Effective protection for both dry and liquid phosphorus fertilizers

Contact your local Ottawa Coop location to ask how to add AVAIL to your fertility program today.

AVAIL CORN TRIALS





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Tomorrow's Science Delivering Today's Returns

*Data on file.
Important: Always read and follow label use directions.
AVAIL is a registered trademark of Verdesian Life Sciences.
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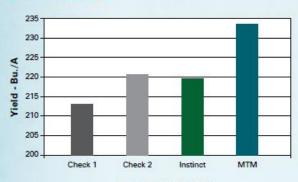




Nutrient Manager

More Than Manure® (MTM®) Nutrient Manager is the only product on the market proven to reduce phosphorus (P) lock-up and nitrogen (N) loss from leaching, volatilization and denitrification when applied to hog manure. By reducing valuable nutrient loss from your manure applications, it can help you see better overall crop performance and increased yield potential.

Ohio Corn 2013



Sow Barn (Gestation and Farrowing) Deep Pit Manure treated and applied in October 2012. 6,500 Gals./A Applied Sabina, Ohio

Manure Treatments

MTM Benefits

- · Crop rotation flexibility
- Non-toxic to livestock and soil bacteria
- · No specialized mixing/application equipment required
- · Reduces phosphorus lock-up in the soil
- Protects nitrogen from leaching, volatilization and denitrification
- Slowly biodegrades leaving no environmental footprint
- · Can reduce ammonia levels in your confinement barns
- · Can reduce solids in pits or lagoons

Liquid Manure Systems

Application Rate

18 oz. per acre

Application Method

Full Pits or Lagoons:

- · Add MTM to the pit or lagoon and agitate before pumping.
- If agitation is not available, add product to the load-out truck or honey wagon during fill.

Partially Filled Pits or Lagoons:

· Add all MTM required to treat full pit or lagoon when pit or lagoon is 25% or more full.

Liquid Mixing Equation:

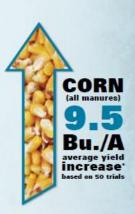
18

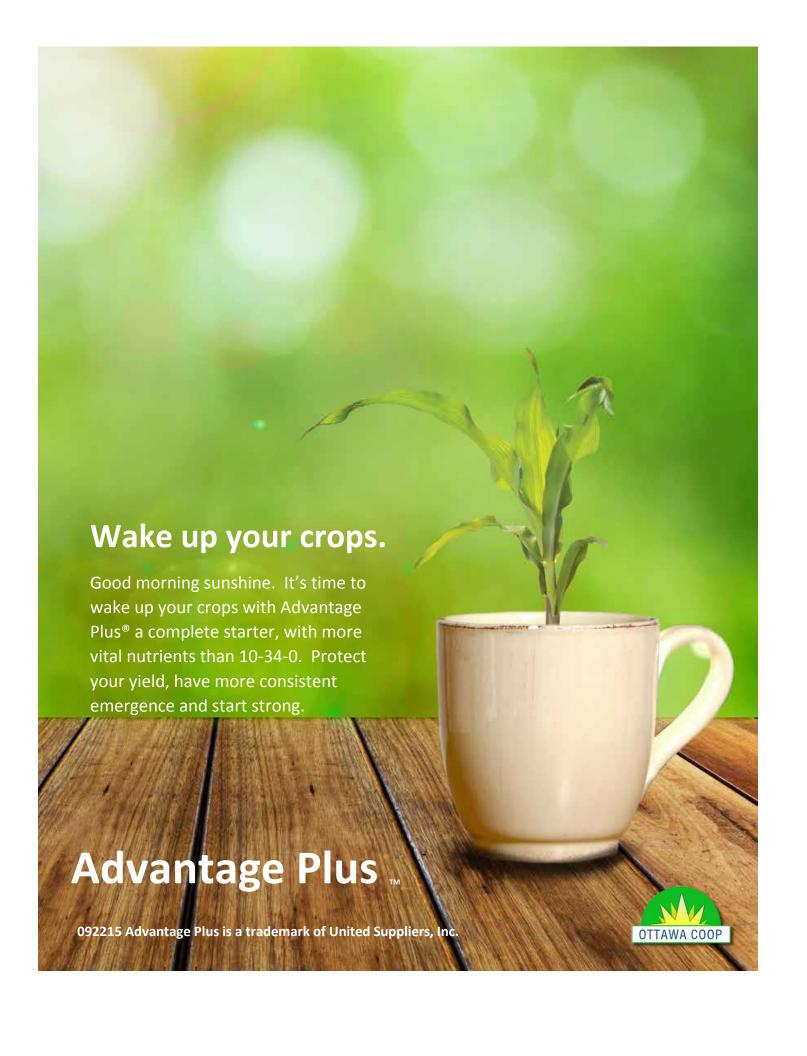
Gallons in pit, lagoon, load-out truck or honey wagon gallons # Gallons of manure applied per acre 18 oz./ acre rate

128 oz./ gallon mix

128

Gallons of MTM required for pit, lagoon, load-out truck or honey wagon





Corn Seed Treatment Options

Any amount of corn can be treated with the following components, all treated corn is non-returnable and must be picked up in a black box.

Rapidity

- Blend of growth additives and micronutrients.
- Enhances crop establishment, uniformity of stand, and germination
- Offsets early nutrient deficiencies
- Optimal combination of nutrients for stimulating germination

Triad

- Formulated with optimal ratio and concentration of plant hormones
- Reduces negative effects caused by stress
- Boosts plant growth and development for higher yield potential

Rapidity: \$15/unit

Tripidity (Rapidity & Triad): \$20/unit

Prepay discount for ordering Tripidity before 12/30/17 of \$2/unit

Corn Seed Treatment



RAPIDITY 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.

Product Features

Why is This Important?

Germination

- Optimal combination of nutrients to help stimulate germination and offset early growth reducing nutrient deficiencies
- Germinating seedlings can only draw from the energy within the seed until the start of photosynthesis. Rapidity ST provides the building blocks for cell walls, membranes and the components of key growth processes before the plant can create its own.

Early Seedling Development

- A blend of proprietary growth additive and micronutrients to support enhanced crop establishment and vigor.
- Rapidity ST provides the nutrients, intermediates, and activates the necessary enzymes so the seedling spends more energy on growth, as opposed to sourcing and processing.
- Rapidity ST proprietary growth additives provide the plant with amino acids which are the building blocks of proteins (including enzymes). Photosynthesis and respiration cannot occur without many different types of enzymes.

Application Flexibility

- Flexible formulation designed for use with various production practices.
- Rapidity ST can be mixed with fungicide and insecticide seed treatments. Also compatible with rhizobia/inoculant seed treatments when applied simultaneously and may be applied as an over-treatment.



Corn Seed Treatment





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-Butryic 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

| ı | | |
|---|--|-------|
| | 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 | |
| | D : 14 D: 1 1 1 1 1 1 | |

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

Sirongly Acid Modum Signify Nutrient Story Shory Advance Advance

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

Soybean Seed Treatment Options

Rancona XT Plus (Fungicide)

- -Protects seed from both seed-borne and soil-borne pathogens.
- -Better chance of good stand
- -Protection up to 3 weeks after planting



Rancona Complete (Fungicide/Insecticide)

- -Contains all benefits of Fungicide treatment
- -Added broad spectrum insect protection
- -Up to 60 days of protection after planting, systemic so the product is absorbed into plant while growing.



Preside CL (Inoculant)

- -High count live rhizobia bacteria with up to 90 days on seed out of ground survival
- -Increased emergence and nodulation
- -Takeoff technology included for increased nitrogen utilization



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

SEED









Now carrying Round Up Ready 2, Liberty, and Roundup Ready 2x Xtend Soybean Varieties. Ask about our early order pricing.



Cover Crops

Cereal Rye: \$12 per 56lb bag

Turnips/Radish: \$80 per 50lb bag

Annual Rye: \$45 per 50lb bag

Cover Crop II Blend: \$30 per 50lb bag

Contains 43lbs of Cereal Rye

Contains 5lbs of Radish

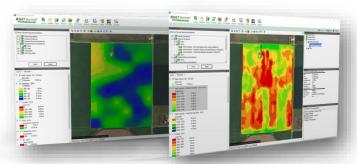
Contains 2lbs of Turnips

Plant one bag per acre

All can be ordered in 2000lb bags. Some blending and bagging fees may apply, call to inquire

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





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.







- Monitor fields from preplant burn down applications to dry down for harvest.
- Find problems at a minimal stage before it reaches the Economic Injury Level (EIL)
- Full team of agronomists develops the best treatments/recommendations.
- Best chance to maximize yield by catching problems early.





What's Included?

Weekly field checks

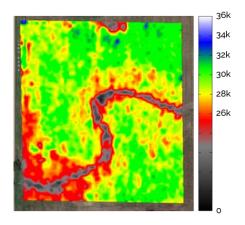
- Weeds, diseases, insects
- Deficiencies
- Growth stages, Population counts, Yield estimates
- Tissue/Soil Sampling for nutrient monitoring
- · General crop health monitoring

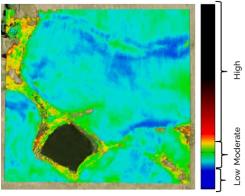
Call the **Ottawa Coop Production Office** for further information if interested. (785) 242-1032



UAS Imagery

- Utilizing SlantRange's new 3P field sensor <u>your</u> field imagery data is easier to collect than ever before. Setup, flight, and data analysis for a 160-acre field can be completed in as little as 30 minutes!
- Multiple map layers for different levels of analysis:
 - o Post-Emergence
 - Plant Population: Advanced algorithms detect each individual plant providing a true stand count
 - <u>Weed Density</u>: Detects early season weeds by distinguishing between a true row crop and invasive species.
 - o Full Season Health Survey's
 - Plant Stress: Uses multiple spectral bands across the near infrared and visible to crop stress (nutrient deficiencies, pest impacts, dehydration areas).
 - Vegetation Fraction: Layer used to determine "canopy closure" across the entire field.
 - <u>Yield Potential</u>: Utilizes multiple layers of imagery to give the grower a high-resolution map for future yield potential. Use this to determine high and low spots in fields for product trials.
 - <u>NDVI</u>: Traditional maps for help in determining problematic areas in the field.





Were yields not as great as you were thinking? Is something hidden to the human eye robbing from your top end yield?

Contact the <u>Field Advantage department with the Ottawa Coop</u> in creating a custom-tailored plan for your acres!

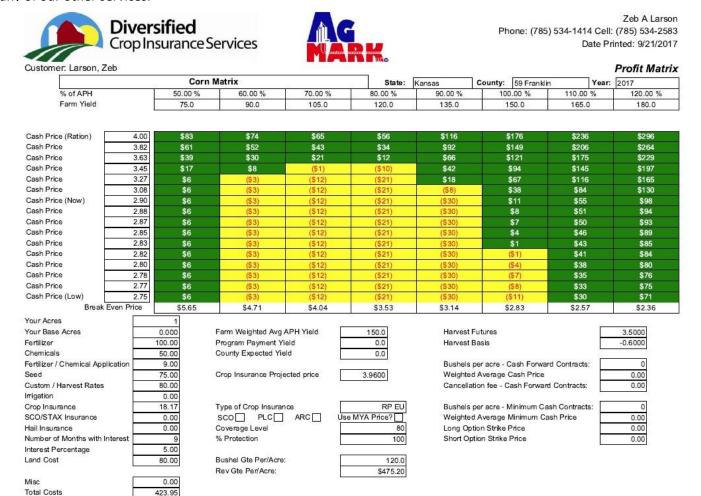
Managing Risk

Fertilizer rates, herbicide programs, input costs, planting windows and seed rates are just a few of the things you decide each year to grow a crop...and why...bushels equal profit! Profit is the goal each year. Some years are easier than others to achieve this. So how do you get to profit? You get to profit by identifying costs and managing your risks. Analyzing all operational cost is a very important first step in risk management. Don't forget land, machinery and you will want to pay yourself as well. Now you have your cost per acre and can use it to calculate a breakeven.

Ultimately you need to convert those hard earned bushels into dollars...but what if I don't grow them? There are multiple insurance products that help to manage production risk. Revenue protection crop insurance guarantee a portion of your production allowing you contract grain at a profit when the market achieves prices above your breakeven, and will make you whole if the crop fails. Knowing your costs and selecting the right risk management tools opens your marketing window up from a couple of months, to 18 months. It is never too early to be planning ahead for the next crop, and make sure you are comfortable with all of your risk management tools. Keep in mind, if you are buying seed and other inputs you are long bushels, what is your marketing plan?

AgMark has the knowledge, marketing expertise, and tools to give you the confidence to make profitable sales at locations near you, year-round. We can also utilize futures and options to give you maximum control over your cash flow and take further advantage of market moves, both up and down.

Here is an example of one tool called The Profit Matrix. It is a simple and powerful tool that can be customized to your operation and updated as conditions change. AgMark's mission is "To be Recognized as a Leader in the Grain Industry Through Integrity and Dedication in Helping our Customers Succeed". Give AgMark a call if you want to discuss this or any of our other services.



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Notes

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