WINFIELD® UNITED

ADVANCED ACRE INSIGHTS GUIDE

2025 SEASON

SEED // PRE-PLANT // EARLY SEASON // LATE SEASON // ALL SEASON

INSIGHTS FOR **EVERY ACRE.**

Every season brings its own set of challenges. Weather swings, markets shift, pests appear. Yet through every up and down, one thing remains the same: WinField® United is committed to equipping locally owned and operated retailers with the agronomic expertise, data-driven insights and technology needed to help farmers succeed in today's competitive landscape.

This book is no exception. Retailers asked for an easier way to get the data that matters and the takeaways that come with it. Inside, you'll find a clear snapshot of our latest findings plus straightforward recommendations from our team of experts.

These insights wouldn't be possible without a commitment to research excellence. The WinField United Innovation Center is a cutting-edge agricultural laboratory dedicated to developing and supporting top-of-the-line crop protection and plant nutrition products; while the Answer Plot program collects more than 6 million data points each year from our nationwide network of field research plots, for over 25 years.

All this information needs someone to put it into practice. That's where our network of retailers comes in. Your local knowledge is unmatched, and as our direct link to the farm, you turn data into practical, acre-by-acre recommendations tailored to each grower's goals.

To make this job easier, we hope this book becomes another trusted tool for matching the right products to the right acres. With clear recommendations and the full support of the WinField United team, our retail partners are ready to use these insights to unlock the greatest potential of every acre.

RESEARCH-BACKED INSIGHTS

+6 MILLION
DATA POINTS COLLECTED EACH YEAR

+500
PRODUCTS TESTED ANNUALLY

55,000 SQ. FT.
INNOVATION CENTER

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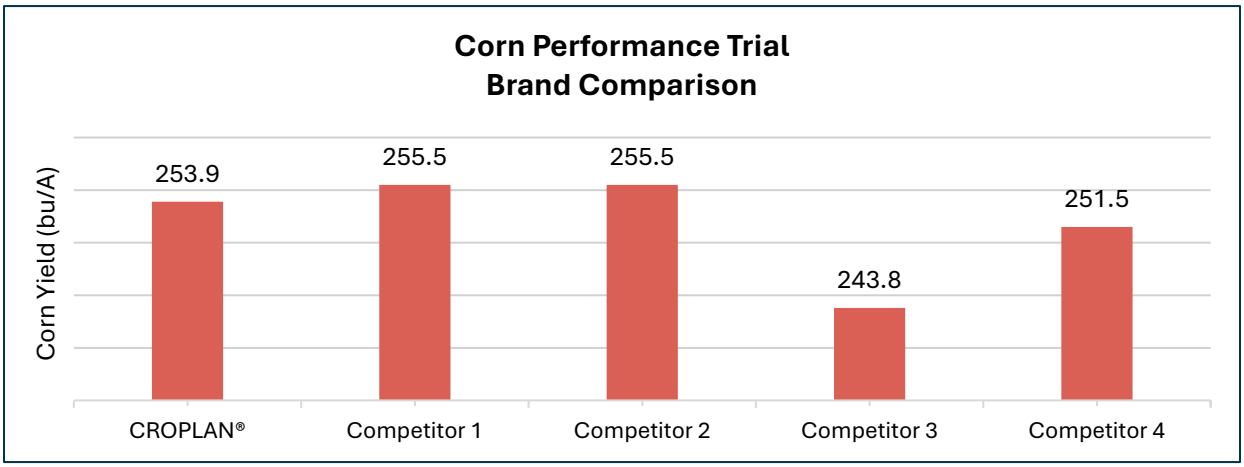
BY CROP

BY PRODUCT

CROPLAN Brand Corn Provides Competitive High Yield Potential

Corn Hybrid Brands Have No Difference in Genetic Performance.

Brand superiority is frequently emphasized in industry marketing communications. However, recent advancements demonstrate no difference in yield among other prominent corn hybrid brands. The CROPLAN seed product management team utilizes multiple breeding and trait platforms to identify the most suitable products for the CROPLAN portfolio, thereby supporting CROPLAN's reputation for reliability and consistency in supplying high-yield corn hybrids to agricultural producers.



THE RECOMMENDATION

Consider CROPLAN brand corn hybrids to bring competitive and reliable yield potential to the farm.

KEY FINDINGS

Finding a high yield potential hybrid is easier than before. CROPLAN brand corn demonstrates yield performance no different from other leading brands.

Brand	Yield	Moisture	Test Weight	LSD (.10)
CROPLAN®	253.9	18	57.4	-
Competitor 1	255.5	18.1	57.3	1.514
Competitor 2	255.5	18.1	57.8	0.948
Competitor 3	243.8	18.6	57.1	1.368
Competitor 4	251.5	18	58	1.507

STUDY DETAILS

82 Answer Plot locations. 200 total comparisons.

Consider New Genetics When Making a Seed Decision

Industry Continues to See Genetic Gain Potential in New Genetics

Plant breeders constantly strive to improve upon the current genetics being planted today. New hybrids can bring higher yield potentials or improved agronomics that can lead to higher yield potentials. The new 2025 releases from CROPLAN® seed are the latest example of corn breeding and genetic selection from the WinField United Seed Product Managers. By adopting newer genetics, growers may achieve higher yield potentials without additional inputs. Combining these genetics with the agronomic positioning information from CROPLAN seed allows growers to help realize optimal yield and

	Mean Effect (bu/A)	2025 (bu/A)	Comp. Year (bu/A)	% Wins	# Comps	LSD (.10)
2025 vs 2024	1.4	253.9	252.5	63%	75	2.1
2025 vs 2023	1.4	256.1	254.7	56%	70	2.1
2025 vs 2022	7.9	253.9	246	75%	65	3.4
2025 vs 2021	3.1	252.1	249	52%	67	3.2
2025 vs 2020	10	254	244	77%	74	2.6
2025 vs 2019	18.1	254.2	236.1	77%	61	4.8
2025 vs 2018	16	261	245	80%	50	4.8
2025 vs 2017	9.8	262.7	252.9	80%	35	3.6
AVERAGE	**8.5**	**256**	**247.5**	68.7	497	2.8

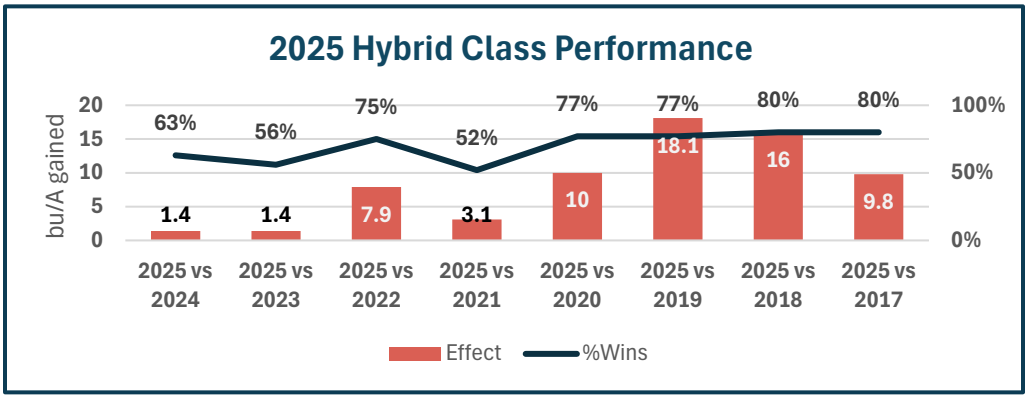
THE RECOMMENDATION

2025 CROPLAN hybrids yielded 8.5 bu/A more than the average of the previous hybrid classes over the past 8 years.

Newer hybrids tend to have higher genetic yield potential.

KEY FINDINGS

Average yield of 2025 hybrids was 256 bu/A compared to 247.5 bu/A average for hybrid classes across the past 8 years.



Use Response-To Scores to Match Hybrids with Management Practices

Hybrid Response to Nitrogen (RTN) and Fungicide (RTF) Can Greatly Affect Yield Response

Nitrogen and fungicide are critical inputs for optimizing a grower's production and ROI. Not all hybrids need to be managed the same, so matching hybrid selection to management style and farm environment can help allocate resources to optimize yield potential. High RTN and RTF hybrids can bring a larger yield potential when environment and management support them. WinField United uses the Answer Plot® system to test input response to help optimize yield potential and ROI based on hybrid selections.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	14Year Ave.	2024 Ranges
Response to Population	7.7	8.1	7.1	7.4	8.2	10.2	9.7	8.9	9.1	9.2	8.6	7.1	8.2	9.4	8.5	`-1.12-22.5bu.
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	14 Year Ave.	
Response to Nitrogen	70.9	54	70.3	59.9	61.1	50.1	68.8	93.7	71.9	68.2	53	63.8	89.6	87.1	68.7	40.0-129.9 bu.
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	10 Year Ave.	
Response to Fungicide	n/a	n/a	n/a	n/a	11.9	15.3	11.2	17.2	16.1	10.1	15.3	13.5	11.8	12.0	13.4	0.2-38.7 bu.
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	14 year average	
Annual Total Response Ave. Summary	78.6	62.1	77.4	67.3	81.2	75.6	89.7	119.8	97.1	87.5	76.9	84.4	109.6	108.5	86.8	

THE RECOMMENDATION

Utilize Response-To scores to optimize yield potential and help deliver more consistent results.

KEY FINDINGS

WinField United tests hybrid response to different levels of nitrogen and has found the average response to N is 68.7 bu/A. Within that, individual hybrid response can vary from 40 to 129.9 bu/A. Response to fungicide trials found an average response of 13.4 bu/A. Individual hybrid response can vary from 0.2 to 38 bu/A. In today's economic environment it is important to know which hybrids respond to these critical inputs.

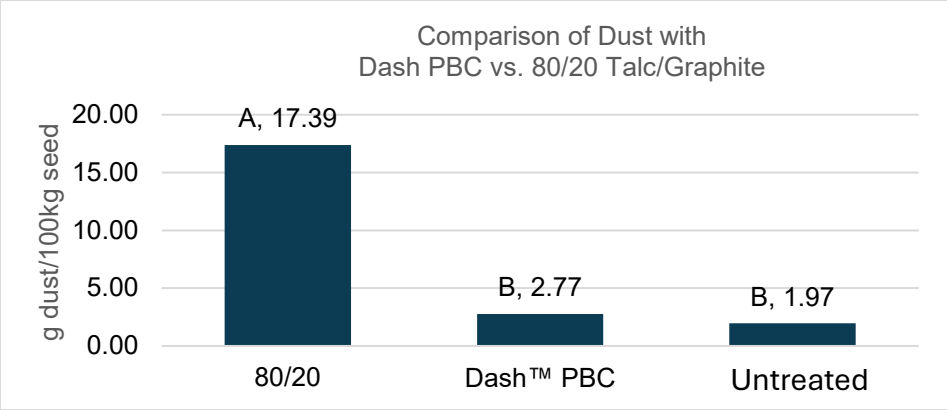
STUDY DETAILS

National average differences reported in table above. Response to population: Difference between 30,000 and 37,500 plants per acre. Response to Nitrogen: Difference between non-limited and limited N application. Rates varied by soil type and location. Response to Fungicide: Difference between fungicide at R1 and untreated control.

Why to Consider a Novel Planter Box Seed Treatment

Lubrication and Microbial Benefits Can Help Improve Yield Potential

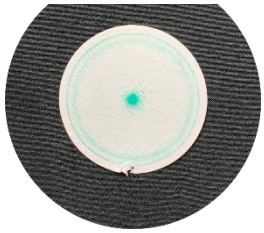
Seed lubrication doesn't have to mean excessive dust and possible seed treatment interference. A planter box treatment with a much lower use rate that offers lubrication + microbial benefits can improve seed flow and spacing, while also aiding in colonizing the root zone to promote early growth and nutrient availability. A combination product like Dash PBC can help get corn off to a faster, more uniform start, and support improved yield potential.



Controlled Environments Trial

80/20 Talc/Graphite

Dash™ PBC



CORN

PRE-PLANT

THE RECOMMENDATION

Using Dash PBC planter box seed treatment significantly reduced dust and increased corn yield by an average of 3.0 bu/A.

KEY FINDINGS

Compared to Untreated	Mean Effect (bu/A)	P-Value
Dash™ PBC	+3.0	0.10

Field Trial

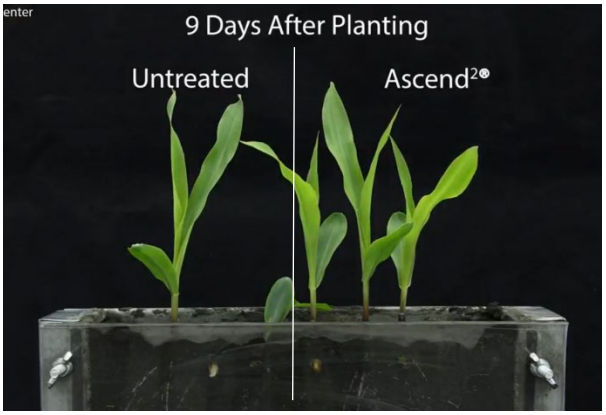
STUDY DETAILS

Controlled environments trial: 3 reps per treatment. Rates: Dash PBC (0.5 oz/unit; 80,000 seed/unit), 80/20 talc/graphite (4 oz/cwt) corn. Means followed by the same letter are not statistically different. Field trial: 35 Answer Plot locations.

Plant Growth Regulators Value in Early Corn Growth

Help Provide a Stronger Start

Adverse conditions early in the season can result in delayed and uneven corn emergence. Crop residue, variable soil temperatures and soil moisture can all negatively impact early development. Uniformity is preferred in early stages so corn develops evenly across the field and plants are ready for harvest at the same time for optimal yield potential. Applying a plant growth regulators (PGR) like Ascend[2] in-furrow can help corn plants establish more uniform growth and stronger roots, even in challenging early conditions.



Controlled Environments Trial

THE RECOMMENDATION

Ascend[2] PGR helped speed emergence, improve uniformity, and increase early plant growth compared to untreated.

KEY FINDINGS

	Ascend[2]® compared to Untreated
Emergence Time	**3%** faster
Emergence Uniformity	**5%** more uniform
Height (14 DAA*)	**8%** taller
Leaf Area (14 DAA*)	**22%** more
Biomass (14 DAA*)	**31%** more

**Days After Application*

Emergence advantages of 3% and 5% may appear small, but the data indicates a small advantage can translate to a large advantage during early growth (height, leaf area, biomass).

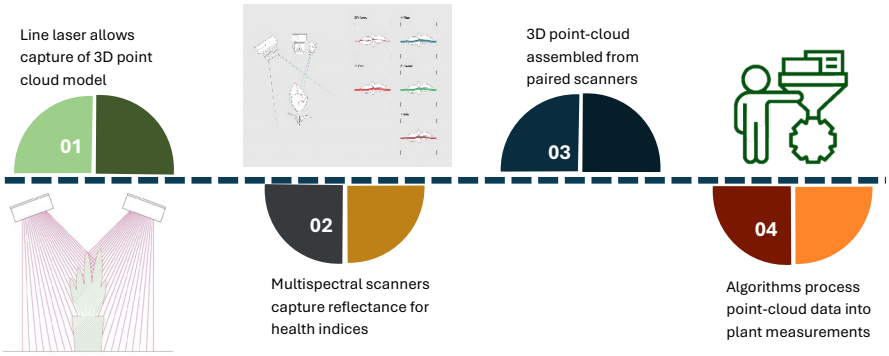
STUDY DETAILS

13 reps per treatment, experiment repeated 4x. Rate: Ascend[2] (5.3 fl oz/A). Completed in a growth chamber with 14h day/10h night and 68F day/54F night temperatures, with 70% relative humidity. All comparisons were statistically significant from untreated with 90% confidence.

When to Apply a Biostimulant for Corn Biomass

Support Physiological Processes for Better Results

Early season corn development includes the critical transition from vegetative to reproductive growth. Applying a biostimulant formulated with supportive components can help enhance corn physiological function. Scientists at the WinField United Innovation Center use a plant phenotyping system to digitally evaluate plant-product interactions and determine the impact different products may have on growing crops. Products like YieldOn™ biostimulant can help enhance nutrient and sugar transport and stimulate cell division and expansion, which support increased corn biomass to optimize growth and yield potential.



The Phenospex plant phenotyping system uses paired scanners to build a 3D point cloud model of every plant, every time it scans. From these digital renditions we receive 20+ morphological and plant health measurements that we can track over time.

THE RECOMMENDATION

Applying YieldOn biostimulant increased corn biomass compared to untreated, 24 days after application to early season corn.

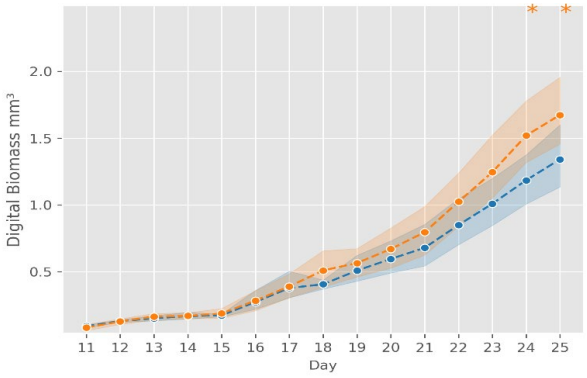
CORN

EARLY SEASON

KEY FINDINGS

- When YieldON was applied to V2-V3 corn, the Phenospex imaging system captured a significant increase in digital biomass compared to untreated by 24 days after application.

Controlled Environments Trial



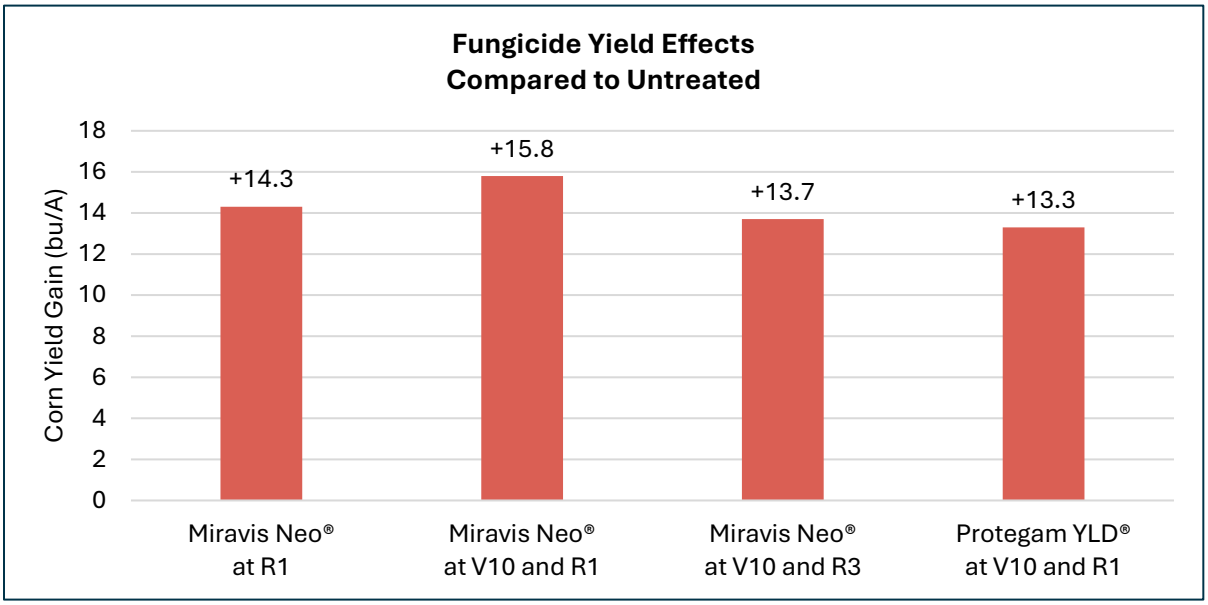
STUDY DETAILS

7 reps per treatment. Rate: YieldON (2 pt/A). Treatment means separated with a confidence level of 90%. Asterisks in chart indicate significant difference in treatments.

Fungicides Can Help Improve Yield Potential

Timing and Product Selection are Key Factors

Fungicide plant health applications have long been understood to deliver yield benefits. However, timing and product selection still varies within the industry. Two different fungicides at three timings were evaluated in the Answer Plot locations across geographies and disease spectrum and levels. These findings underscore the importance of not only the fungicide product but also the stage of application for optimizing corn yield improvements.



THE RECOMMENDATION

Apply fungicide late season to optimize yield potential.

V10 and R1 application timings can provide a greater benefit.

KEY FINDINGS

2024 Answer Plot® data showed that fungicides can help increase corn yield potential, while also demonstrating the importance of fungicide applications late season.

STUDY DETAILS

19 Answer Plot locations. LSD (0.10)=1.8

How to Improve Corn Rust Control

Adjuvants Can Help Significantly Reduce Disease

Corn rust can be devastating. It spreads rapidly under warm, humid conditions and reduces a plant's photosynthetic capacity, which can reduce yields if not managed adequately. Timing and coverage are critical for control of this disease.

Fungicides like Altipro are the first step. Including an adjuvant like MasterLock can help increase control even more by improving coverage and canopy penetration – to help more fungicide reach the lower leaves where rust often starts.

Controlled Environments Trial

THE RECOMMENDATION

Adding MasterLock adjuvant significantly reduced common corn rust crop injury compared to fungicide alone.

KEY FINDINGS

	Visual Corn Rust Severity (%)* *14 Days After Application*
Untreated	46.7 a
Altipro™	17.7 b
Altipro + MasterLock®	3.9 c

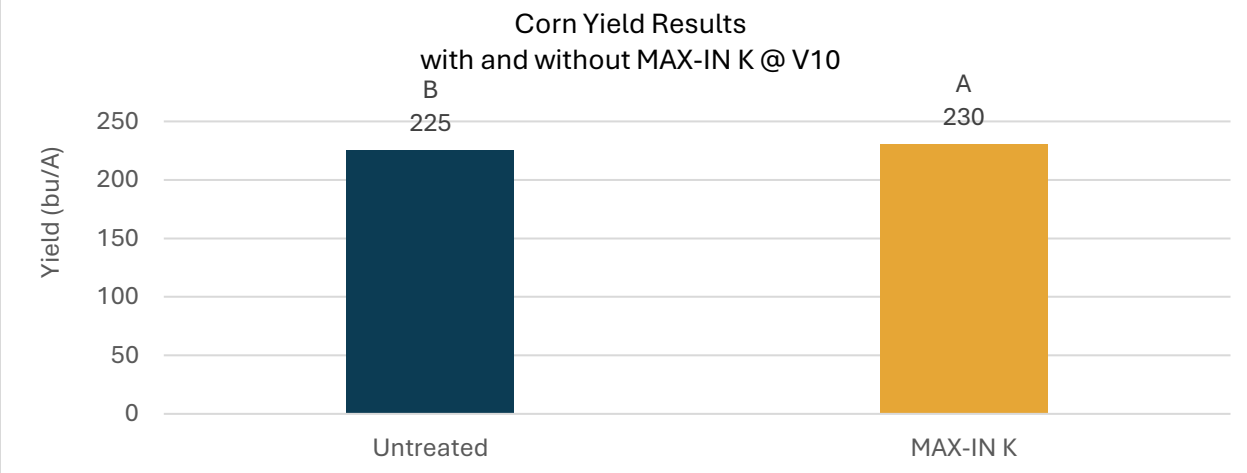
STUDY DETAILS

6 reps per treatment. Rates: Altipro (8 fl oz/A), MasterLock (6.4 fl oz/A). Treatments were applied to corn at V3-V4 growth stage at 20 GPA. Means followed by the same letters are not statistically different with a confidence level of 95%.

When Foliar Potassium Can Help Improve Yield Potential

Potassium Helps Support Corn Growth and Development

In late vegetative stages, around V10, corn enters a period of rapid biomass accumulation and ear development. This increases demand for potassium to support photosynthesis, regulate water movement and optimize nutrient transport to the developing ear. A foliar application at V10 helps ensure a potassium supply that keeps up with demand to help optimize kernel numbers and yield potential.



THE RECOMMENDATION

Applying MAX-IN K micronutrient at V10 increased corn yield by an average of 5.0 bu/A compared to untreated.

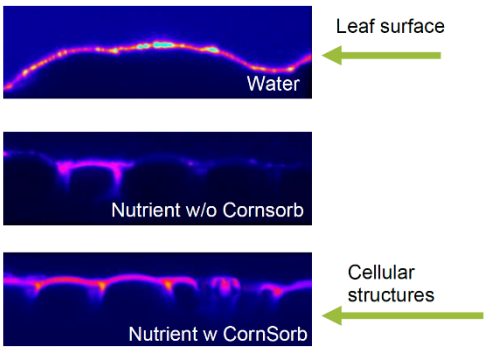
KEY FINDINGS

Compared to Untreated		Mean Effect (bu/A)	P-Value
Standard N	**MAX-IN K**	5.0	0.049

STUDY DETAILS

11 Answer Plot® locations. Rate: MAX-IN K (64 fl oz/A). V10 foliar application. Standard N rate. Means followed by the same letter are not statistically different.

MAX-IN K includes CornSorb® technology, which helps increase nutrient uptake by facilitating nutrient movement through the leaf cuticle.



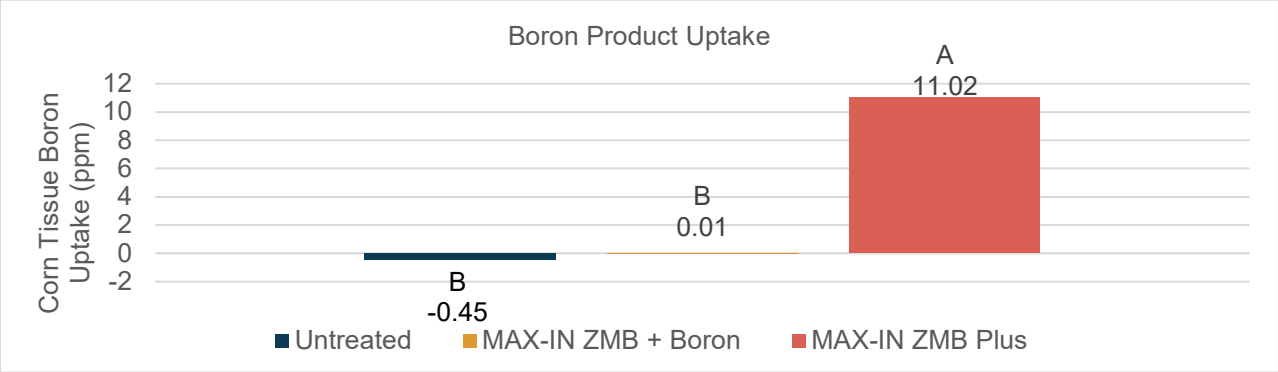
CORN

LATE SEASON

Why a Higher Boron Load Micro Can Help Improve Uptake

Boron Supports Corn Reproduction

Boron is a critical micronutrient in corn reproduction. It supports pollination, kernel initiation and sugar movement, and corn needs a significant amount during R-stages. Boron demand peaks during tasseling and silking. Even if soil or early season tissue tests are sufficient, reproductive growth can outpace supply. Applying a foliar boron product, especially one with a higher boron load, can help ensure availability when it's needed to drive yield potential. MAX-IN® Ultra ZMB® Plus provides 21x more boron than the previous offering and includes CornSorb® technology to help increase nutrient uptake.



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THE RECOMMENDATION

Applying MAX-IN Ultra ZMB Plus micronutrient at V10 significantly increased corn tissue boron compared to previous offering.

KEY FINDINGS

- Uptake data shows that increased boron load in MAX-IN Ultra ZMB Plus formulation translated to improved boron uptake in corn tissue.

STUDY DETAILS

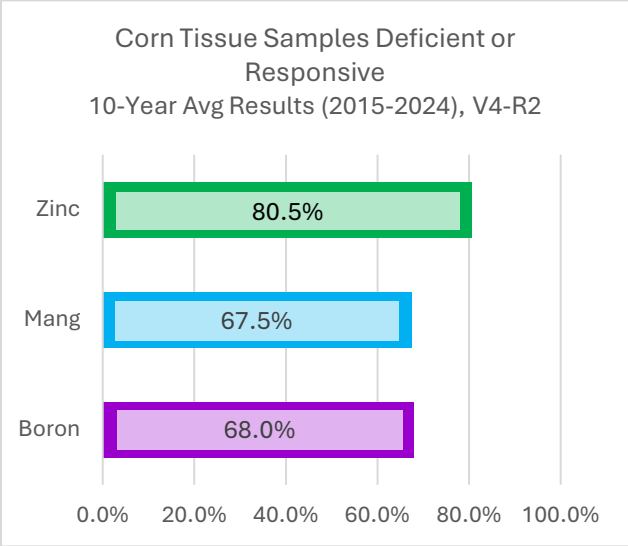
Rates: MAX-IN Ultra ZMB Plus (32 fl oz/A). MAX-IN Ultra ZMB (32 fl oz/A) + MAX-IN Boron (16 fl oz/A). V10 foliar application at 15 GPA. Upper-most fully developed corn leaves were collected just before application and 24 hours after application. Means followed by the same letter are not statistically different. Product development field trial.

When to Apply Zn, Mn, B for Consistent Yield Potential

Late Season Micros Matter

Each corn growth stage requires different micronutrient amounts to optimize yield. For boron, corn accumulates the most around tasseling (VT). Having enough boron at that time is critical for yield because it supports ear and kernel development.

However, corn plants are often deficient and most combo micronutrient products don't provide nearly enough boron for optimal corn growth. MAX-IN® Ultra ZMB® Plus is an original formulation that delivers 21x more boron than the previous offering to help give corn what it needs, when it needs it.



THE RECOMMENDATION

Applying MAX-IN Ultra ZMB Plus micronutrient significantly increased corn yield compared to untreated, with the most reliable response at V10.

KEY FINDINGS

Compared to Untreated		Mean Effect (bu/A)	P-Value
MAX-IN Ultra ZMB Plus @ V10	**Overall**	+4.0	0.046
MAX-IN Ultra ZMB Plus @ V10	**N, P, K Sufficient @ V5**	+7.8	0.008
MAX-IN Ultra ZMB Plus @ V10	**Zn, Mn, B Sufficient @ V5**	+5.1	0.056

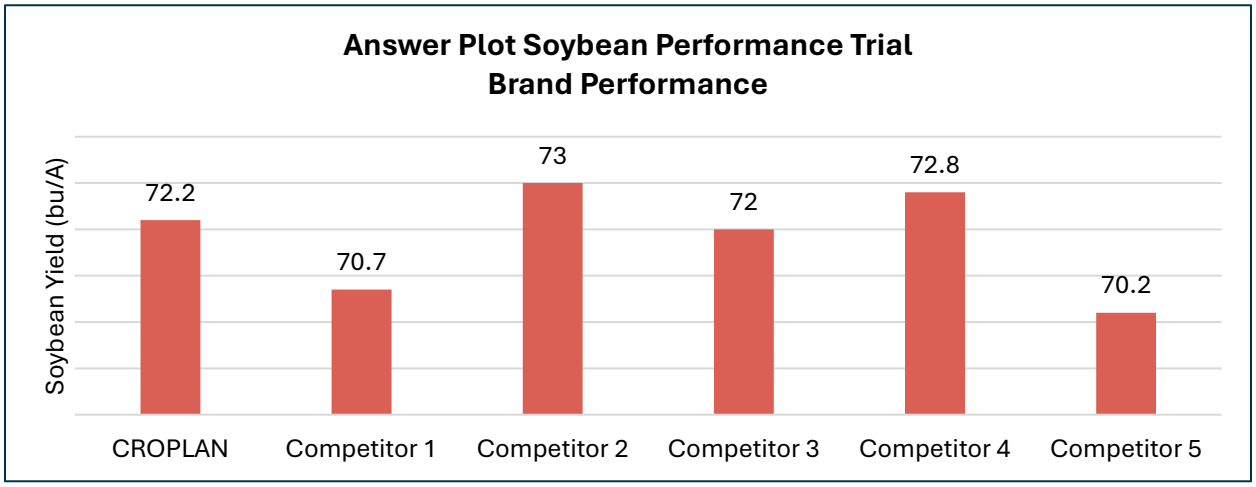
STUDY DETAILS

11 Answer Plot® locations. MAX-IN Ultra ZMB Plus (32 fl oz/A) applied to V4, V10 and VT corn. Additional factors were considered, including macronutrient (N, P, K) and micronutrient (Zn, Mn, B) status at V5. V10 results were the most statistically significant. NutriSolutions® tissue analysis was completed V4-V7 to inform early nutrient status.

CROPLAN Soybean Brand Provides Competitive High Yield Potential

Soybean Hybrid Brands Show No Difference in Genetic Performance.

CROPLAN® soybean brand demonstrates no difference in yield performance when compared with other prominent brands in the industry. Based on extensive trials conducted across multiple Answer Plot® locations, CROPLAN seed's yield results didn't differ from its competitors. These results underscore the brand's capacity to deliver performance, making it a strong option for growers seeking proven yield potential.



THE RECOMMENDATION

Consider CROPLAN soybean brand as a reliable and competitive choice.

KEY FINDINGS

CROPLAN soybean brand demonstrates yield performance no different from other leading brands, making it a reliable and competitive choice for growers.

Brand	Yield	Moisture	Test Wt	LSD (0.10)
CROPLAN®	72.2	9.6	56.2	-
Competitor 1	70.7	9.7	56.3	0.399
Competitor 2	73	9.5	56	0.395
Competitor 3	72	9.7	56.2	0.428
Competitor 4	72.8	9.6	56	0.46
Competitor 5	70.2	9.8	56.2	0.45

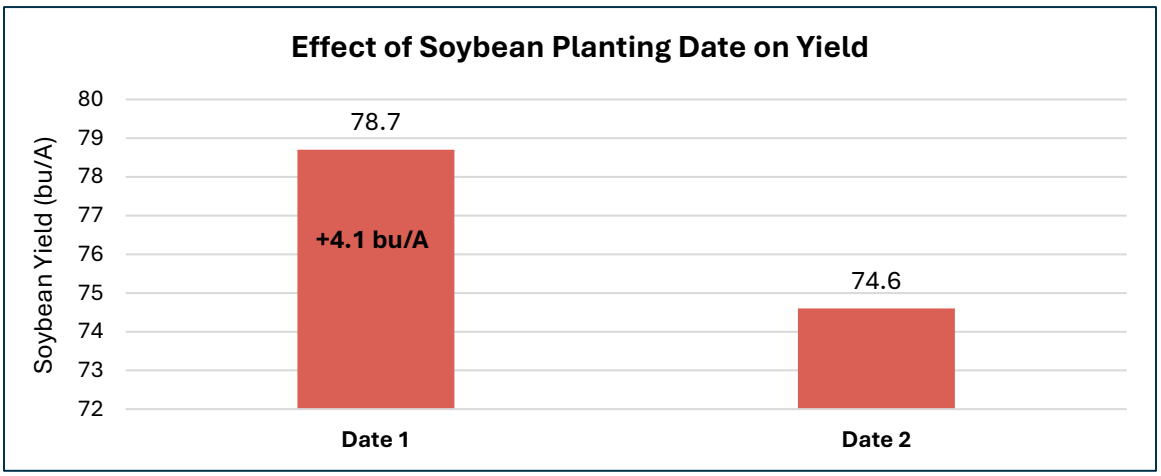
STUDY DETAILS

77 Answer Plot locations. 214 total comparisons.

Soybean Planting Timing Can Help Yield Potential

Planting Earlier Can Provide Higher Yield Potential

Planting timing is one of the key decisions to make when growing soybeans. Growers are increasingly considering the benefits of early planting dates due to the increased yield potential that comes from a longer filling period during the growing season. A longer filling period can allow for more nodes on the plant, and more beans to grow on those nodes. Planting timing was studied across 23 locations in WinField United's Answer Plot® system to determine the possible benefits of an earlier timing.



THE RECOMMENDATION

Planting earlier increased yield by 4.1 bu/A compared to planting 14 days later.

Consider planting earlier for a longer filling period and increased yield opportunity.

KEY FINDINGS

Planting soybeans earlier showed an increase in yield. Taking advantage of the early window for soybean planting can enable farmers to enhance yield opportunity instead of waiting for the next wave of appropriate weather to plant soybeans.

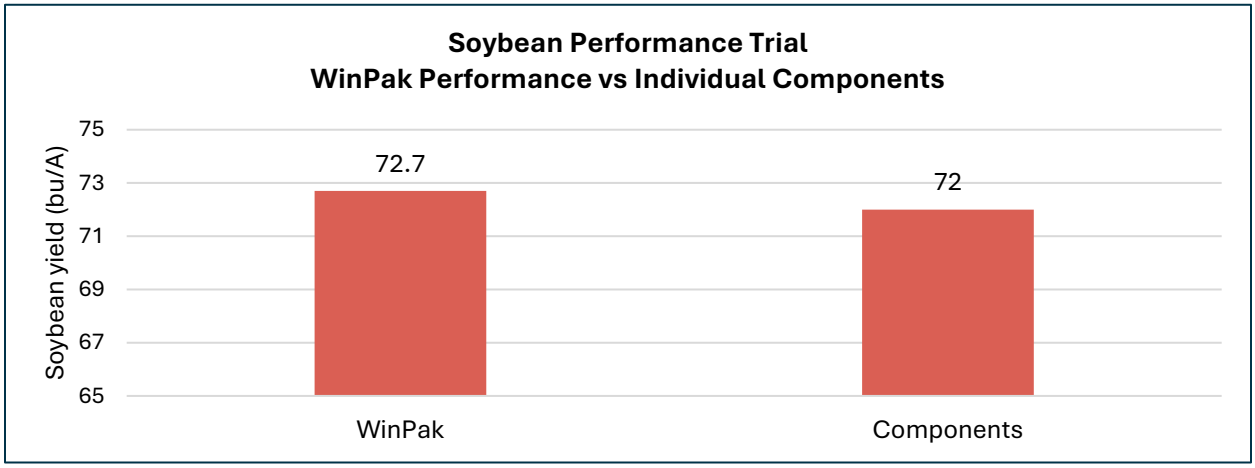
STUDY DETAILS

23 Answer Plot locations. Multiple reps per location. Plantings at each location targeted a 14-day interval between early- and later-planted soybeans. Date 1: Earliest planting window. Date 2: 14 days after Date 1. LSD (0.10) = 3.72

Why to Consider WinPak Varieties

An Option that Can Offer Improved Consistency vs. Standalone Varieties

No *one* soybean variety is perfect for all environments and all sources of stress in a field. A WinPak® variety is a blend of two different soybean varieties together in one bag; specifically selected to help complement one another and create a product that is more adaptable to stress and environmental extremes than either would be alone. WinPak varieties aren't designed to win plots but instead to improve consistency across environments. There are data-driven yield benefits of WinPaks when compared to their individual components averaged across locations and/or environments in the Answer Plot® system.



THE RECOMMENDATION

Use WinPaks to improve consistency of soybean performance versus standalone components.

The more variable the field, the greater likelihood of benefitting from a WinPak.

KEY FINDINGS

WinPaks outyielded their individual components by 0.7 bu/A. This may not seem like much but Answer Plot locations are selected for low variability to give quality data. As a result, they tend to be lower stress, higher yielding locations. WinPaks outperforming components in lower-stress environment demonstrates that yield potential is likely not sacrificed while having a soybean product that helps bring resilience in the face of stresses across fields on a farm.

Brand	Yield	Moisture	Test Wt	LSD (0.10)
WinPak	72.7	9.7	56.2	
Components	72.0	9.6	56.2	0.318

STUDY DETAILS

77 Answer Plot locations. 214 total comparisons. Analysis performed averaging WinPak varieties and their components in 2024 SPT trials.

How to Turn Early Planting into Extra Yield Potential

When Planting Early, PGRs Help Optimize Yield

Soybean yield potential generally increases as plants have more time in the field, which means farmers want to plant earlier to harness this possible advantage. These early planting dates often coincide with cooler and wetter conditions, which can affect early season vigor. In these early-planted soybeans, adding a plant growth regulator (PGR) like Ascend® ST3 to a base F/I seed treatment like Warden® CX II can help mitigate early season stress to increase the chance for more yield potential.

Visual example of Ascend ST3 PGR soybean field trials

Untreated | Warden CX II | Warden CX II + Ascend ST3

SOYBEAN

PRE-PLANT

THE RECOMMENDATION

Adding Ascend ST3 PGR increased yield by an average 2.1 bu/A in early planted soybeans compared to Warden CX II seed treatment alone.

KEY FINDINGS

- Previous research has shown Warden CX II alone can add yield potential in early planted soybeans. Pairing with Ascend ST3 can provide additional yield potential gains.

Compared to Warden® CX II		Mean Effect (bu/A)	P-Value
Early Planted Soybeans	**+ Ascend® ST3™**	+2.1	0.04

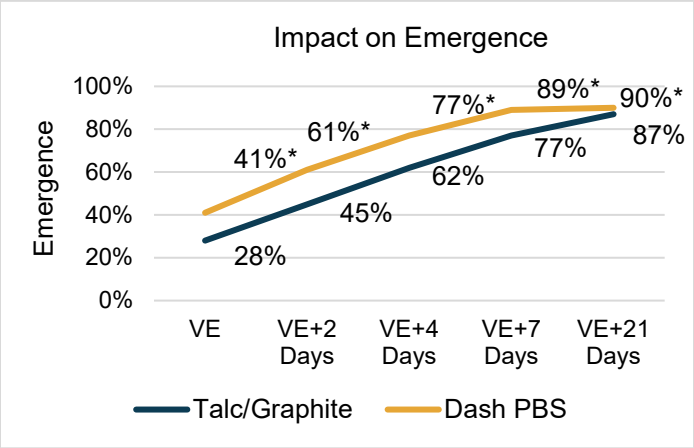
STUDY DETAILS

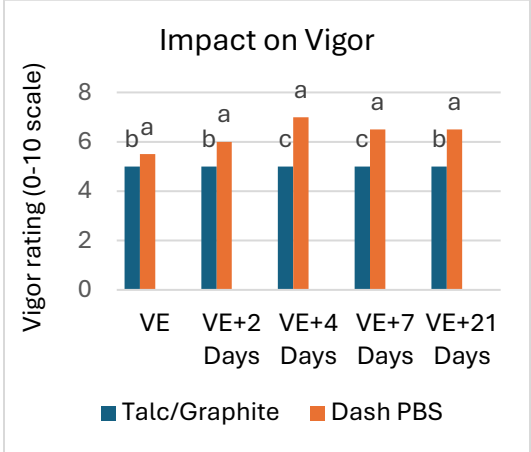
13 Answer Plot® locations. Early planting date: corn planting timeframe.

Why to Consider a Novel Planter Box Seed Treatment

Microbial Benefits Help Drive Performance

Seed lubrication helps with planting but can also lead to a lot of dust and less-than-ideal handling. A planter box seed treatment with a lower use rate plus microbial components provides less dust-off *and* helps soybeans get off to a stronger start. The lubricant helps improve seed flow and placement for more even emergence, while microbes colonize the root zone to help improve root growth and nutrient availability. Together, this can create a healthier, more vigorous stand that sets the stage for better nodulation, more uniform pod set and higher yield potential.





SOYBEAN

PRE-PLANT

THE RECOMMENDATION

Using Dash PBS planter box seed treatment significantly increased emergence % and vigor rating compared to 80/20 talc/graphite.

KEY FINDINGS

- Dash™ PBS consistently increased soybean emergence and vigor more than talc/graphite from emergence through 21 days.

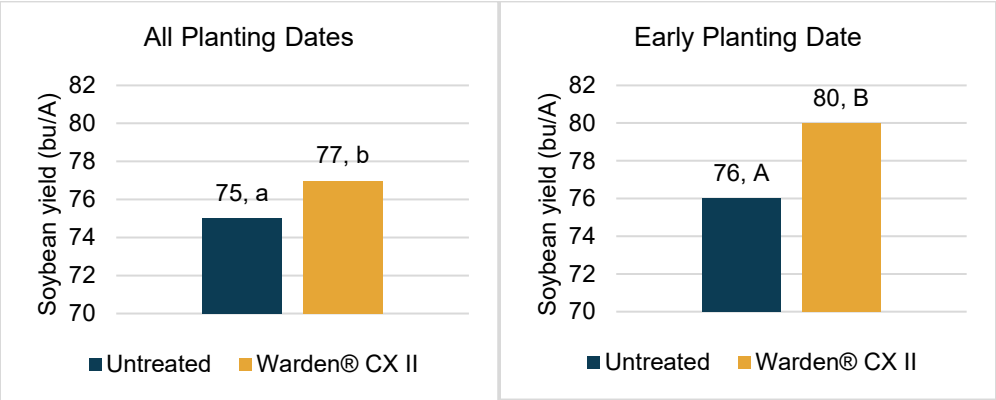
STUDY DETAILS

4 reps per treatment. Rates: Dash PBS (0.25 oz/A), 80/20 talc/graphite (recommended rate). Both were applied in the hopper box. Emergence % is based on 175 seeds per 35 foot row. Emergence chart means with an asterisk are statistically different than talc/graphite control at a 95% confidence interval. P-value = 0.10. Vigor rating chart means followed by the same letter are not statistically different. P-value = 0.10

When Seed Treatments Perform Best Based on Planting Date & Environment

If Planting Early, Seed Treatments Can Help Drive Yield

Soybean yield potential tends to increase as growing period increases, so farmers often plant soybeans earlier to capture this potential gain. These early planting dates tend to be cooler and wetter. Including management practices like Warden CX II seed treatment can help reduce early season stress and increase yield potential.



SOYBEAN

PRE-PLANT

THE RECOMMENDATION

Warden CX II seed treatment increased yields compared to untreated, with the best response in soybeans planted early environments.

KEY FINDINGS

Compared to Untreated		Mean Effect (bu/A)	Statistical Significance
Warden® CX II	**All planting dates**	+2.0	LSD=1.05
Warden® CX II	**Early planted**	+4.0	LSD=1.58

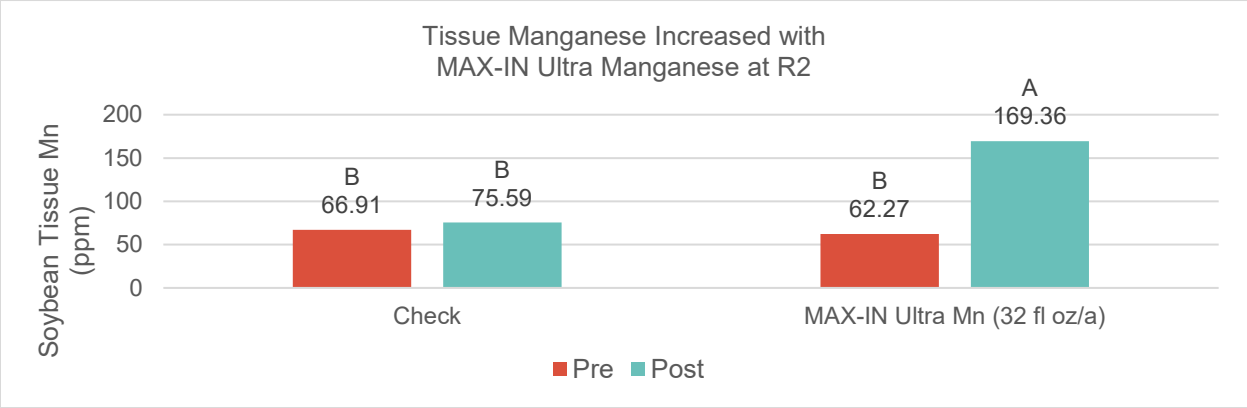
STUDY DETAILS

14 Answer Plot® locations. Early planting date: corn planting timeframe. Later planting date: about 2 weeks later, depending on weather.

When to Add Mn to Support Reproduction

Full Bloom Requires Additional Support

During reproductive stages, soybeans are rapidly transitioning from vegetative to reproductive growth. This places intense demands on photosynthesis, nitrogen metabolism and stress tolerance. Manganese is critical to these processes, but plants are often short during this stage. A targeted Mn application helps provide availability to flowers and pods to support photosynthetic efficiency, reduce flower abortion and promote strong pod and seed development for the benefit of higher yield potential.



p-value<0.0001

THE RECOMMENDATION

Applying MAX-IN Ultra Manganese at R2 significantly increased soybean tissue manganese compared to untreated check.

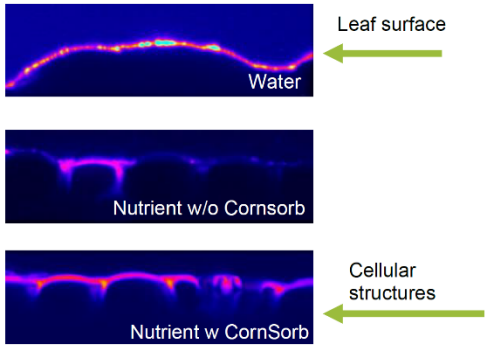
KEY FINDINGS

- MAX-IN® Ultra Manganese provided an increase in tissue manganese (+93.8 ppm) compared to untreated (-4.6 ppm).

STUDY DETAILS

Rate: MAX-IN Ultra Manganese (32 fl oz/A). R2 foliar application. Means followed by the same letter are not statistically different. Product development field trial.

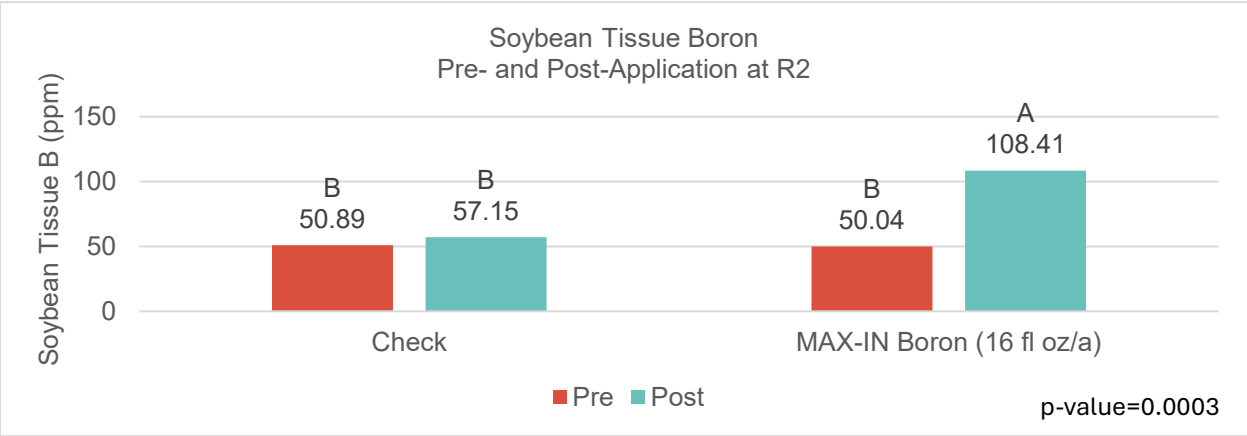
MAX-IN Ultra Manganese includes CornSorb® technology, which helps increase nutrient uptake by facilitating nutrient movement through the leaf cuticle.



When to Add Boron to Support Reproductive Success

Spike in Boron Demand Occurs in R-stages

Boron is critical for soybeans during R2 when flowering and pod initiation accelerate. Since it is immobile in the plant, timing and placement are important to avoid localized shortages. Even if early season levels were sufficient, a foliar application ensures adequate boron during this important time to support pod set and enhance sugar movement. This targeted timing helps optimize pod retention and seed fill to drive yield potential.



THE RECOMMENDATION

Applying MAX-IN Boron at R2 significantly increased soybean tissue boron compared to untreated check.

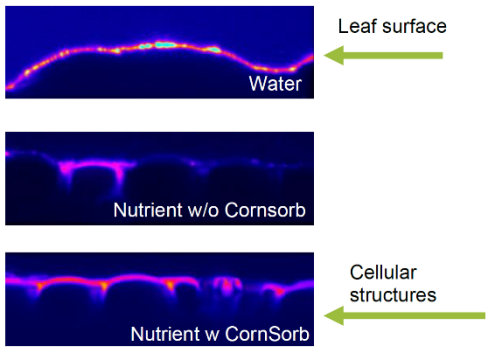
KEY FINDINGS

- MAX-IN® Boron provided increased tissue boron (108.41 ppm) compared to untreated (57.15 ppm).

STUDY DETAILS

Rate: MAX-IN Boron (16 fl oz/A). R2 foliar application. Means followed by the same letter are not statistically different. Product development field trial.

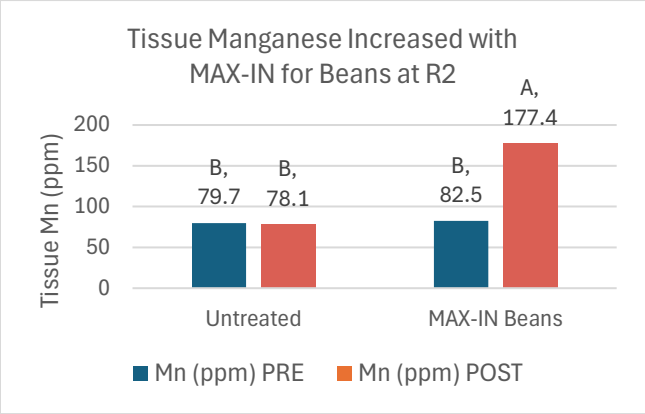
MAX-IN Boron includes CornSorb® technology, which helps increase nutrient uptake by facilitating nutrient movement through the leaf cuticle.

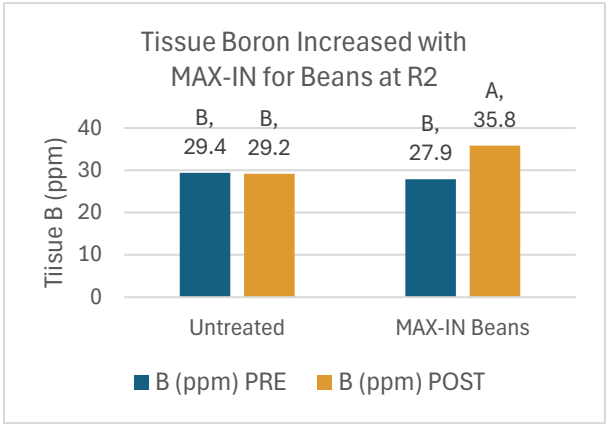


When to Add Mn and Boron to Support Reproduction

Spike in Demand Occurs in R-stages

Boron and manganese are critical for soybeans during R2 when flowering and pod initiation accelerate. Needs for improved photosynthetic and nitrogen efficiency are essential. Since both are relatively immobile in the plant, timing and placement are important to avoid localized shortages. Even if early season levels were sufficient, a foliar application ensures adequate availability during this important time to support reproduction. Targeted late-season timing helps optimize yield potential.





THE RECOMMENDATION

Applying MAX-IN for Beans at R2 significantly increased soybean tissue manganese and boron.

KEY FINDINGS

- MAX-IN for Beans provided an increase in tissue manganese (+99.3 ppm) vs untreated (-1.6 ppm).
- MAX-IN for Beans provided an increase tissue boron (+6.6 ppm) vs untreated (-1.5 ppm)

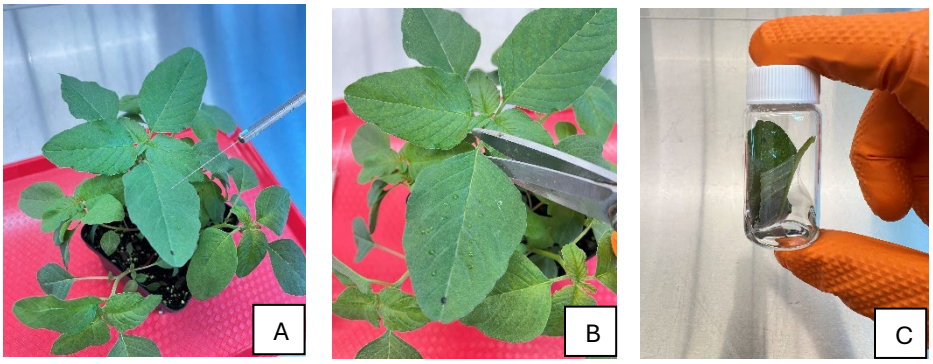
STUDY DETAILS

Rate: MAX-IN for Beans (16 fl oz/A). R2 foliar application. Mn study p-value <0.0001. B study p-value = 0.0116. Means followed by the same letter are not statistically different. Product development field trial.

Adjuvant Components Impact on Glufosinate Uptake

Residue Test Shows How Much Herbicide Remains on the Leaf

Glufosinate is a contact herbicide, so coverage and uptake are critical for adequate weed control. Understanding the impact of adjuvant components on uptake helps substantiate why certain adjuvants are important to include in glufosinate applications. Class Act NG adjuvant contains high fructose corn syrup (HFCS) and alkylpolyglucoside (APG), along with AMS. A test method developed by scientists at the WinField United Innovation Center analyzes the amount of herbicide remaining on the leaf surface with the different adjuvant components to showcase their synergistic effects on uptake.



Treatments were applied to Palmer Amaranth (A). Treated leaves were harvested after 24h (B). Leaves were washed and herbicide residue was quantified via HPLC (C).

Controlled Environments Trial

THE RECOMMENDATION

Combining HFCS + APG in adjuvants (like Class Act NG) had greater uptake potential compared to components alone.

KEY FINDINGS

	% of Applied Glufosinate Remaining on Leaf 24 hours after application	% Glufosinate Potential Uptake in Leaf 24 hours after application
Liberty®	79.3 a	20.7
+ HFCS	90.0 a	10.0
+ APG	76.3 a	23.7
+ HFCS + APG	**34.2 b**	**65.8**

STUDY DETAILS

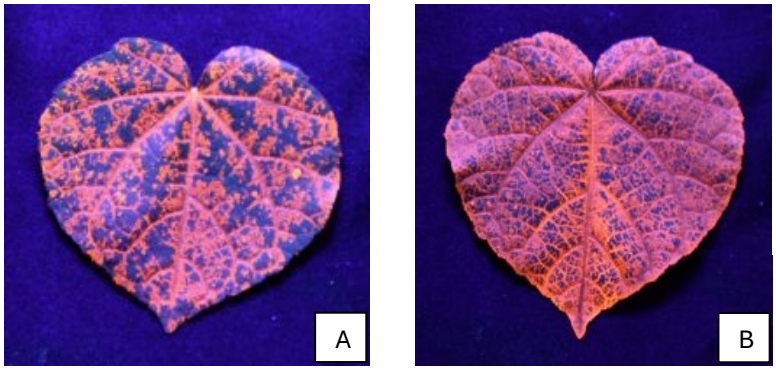
4 reps per treatment. All treatments contained Liberty herbicide (32 fl oz/A). HFCS and APG were applied as individual components at the same concentrations they are found in Class Act NG adjuvant. Means followed by the same letter are not statistically different with a confidence of 95%

Adjuvants Impact Weed Coverage

Fluorescence Illustrates Coverage and Control

Adjuvants can help influence herbicide efficacy by impacting absorption and application characteristics. However, it can be difficult to visualize and quantify differences in product options. A test method developed by scientists at the WinField United Innovation Center uses a fluorescent pigment on real leaf surfaces to evaluate the value of adding adjuvants to improve coverage and control. Improving spray coverage can increase weed control to help optimize yield potential.

Controlled Environments Trial



Example of velvetleaf from the fluorescent pigment assay measuring spray solution coverage with Enlist One tank-mixtures. Enlist One (A; 62%), Enlist One + Class Act NG (B; 85%).

THE RECOMMENDATION

Adding Class Act NG adjuvant improved weed coverage and decreased weed biomass compared to herbicide alone.

KEY FINDINGS

	% Spray Solution Coverage on Velvetleaf Surface	% Dry Biomass Reduction from Untreated, 14 days after application
Enlist One®	62.2 b	47.6 b
+ Class Act® NG®	85.4 a	58.3 a

STUDY DETAILS

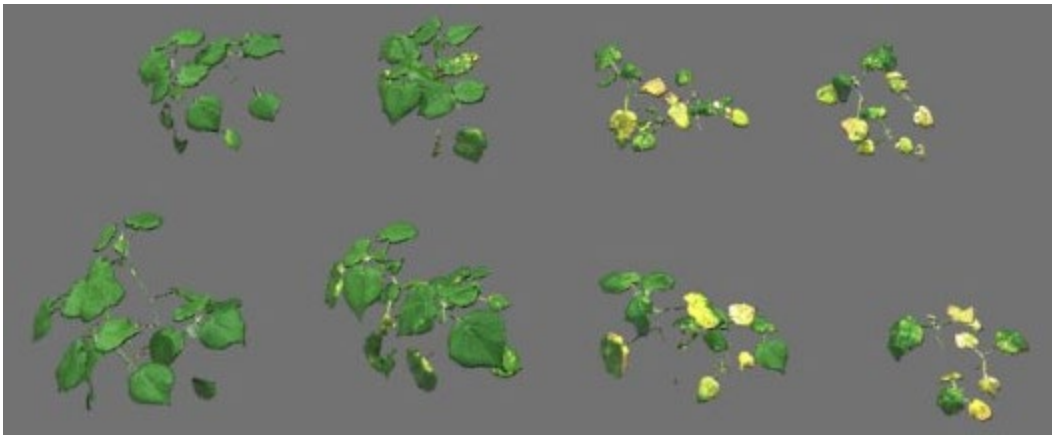
4 reps per treatment. All treatments contained Enlist One (32 fl oz/A) and a fluorescent pigment (2% v/v) applied at 15 GPA in a spray application chamber. Adjuvant rate: Class Act NG (2.5% v/v). Treatments were applied to 6" velvetleaf plants. Leaf and fluorescent areas were measured with image analysis to determine coverage. Means followed by the same letter are not statistically different with a confidence of 95%.

Optimize Liberty ULTRA Herbicide with Adjuvants

Plant Phenotyping Shows Value of a High-Quality Water Conditioner

The Liberty ULTRA herbicide includes an inert package, but a high-quality adjuvant system can help optimize agronomic performance. Hard water cations can tie up weak acid herbicides like Liberty ULTRA, making them less effective. WinField United scientists use a plant phenotyping system (image below) to digitally evaluate water conditioning options to help assess the value of different adjuvant systems.

Controlled Environment Trial



Untreated | Liberty ULTRA | Liberty ULTRA + Liquid AMS 34% | Liberty ULTRA + Class Act NG

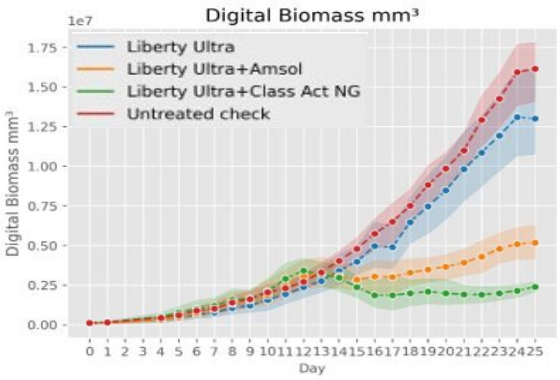
Example of 3D model visualization of velvetleaf sprayed with Liberty ULTRA herbicide and tank-mixed with different adjuvants in hard water.

THE RECOMMENDATION

Including Class Act NG adjuvant reduced weed biomass by 83% compared to herbicide alone.

KEY FINDINGS

	Reduction in Biomass Compared to Liberty Ultra alone 15 days after application
Liberty® ULTRA	-
+ Liquid AMS 34%	61%
+ Class Act® NG®	83%



STUDY DETAILS

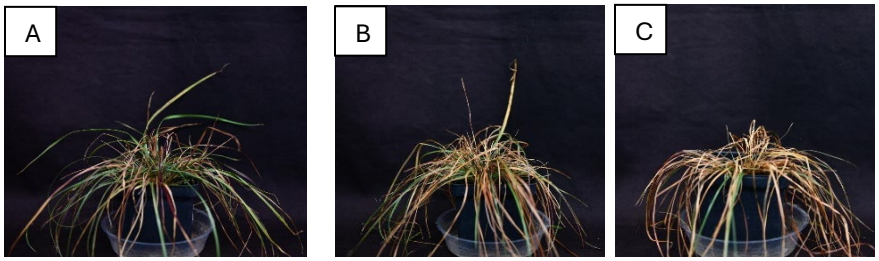
6 reps per treatment. All treatments contained Liberty ULTRA (24 fl oz/A). Adjuvant rates: Liquid AMS 34% (2.5% v/v), Class Act NG (2.5% v/v) Treatments were applied to velvetleaf with 1000ppm hard water ($CaCO_3$). Treatments are statistically different than Liberty ULTRA with a confidence level of 90%.

Clethodim Can Benefit from Water Conditioner and Oil

Adjuvants Help Improve Italian Rye Grass Control

Herbicide performance depends on its ability to enter the weed. Herbicide tie-up from hard water cations and thick, waxy cuticles can impede control. Adjuvants can impact herbicide efficacy by increasing absorption and modifying application characteristics, but it can be difficult to quantify differences in product options. Studying treatments in a controlled environment provides clarity around which products help improve herbicide efficacy.

Controlled Environments Trial



Section Three alone (A), with StrikeLock (B), with StrikeLock + Class Act NG (C) applied to Italian Rye Grass (21 days after application)

THE RECOMMENDATION

Adding StrikeLock or Superb HC to Class Act NG adjuvants increased control of Italian Rye Grass to 98% compared to 66% with herbicide alone.

KEY FINDINGS

	Italian Ryegrass Control (%) 21 days after application
Section® Three	66 b
+ StrikeLock®	80 ab
+ Superb® HC	80 ab
+ StrikeLock + Class Act® NG®	98 a
+ Superb HC + Class Act NG	98 a

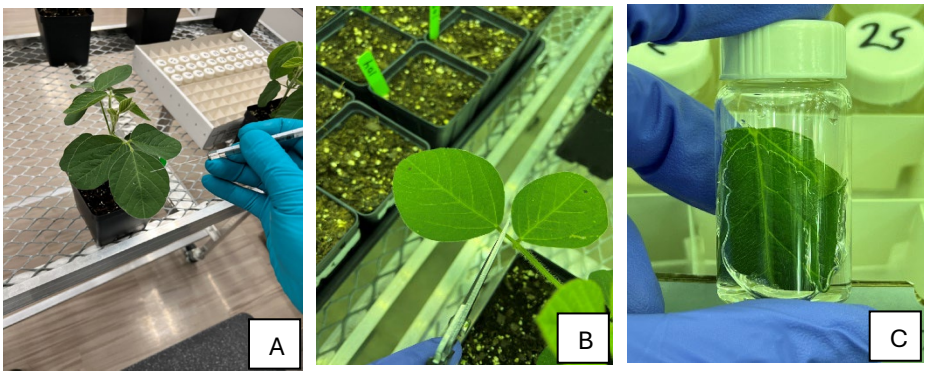
STUDY DETAILS

5 reps per treatment. All treatments contained Section Three (4 fl oz/A) applied at 15 GPA to 6" Italian Rye Grass plants. Adjuvant rates: Class Act NG (2.5% v/v), Superb HC (0.5% v/v), StrikeLock (0.5%v/v). Means followed by the same letter are not statistically different with a confidence of 95%.

Adjuvant Impact on 2,4-D Uptake

Residue Test Shows How Much Herbicide Remains on the Leaf

Adjuvants can impact 2,4-D efficacy by increasing absorption and modifying application characteristics, but it can be difficult to quantify differences in adjuvant options. A test method developed by scientists at the WinField United Innovation Center analyzes the amount of 2,4-D remaining on the leaf surface with different adjuvants to better understand performance. Increasing herbicide uptake can increase weed control to help optimize yield potential.



Treatments were applied as 15 droplets to soybean plants at V3 stage (A). Treated leaves were harvested after 24h (B). Leaves were washed and herbicide residue was quantified via HPLC (C).

Controlled Environments Trial

THE RECOMMENDATION

Adding Class Act NG adjuvant had greater 2,4-D uptake potential compared to herbicides alone.

Adding Superb HC adjuvant helped even more.

KEY FINDINGS

	% of Applied 2,4-D Remaining on Leaf 24 hours after application	% 2,4-D Potential Uptake in Leaf 24 hours after application
Enlist One® + Roundup PowerMAX®	23.3 a	76.7
+ Class Act® NG®	9.1 b	90.9
+ Class Act NG + Superb® HC	2.8 c	97.2
+ Class Act NG + StrikeLock®	4.4 bc	95.6

STUDY DETAILS

3 reps per treatment. All treatments contained Enlist One (1 pt/A) and Roundup PowerMAX (22 fl oz/A) applied at 15 GPA. Adjuvant rates: Class Act NG (2.5% v/v), Superb HC (16 fl oz/A), StrikeLock (10 fl oz/A). Means followed by the same letter are not statistically different with a confidence of 95%.

Comparing Drift Control Adjuvants

Consistent Performance is Key

Drift management and on-target deposition are critical elements of herbicide applications. With changing regulatory scrutiny and complex herbicide programs, farmers need a drift control product that will reduce off-target movement and perform reliably across diverse tank mixes. Data generated by scientists at the Winfield United Innovation Center demonstrates that InterLock adjuvant is a versatile drift control option that can deliver more uniform performance across herbicide platforms to drive agronomic success.

Wind Tunnel Study

Drift Potential vs InterLock				
	Roundup PowerMAX® 3 (XR11003)	**Roundup PowerMax3** (XR11006)	**Enlist One® + Liberty®** (AIXR11003)	**Enlist One + Liberty** (AIXR11006)
Untreated	Greater Risk	Greater Risk	Greater Risk	Greater Risk
InterLock® (4 fl oz/A)	-	-	-	-
Acuvant™ (3 fl oz/A)	Greater Risk	Greater Risk	No Risk Diff.	No Risk Diff.
Aquadraft™ Extreme (1% v/v)	Greater Risk	Greater Risk	Greater Risk	No Risk Diff.
Compadre® (0.125% v/v)	No Risk Diff.	Greater Risk	No Risk Diff.	No Risk Diff.
Grounded® (32 fl oz/A)	Greater Risk	Greater Risk	No Risk Diff.	Less Risk
Plexus® II (12 fl oz/A)	Greater Risk	Greater Risk	No Risk Diff.	Greater Risk
FS Layout™ (4 fl oz/A)	Greater Risk	Greater Risk	No Risk Diff.	No Risk Diff.
Gauntlet™ (2 fl oz/A)	Greater Risk	Greater Risk	Greater Risk	No Risk Diff.
Fulltec Adjuvant™ (15 fl oz/100 gal)	Greater Risk	Greater Risk	Greater Risk	No Risk Diff.

THE RECOMMENDATION

InterLock adjuvant delivers flexibility across the different nozzles and herbicide platforms tested.

STUDY DETAILS

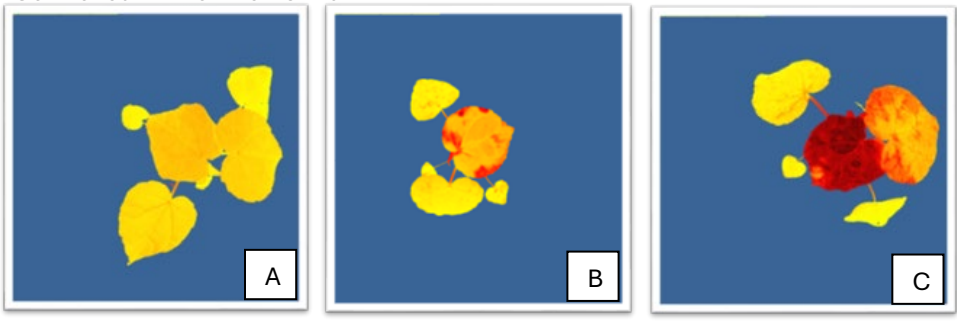
5 reps per treatment. Rates: Roundup PowerMAX 3 (30 fl oz/A), Enlist One (24 fl oz/A) + Liberty (24 fl oz/A) applied at 15 gpa. Adjuvants applied at appropriate labeled rates. Droplets <150 µm are considered at risk of drift. Treatments are statistically different than InterLock adjuvant with a confidence level of 95%.

Adjuvants Drive Herbicide Effects in Plants

Plant Fluorescence Shows the Value of Adjuvants in Weed Control

Herbicides stop plants from converting light into energy. Actively growing plants emit more chlorophyll fluorescence, while inactive plant cells emit less. Herbicide and adjuvant efficacy can be quantified by measuring plant fluorescence. The PhenoVation imaging system at the WinField United Innovation Ceneter creates visual representations of herbicide efficacy and quantifies results to showcase the value of certain adjuvant systems in controlling weeds.

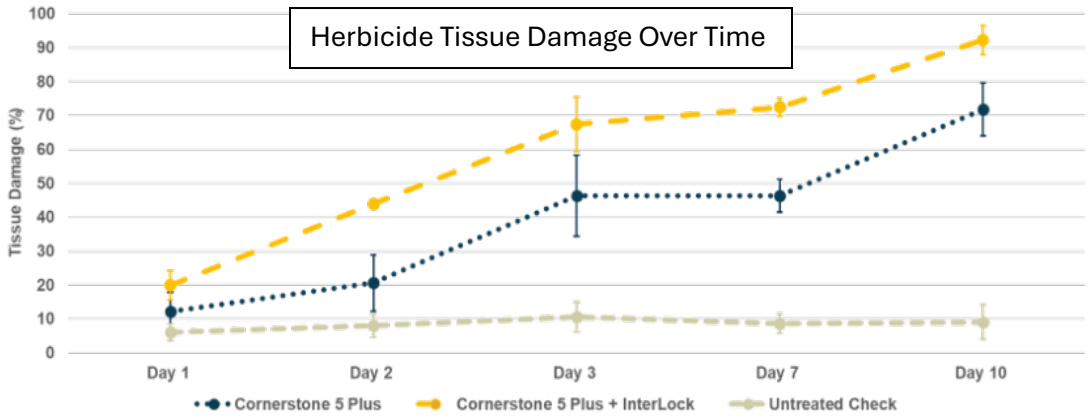
Controlled Environments Trial



Example of velvetleaf 2 days after application: Untreated check (A). Cornerstone 5 Plus (B) **21%** greater herbicide efficacy than untreated. Cornerstone Plus + InterLock (C) **44%** greater efficacy than untreated.

THE RECOMMENDATION

Including InterLock adjuvant increased herbicide efficacy and weed damage compared to herbicide alone.



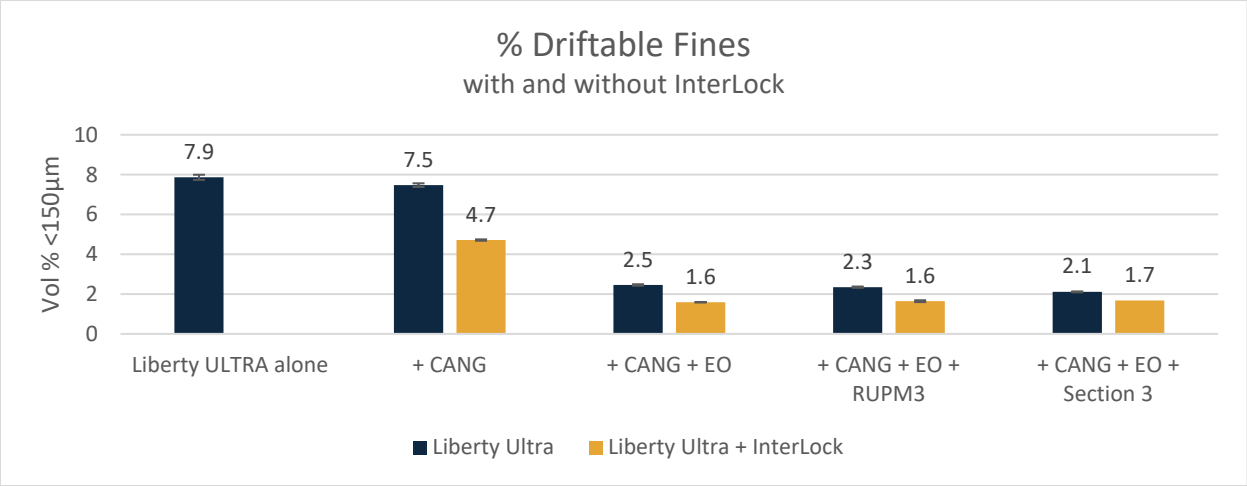
STUDY DETAILS

3 reps per treatment. Rates: Cornerstone 5 Plus (1 qt/A), InterLock (4 fl oz/A). Applied to velvetleaf at 15 GPA. Herbicide efficacy and tissue damage were calculated by measuring operational efficiency of PSII during photosynthesis. A threshold was defined and the percentage of the plant image that met this threshold was calculated. Method estimates the percentage of plant tissue affected by the herbicide. Treatments are statistically different with a confidence level of 95%.

Optimize Liberty ULTRA Herbicide Performance

Adjuvants Help Enhance Effectiveness

Liberty® ULTRA herbicide is a higher-load glufosinate formulation plus inert package, but adding a quality adjuvant system can help optimize agronomic performance. The Liberty ULTRA label includes guidance on using a drift reduction adjuvant (DRA) in areas subject to the Endangered Species Act drift mitigation mandates. Pairing with InterLock® adjuvant, a qualified oil emulsion DRA, helps reduce mandated buffers plus provides drift control, deposition and canopy penetration. In addition, Class Act® NG® water conditioner provides AMS and surfactant and helps improve uptake with CornSorb® technology.



Wind Tunnel Study

THE RECOMMENDATION

Adding Class Act NG and InterLock adjuvants reduced drift across a range of tank mixes containing Liberty ULTRA.

STUDY DETAILS

5 reps per treatment. All treatments contained Liberty ULTRA (24 fl oz/A). CANG = Class Act NG (1.25% v/v), EO = Enlist One® (24 fl oz/A), RUPM3 = Roundup PowerMAX® 3 (30 fl oz/A), Section Three® (4 fl oz/A). Spray measurements were collected in a wind tunnel with AIXR11004 nozzle at 40 PSI and 15 GPA. Treatments are statistically different with a confidence level of 95%.

How SuperLock Adjuvant Helps Kill Weeds

Trial Shows Impact on Weed Biomass

High surfactant crop oil concentrates (HSCOC) are formulated to enhance herbicide penetration through leaf cuticles, improving absorption and effectiveness. SuperLock adjuvant, a HSCOC, incorporates drift control technology to optimize droplet size, minimize off-target movement, and help ensure more active ingredient reaches the intended target.

Velvetleaf example: Enlist One + Liberty ULTRA (A). Enlist One + Liberty ULTRA + SuperLock (B).

Controlled.Environments.Trial

THE RECOMMENDATION

Adding SuperLock adjuvant provided 22% better weed control compared to herbicides alone.

KEY FINDINGS

	% Biomass Reduction from Untreated 14 days after application
Enlist One® + Liberty® ULTRA	38 b
+ Superb® HC + InterLock®	54 b
+ SuperLock™	60 a

STUDY DETAILS

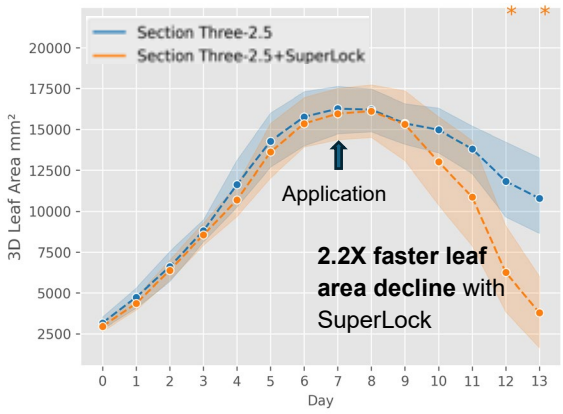
6 reps per treatment. All treatments contained Enlist One (1.5 pt/A) and Liberty ULTRA (29 fl oz/A) applied at 15 GPA to 4-inch velvetleaf plants. Adjuvant rates: Superb HC (0.5% v/v), InterLock (4 fl oz/A), SuperLock (12 fl oz/A). Average biomass of untreated control was 11.85 g. Means followed by the same letter are not statistically different with a confidence of 95%. P-value=0.0007

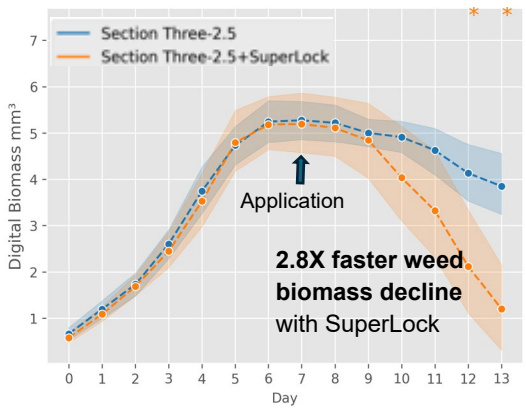
SuperLock Adjuvant Impact on Volunteer Corn

Better Coverage and Uptake Can Mean Faster Control

Group 1 herbicides like Section® Three target grassy weeds and their effectiveness depends heavily on droplet coverage and uptake. Beneficial adjuvants like high surfactant crop oil concentrates (HSCOC) help herbicides penetrate the waxy cuticle of the corn plant to optimize herbicide uptake and weed control. SuperLock™ adjuvant is a HSCOC that also includes built-in drift control to optimize droplet size, reduce off-target movement and deliver more active ingredient to the target.

Controlled Environment Trials



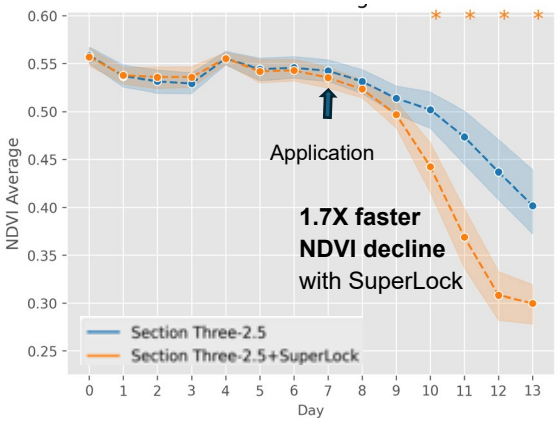


THE RECOMMENDATION

Including SuperLock adjuvant provided a faster decline in weed health, leaf area and biomass compared to herbicide alone.

KEY FINDINGS

- By 12 days after application, all three SuperLock treatments were significantly different from Section Three alone



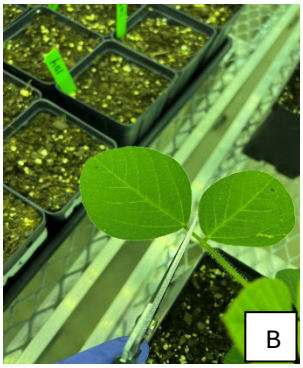
STUDY DETAILS

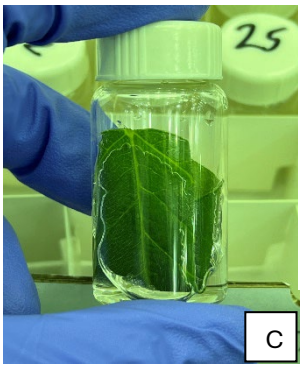
7 reps per treatment. Rates: Section Three (2.5 fl oz/A), SuperLock (12 fl oz/A). Rates of decline were measured from application until 15 days after application. Asterisks in charts indicate significant difference in treatments.

SuperLock Adjuvant Impact on 2,4-D Uptake

Residue Test Shows How Much Herbicide Remains on the Leaf

High surfactant crop oil concentrates (HSCOC) are designed to help herbicides penetrate leaf cuticles to improve uptake and control. SuperLock adjuvant is a HSCOC that includes built-in drift control to help optimize droplet size, reduce off-target movement, and deliver more active ingredient to the target. A test method developed by scientists at the WinField United Innovation Center analyzes the amount of herbicide remaining on the leaf surface with different adjuvants to better understand performance.





Treatments were applied as 15 droplets to soybean plants at V3 stage (A). Treated leaves were harvested after 24h (B). Leaves were washed and herbicide residue was quantified via HPLC (C).

Controlled Environments Trial

THE RECOMMENDATION

Adding SuperLock adjuvant had greater 2,4-D uptake potential compared to herbicides alone.

KEY FINDINGS

	% of Applied 2,4-D Remaining on Leaf 24 hours after application	% 2,4-D Uptake Potential in Leaf 24 hours after application
Enlist One® + Liberty® ULTRA	50.0 a	50.0
+ Superb® HC + InterLock®	36.9 b	63.1
+ SuperLock™	**31.0 b**	**69.0**

STUDY DETAILS

3 reps per treatment. All treatments contained Enlist One (32 fl oz/A) and Liberty ULTRA (29 fl oz/A) applied at 15 GPA. Adjuvant rates: Superb HC (0.5% v/v), InterLock (4 fl oz/A), SuperLock (12 fl oz/A). Means followed by the same letter are not statistically different with a confidence of 95%.

ADVANCED ACRE

INSIGHTS GUIDE

WINFIELDUNITED.COM

WinField® United