

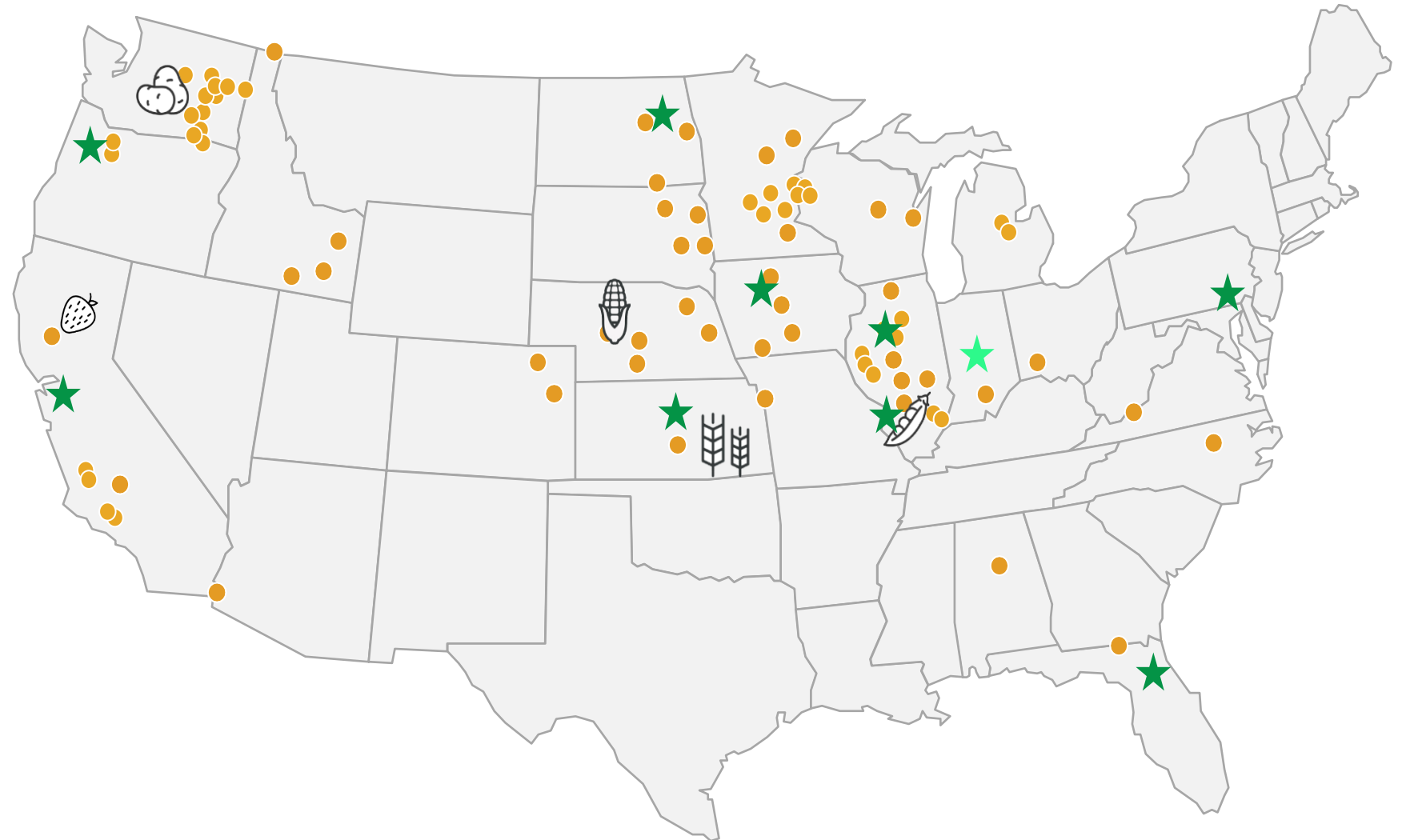
SP-1 Classic



Leading with Science in the Field: Validate & Scale

100+ trials over
20+ states

2022 Field
Trials

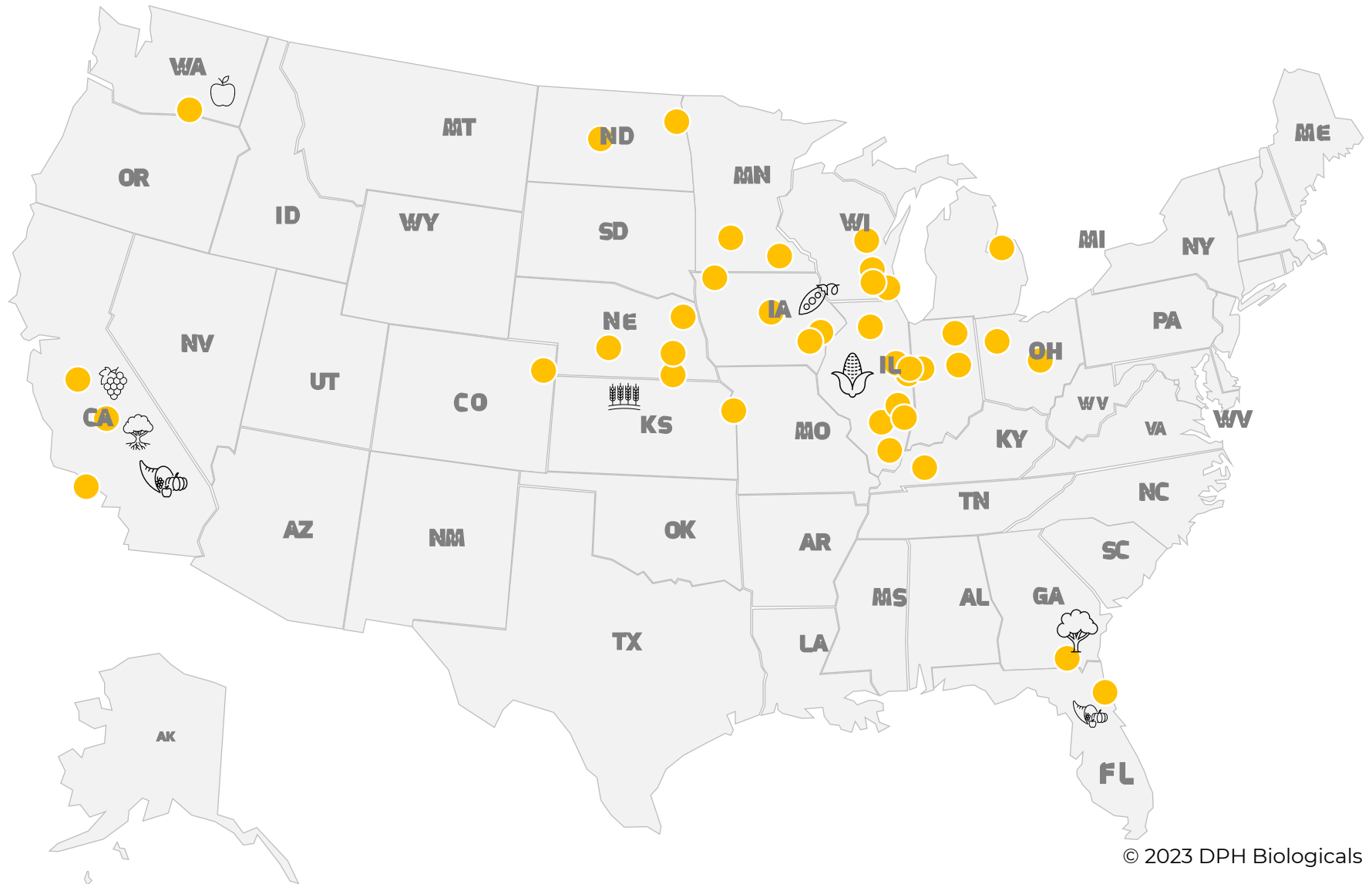


Crop	# of Trials
Corn	58
TNV including berries	18
Vegetables	18
Sugarbeet/Potato	9
Alfalfa/Wheat	6
Cotton/Peanut	2
Turf	2

2023 Field Development Plan: Portfolio, Geographic, Crop & Customer Expansion

92 Trials in total

- (41) Corn
- (38) Soy
- (2) Sugar beet
- (2) Potato
- (2) Cotton
- (2) Almond/Grape
- (2) Pepper/Tomato
- (2) Turf
- (1) Peanut



Addressing Soil Health with Proprietary, Plant-Based and Regenerative Humus Technology

RegenAphexTM
TECHNOLOGY PLATFORM

v/s

01 RegenAphex is the Chassis for DPH Bio Flagship BioFertilizer SP-1 Classic. It is a Unique 100% Plant Based Humus Extract which has shown to be a superior & more sustainable alternative to the well-known Humic Acids prevalent in the market.

02 RegenAphex will serve as a chassis for new technologies as they enter our portfolio & may also be sold as a stand alone for the majors for their proprietary products



Humus Plant Extract



Production Process

100% Plant based water extract of humified plant compost



Raw Material

Delivers a host of micro-organisms designed to improve soil health & increase nutrient uptake



Finished

Introduces organic carbon to the soil which is readably available to the plant and the microbial community

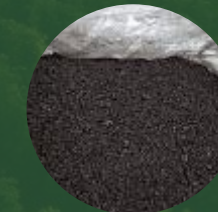
OMRI listed for Organic Production

Humic Acid Leonardite



Production Process

A sticky, black, caustic product made from oxidized coal (leonardite) that can improve soil, especially sandy and low organic matter soils



Raw Material

Very poor food source for micro-organisms but can improve microbe habitat



Finished

Non-organic, Stains Equipment & can plug sprayer screens

SP-1 Classic

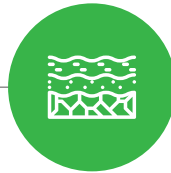
The **complete liquid biofertilizer** comprised of a diverse community of microbes, plant-based humus extracts and algae, that work together to improve soil structure, make more nutrients available and ultimately increase yield.



- **Replace up to 50% of starter fertilizer** when used in-furrow when planting
- **Easy-to-use liquid formulation** seamlessly integrates into broad acre application practices, including broadcast, in-furrow, drip and fertigation
- **Enhances microbial populations** which break down organic matter, captures nitrogen, solubilizes phosphorus, & cycles nutrients - ultimately making nutrients more available to the plant



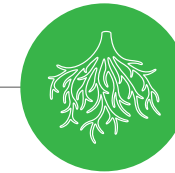
Increases
yield
& productivity



Improves soil
Tilth
& structure



Enhances
nutrient uptake
& availability



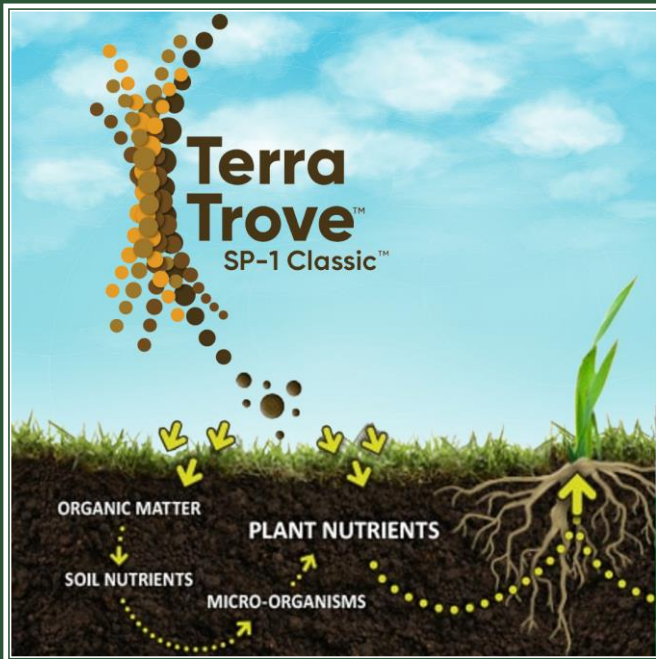
Improves
plant
Root vigor



Increases
water
use efficiency

TerraTrove™ SP-1 Classic™

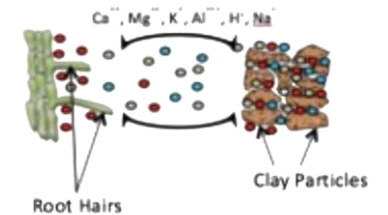
Liquid biofertilizer comprised of a diverse community of Microbes, Plant Based Humus Extracts and Algae, that work together to improve soil structure, make more nutrients available and ultimately increase yield.



The Complete BioFertilizer

Proprietary Plant-Based Humus Extract Creates an Ecosystem for Water, Nutrients and Microbes, building a symbiotic environment that is conducive to the exchange of essential nutrients, ultimately attaching them to the roots for uptake.

Humus Extract Improves CEC



Plant Growth Promoting Rhizobacteria (PGPR) - Free-living bacteria that colonize the Rhizosphere, breaking down organic matter, fixing Nitrogen, solubilizing phosphorus and cycling nutrients to become more available for the plant.



Algae – Green Manure which quickly breaks down and releases Nitrogen into soil becoming a Food Source for the Microbes & as well as the Plant

Fermented Plant Extract - Diverse blend which impact microbial diversity and stabilize overall formulation.

SP-1 Sets Stage for Uniform Crop

 1st Stand Count

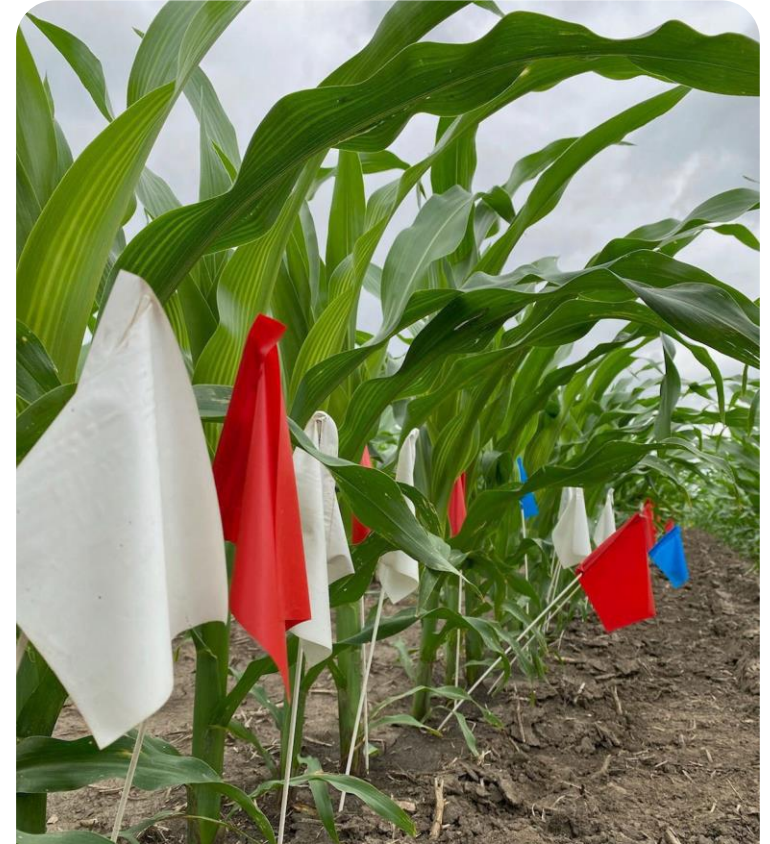
 2nd day

 3rd day



SP-1 + Starter

- Greener/Healthier Plant
- Improved Emergence & Vigor
- Uniform Crop



Starter Only

- Fewer Plants
- Uneven Emergence

Improved Soil Tilth and Healthy Roots

Control



LESS
←
of this

**Compacted
Soil Structure**

SP-1 @ 1 g/a in furrow



MORE
→
of this

**Granular
Soil Structure**

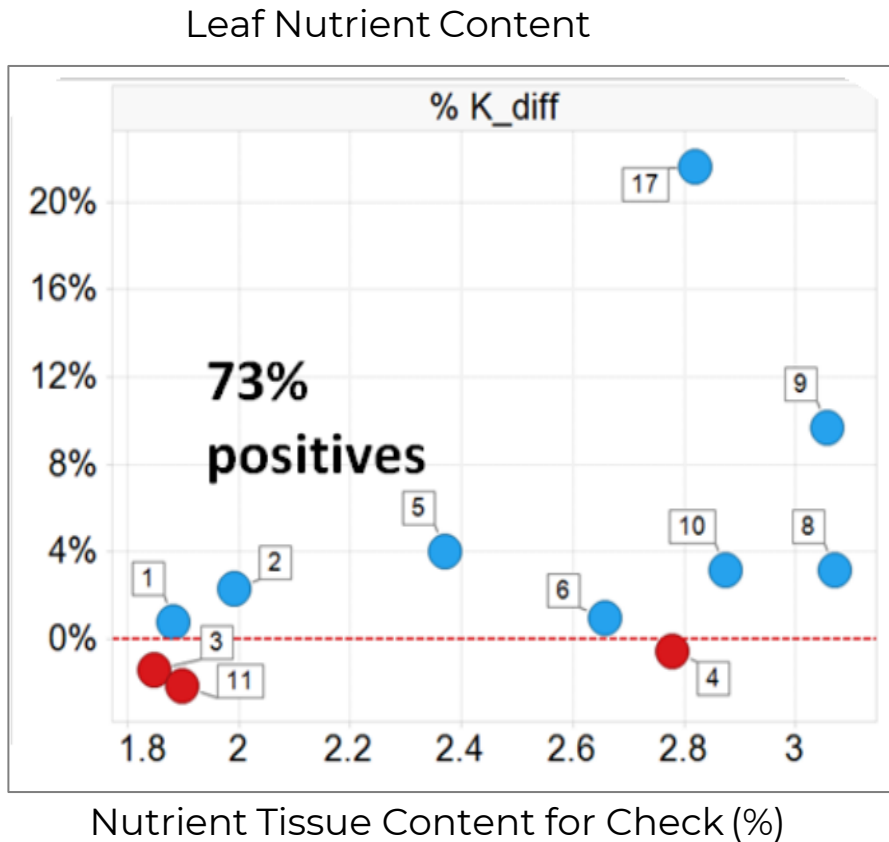
Enhanced Nutrient Uptake



**Dr. Orzolek,
Penn State University**

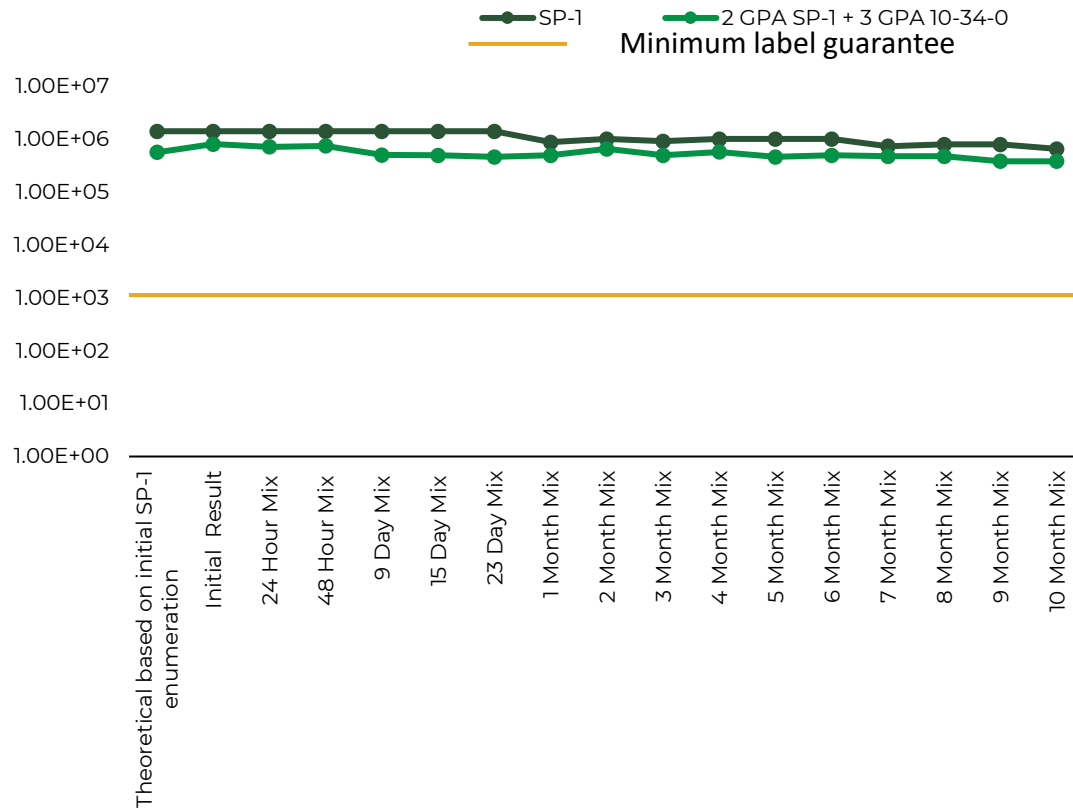
In response to the comment that “fertility programs just don't work like they used to”, Dr. Orzolek replied, “Without biology we have no fertility”

SP-1 v. Check % Diff.

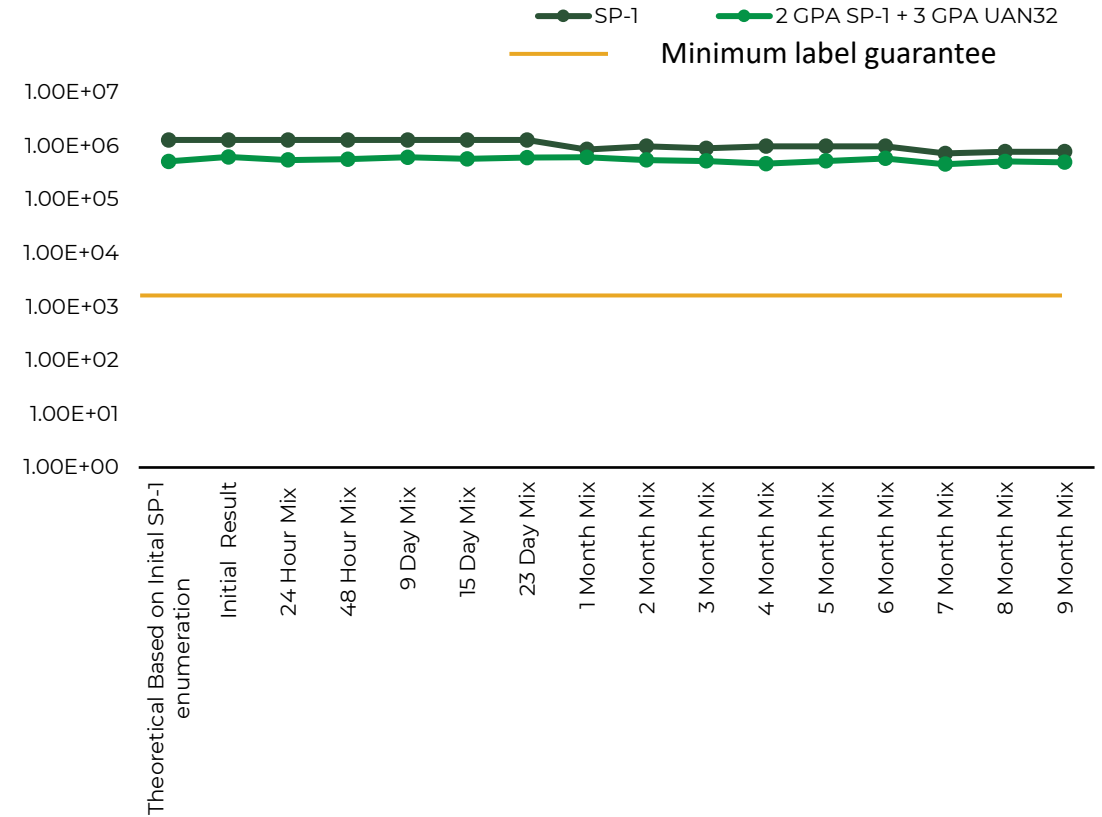


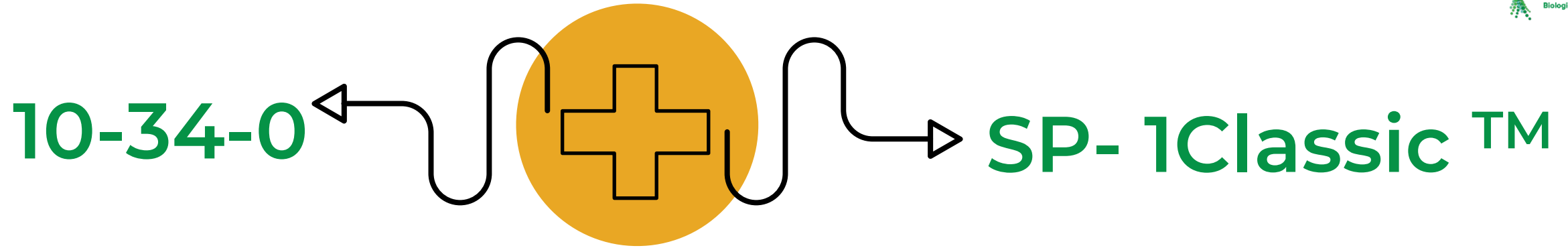
SP1 Fertilizer Compatibility – Enables Scale

SP-1 Classic Compatibility with 10-34-0



SP-1 Classic Compatibility with UAN32





Better Together Value Proposition

- 10-34-0 provides early season vigor and reliable food source for biology.
- Trusted source of commodity markets and developing markets.
- 3 additional modes of action that provide season long benefits.
- The most complete mix of biological additives in the market.
- Releases/Makes available Macro's, Secondary & Micro-Nutrients.
- Excellent source of additional revenue for Supplier & Retailer.



2022 Trial Summary Update



Multi-site Trial Summaries

Product: SP-1

Crop: Field corn

Locations: Multiple,
Corn Belt



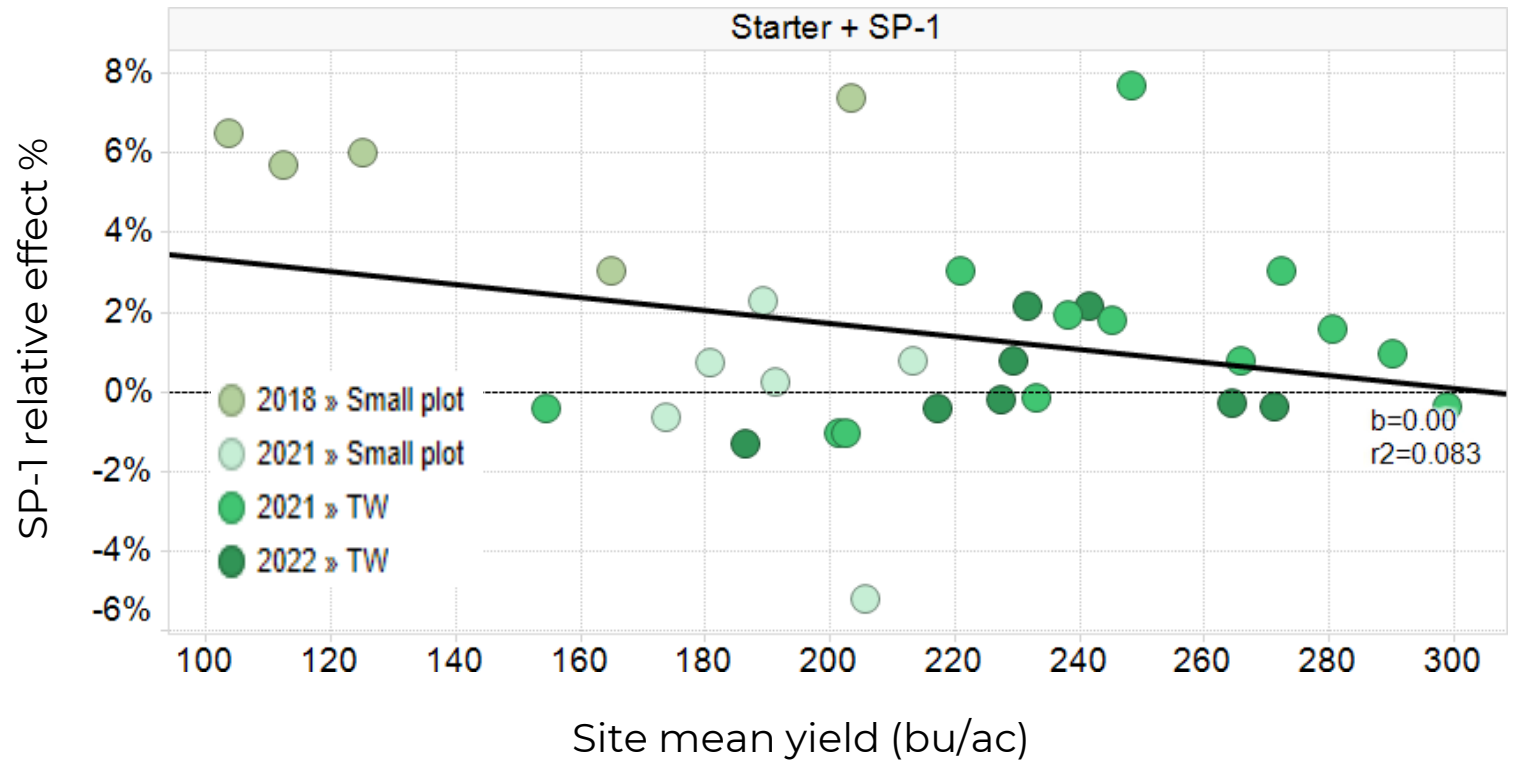
AgriThORITY three-year integrated analysis all results on Corn

2018, 2021 and 2022 crop seasons. TrialWerx + small plot trials (32 locations)

Response of SP-1 across an environmental gradient

Key Takeaways

- Historical win rate of 68% across all years and locations
- Win rate at sites with yields above 220 bu/acre increases to above 80%
- Average yield increase of 2.5 bu/acre across all locations
- Highest relative effect at sites with Yields below 160 BU/Acre
- All locations were **additive** use of SP-1 versus replacement of starter

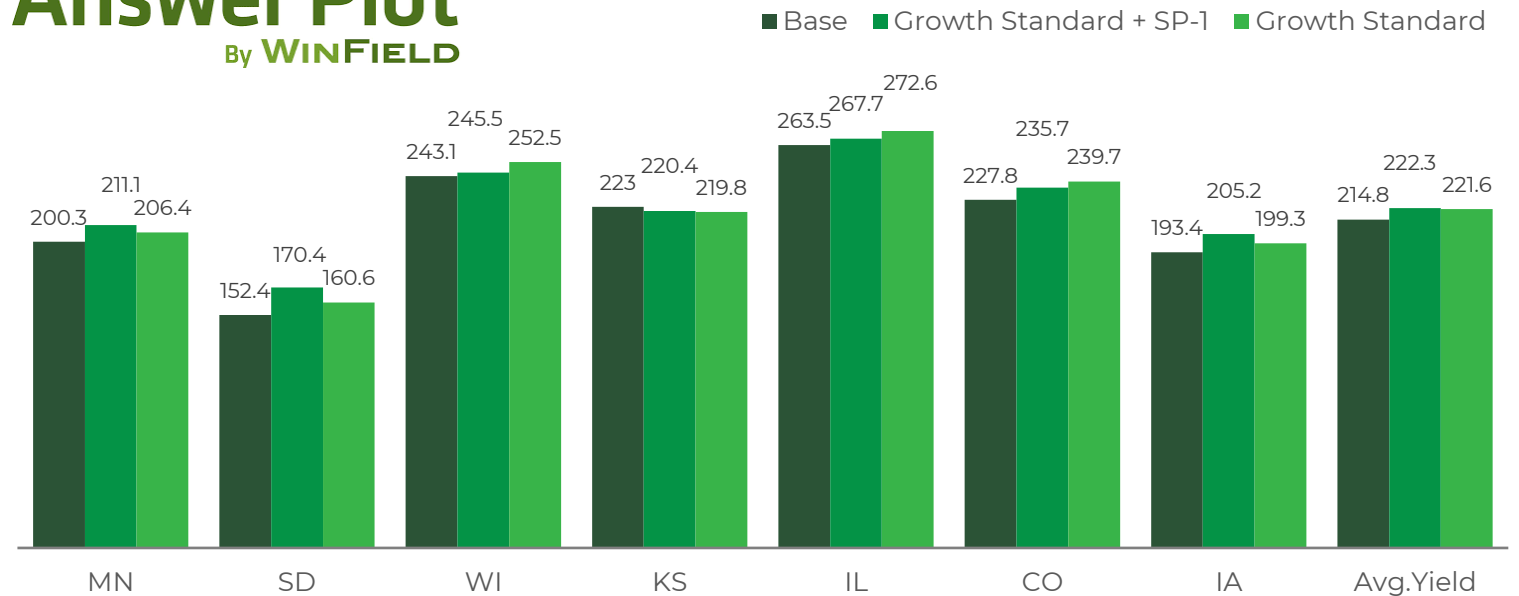


2022 Answer Plot results enable 2023 soft launch

Key Takeaways

- Across 7 locations, when Starter was replaced with 2G of SP-1, the combination of 2G Starter + 2G SP-1, while not individually statistically significant, 4 of those locations out yielded the growers standard practice of 4 GPA of starter.
- Average Yield for SP-1 Classic at 2 GPA + 2 GPA of Starter was 222.3 Bu/A va. 221.6 Bu/A for the grower standard of 4 GPA of starter.
- When analyzed across all locations, SP-1 and the Grower Standard where statistically different from the Base Treatment.

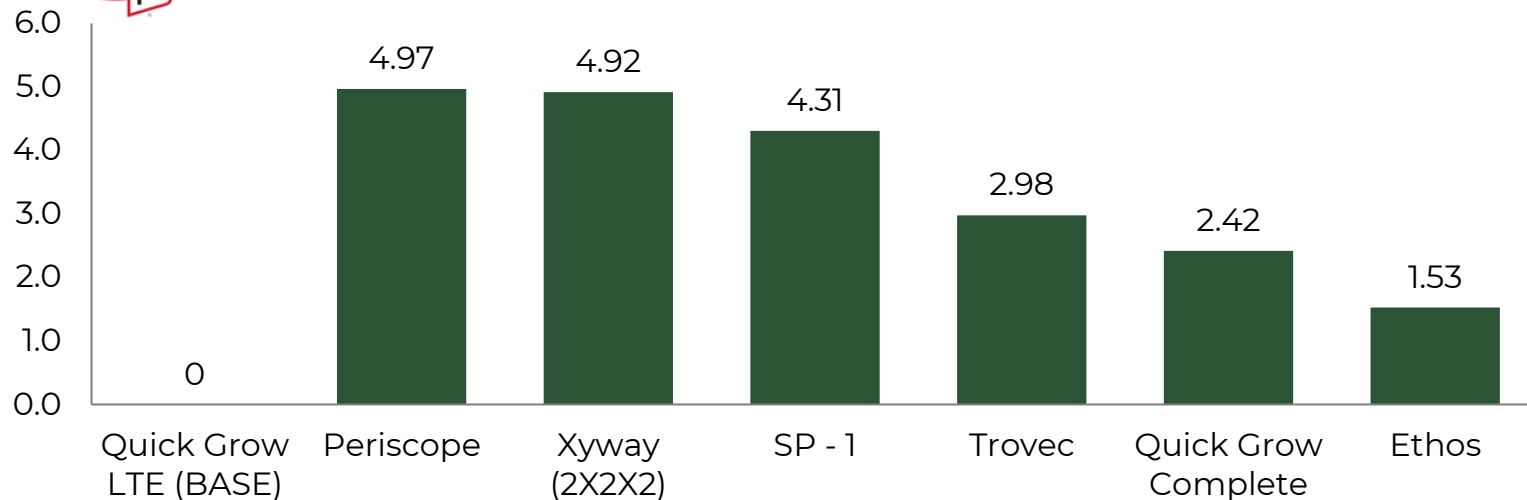
Answer Plot[®] By WINFIELD



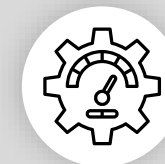
When TerraTrove SP-1 Classic is applied with starter fertilizer, growers have reliably replaced up to 50% of their starter fertilizer needs when planting, without sacrificing performance and in many cases improving crop yield and on-farm profitability. When combined with starter the products perform Better Together.

Growmark-MiField 2022 Starter Trial

Yield Benefit



Side by Side Split Field Comparisons, 12 row X Field Length, 6 locations, Altamont, Brownstown, Teutopolis, Stewardson, Humboldt and Windsor. SP-1 Applied at 2 gallons per acre with Quick Grow LTE Base

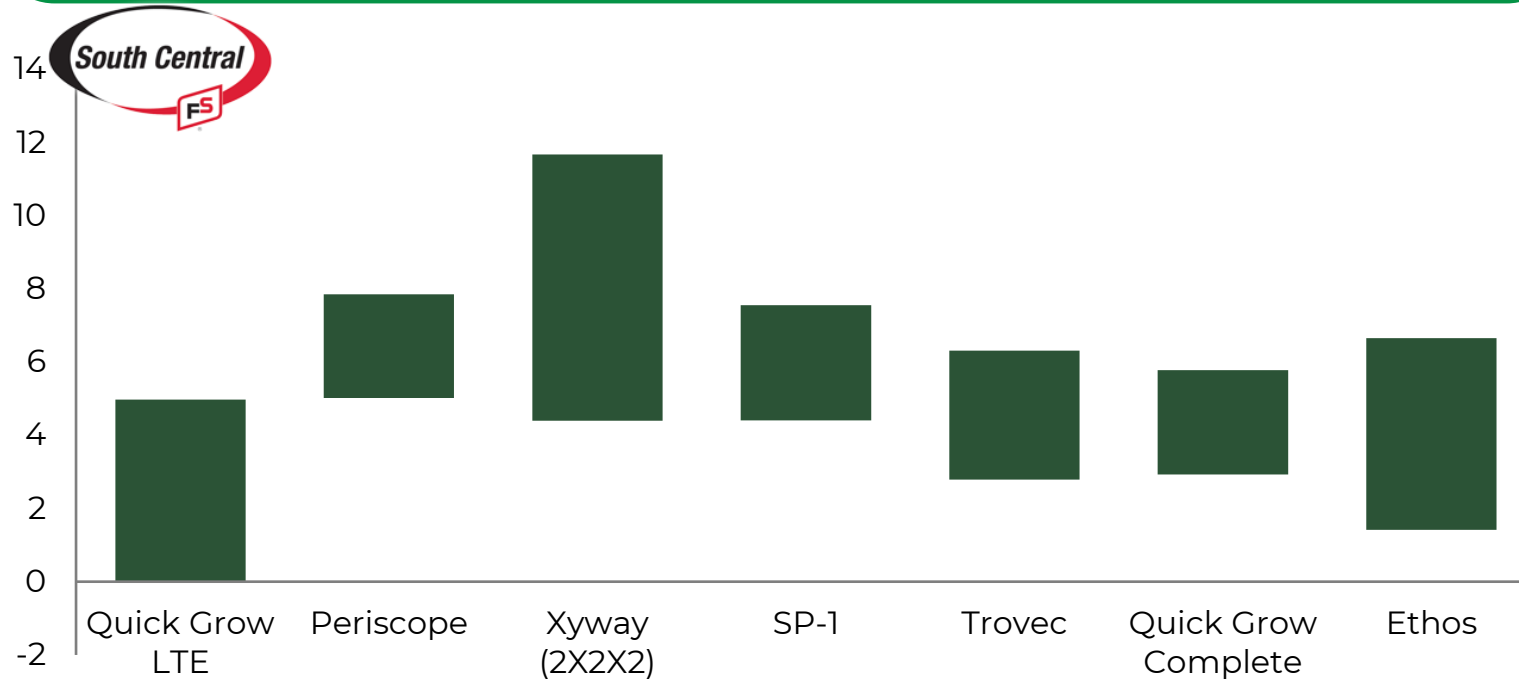


Performance is a must for products South Central FS (SCFS) brings to our customers. The best way to determine what products perform is multiple local, on farm research trials that are done in cooperation with our customers. SCFS evaluated countless products in and narrowed the research down to 6 products to take to the field in 2022. Quick Grow LTE averaged 264.4 bushels per acre across all the trials. The chart displays the performance ABOVE the check, Quick Grow LTE.

Source: Growmark FS

Growmark-MiField 2022 Starter Trial

Performance + Consistency



Periscope: Plant Growth Regulator

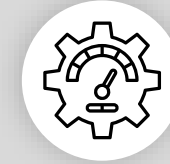
Xyway: Fungicide

SP-1: BioFertilizer

Trovec: Organic Acid

Quick Grow Complete: Nutrition+

Ethos: Insecticide



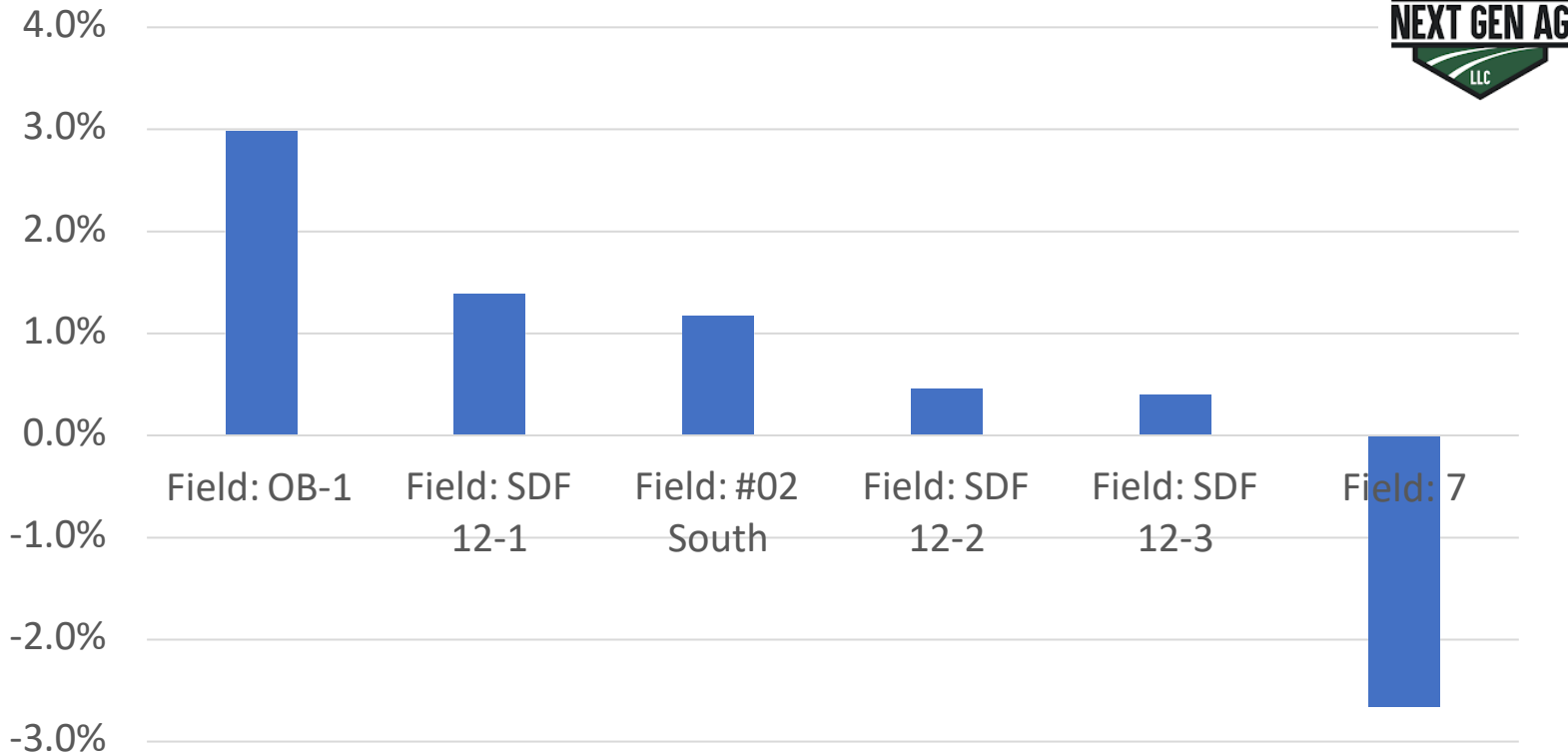
Consistency in performance builds confidence in products. The graph on the right shows the range in which the products performed; the longer the box, the wider the range of performance, the smaller the box shows the consistency of performance. By analytically testing products year after year, SSFS will be best suited to bring the top performing products on the market to increase the bottom line at the farm gate.

Source: Growmark FS

Western Corn Belt SP-1 Trials

SP-1 Yield Difference vs Check Avg yield check = 226 bu

SP-1 Yield Difference vs Check
Avg yield check = 226 bu



83% Win rate for yield improvement.

- **Product:** SP-1
- **Crop:** Field corn
- **6 Locations:** Western CB
- **Yields**
 - **Grower standard avg:** 232.7 bu
 - **SP-1 treated avg:** 234.8 bu
- **Cooperator:** Paul Beyer, NextGenAg
- **DPH Trial Manager:** Braidyn Unruh
- **Trial #s:** SP1-799-CO-22-JH to SP1- 787-CO-22-JH (6 trials)

Trial Details

- **Product:** SP-1
- **Crop:** Corn
- **Location:** Farmer City IL
- **Objective:** Apply SP-1 In-furrow (IF) or in 2x2 band placement at three N (32% UAN) rates to assess SP-1 efficacy/N use efficiency
- **Cooperator:** CropSmith

Experiment Design

Crop: Corn

Design: SBD

Rows: 4

Treatment: 8

Reps: 6

Length: 40feet

Local Agronomic Practices

Seed: Locally adapted corn hybrid

Row Width: 30"

Tillage: Conventional

Target Population: 35000 corn

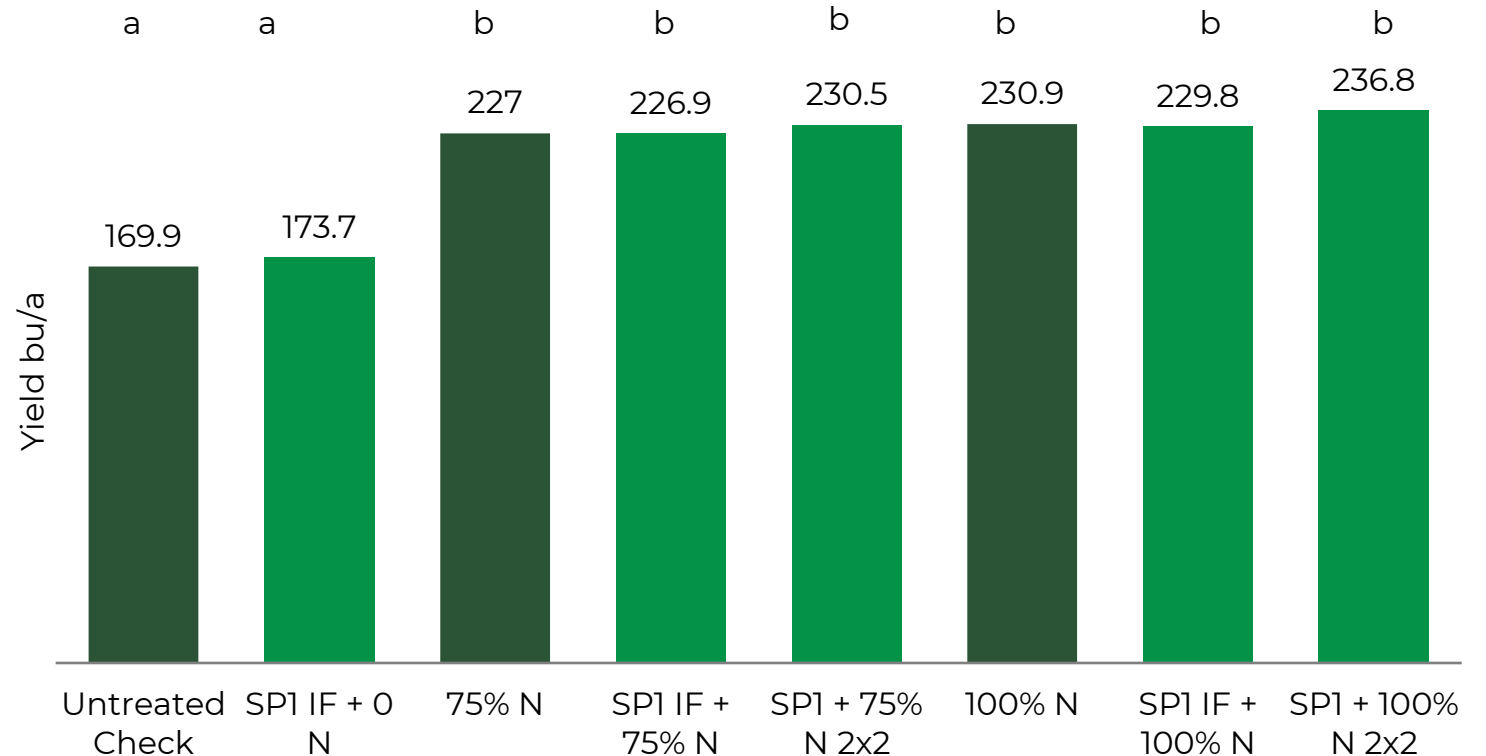
Treat-ment	Product	SP1 Rate	Placement	Timing	N Rate lbs N/Acre	N Place-ment
1	0 N				0	
2	SP1 0 N	2 gallon	In-furrow	At Plant	0	
3	75% N			At Plant	120	2X2
4	SP1 75% N	2 gallon	In-furrow	At Plant	120	2X2
5	75% N 2X2 placement			At Plant	120	2X2
6	SP1 75% N 2X2 placement	2 gallon	2X2	At Plant	120	2X2
7	100% N			At Plant	160	2X2
8	SP1 100% N	2 gallon	In-furrow	At Plant	160	2X2

Nitrogen Replacement Study - Corn

Key Takeaways

- SP-1 placed in 2 x 2 band yielded higher or equal to N fertilizer at both the 100% or 75% N rate.
- SP-1 performance at a 2 x 2 banded rate has the potential to save the grower fertilizer costs
- Mid-season tissue sample analysis showed higher nutrient availability of N as well as micronutrients Mn and Zn

SP-1 Effect on Corn Yield at Varying N Rates In-Furrow or in 2 x 2 Placement



75% = 150lbs of N 100%=200lbs of N

LSD: $\alpha=.10$ Letters followed by different letter are significantly different

TRIAL # SP1-031-IL-22-DT

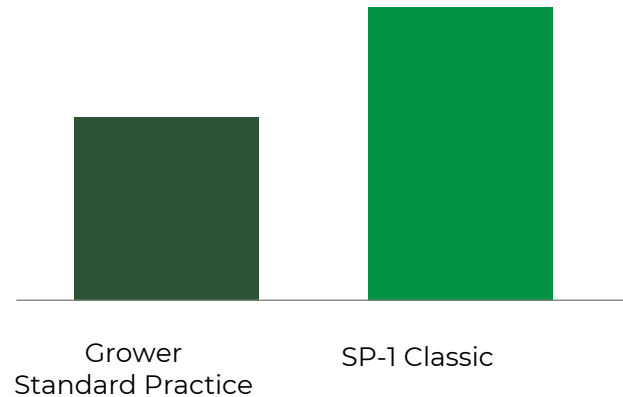
SP-1 Classic Foliar Applications

While SP-1 is not a PGR, the ingredients within SP-1 work together to produce phytohormones such as Auxins, Gibberellins & Cytokinins that are known to:

- Stimulates plant growth
- Supports reproductive processes
- Lessens abiotic stresses

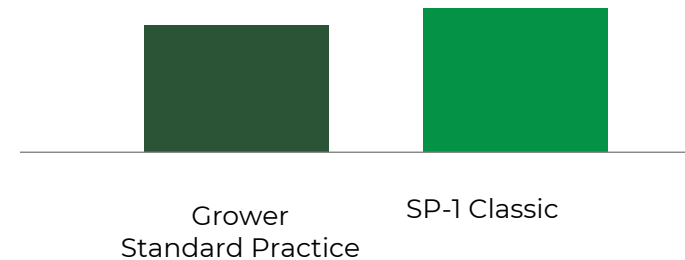
Foliar Application at V5 with Ground Rig +22 bushel response

Foliar Application at V5 with Ground Rig
+22 bushel response

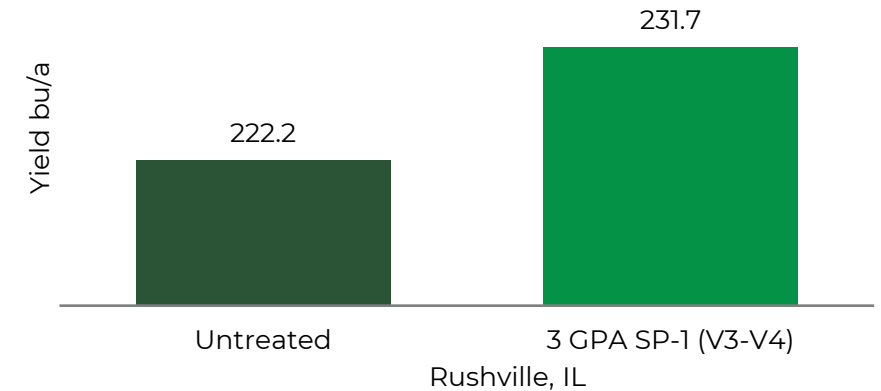


Applied through Pivot at V5 +4 bushel response

Applied through Pivot at V5
+4 bushel response



SP-1 Post – emergence foliar application vs. Untreated



LSD: α +0.1 ns

The Foliar treatment of SP-1 @ 3GPA showed a statistically significant increase in yield over the check

SP-1 Classic is well known for its work in the soil, but it is widely used as a foliar application. This versatile biofertilizer integrates seamlessly into your current operations whether it be broadcast, in-furrow, 2X2, foliar or fertigation!

2022 Gill Ag Corn Trials

Product: SP-1
Crop: Field corn
4 Locations: Minnesota

Yields:
Grower standard avg: 236.2 bu
SP-1 treated avg: 237.0 bu

Cooperator: Jim Gill, Gill Ag Consulting

DPH Trial Manager: Cliff Watrin

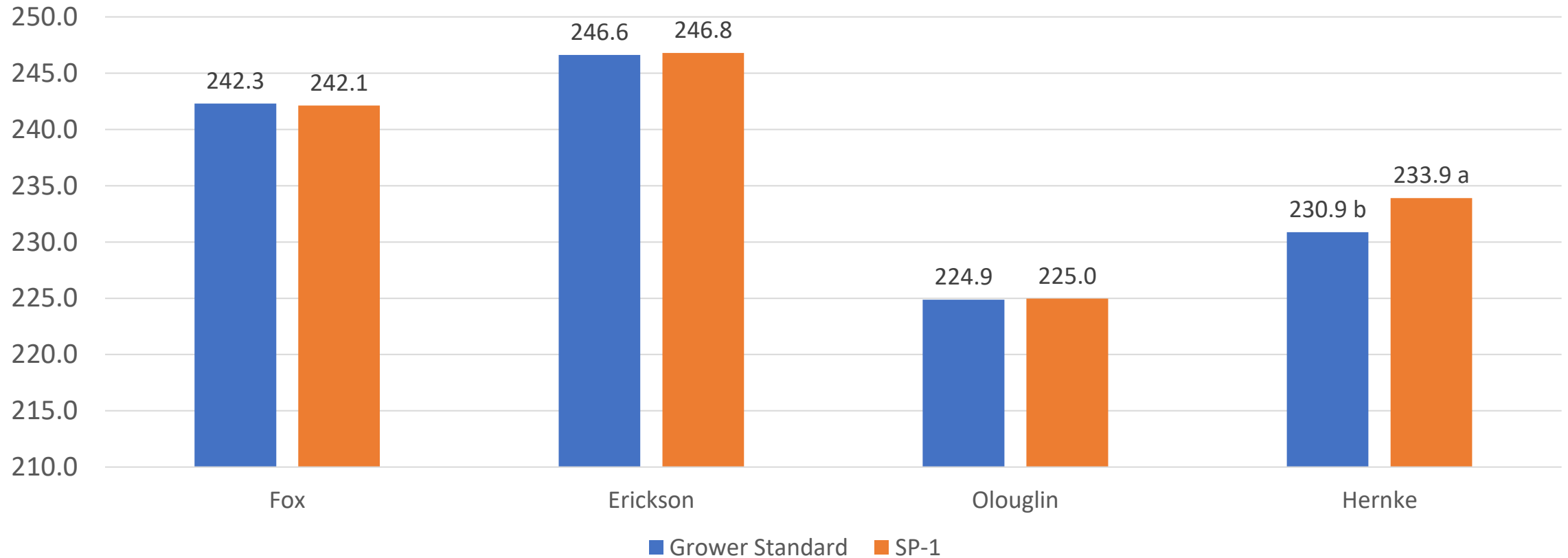
Trial #s: SP1-973-MN-22-JH, -972-MN; -971-MN; -970-MN



Results

SP-1 applied with 50% starter rate yielded equal or greater than full starter rate alone

Corn Yields - 4 Locations



LSD: $\alpha=0.1$; Hernke $p=0.0957$, 3 locations NS

TRIAL DETAILS

Product: SP-1

Crop: Corn

Location: Multiple locations

Objective: Evaluate SP-1 Classic plus starter vs GSP effects on corn growth, development and yield

Cooperator: **FBN**

Crop: Corn

Product Application Details:

- SP-1 applied in-furrow tank mixed with liquid starter fertilizer.

Experimental Design

- Split a 40-100 acre field into alternating strips that will receive the following treatments:
- Treatment 3 is optional but encouraged, at whatever rate reduction in starter fertilizer is feasible

Trial treatments:

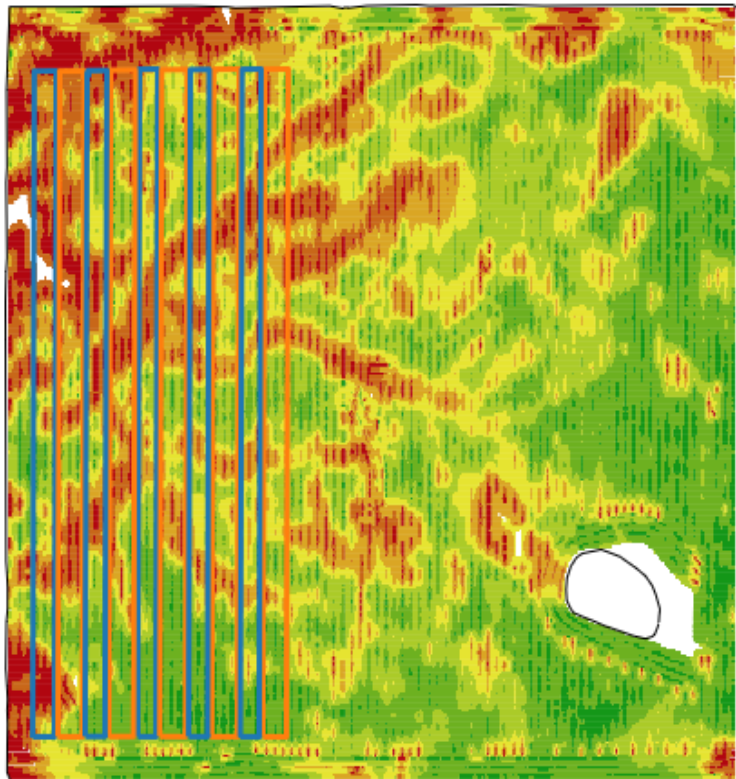
Treatment	Application Timing	Product	Application Rate
1	In furrow @ planting	Grower standard practice	Grower standard rate
2	In furrow @ planting	Grower standard practice	Grower standard rate
		SP-1	2 gal/acre
3 (Two locations)	In furrow @ planting	Grower standard	50% grower standard rate
		SP-1	2 gal/acre



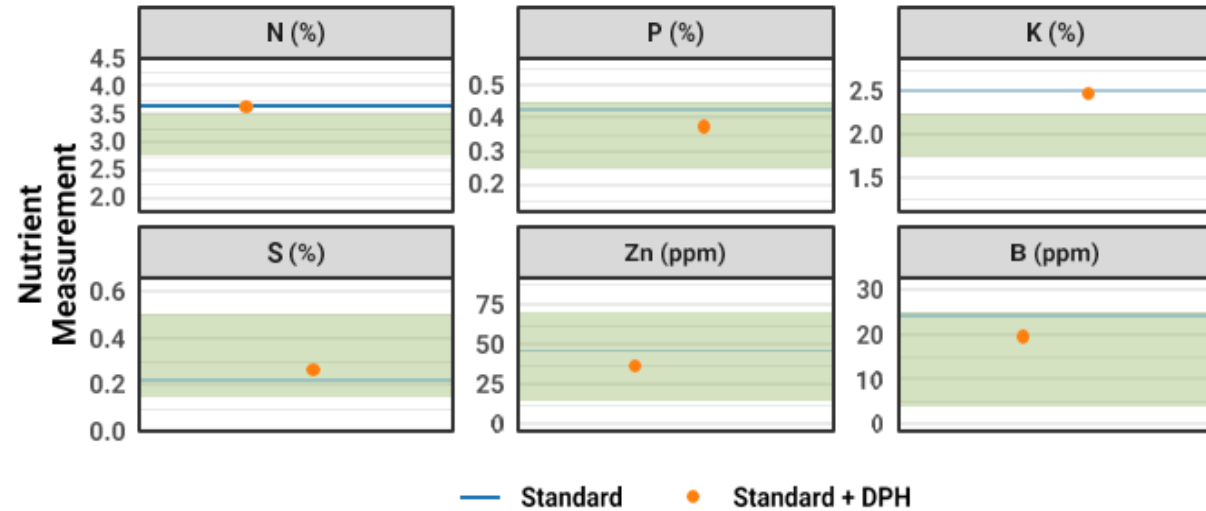
Hamlin Co SD- Field view

Yield Summary

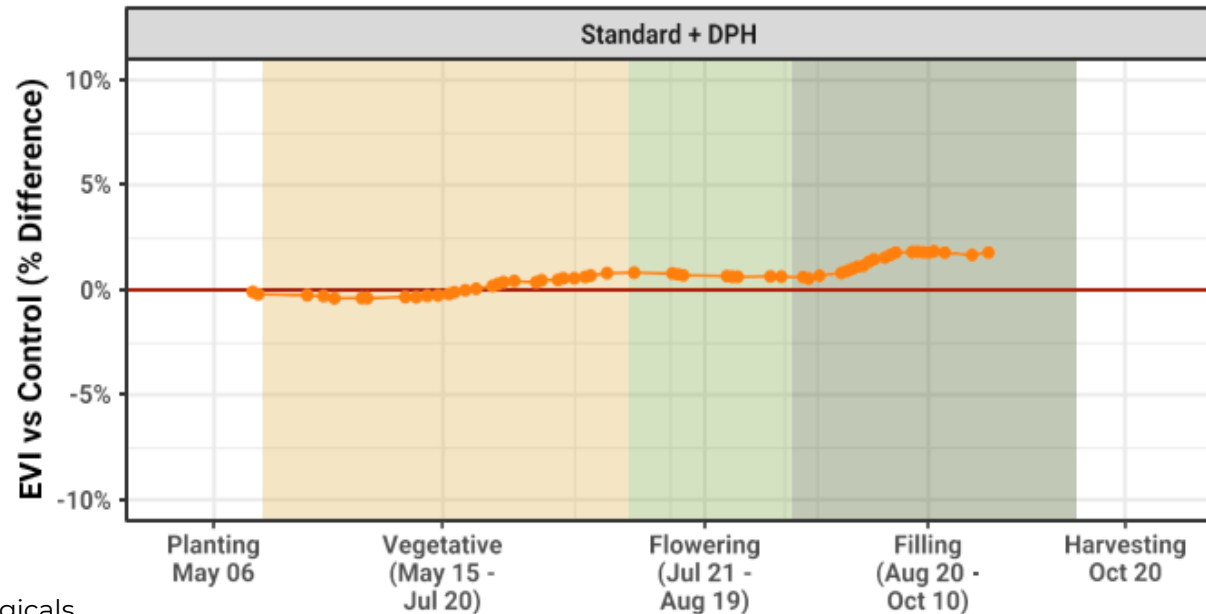
Treatment	Mean Yield
Standard	146.1
Standard + DPH	151.1



Tissue Sample Test Result (Collected on Jul 22 during Tassel)



Satellite Vegetation Index

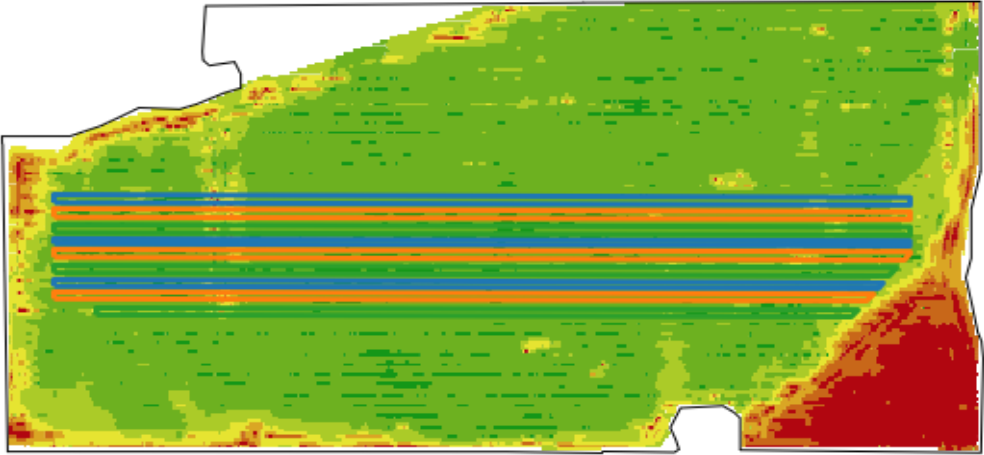


Wilcox NE SP-1 + 50% starter performance

Franklin County, Nebraska – Corn

Yield Summary

Treatment	Mean Yield
Standard	285.3
Standard + DPH	289.3
50% standard rate + DPH	283.00



Yield (bu/ac) 120 160 200 240 280

Corydon IA SP-1 + 50% starter performance

Yield Summary

Treatment	Mean Yield
Standard	179.0
Standard + DPH	178.9
50% standard rate + DPH	180.8

