2024 LAUNCH

WINFIELD® UNITED BIOVERIFIED™ DESIGNATION

Pitch Deck

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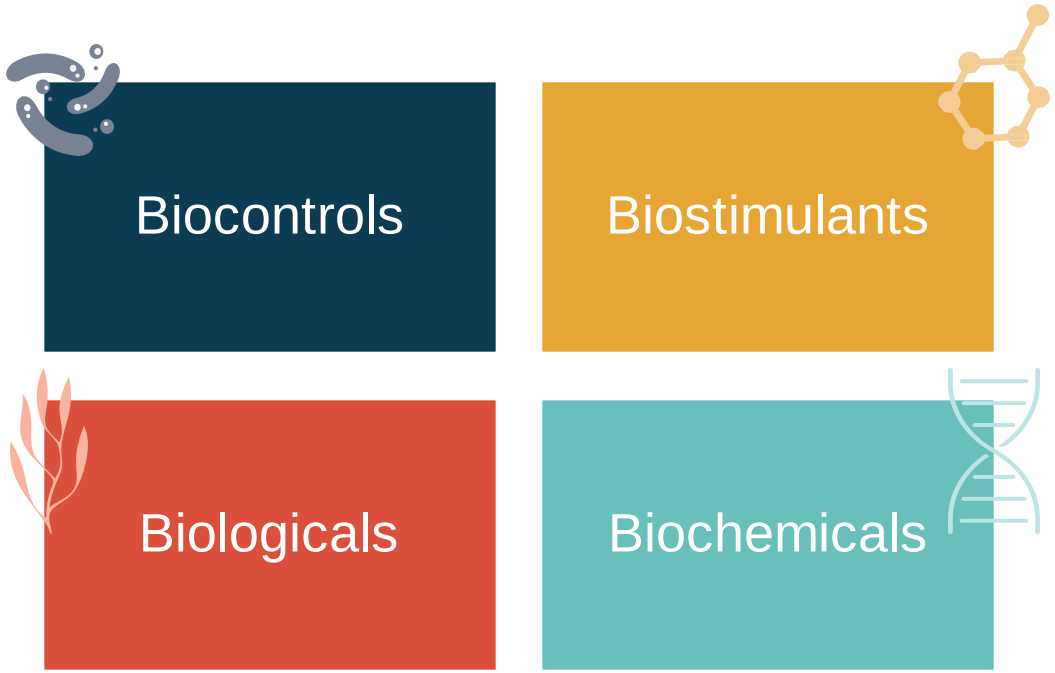
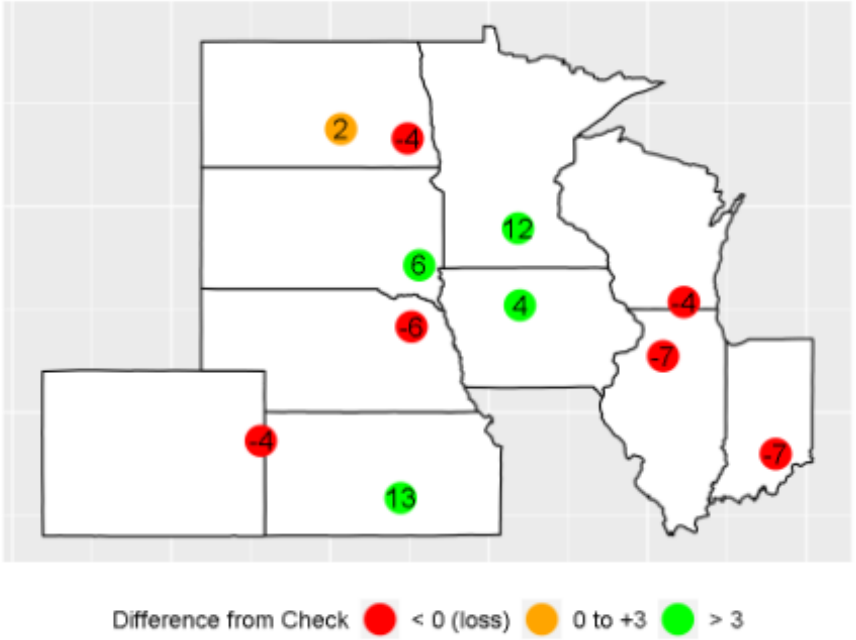
The biological transformation is underway with the US market expected to double within 5 years to $2B+[1]

Interest across the entire food value chain is leading to **increased investment and innovation** across a **broad range** of biological categories



[1]*The Content Network, 2022 Biologicals Report*

Biologicals hold great potential but unlike other agricultural inputs, their impact on the crop is variable.

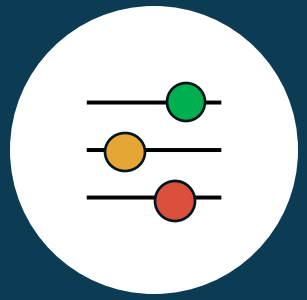


With all the buzz around the category, how are you supposed to know **which are worth the investment**?

It's important **to** know **how a product works and how to place it for best results.**

Introducing the WinField United BioVerified™ designation to help simplify biological recommendations

Biologicals from the WinField United product list are selected for review based on their **potential within their sub-categories**



Products are rated based on **four key criteria** by a panel of WinField United subject matter experts

- Uniqueness
- Agronomic
- Operational
- Economic

The highest rated products are given the **WinField United BioVerified™ designation** to make it easy to identify timely, transparent recommendations

The WinField United BioVerified™ product list will **continue to change** as additional data and products come to market, helping ensure you **stay on the forefront of this evolving category**

Public:

Can be shown and distributed externally regardless of audience

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Products are rated from low to high on four key criteria that help inform current potential in the market

		Criteria			
		Uniqueness *Does the product bring something new to the market?*	**Agronomic** *How does the product work? What data exists? Does it live up to its claims?*	**Operational** *How compatible is it with application methods, other products and my inventory approach?*	**Economic** *Is there return for the retailer and grower?*
Rating	**High**	Little to no similar options available	Strong understanding of mode of action, performance and placement	Fits into standard protocol	High profit potential in the value chain
	Medium	A few similar options available	Some understanding of mode of action, performance and placement, but needs more investigation	Requires extra attention	Profit potential in the value chain
	Low	Many similar options available	Unclear mode of action, performance and placement and/or doesn't work as claimed	Requires unique equipment and/or handling accommodations	Not profitable for one or more parties in the value chain

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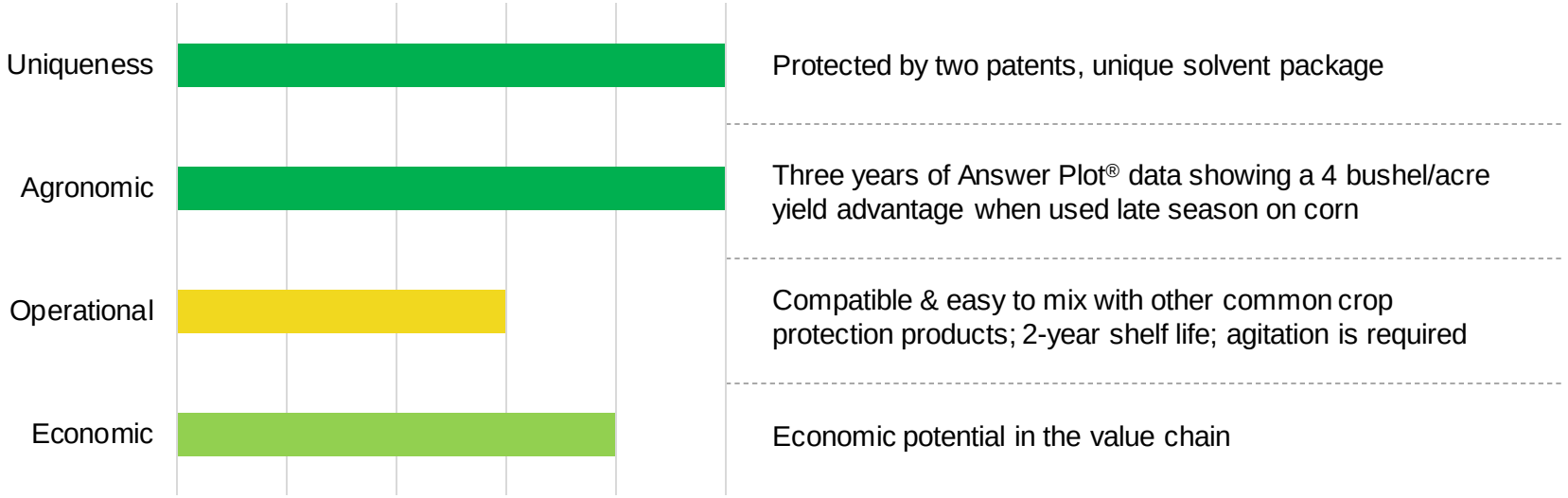
Each WinField United BioVerified™ product has a report that provides transparency on its rating

Example report



Key Crop(s) & Application Timing:
Corn (V10-R2)

Positioning:
Late-season foliar biostimulant that improves the transport of sugars and other nutrients

The report will also include a summary of data, explanation of how the product works and details on where to find additional information (i.e. sell sheets, technical bulletins, etc.)

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Q1 2024 WinField United BioVerified™ Product List

Product	Description	Key Crops & Application Timing
Ascend²®	An auxin-dominant unique blend of three PGRs with patent protection. Specifically designed for in-furrow use on corn that leads to larger root mass and quicker emergence.	**Corn:** In-Furrow
Ascend® SL	Use foliar to enhance vegetative growth. When used foliar on soybeans, petiole length and trifoliate size are increased as well as increased flowering and pod retention into reproduction stages.	**Corn:** Foliar; **Soybean:** R1-R3; **Cotton:** Match head square through boll
CeraMax®	Use for prevention of soilborne fungal diseases including Rhizoctonia and Sudden Death Syndrome	**Soybean:** Seed Treatment
Heads Up®	Use as a preventative measure to help manage against disease such as Pythium, White Mold and Sudden Death Syndrome	**Soybean:** Seed Treatment
Seed+Graphite®	A nutritional planter box seed treatment intended for optimal germination, crop emergence, seedling vigor, and plant tolerance under abiotic stress	**Corn, Cotton &Soybean:** Planter Box Seed Treatment
Ion Stryke™	Microbial bacteria that are custom blended to work in synergy to deliver optimal nutrient return from soil stored nutrition.	**Corn:** In-Furrow, Foliar, and Soil-Applied
Source® DC	Synthetic Strigolactone that helps stimulate 200+ beneficial soil microbes responsible for N-fixing and P-solubilizing	**Corn:** V4-V6, VT-R1; **Cotton:** Squaring – Mid-bloom
Vault® IP Plus	Rhizobia strain for maximum N fixation with 3 AIs/MOAs; EPA-registered B amyloliquifaciens for extended disease control and B. subtilis for plant health and nutrient acquisition	**Soybean:** Before Planting
YieldON®	A biostimulant for late-season foliar application to corn and soybeans that improves the transport of sugars and other nutrients	**Corn:** V10-R2; **Soybeans:** R1-R3
Voyagro®	A powerful amino acid that works well on highly managed corn acres where there is moisture stress prior to application or where stress is anticipated	**Corn:** V8-V11 or V15-VT; **Soybean**: R1-R3; **Cotton:** Early Bloom
Zume®	For use in-furrow to help enhance nutrient availability and uptake at the rootzone during early growth and development	**Corn:** In-Furrow

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Q1 2024 WinField United BioVerified™ Rating Summary

Product	Uniqueness	Agronomic	Operational	Economic
Ascend²®				
Ascend® SL				
CeraMax®				
Heads Up®				
Seed+Graphite®				
Ion Stryke™				
Source® DC				
Vault® IP Plus				
YieldON®				
Voyagro®				
Zume®				

Public:

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There are a few products on our radar that didn't get the WinField United BioVerified™ designation but show promise as we learn more to inform placement

ON THE RADAR

Products **on our radar** were on the bubble for inclusion on the WinField United BioVerified™ list, but **we still have questions to be answered and testing required** before we provide the exclusive designation.

These are **products to watch** as we continue to test and learn.

Maize*np*

Phos*n*

Biological bacillus consortias focused on helping improve N, P & K availability to the crop

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Ascend^{2}® PGR

WinField United BioVerified™
Ascend²® PGR

Ascend²® PGR was the top-rated product in the 2024 review, scoring highly across all four criteria

Protected by two patents, Ascend² is auxin-dominant with a unique blend of three PGRs

Four years of Answer Plot® data showing a 3 bushel/acre average yield advantage when used in-furrow on corn over starter alone[1]

Compatible & easy to mix with other common crop protection products used in-furrow and has >2-year shelf life

High profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: In-Furrow

Positioning:
Premium corn in-furrow PGR that leads to larger root mass and quicker emergence

[1]Ascend² + Starter vs. Starter Alone. 61.2%-win rate with 7.5 bushel/acre average positive yield response.

Public:
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Ascend[2]® PGR is an optimized three-way PGR specifically designed for in-furrow corn acres

Stands apart from the rest

Auxin-dominant formulation helps optimize early season corn growth

Multiple patents pending to protect this one-of-a-kind technology

Years of data proving consistent yield performance

Unique ratio of 3 key PGRs

1 **Auxin**
to initiate root growth

2 **Gibberellic Acid**
to stimulate cell division and stem elongation

3 **Cytokinin**
to promote cell division and leaf expansion

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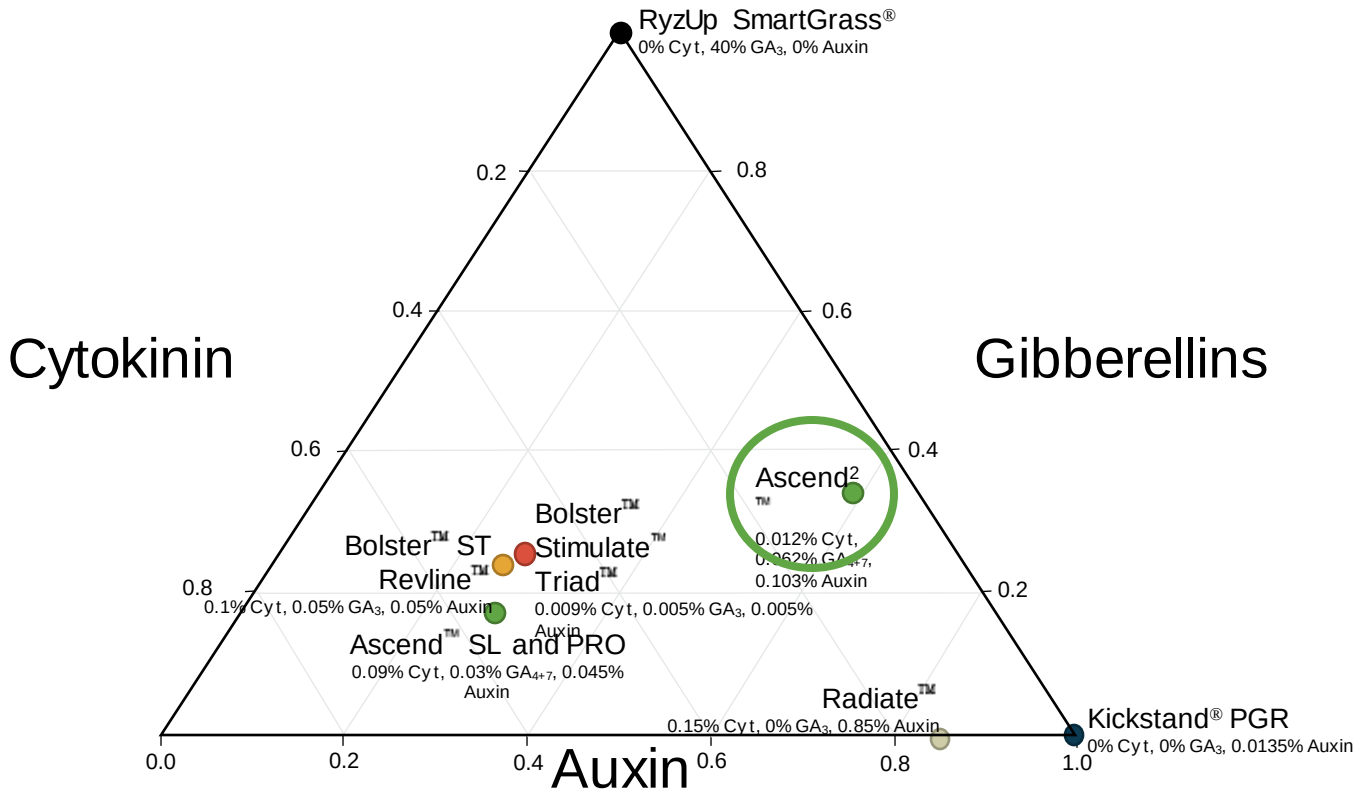
Ascend² PGR is an auxin-dominant three-way PGR that stands apart from the rest of the market

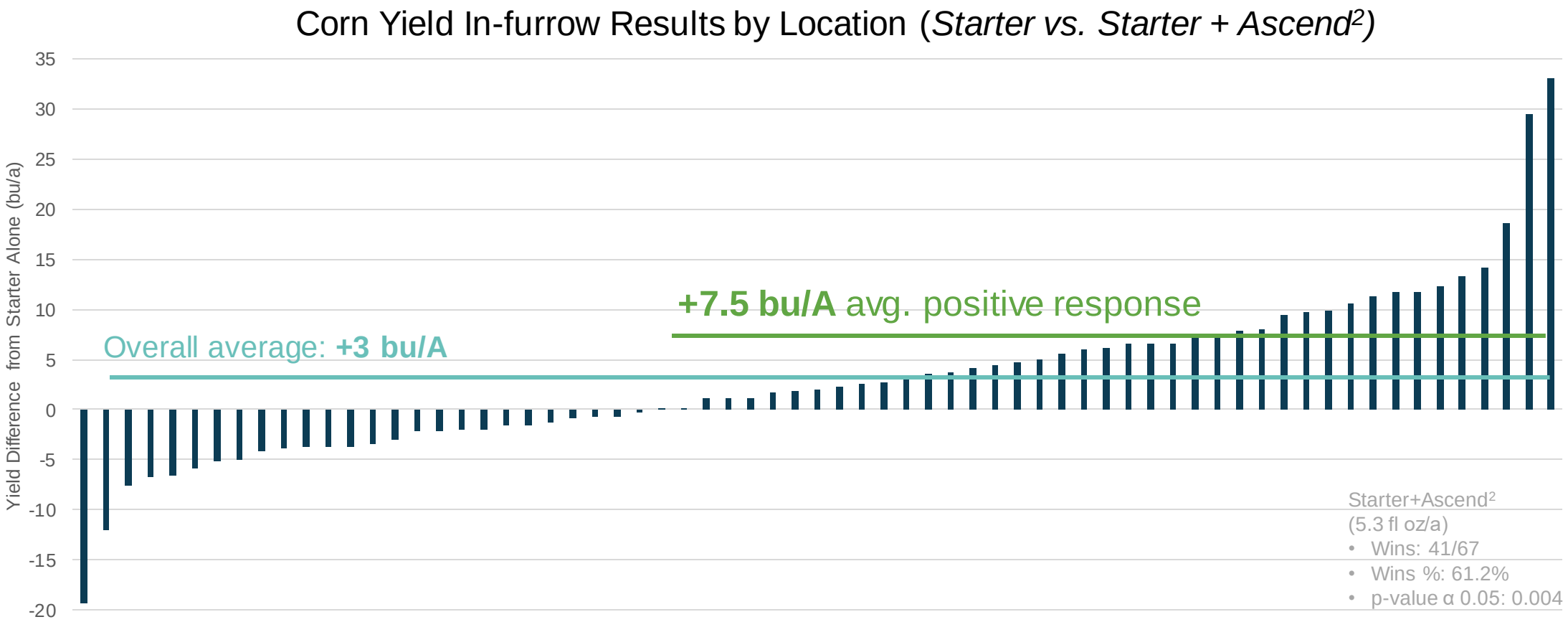
Our differentiation with Ascend² PGR can be defended through multiple patents pending

Novel ratio of AIs

Solvent package



Researched across 67 sites over 4 years, Ascend[2]® PGR is data-backed to prove its performance



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Sales enablement materials available on the Portal to help sell Ascend[2]® PGR

Presentation Decks

- Retailer Sell-In Presentation
- Technical Training Presentation

Photos and Videos

- Rhizotron video
- Get to Know the Active Ingredients in Ascend[2] PGR
- Launch Webinar *(available for download on the Portal)*

Other Tools

- ATLAS email
- Social kit

Leave-Behind Collateral

- Sell Sheet
- Features & Benefits Key Messaging
- FAQ
- Quick Hits Guide

APPROVED BY WINFIELD UNITED

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Ascend® SL PGR

WinField United BioVerified™ Ascend® SL PGR

Ascend® SL scored highly across operational and economic metrics and has the opportunity to increase its agronomic score with additional data

No patent protection, similar PGR products on the market currently

7 years of data showing a +0.8 bu/A average yield effect[1] on corn; opportunity for additional data to inform placement for higher yield potential

Compatible & easy to mix with other common crop protection products and has >2-year shelf life

High profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: Foliar
Cotton: Match head square through boil
Soybean: R1-R3

Positioning:
Premium foliar PGR to help increase vegetative growth and mitigate stress caused by weather

[1]Ascend SL vs. Untreated. 54.2%-win rate with 5.5 bushel/acre average positive yield response.

Virginia Tech
Growth Chamber Trial
Year: 2016
Crop: Corn

The mode of action of Ascend® SL is well understood

Data	Agronomic value	Effect of Ascend SL Foliar Applications vs. untreated
Above ground biomass	Biomass will indicate the efficiency which plants convert solar energy into dry matter.	↑ 95%
Photosynthesis	Photosynthesis results in ATP and carbohydrate production. Greater values indicate more productive plants.	↑ 32%
Malondialdehyde (MDA)	A by-product of cellular membrane breakdown. Lower MDA values represent healthier plants.	↓ 32%
Catalase (CAT)	An antioxidant that neutralizes stress responses. Higher CAT levels better equip plants to deal with stress.	↑ 457%

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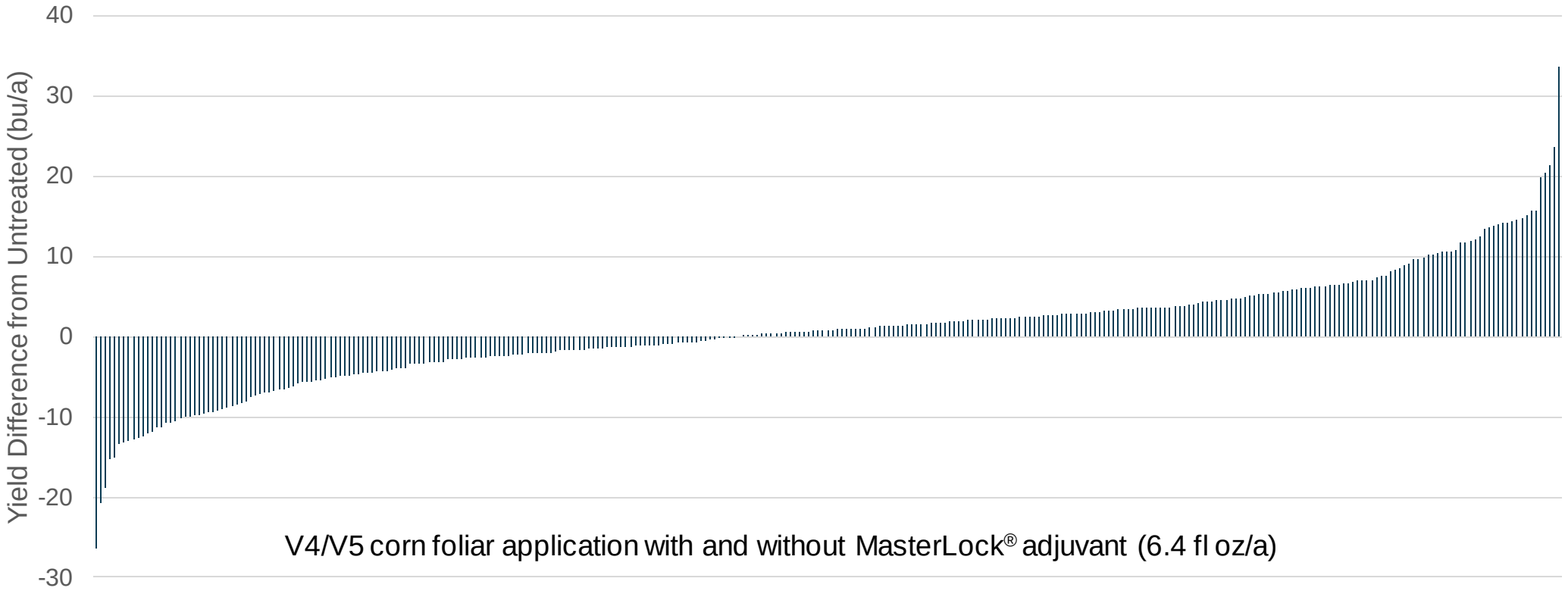
6 years, 313 locations
Corn foliar application at V4/V5

Corn Foliar Yield Results by location

Untreated Check and Ascend SL® PGR

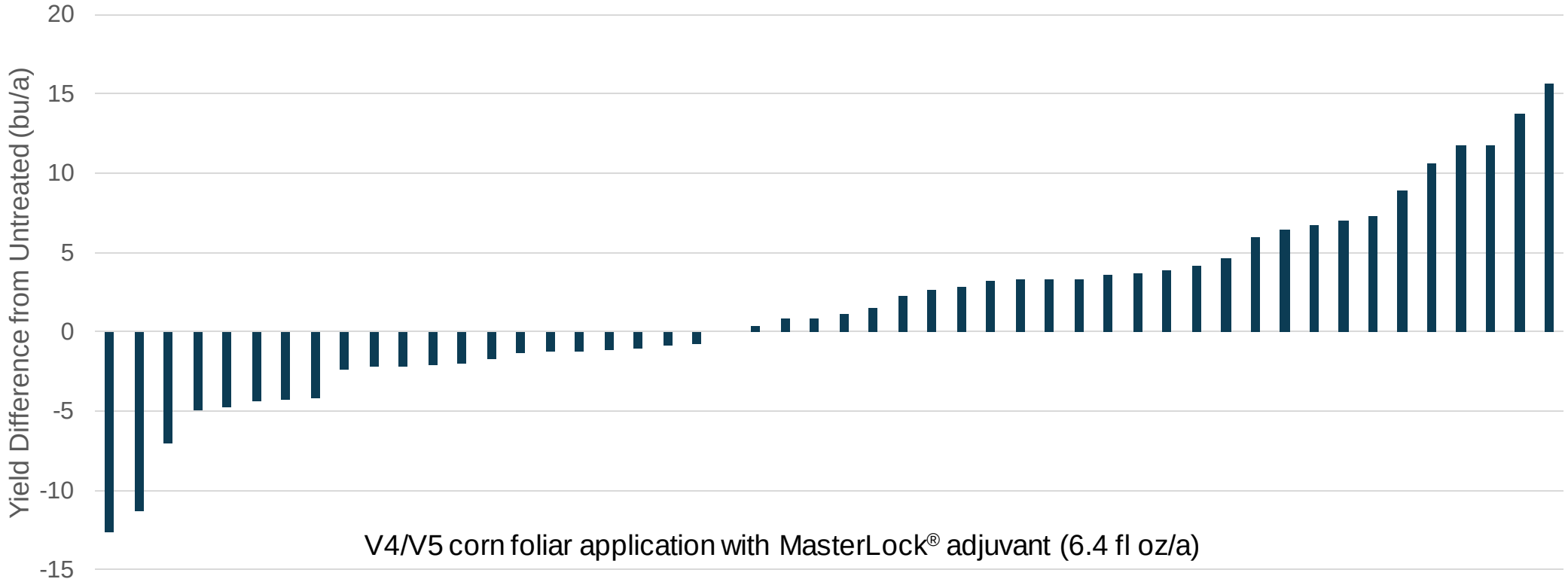


Comparison to Untreated	Average Yield Effect (bu/a)	Wins (%)	Average Positive Yield Effect (bu/a)	p-value α 0.05
Ascend SL (6.7 fl oz/a) applied at V4/V5	0.8	175/313 (55.9%)	5.3	0.03

3 years, 50 locations
Corn foliar application at V4/V5

Corn Foliar Yield Results by location

Untreated Check and Ascend SL® PGR



Comparison to Untreated	Average Yield Effect (bu/a)	Wins (%)	Average Positive Yield Effect (bu/a)	p-value α 0.05
Ascend SL (6.7 fl oz/a) + MasterLock (6.4 fl oz/a) applied at V4/V5	1.6	28/50 (56%)	5.4	0.06

Corn foliar applications of Ascend® SL work best when conditions promote plant growth

Timing	Breakout	Average Yield Effect (Bu/A)	Wins (%)	Average Positive Yield Effect (Bu/A)	P-value	Years/Data Source
V4/V5	Elite N/High RTN	6.7	5/5 (100%)	6.7	0.003	2022 Bio Trial
V4/V5	Overall	3.9	6/7 (86%)	5.2	0.148	2019 EROs
VT/R1	Overall	7.1	6/6 (100%)	7.1	0.030	2018 EROs
V4/V5	Wet = >1”	2.9	7/9 (78%)	5.3	0.165	2017 CF1
V4/V5	Yield > 240 Bu/A	2.5	9/15 (60%)	6.5	0.38	2016 CF1
V4/V5	Wet = >0.75”	7.4	8/10 (80%)	8.4	0.10	2016 CF1
V4/V5	Wet = >1” Warm = >70F	5.2	6/8 (75%)	8.2	0.19	2016 CF1

Ascend SL application rate of 6.7 fl oz/A. Applied in conjunction with MasterLock® adjuvant at 6.4 fl oz/A.

CF1 = Corn Foliar One (Answer Plot trial); ERO = External Research Organization

R2 foliar applications of Ascend® SL increased soybean yields

Timing	Average Yield Effect (Bu/A)	Wins (%)	Average Positive Yield Effect (Bu/A)	p-value (Avg Yield Effect)	p-value (Avg Positive Yield Effect)	Years/Data Source
R2	1	8/11 (73%)	1.5	0.4318	0.023	2022 Bio Trial
R2/R3	4.2	-	-	0.0006	-	2017 On-Farm
R2/R3	5.6	-	-	<0.0001	-	2016 On-Farm
R2/R3	5.8	-	-	0.0015	-	2015 On-Farm
Ascend SL application rate of 3.2 fl oz/A in 2021 and 4.0 fl oz/a in 2015-2017.						

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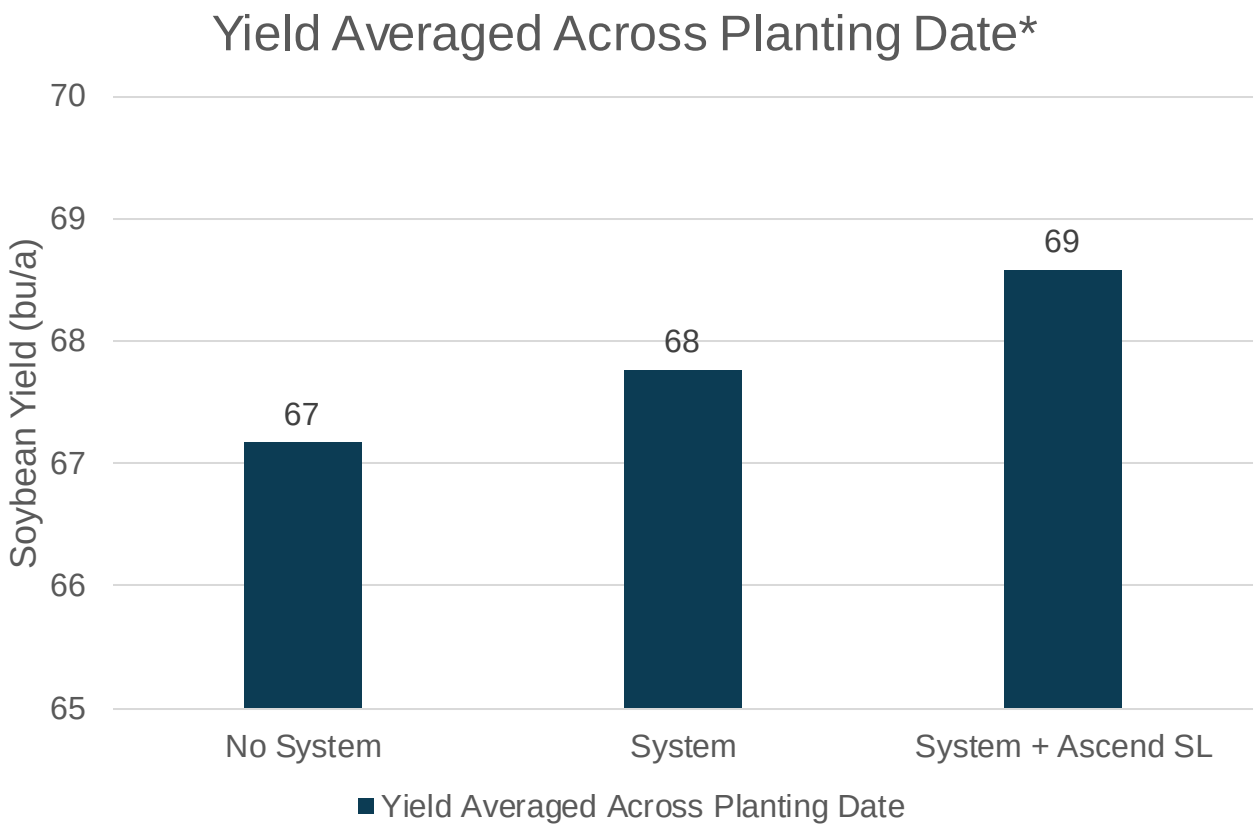
2021 Soybean PGR Yield Results by Planting Date

System vs System + Ascend SL® PGR (3.2oz/ac @ R2)



Comparison to System	Average Yield Effect (bu/a)	Wins (%)	Average Positive Yield Effect (bu/a)	p-value (Avg Yield Effect)	p-value (Avg Positive Yield Effect)
System + Ascend SL	1	8/11 (72.7%)	1.5	0.4318	0.023

α 0.05
Averaged across Planting Date p-value 0.4318

System

ST: Warden CX®
V4-V6: MAX-IN® Ultra Manganese (32 fl oz/a)
R2: Revytek® (8 fl oz/a) + MasterLock® (6.4 fl oz/a)

*Yield data was not statistically significant at the 95% confidence level. More research is needed to confirm yield results.

Agronomic Observation:

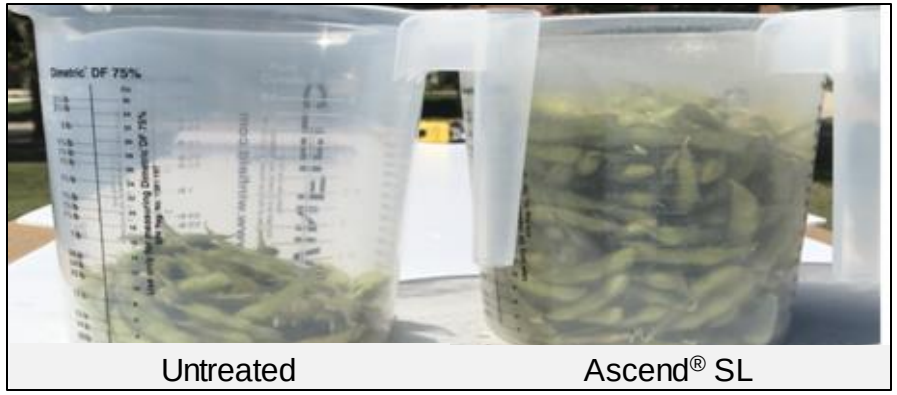
2015-2017 Iowa On-Farm Replicated Trials (Klumpp), n=13
Soybean foliar application at R2-R3

Visual examples of soybeans that received a foliar application of Ascend® SL at R2-R3 (4 fl oz/A) vs. untreated

Image 1: stem diameter

Untreated Ascend® SL

Image 2: number of pods from four consecutive plants



Untreated Ascend® SL

Image 3: plant height

Untreated Ascend® SL

Image 4: node production

Untreated Ascend® SL

Agronomic Observation:
May be shown externally and internally

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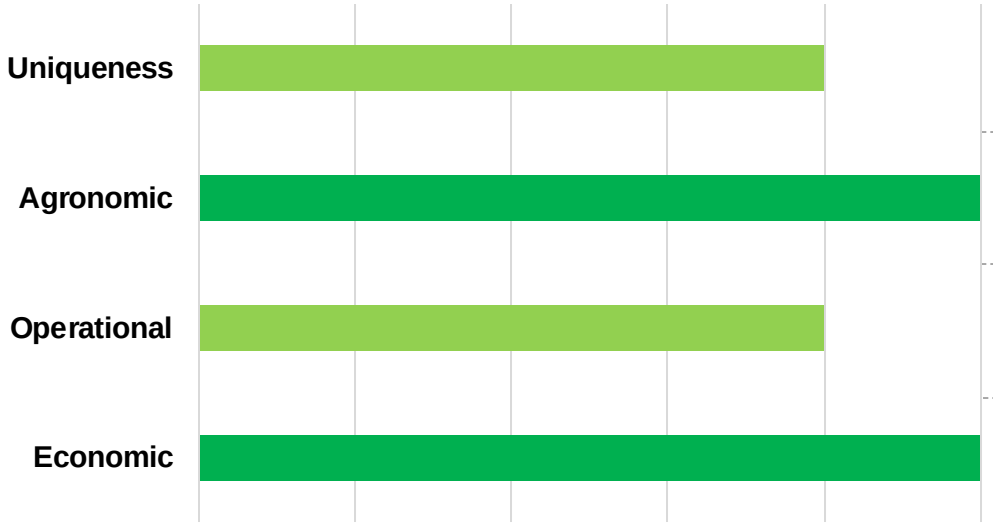
CeraMax®

WinField United BioVerified™ CeraMax®

CeraMax® scored highly across all four criteria



Unique active ingredient (natamycin) vs. others on the market

Understanding of how it works paired with external & internal data to inform placement. +2 bu/A average yield effect[1] on soybeans under early planting conditions

Low use rate & nonliving for ease of use and storage. Compatible with other seed treatment products. 2-year shelf life.

High profit potential in the value chain

Key Crop(s) & Application Timing:
Soybean: seed treatment

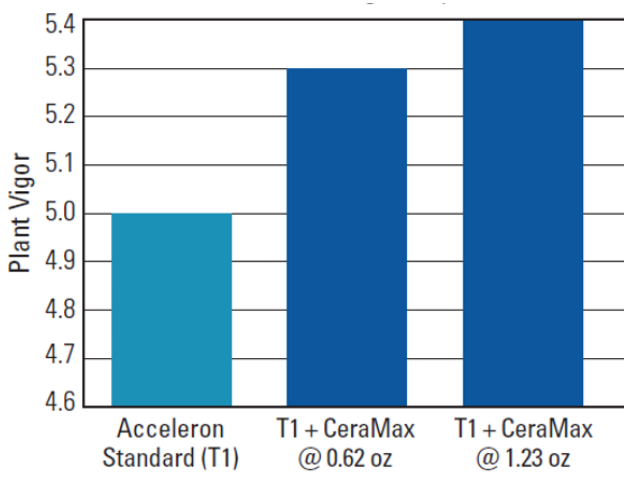
Positioning:
Use for prevention of soilborne fungal diseases including Rhizoctonia and Sudden Death Syndrome

[1]System + Ceramax compared against Omission – Ceramax. 70%-win rate with 3.8 bushel/acre average positive yield response.

CeraMax® is a biological seed treatment that helps prevent soil-borne fungal diseases and increases early-season vigor

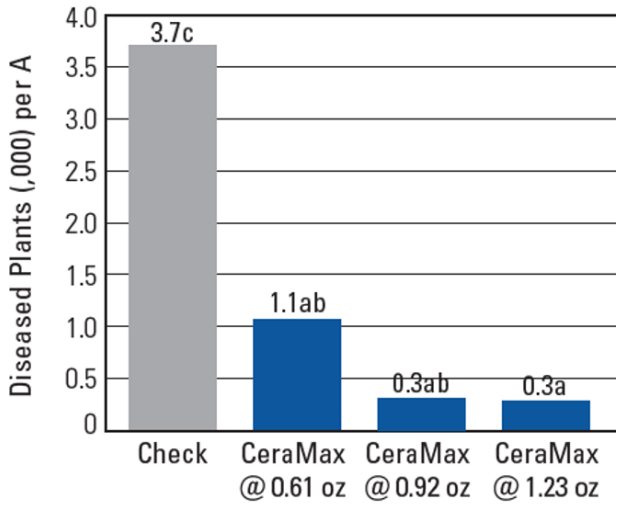
- Biological; non-microbial; non-living active ingredient
- Active Ingredient: Natamycin
- Low use rate 1.23 fl oz/cwt

Plant vigor (soybeans)



Average across 14 large strip trials. 28 days after planting.
Evaluation Scale: 1-9.
T1= Acceleron Standard Seed Applied Solution

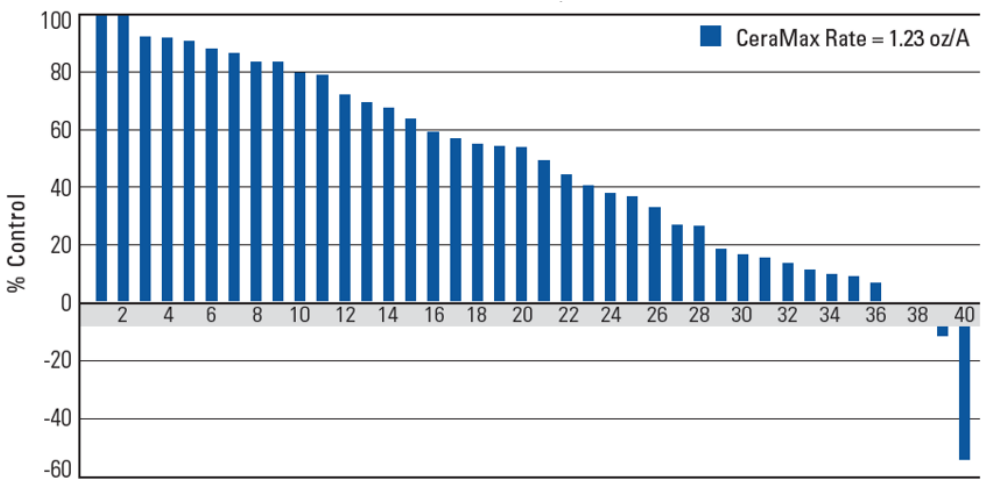
Rhizoctonia control (soybeans)



low a. 28 days after planting.
Rate: Fluid ounces per 140,000 seeds

% SDS control (soybeans)

Acceleron Standard + CeraMax vs. Acceleron Standard



In field trials where Ceramax was used in combination with Acceleron Standard, better SDS control was obtained in 90% of the cases vs Acceleron alone.

Treatment	SDS Control (%)	Win (%) vs Acceleron Standard
Acceleron Standard + CeraMax	46.8%	95.0%

2019. SDS control from 10 large strip trials with a total of 40 plots.

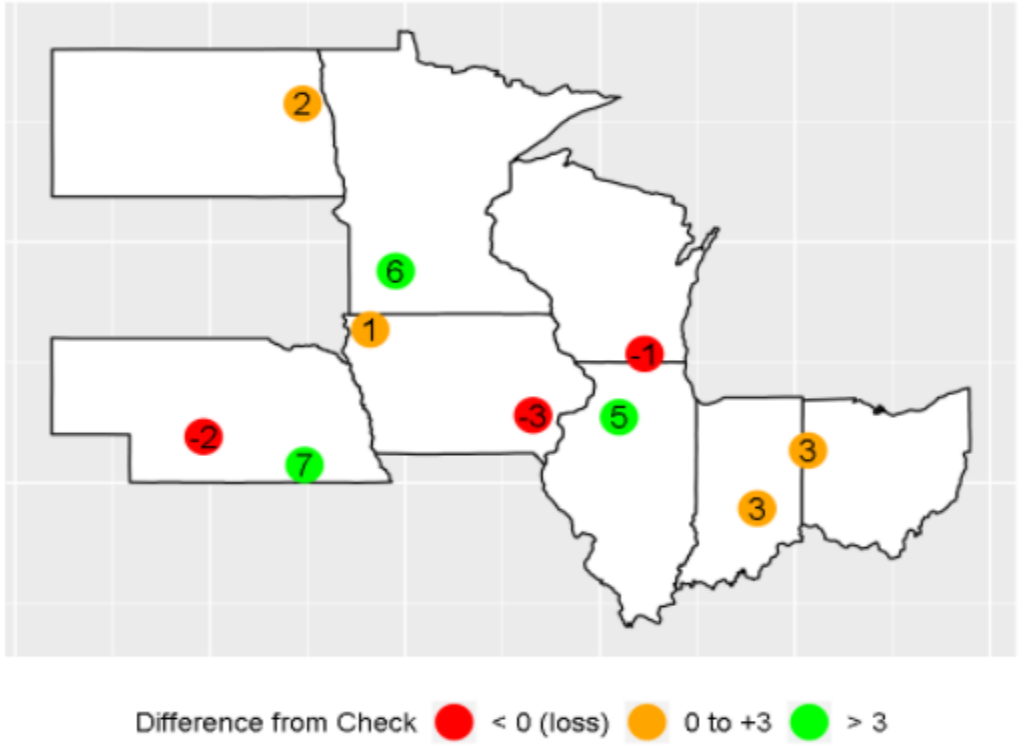
Source: Ceradis Crop Protection

CeraMax® Soybean Treatments

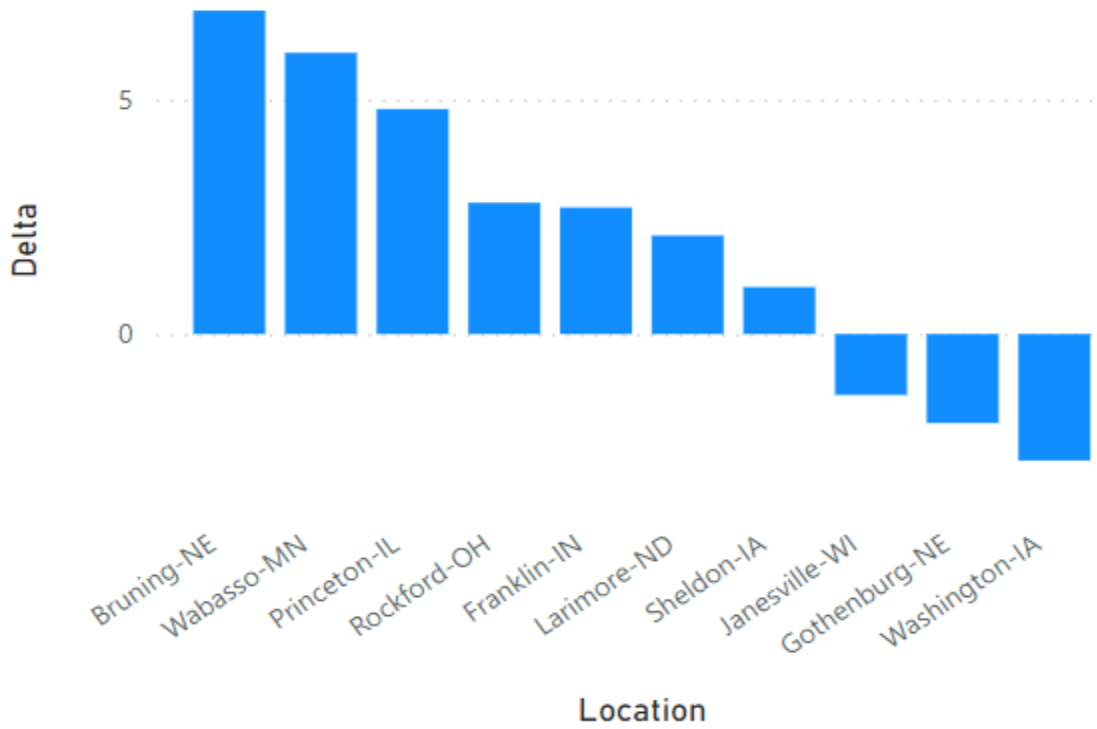
	Mgt	Seed treatment	V5-V7	R2
Early Planting date	System	Warden CX® (3.38 oz/cwt) CeraMax® (1.23 fl oz/cwt)	MAX-IN® Ultra Mn (32 oz) MasterLock® (6.4 oz)	Revytek® (8 oz) MasterLock® (6.4 oz)
	Omission	Warden CX® (3.38 oz/cwt) -	MAX-IN® Ultra Mn (32 oz) MasterLock® (6.4 oz)	Revytek® (8 oz) MasterLock® (6.4 oz)
Late Planting date	System	Warden CX® (3.38 oz/cwt) CeraMax® (1.23 fl oz/cwt)	MAX-IN® Ultra Mn (32 oz) MasterLock® (6.4 oz)	Revytek® (8 oz) MasterLock® (6.4 oz)
	Omission	Warden CX® (3.38 oz/cwt) -	MAX-IN® Ultra Mn (32 oz) MasterLock® (6.4 oz)	Revytek® (8 oz) MasterLock® (6.4 oz)
	Warden CX is a combination of Thiamethoxam, Mefenoxam, Fludioxonil, and Sedaxane			

CeraMax® Trial Yield Results: Early Planting Date

Effects



Piano Chart (Treatment Effects - Control)



System + Ceramax compared against Omission - Ceramax

TREATMENT NAME	MEAN_EFF	COUNT	WINS	PERC_WIN	AVG_WIN	P
Early Planted + CeraMax	2	10	7	70	3.8	0.083

Heads Up®

WinField United BioVerified™
Heads Up®

Heads Up® scored highly across uniqueness and economic metrics and has the opportunity to increase its agronomic score with additional data

Unique mode of action that uutilizes Systemic Acquired Resistance (S.A.R.)

Understanding of how it works but need additional data to refine optimal placement with other products.

Dry product that needs to be in a slurry in a seed treatment. RTA needs its own key stand or mixed into a seed treatment slurry. 3+ year shelf life

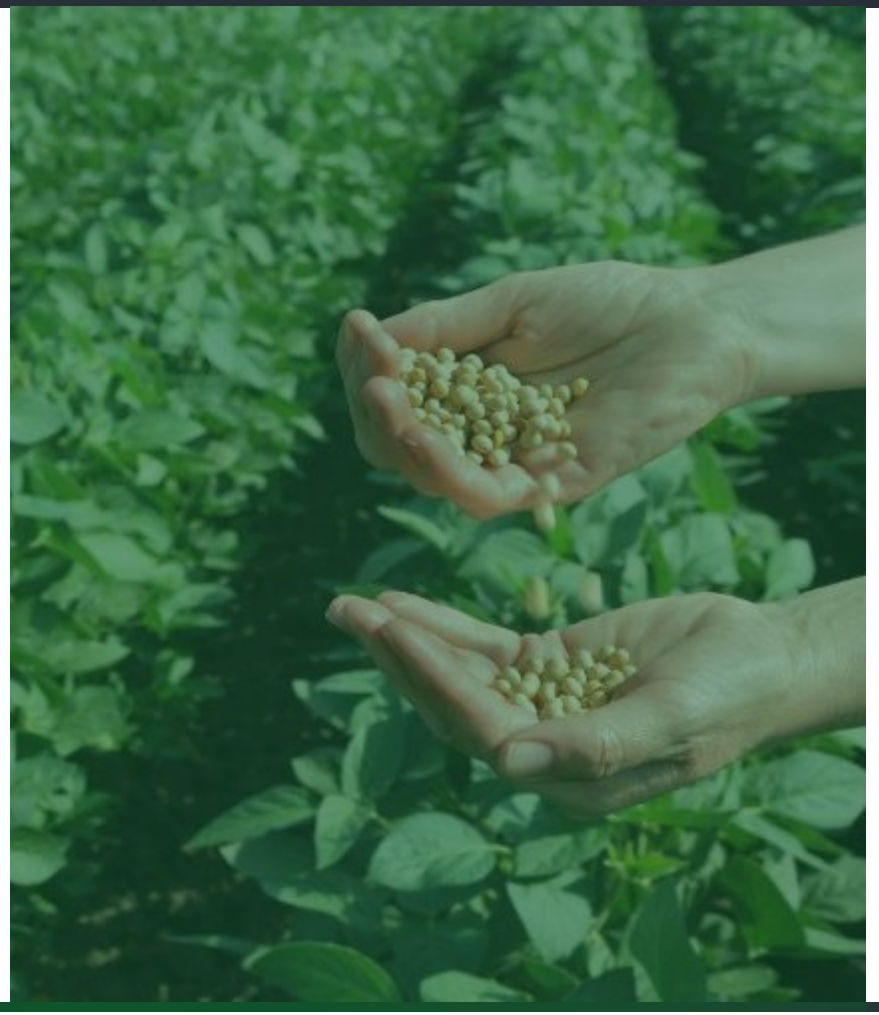
High profit potential in the value chain

Key Crop(s) & Application Timing:
Soybean, Dry Beans, Potato: seed treatment

Positioning:
Used as a preventative measure to help manage against disease such as Pythium, White Mold and Sudden Death Syndrome

How Heads Up is different than traditional fungicide/insecticide seed treatments?

- Product is biological, made from plant extracted chemistries
- Heads Up is compatible with other seed treatments/inoculants
- Utilizes Systemic Acquired Resistance, S.A.R., mode of action (non-fungicidal)
- S.A.R. triggers the plants natural defenses upon germination. When paired with a moderately resistant soybean variety against a certain pathogen, Heads Up primes the variety to better utilize its disease fighting ability throughout the growing season.



Significant Benefit

1

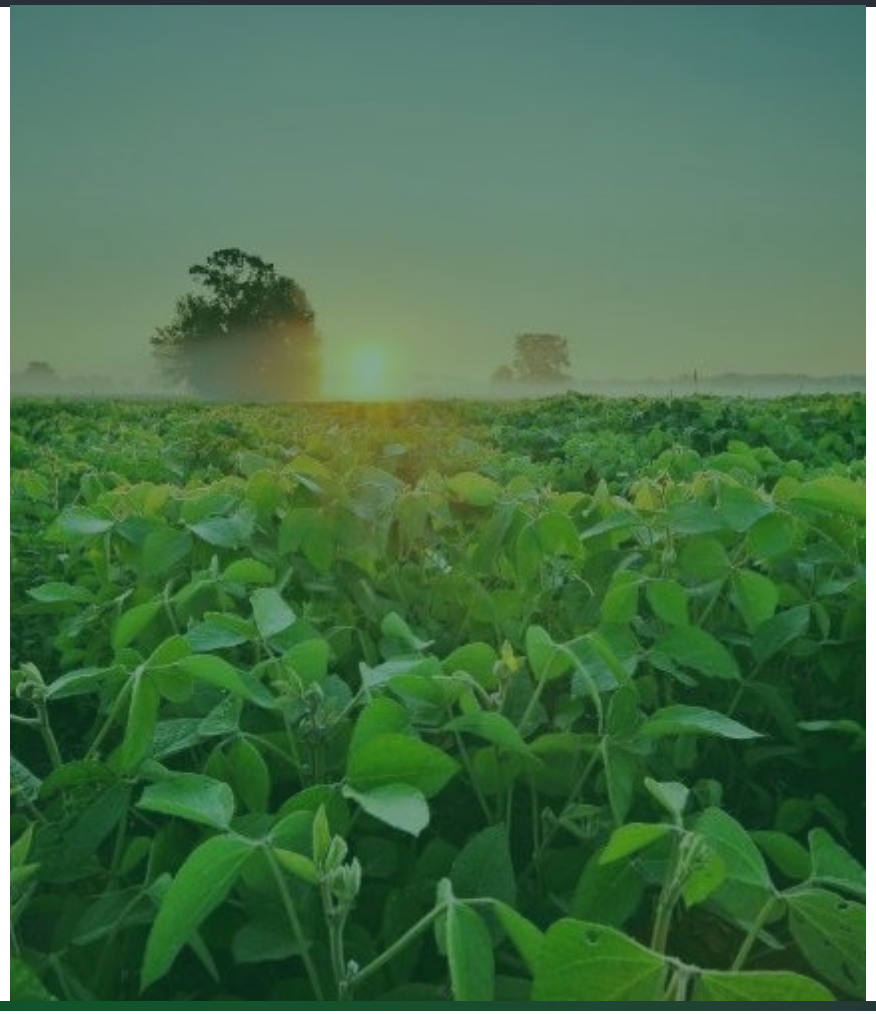
For growers with a field history of White Mold, SDS, or other fungal diseases, Heads Up provides a first line of defense to address these issues.

2

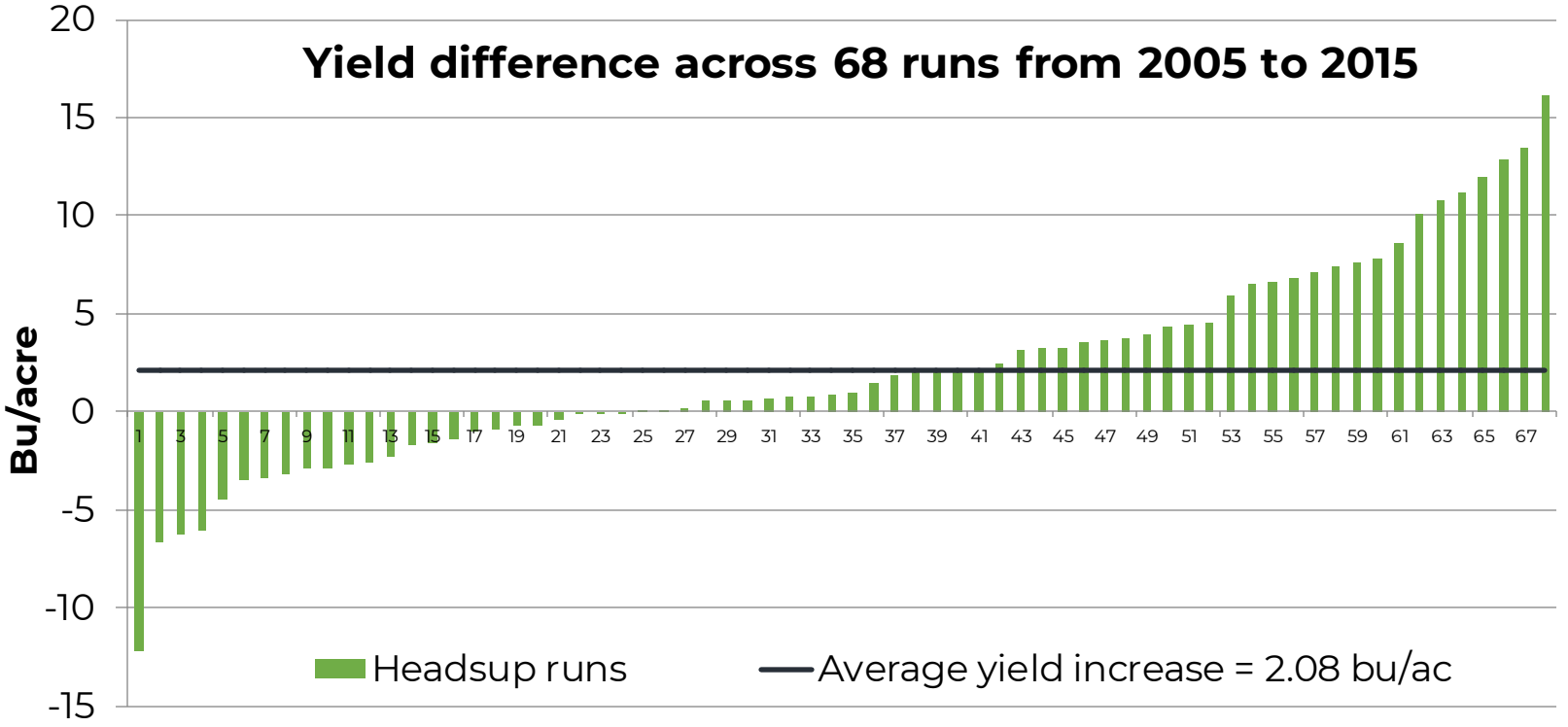
Heads Up should be used as a precautionary first step in a complete disease management plan.

Key Information On Heads Up / Heads Up RTA

- Compatible with other seed treatments/inoculants
- Provides an alternative mode of action to traditional fungicide seed treatments
- S.A.R. effect is full season.
- Broad spectrum protection against fungal/bacterial diseases
- Can be applied well in advance of planting
- Low use rate (0.5 oz/cwt)
- Easy to use (product is non-sticky, free flowing)
- Can also be used for Organic production (OMRI™ Certified – Heads Up Plant Protectant Only)



Yield advantage of Heads Up Seed Treatment (11 Years)



NCSRP (checkoff funded) summary shows avg. yield advantage of +2.08 bu/a with or without the addition of other seed treatments*--

*https://www.apsnet.org/meetings/Documents/2016_meeting_abstracts/aps2016_367.htm

Seed+Graphite®

WinField United BioVerified™ Seed+Graphite®

Seed+Graphite® scored highly across the majority of the criteria and has the opportunity to increase its agronomic score with additional data

3 components (Talc+Graphite, Micronutrients & Biostimulants/Metabolites) developed with proprietary technology

Understanding of how it works but need additional data to refine optimal placement

Dry powder that you can easily dump in the planter and go. No storage requirements with long shelf life.

Profit potential in the value chain

Key Crop(s) & Application Timing:
Corn, Soybean, Cotton: Planter Box Seed Treatment

Positioning:
A nutritional seed treatment that helps improve germination, crop emergence, seedling vigor, and plant tolerance under abiotic stress

MOA: SEED+GRAPHITE® Altered Gene Expression for 1,164 Genes Involved in Key Plant Metabolic Processes

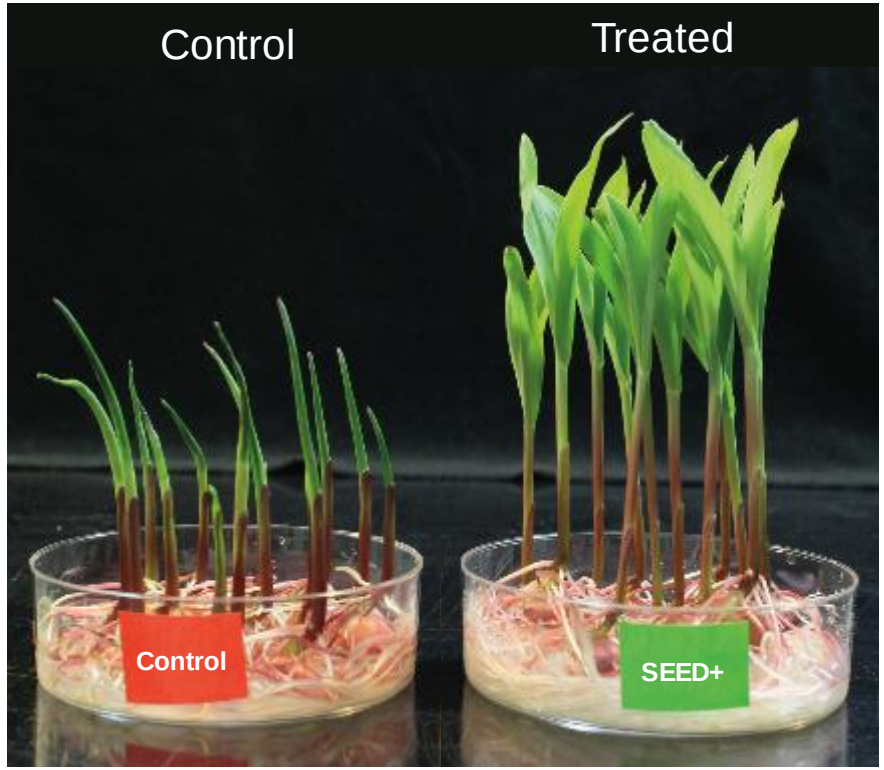
SEED+GRAPHITE influenced four key metabolic processes crucial for seedling growth and development

Photosynthesis – to increase energy and carbohydrate supply to the whole seedling (gene expression of 53 genes influenced)

Oxidation-reduction reactions – to protect seedlings from reactive oxygen stress (gene expression of 713 genes influenced)

Lipid metabolic processes – to strengthen cell membranes (gene expression of 145 genes influenced)

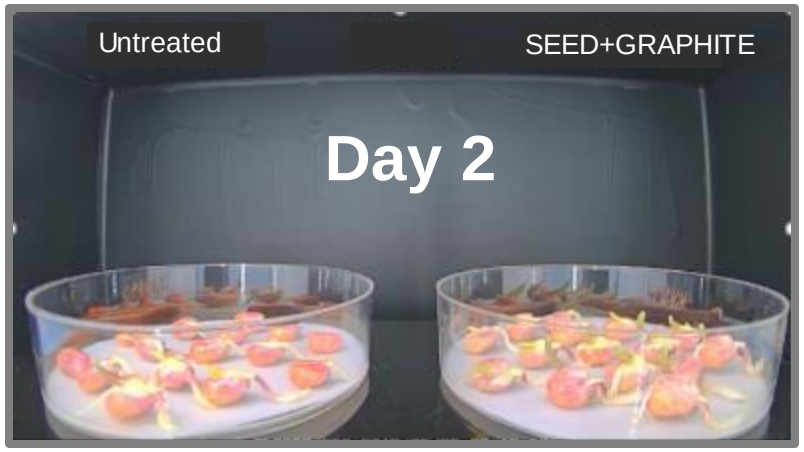
Carbohydrate metabolic processes – to strengthen cell walls (gene expression of 253 genes influenced)

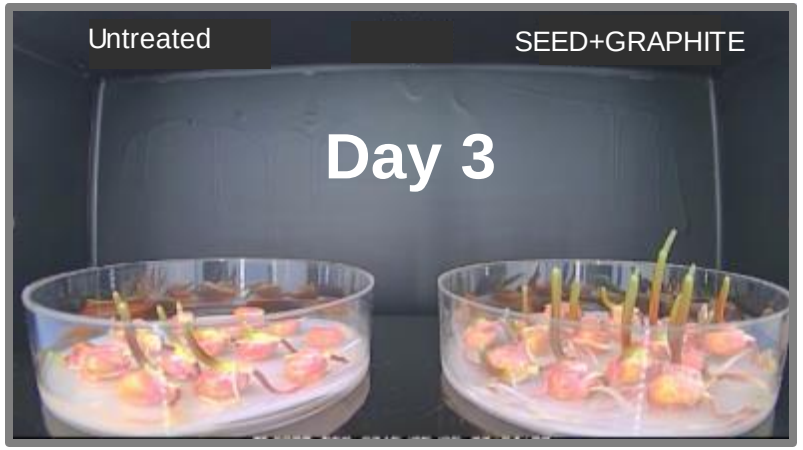


VERDESIAN

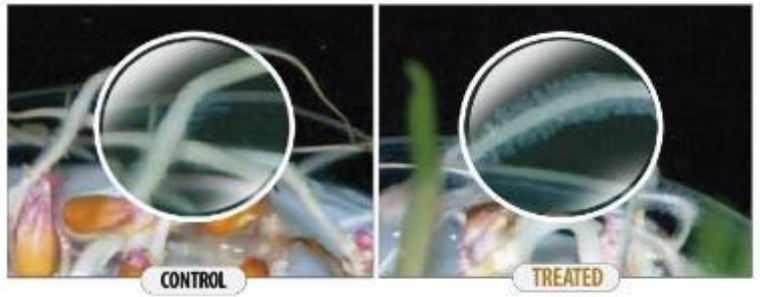
SEED+GRAPHITE® Treatment Results in Faster Corn Emergence and Growth

Germination and growth of corn seeds treated with Seed+Graphite in comparison to untreated seeds





SEED+GRAPHITE Also Shown to Support Root Hair Development

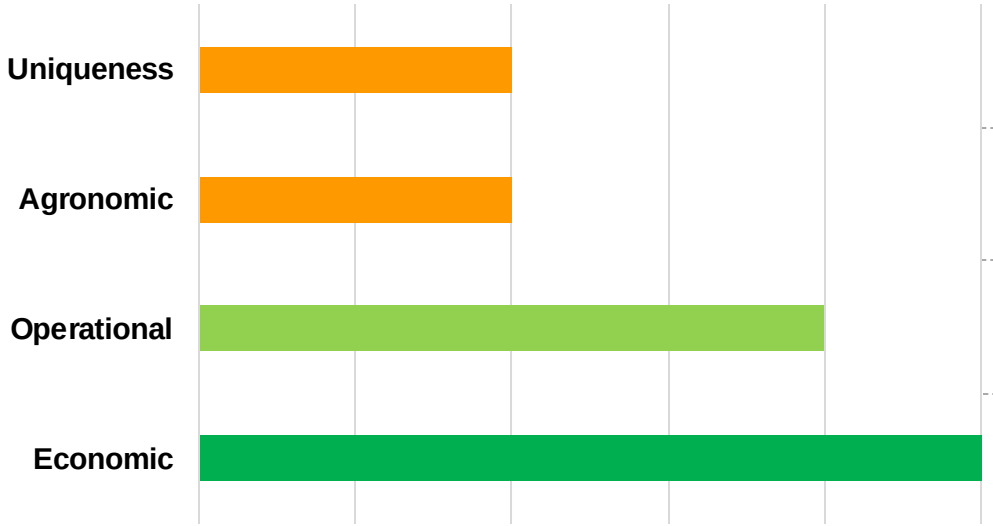


VERDESIAN

Ion Stryke™

WinField United BioVerified™ Ion Stryke™

Ion Stryke™ scored highly on operational and economic metrics and has the opportunity to increase its agronomic score with additional data



Variety of similar products in this space on the market today

Additional data needed to inform how it works and optimal placement

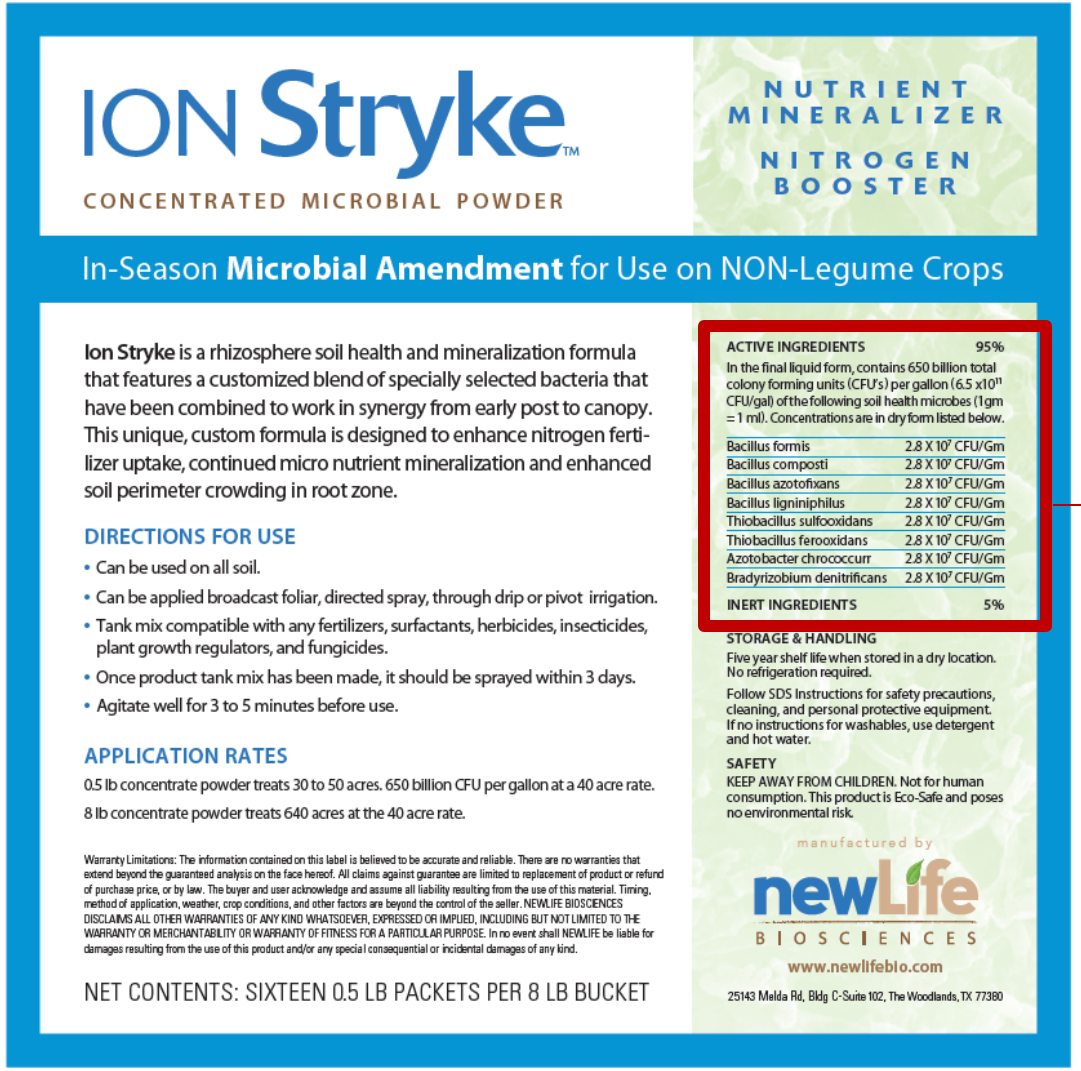
Fits within existing applications so does not require extra pass. Wide window of application with good shelf life.

High profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: in-furrow, foliar and soil-applied

Positioning:
Microbial bacteria that are custom blended to work in synergy to deliver maximum nutrient return from soil stored nutrition.

Active Ingredients in Ion Stryke™



ION Stryke™

CONCENTRATED MICROBIAL POWDER

NUTRIENT MINERALIZER

NITROGEN BOOSTER

In-Season **Microbial Amendment** for Use on NON-Legume Crops

Ion Stryke is a rhizosphere soil health and mineralization formula that features a customized blend of specially selected bacteria that have been combined to work in synergy from early post to canopy. This unique, custom formula is designed to enhance nitrogen fertilizer uptake, continued micro nutrient mineralization and enhanced soil perimeter crowding in root zone.

DIRECTIONS FOR USE

- Can be used on all soil.
- Can be applied broadcast foliar, directed spray, through drip or pivot irrigation.
- Tank mix compatible with any fertilizers, surfactants, herbicides, insecticides, plant growth regulators, and fungicides.
- Once product tank mix has been made, it should be sprayed within 3 days.
- Agitate well for 3 to 5 minutes before use.

APPLICATION RATES

0.5 lb concentrate powder treats 30 to 50 acres. 650 billion CFU per gallon at a 40 acre rate.

8 lb concentrate powder treats 640 acres at the 40 acre rate.

Warranty Limitations: The information contained on this label is believed to be accurate and reliable. There are no warranties that extend beyond the guaranteed analysis on the face hereof. All claims against guarantee are limited to replacement of product or refund of purchase price, or by law. The buyer and user acknowledge and assume all liability resulting from the use of this material. Timing, method of application, weather, crop conditions, and other factors are beyond the control of the seller. NEWLIFE BIOSCIENCES DISCLAIMS ALL OTHER WARRANTIES OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTY OR MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. In no event shall NEWLIFE be liable for damages resulting from the use of this product and/or any special consequential or incidental damages of any kind.

NET CONTENTS: SIXTEEN 0.5 LB PACKETS PER 8 LB BUCKET

ACTIVE INGREDIENTS 95%

In the final liquid form, contains 650 billion total colony forming units (CFU's) per gallon (6.5 x10^{11} CFU/gal) of the following soil health microbes (1gm = 1 ml). Concentrations are in dry form listed below.

Bacillus formis	2.8 X 10^7 CFU/Gm
Bacillus composti	2.8 X 10^7 CFU/Gm
Bacillus azotofixans	2.8 X 10^7 CFU/Gm
Bacillus ligniniphilus	2.8 X 10^7 CFU/Gm
Thiobacillus sulfooxidans	2.8 X 10^7 CFU/Gm
Thiobacillus ferooxidans	2.8 X 10^7 CFU/Gm
Azotobacter chrococcurr	2.8 X 10^7 CFU/Gm
Bradyrizobium denitrificans	2.8 X 10^7 CFU/Gm

INERT INGREDIENTS 5%

STORAGE & HANDLING

Five year shelf life when stored in a dry location. No refrigeration required.

Follow SDS Instructions for safety precautions, cleaning, and personal protective equipment. If no instructions for washables, use detergent and hot water.

SAFETY

KEEP AWAY FROM CHILDREN. Not for human consumption. This product is Eco-Safe and poses no environmental risk.

manufactured by

newLife BIOSCIENCES

www.newlifebio.com

25143 Melda Rd, Bldg C-Suite 102, The Woodlands, TX 77380

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INERT INGREDIENTS 5%

newLife BIOSCIENCES

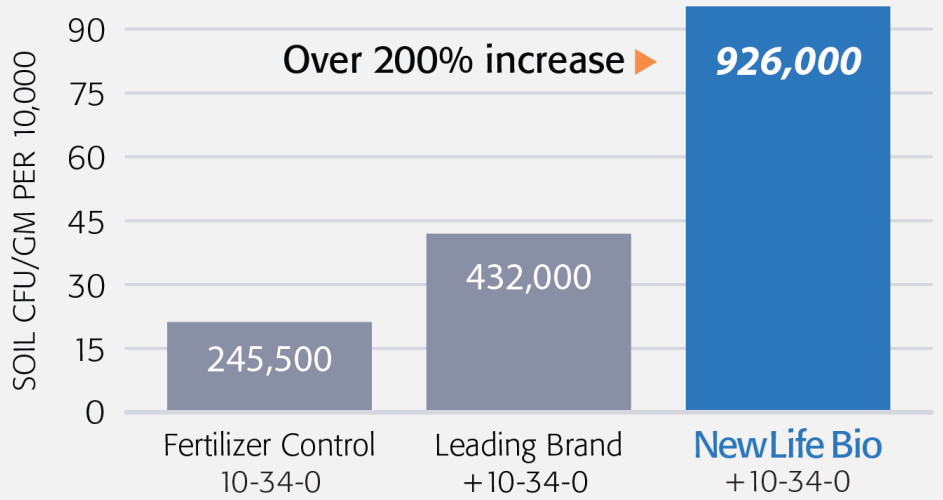
Examples of Ion Stryke™ vs. control performance

Visual example of Ion Stryke™ vs. untreated
In-Furrow 40-acre plot (2018)

Untreated

Ion Stryke™

Comparison of Phosphorus Soil Release for Crop Availability



Corn soil bacteria microbiology assay – Leading brand compared to NewLife Bio

Table 1: NewLife versus Control – Soil Phosphorus Availability

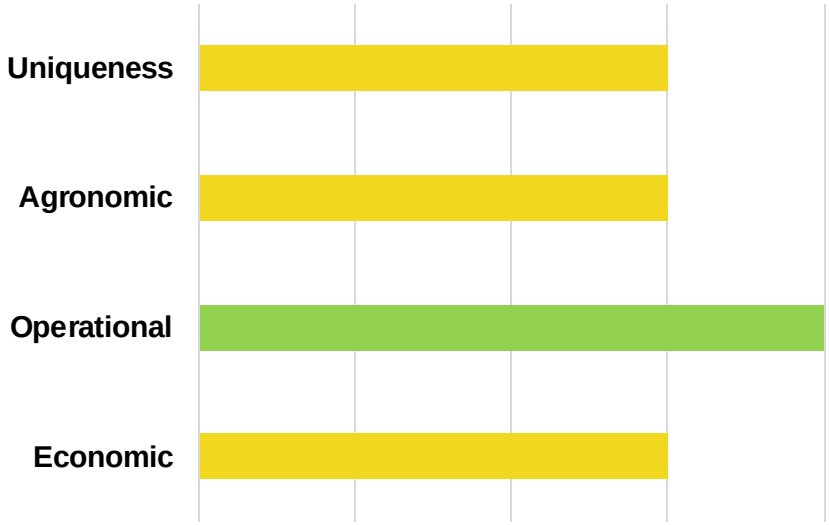
Soil Phosphorus Availability	NewLife vs. Control
Corn Phosphorus	+30% ↑
Soybean Phosphorus	+9% ↑

newLife BIOSCIENCES

Source® DC

WinField United BioVerified™ Source® DC

Source® DC scored highly on the operational metric with the opportunity to increase its score in other areas for future reviews



Product is synthetic with unique hibernation mode of action, but there are several similar products on the market.

Understanding of how it works but need additional data to refine optimal placement.

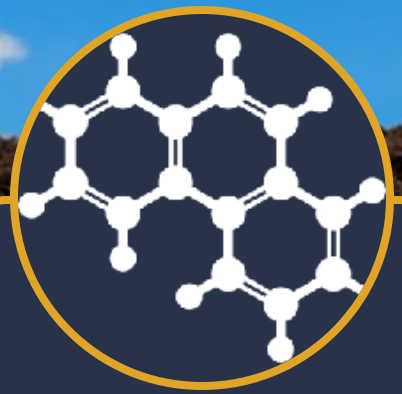
Compatible with other products with a wide window of application. 2-year shelf life.

Profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: V4-V6, VT-R1
Cotton: Squaring – Mid-bloom

Positioning:
Synthetic Strigolactone that helps stimulate 200+ beneficial soil microbes responsible for N-fixing and P-solubilizing

What Makes SOURCE Different?



Chemistry, Not a Microbe

No live microbes means **easy to use, easy to store**

200+ Microbes Species

Activates **microbes already in your soil**, helping to improve uptake of **N, P and micronutrients**

ROI-driven Placement

Backed by **cash-back guarantees**

Source: Sound Agriculture

Sound

25 lbs of N & P + Micronutrients

Save on input costs or boost yield 5+ bu

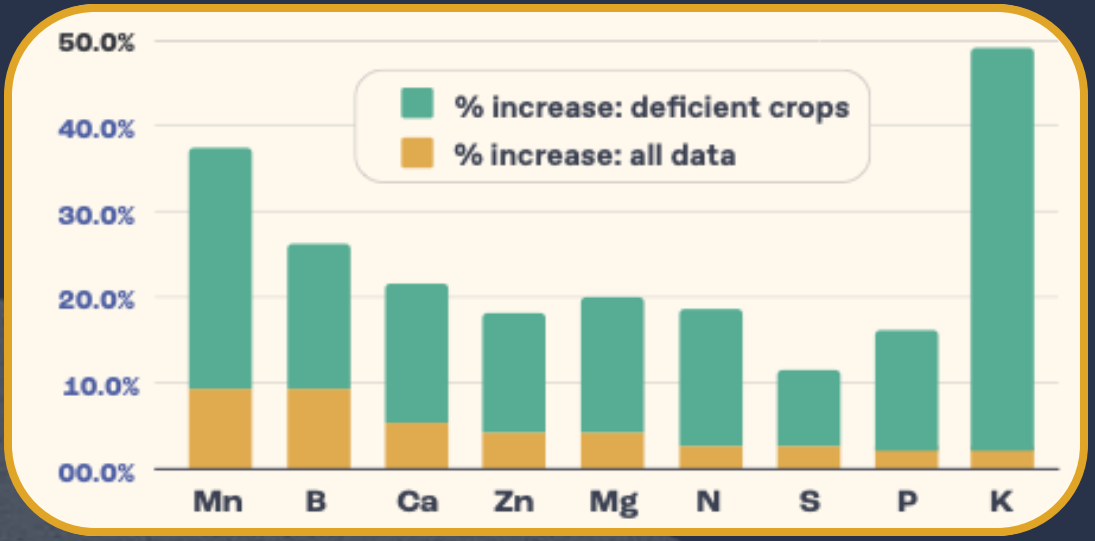
Even with N Reduction, Yield is Maintained

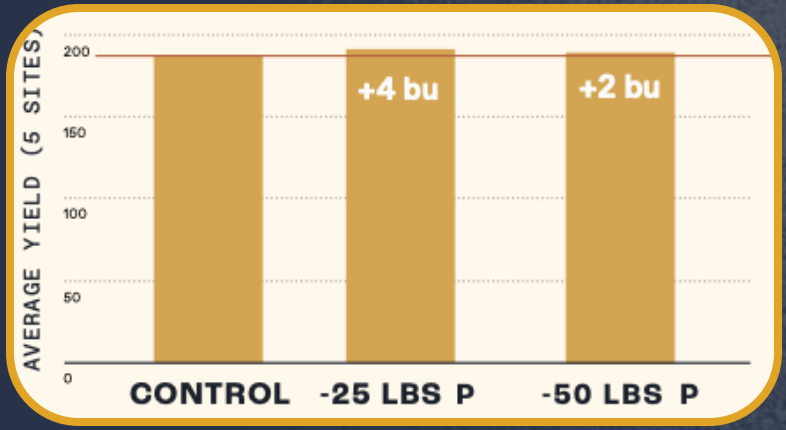
34 lbs/ac
N reduction

+.6 bu/ac
Avg yield increase

25 Lbs Nitrogen

National nitrogen reduction trials show SOURCE provides the equivalent of 25 units of nitrogen





25 lbs Phosphorus

Phosphorus reduction trials demonstrate that SOURCE unlocks the equivalent of 25 units of phosphorus

More Micronutrients

Tissue tests across 2 years and 300+ fields demonstrate an increase in micronutrients, especially when crops have a deficiency

Source: Sound Agriculture

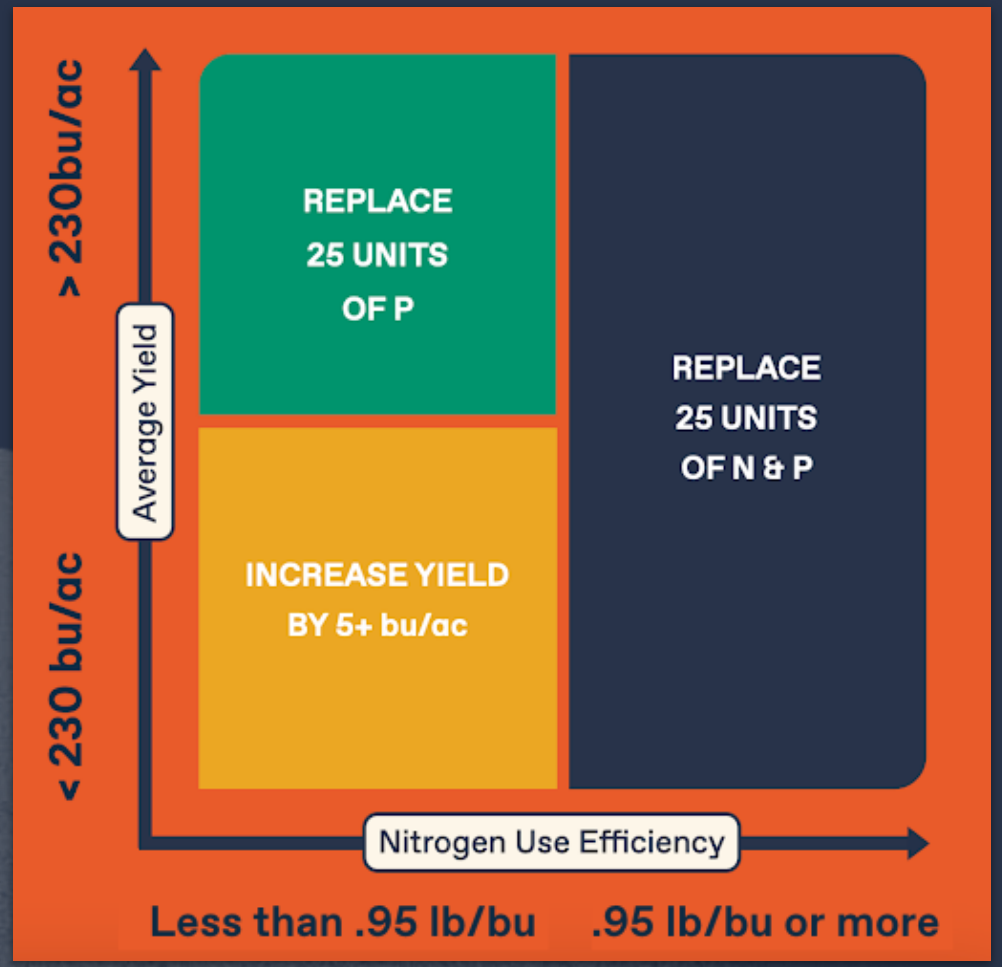
Sound

Using **25 lbs of N and P** from SOURCE for the **best ROI**

Our **Performance Optimizer Tool** helps you create the most profitable strategy

Use the Yield/NUE graph on the right to find out where your farm operation lands and how to use SOURCE for the best ROI:

- NUE 0.95 or more: Replace 25 units of N&P, $30+ saving
- NUE <0.95, yield >230: Replace 25 units of P, +3 bushel avg
- NUE <0.95, yield <230: 5+ bushels



Source: Sound Agriculture

Sound

Removing The Risk

With cash-back product guarantees

Fertilizer Replacement
CASH GUARANTEE

- Replace up to 25 lbs of N and/or P
- Receive up to $100/ac CASH if you don't maintain yield
- For corn with NUE ≥ .95 lb/bu
- 512 ac minimum

Yield Performance
CASH GUARANTEE

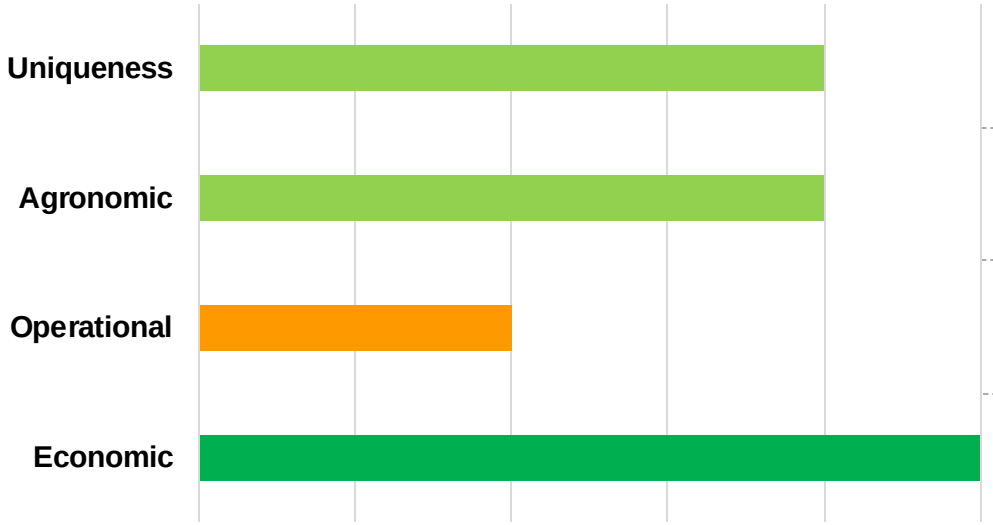
- Use SOURCE with standard fertility practice
- CASH refund if you don't achieve a 1X ROI
- For corn with NUE < .95 lb/bu, soy, cotton and silage
- 512 ac minimum

Source: Sound Agriculture

Vault® IP Plus

WinField United BioVerified™
Vault® IP Plus

Vault® IP Plus scored highly across the majority of the criteria and has opportunity to increase its operational score



3 active ingredients/MOA – Optimal rhizobia strain, EPA registered Bacillus amyloliquifaciens and Bacillus subtilis for plant health and nutrient acquisition

Understanding of how it works and where to place for optimal performance

Easy to work with but requires heated storage and has a 1-year shelf life.

High profit potential in the value chain

Key Crop(s) & Application Timing:
Soybean: Seed Treatment

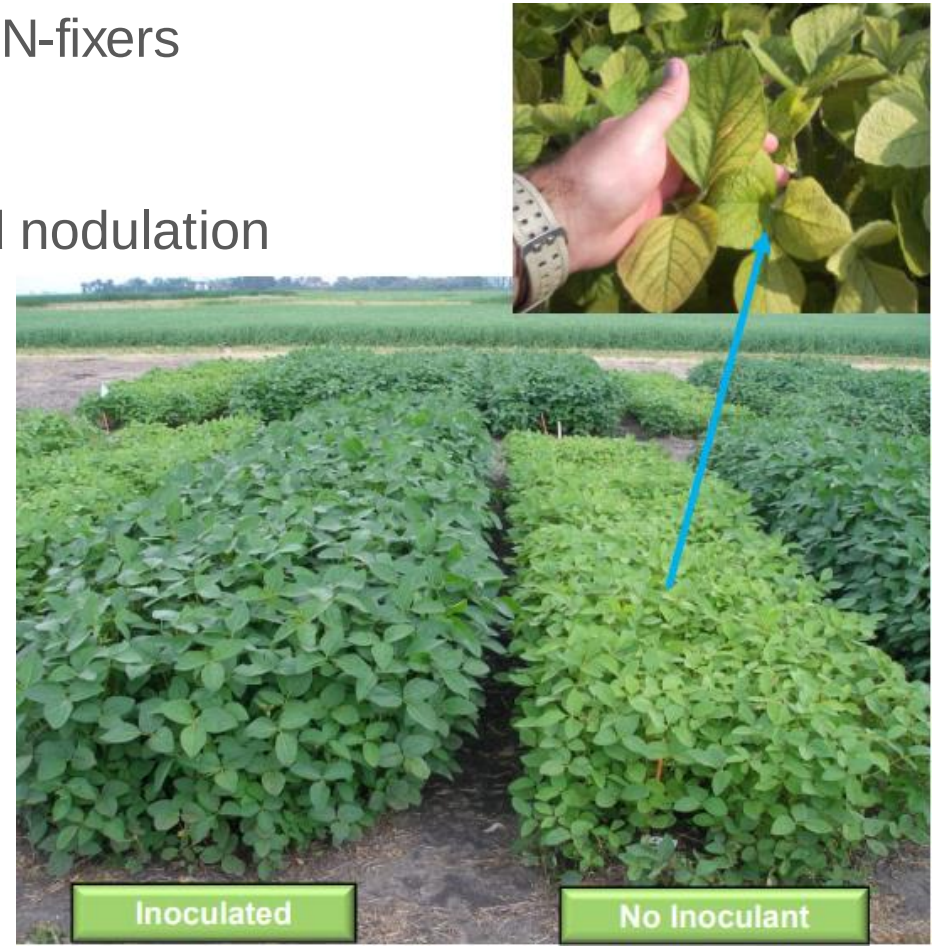
Positioning:
3 active ingredients/MOA – Optimal rhizobia strain for maximum N fixation; EPA registered Bacillus amyloliquifaciens for extended disease control and Bacillus subtilis for plant health and nutrient acquisition

Why Inoculate?

Is it needed every year?

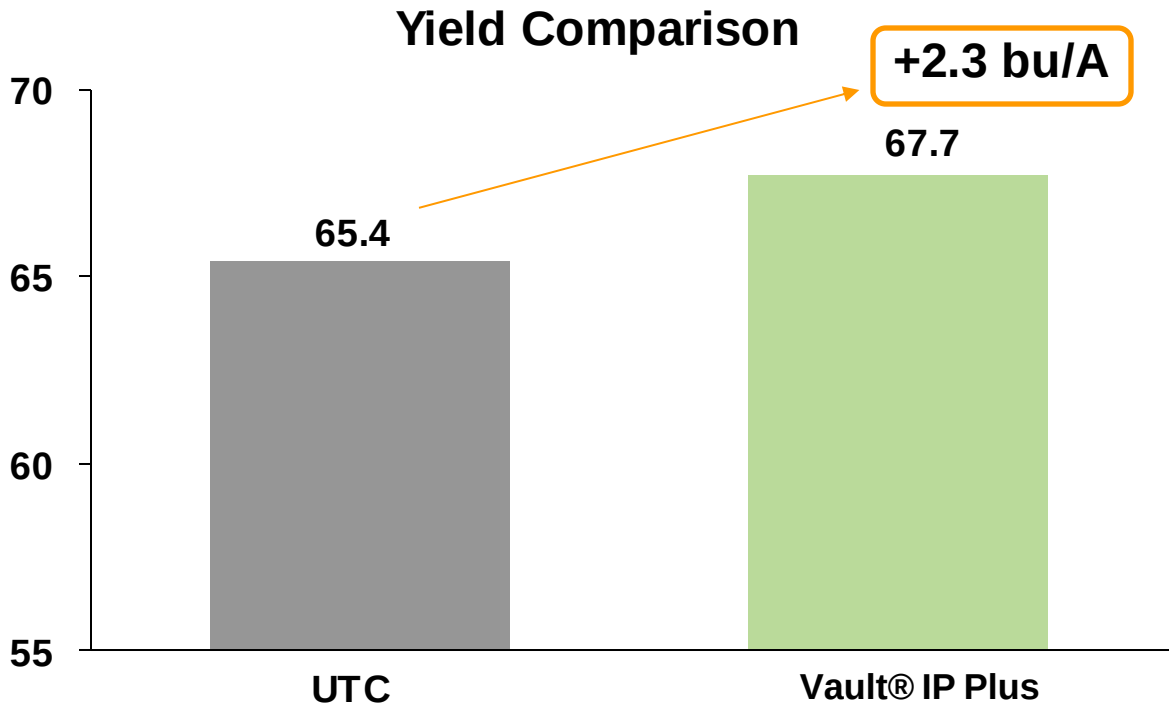
BASF Seed Treatment
Powering Potential

- Provides “affordable” nitrogen for the host legume plant Soybean
  - Native rhizobial populations tend to be poor / inefficient N-fixers
- Protects and promotes healthy root development
- Environmental conditions that affect rhizobium survival and nodulation
  - Floods
  - Drought Years
  - Saline Soils
  - High ph soils



Enhances plant growth for strong yields

Vault® IP Plus
Seed Treatment



Source: BASF Trials, 2017, 14 replicated US sites

Biofungicide and inoculant co-pack;
2 different bacilli strains, 60 days on-seed life

Dual protection from
Fusarium and Rhizoctonia
for excellent vigor and plant growth

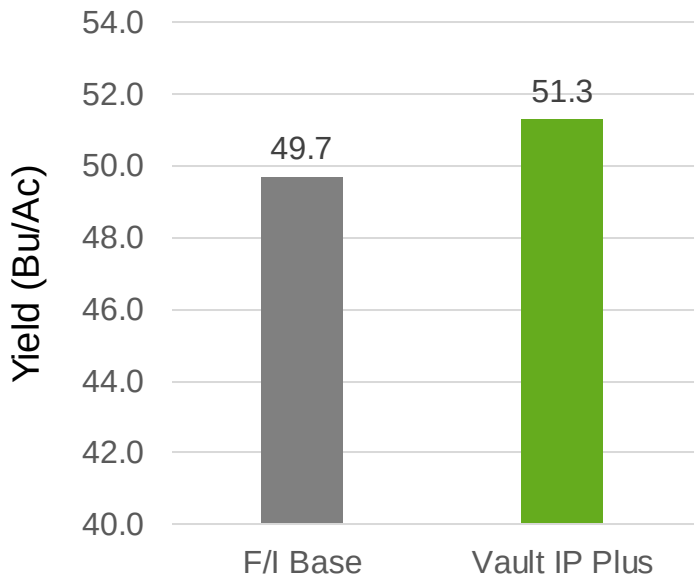
Lowest application rate
and less packaging

BASF
We create chemistry

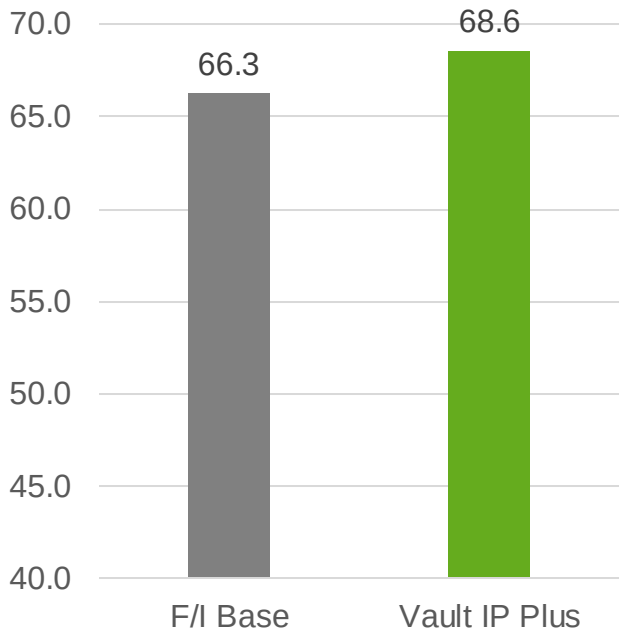
Performs consistently across conditions

Vault® IP Plus
Seed Treatment

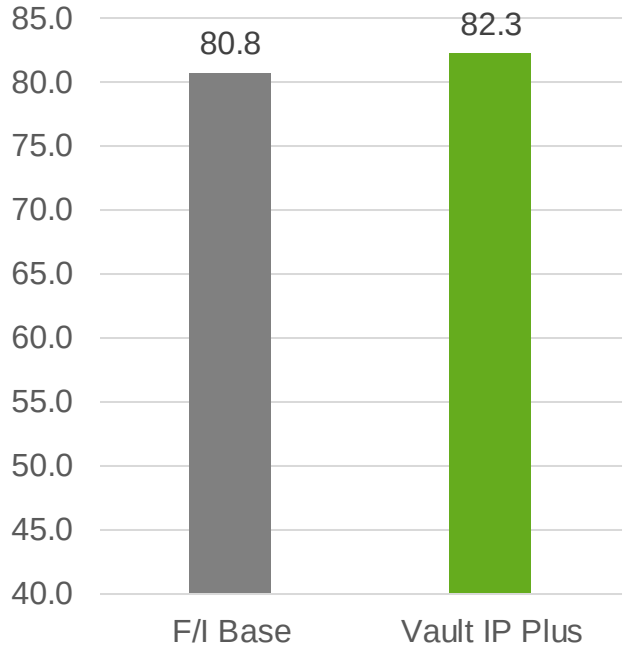
Control Yield <55 bu/A (n=2)



Control Yield 55-70 bu/A (n=4)



Control Yield >70 bu/A (n=5)



Source: BASF 2020 Field Trial

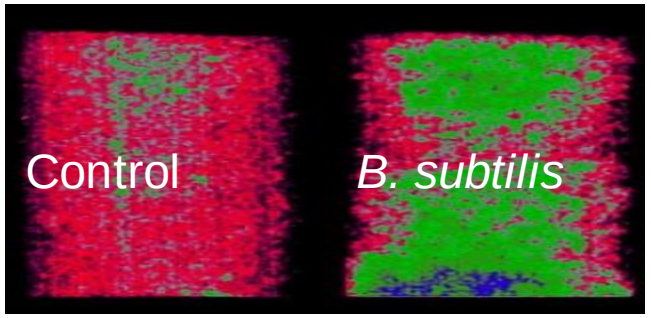
BASF
We create chemistry

Vault® IP Plus
Seed Treatment

Two EPA Registered Biologicals

- ***B. subtilis***
- *Minimum of 1.4 x 10^9 colony forming units per mL*
- Plant health and nutrient acquisition
- Biofilm
- Abiotic stress tolerance
- Support heathy, vigorous roots to maximize water and nutrient uptake for the soybean plant^

B. subtilis quickly colonizes the developing root system forming a "Shield of Protection"



The samples were saturated with water. Neutron imaging recorded evaporation during about a nine-hour period. Blue and green indicate the soil's water content. The microbe-treated sample was the clear winner in water retention.

- ***B. amyloliquifaciens***
- *Minimum of 1.4 x 10^{10} colony forming units per mL*
- Increased nodulation sites
- Extended disease control
  - Fusarium
  - Rhizoctonia

Soybean plants get more than **60%** of their yield-making nitrogen supply from ammonium converted by rhizobia in the root nodules

BASF
We create chemistry

^ Zheng, W. , Zeng, S. , LaManna, J. , Bais, H. , Jacobson, D. , , D. and Jin, Y. (2018), Plant Growth-Promoting Rhizobacteria (PGPR) Reduce Evaporation and Increase Soil Water Retention, Water Resources Research, [online], https://doi.org/10.1029/2018WR022656

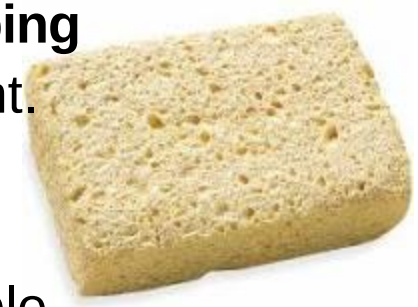
** Plant Soil (2009) 320:295-305* – ***Effect of Hydrogen on soil bacterial community structure in two soil types as determined by terminal restriction fragment length polymorphism – Ye Zhang, Xiang He, Zhongmin Dong***

Biological Biofilm = More Disease Protection

Vault® IP Plus
Seed Treatment

The biofilm the bacteria generate **acts like a glue to form "soil aggregates"** that can retain more water in their pores.

Shown to hold water like a sponge, **absorbing 10 times as much water** as their dry weight.



This can **make more water available to plants**, as well as increase the time available for plants to metabolically **adjust to stress from drought**.^

^ Zheng, W. , Zeng, S. , LaManna, J. , Bais, H. , Jacobson, D. , , D. and Jin, Y. (2018), Plant Growth-Promoting Rhizobacteria (PGPR) Reduce Evaporation and Increase Soil Water Retention, Water Resources Research, [online], https://doi.org/10.1029/2018WR022656

BASF
We create chemistry

YieldON®

WinField United BioVerified™ YieldON®

YieldON® scored highly on agronomic and economic metrics but has opportunity to increase its operational score

Similar products on the market

Clear understanding of how it works, supported by 2 years of data showing a +3.9 bu/A average yield effect[1] on corn

Compatible with other common crop protection products and has >2-year shelf life; agitation at scale is an issue

Profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: V10-R2
Soybean: R1-R3

Positioning:
Late-season foliar biostimulant that improves the transport of sugars and other nutrients

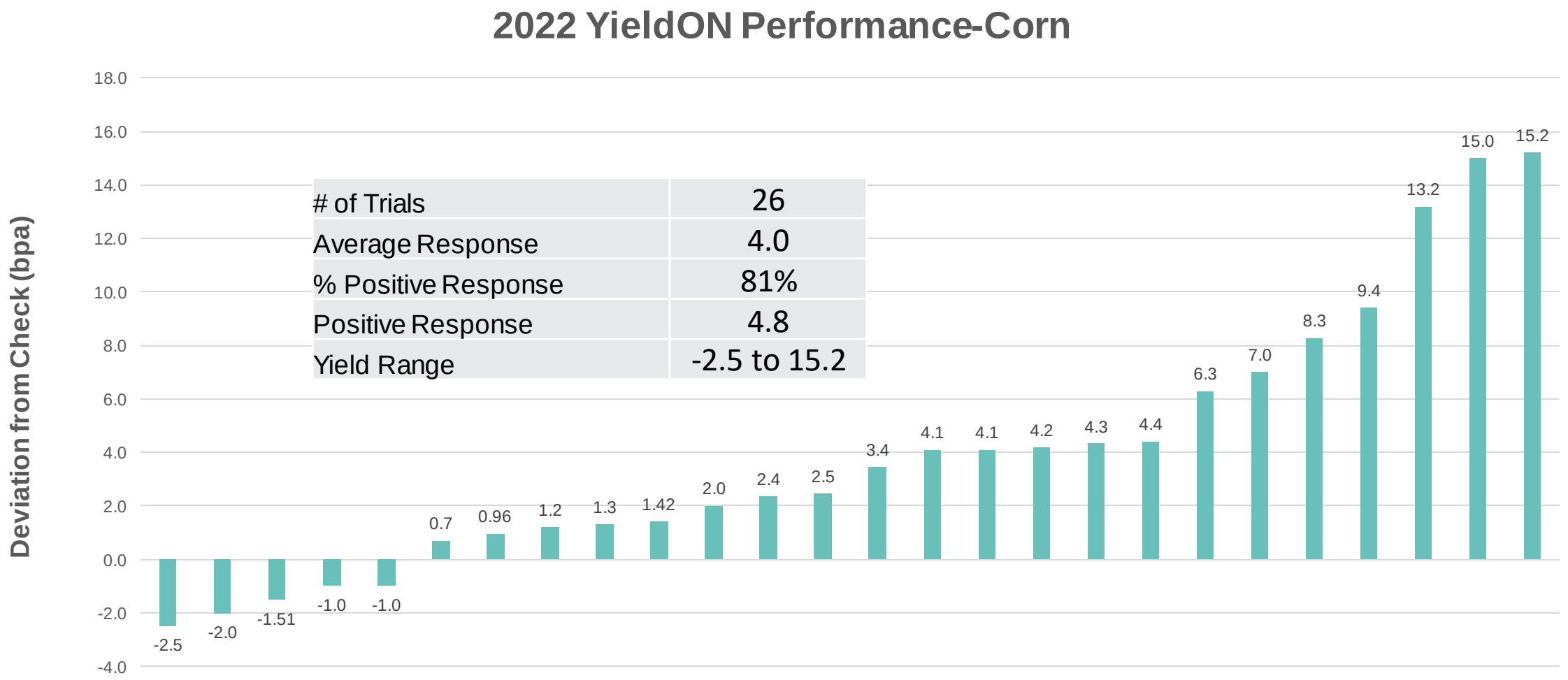
[1]Untreated vs. YieldON @ VT (24 oz/A). 82.1%-win rate with 5.9 bushel/acre average positive yield response.

Public:
Can be shown and distributed externally regardless of audience

YieldON® placement considerations to help increase the likelihood of positive results

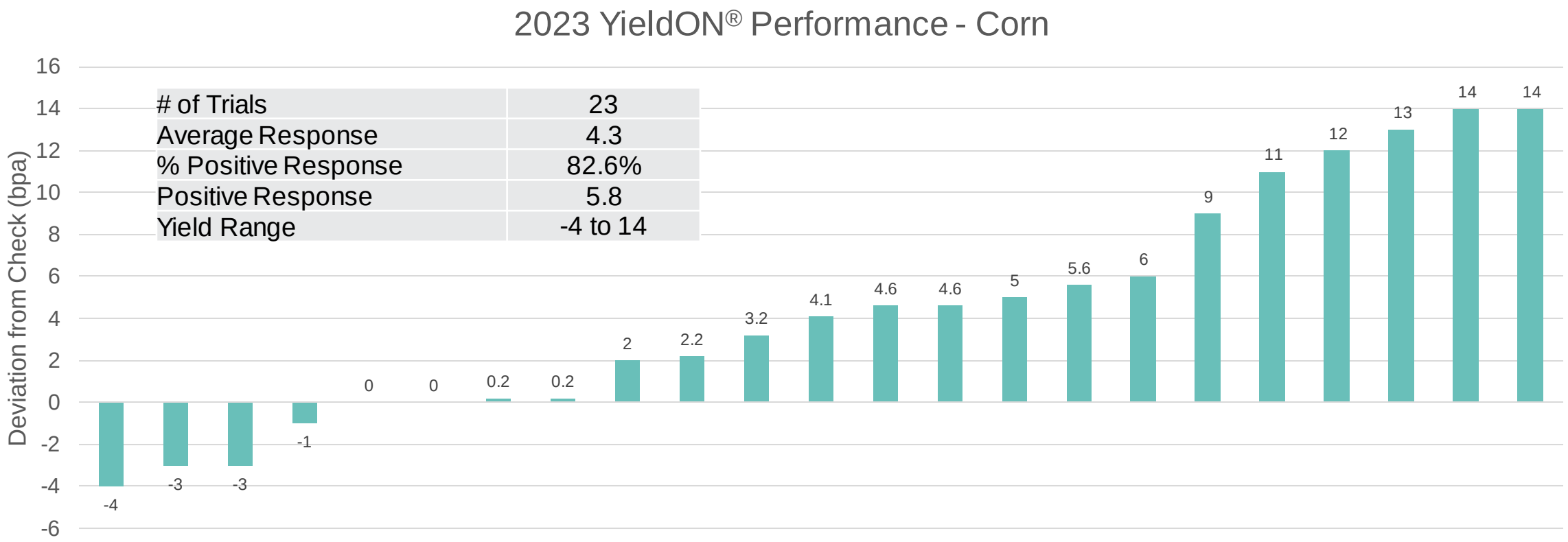
- Corn has shown a slightly more consistent response than soybeans
- There is indication that a flex or semi-flex hybrid at lower plant populations responds better
- Weather stress (drought or heat) at application timing can result in enhanced response
- Crops on quality soils with high-yield potential tend to respond better

YieldON® Corn (VT) Yield Results-
External Retail Customer Trials



YieldON® Corn (VT) Yield Results-
External Retail Customer Trials

Source:
Syngenta Biologicals
Data, 2023



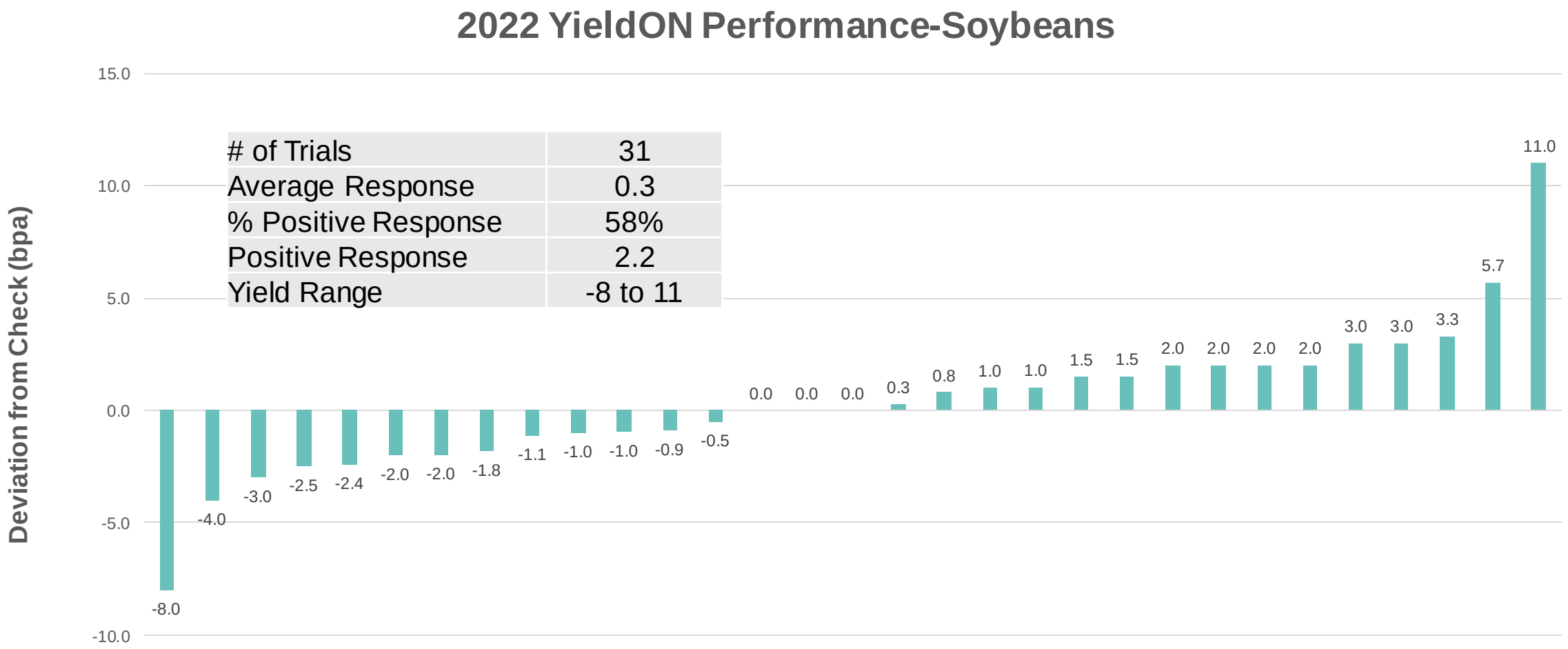
YieldON® Corn Yield Summary by Year

Untreated vs YieldON® @ VT (24 oz/A)

Year	Site Locations	Average Yield Effect (bu/A)	Wins (%)	Average Positive Yield Effect (bu/A)	Range
Overall Average	**ALL**	**4.0**	**106/129 (82.2%)**	**5.9**	-4 to 18
2023	Grower Field Comparisons*	4.3	19/23 (82.6%)	5.8	-4 to 14
2022	Grower Field Comparisons*	4.0	21/26 (81%)	4.8	-2.5 to 15.2
2022	Valagro Trials	4.6	50/58 (86%)	6.6	-2.5 to 18
2021	Bio Trial; Standard N	5.5	10/11 (91%)	6.2	p-value= 0.002
2021	Bio Trial; Elite N	-1.3	6/11 (54.5%)	3.5	p-value= 0.616

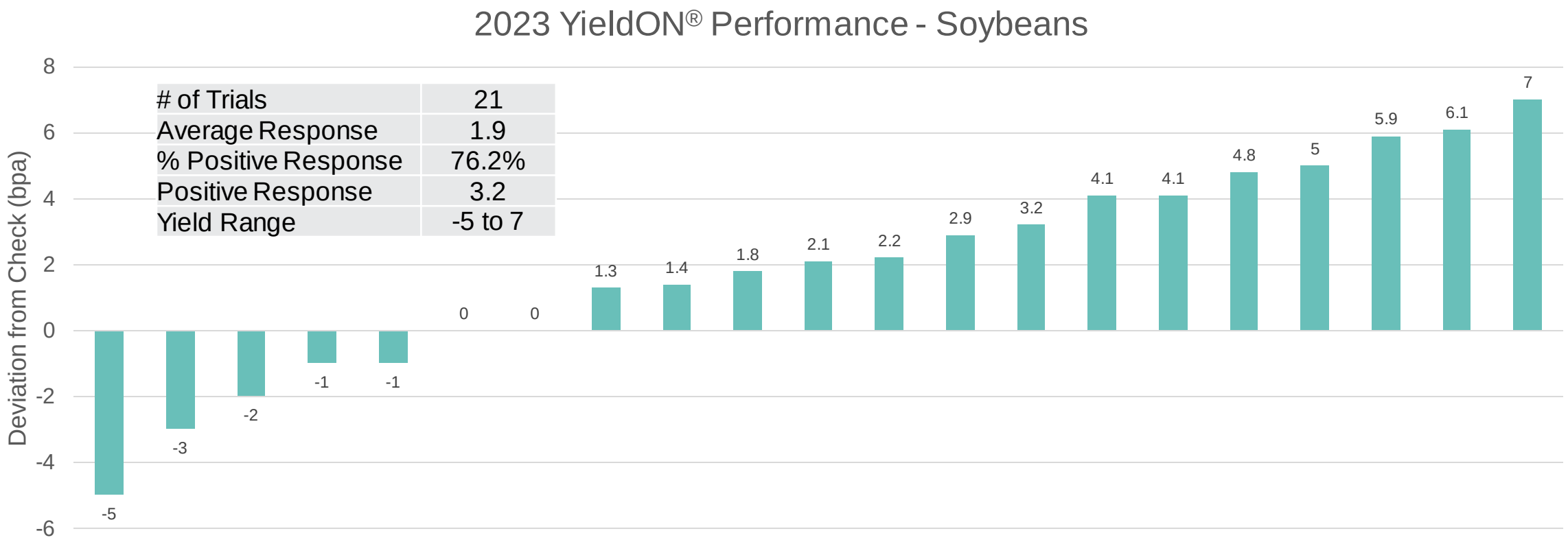
*Non-replicated

YieldON® Soybean (R2) Yield Results-
External Retail Customer Trials



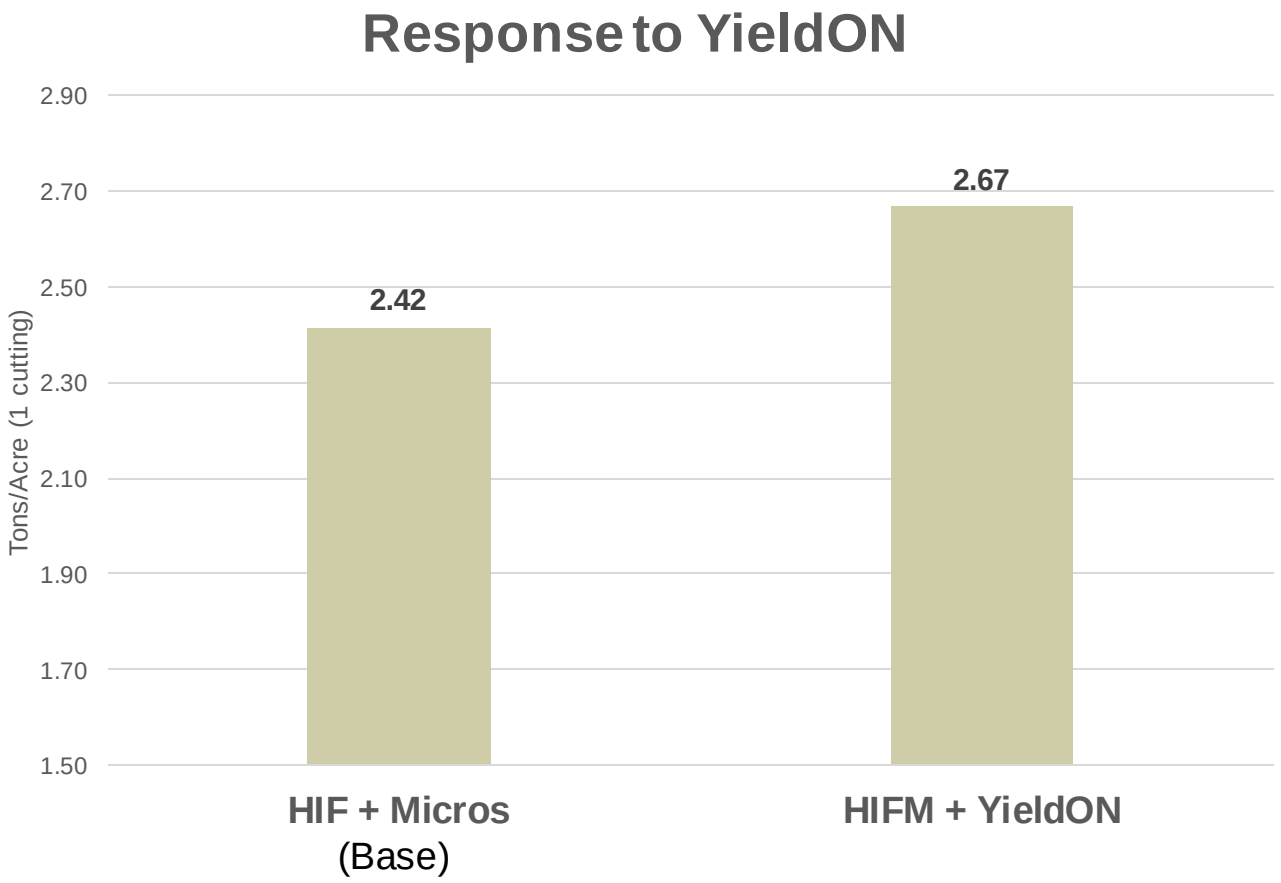
YieldON® Soybean (R2) Yield Results-
External Retail Customer Trials

Source:
Syngenta Biologicals
Data, 2023



Response to YieldON®

2023 Answer Plot® Alfalfa Demo



HIFM (Base)

Products used	Rates	Treatment
YieldON	1.5 Pt/a	
Max-In B	16 Oz/A	M
Max-In K	2 Qt/A	M
Priaxor	4 Oz/A	F
Arctic	5 Oz/A	I
CornerStone 5 Pus	24 Oz/A	H
Raptor	5 Oz/A	H

APPROVED BY WINFIELD UNITED

Location(s): 3 [West Salem, Shawano, Menomonie Answer Plots]
Year(s) of Trial: 2023
Application timing: 4-8" regrowth on 3rd crop
No statistical analysis performed- SXS numerical data represent on the graph

Agronomic Observation:

May be shown externally and internally

WINFIELD UNITED

Voyagro®

WinField United BioVerified™ Voyagro®

Voyagro® scored highly across the majority of the criteria

Similar options on the market. Unique number of amino acids.

5 years of data showing a +2.7 bu/A average yield effect[1] on corn; opportunity for a more robust understanding on individual amino acid modes of action

Compatible & easy to mix with other common crop protection products and has >2-year long shelf life

High profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: V8-V11 or V15-VT
Cotton: Early Bloom
Soybean: R1-R3

Positioning:
Works well on highly managed corn acres where there is moisture stress prior to application or where stress is anticipated

[1]Untreated vs. Voyagro @ V5 (8-16 oz/A). 63.1%-win rate with 5.9 bushel/acre average positive yield response.

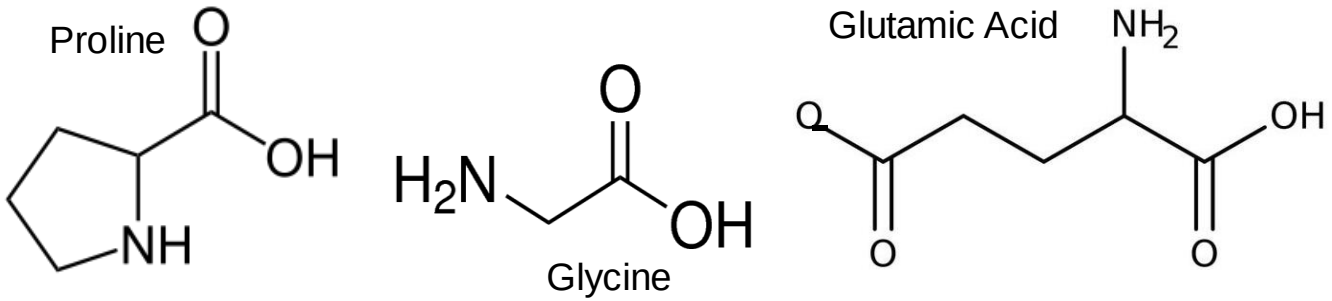
The Amino Acids in Voyagro®

Amino Acid	%	Amino Acid	%
Alanine	2.8	Lysine	0.8
Arginine	0.4	Methionine	0.2
Aspartic Acid	1.2	Ornithine	1.2
Glutamic Acid	**2.6**	Phenylalanine	0.6
Glycine	**6.4**	**Proline**	**3.5**
Hydroxylysine	0.5	Serine	0.1
Hydroxyproline	2.2	Threonine	0.2
Histidine	0.2	Tyrosine	0.6
Isoleucine	0.4	Valine	0.7
Leucine	0.8		

Proline is an amino acid that accumulates in plant cells in response to abiotic stresses, such as drought, salinity, and chilling

Glycine is an amino acid that accumulates in plant cells in response to abiotic stresses, such as drought and salinity.

Glutamic acid is the precursor of Gamma Aminobutyric Acid (GABA), which is produced in plants in response to metabolic and mechanical disruptions, oxygen deprivation, cold, heat or salt stress.



Sources: Ashraf, M. and M.R. Foolad. "Roles of glycine betaine and proline in improving plant abiotic stress resistance." *Environmental and Experimental Botany* 2 (2007): 206-216. Print.
Alan M. Kinnersley, F.J. Turano. Gamma Aminobutyric Acid (GABA) and Plant Responses to Stress, *Critical Reviews in Plant Sciences* 6 (2000): 479-509. Taylor Francis Online. Web. 20 March 2018.

Why are Amino Acids Important?

Amino acids are the building blocks of proteins

- ❑ Proteins act as: cell membrane transporters, hormone receptors, cell regulators, etc.

Roles of amino acids include:

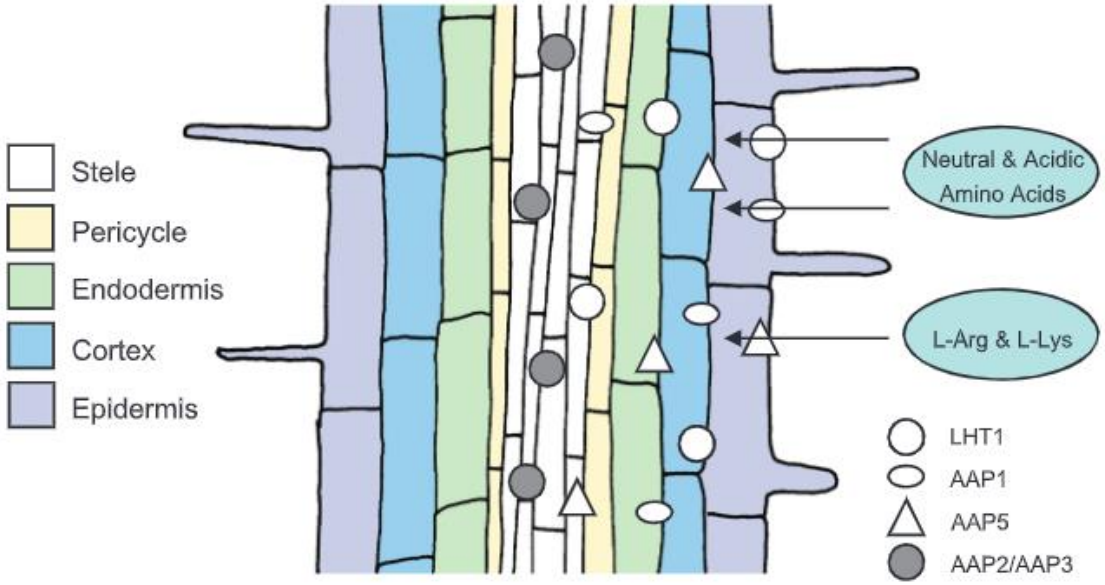
- ❑ Nitrogen metabolism
- ❑ Hormone biosynthesis
- ❑ Biosynthesis of alkaloids, flavonoids, and isoflavonoids
- ❑ **Tolerance to environmental stresses**

Hopkins, Willliam G. and N.P.A. Huner. *Introduction to Plant Physiology*, 3rd Edition. Hoboken, NJ: John Wiley & Sons, Inc., 2004.

Why are Amino Acids Important?

Amino acids improve membrane permeability (Ashmead, 1986)

- Nutrients can penetrate the plant cuticle more rapidly



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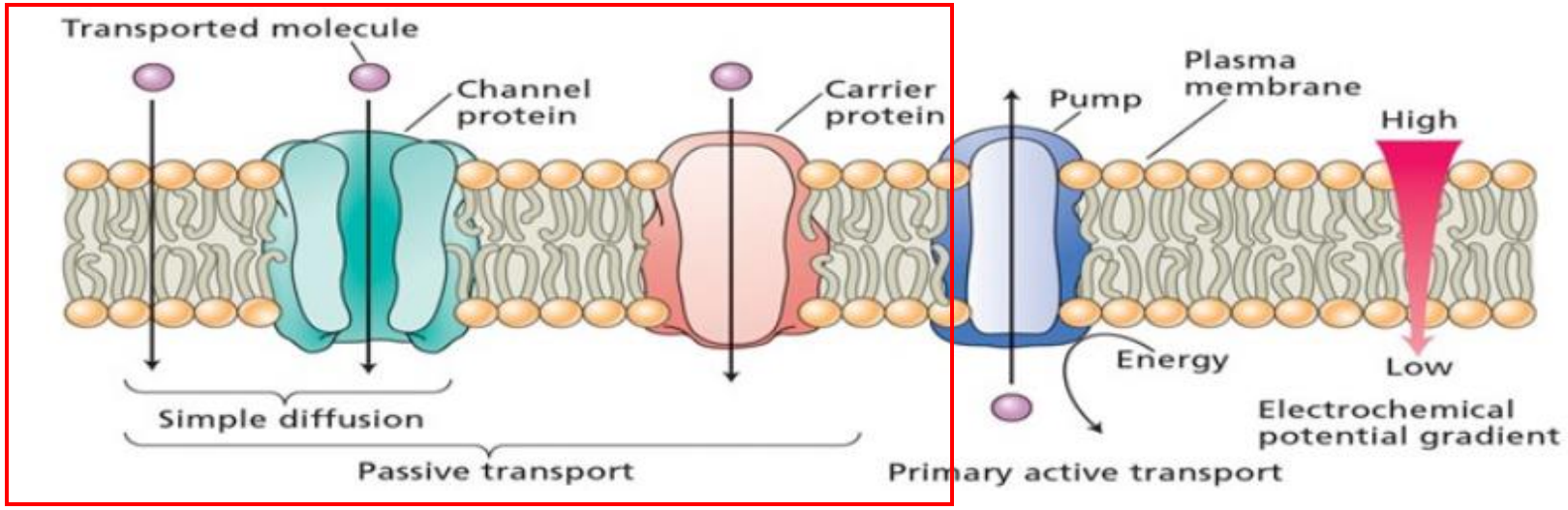
Why are Amino Acids Important?

- Amino acids enter plant cells via passive transport through channel proteins
  - No energy needed to enter cell
- Nutrient cations can bind to the plasma membrane, never making it into the plant cell
- Certain nutrients can be commonly found in the plant complexed with amino acids



Kochian, LE (1991). Mechanisms of Micronutrient Uptake and Translocation in Plants. In J.J. Mortvedt, F.R. Cox, L.M. Shuman & R.M Welch (Eds.) *Micronutrients in Agriculture* (2nd Ed.) (229 – 296). Madison, WI: Soil Science Society of America, Inc.
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Voyagro® Corn Yield Summary by Year

Untreated vs Voyagro @ V5 (8-16 oz/A)

Year	Site Locations	Average Yield Effect (bu/A)	Wins (%)	Average Positive Yield Effect (bu/A)	p-value α 0.05
Overall Average	**ALL**	**2.7**	**118/187 (63.1%)**	**5.9**	**NP**
2022	Biological Testing Platform (8 fl oz/a)	-0.2	8/14 (57.1%)	1.8	0.812
2019	External Research (8 fl oz/a)	1.1	8/10 (80%)	2.2	0.329
2017	Grower Innovation Side-by-Sides *	2.5	47/78 (60.2%)	6.6	0.005
2016	Answer Plot® Research	2.6	14/23 (61%)	6.2	0.084
2015	Answer Plot® Research	3.3	28/42 (58%)	5.8	0.114
2014	WPD	5.2	13/20 (64%)	7.8	0.191

*Non-replicated, formerly called Innovation Trials

Zume®

WinField United BioVerified™ Zume®

Zume® scored highly on operational and economic metrics and has opportunity to increase its agronomic score with additional data

Many similar options on the market

Understand mode of action but need additional data to inform optimal placement

Compatible & easy to mix with other common crop protection products

Profit potential in the value chain

Key Crop(s) & Application Timing:
Corn: in-furrow

Positioning:
For use in-furrow to help enhance nutrient availability and uptake at the rootzone during early growth and development

Zume – Soil Applied Enzyme Product

Zume® Enzymes:

- Mannanase – acts on hemicellulose in soil organic matter and residues, breaking it down into smaller sugars that plants and microbes can use.
- Lipase – acts on lipids in soil organic matter and residues, releasing nutrients

Zume® Enzyme Cofactor:

- Zinc-EDTA
- The 4% Zinc-EDTA in Zume should not be viewed as zinc fertilizer.
    - It is essential to activate the mannanse and lipase.