DAIRYLAND SEED

# 2023 PRODUCT AGRONOMY RESEARCH (PAR) REPORT

# DAIRYLAND SEED FAMILY

## TO OUR VALUED CUSTOMERS,

We are excited to share with you the 2023 data from our Product and Agronomy Research (PAR) projects. Every year, we set out to explore, study and understand the space between our products and your operation. Whether it is revisiting traditional concepts or diving into new technologies, our goal is to provide you valuable information that can assist you in dealing with the challenges you face farming today.

We have three main testing sites located in Michigan, Indiana, and Wisconsin, along with several on-farm locations across the Midwest, including Minnesota, North and South Dakota. These projects are led by Dairyland Seed's Agronomy and Product teams, but the ideas come from you. If you have questions about product placement, agronomic practices, or cultural practices please reach out. We would love to have a discussion with you.

Enjoy the data and thank you for all that you do.

Thank you for being part of the Dairyland Seed family.

All my best,

**RYAN MUELLER**
PORTFOLIO AND AGRONOMY LEAD | DAIRYLAND SEED

DAIRYLAND SEED

Partnering with customers to deliver a differentiated, personalized, local brand experience that meets them where they are today and grows with them into the future.

# TABLE OF CONTENTS

# YOUR DAIRYLAND SEED AGRONOMY TEAM


## Rod Moran

Soybean Leader / Central Regional Agronomist

(217) 972-9839

rmoran@dairylandseed.com

## Dan Ritter

Central Regional Agronomist

(219) 863-0583

dritter@dairylandseed.com

## Amanda Goffnett

Eastern Regional Agronomist

(989) 400-3793

agoffnett@dairylandseed.com

## Branden Furseth

Northern Regional Agronomist

(608) 513-4265

bfurseth@dairylandseed.com

## Mark Gibson

Eastern Region Agronomist

(260) 330-8968

mgibson@dairylandseed.com

## Brian Weller

Western Regional Agronomist

(507) 456-3034

bweller@dairylandseed.com


OUR BEST
CORN
OF ALL TIME


SCAN THE QR CODE TO VIEW CORN
PERFORMANCE IN YOUR AREA.

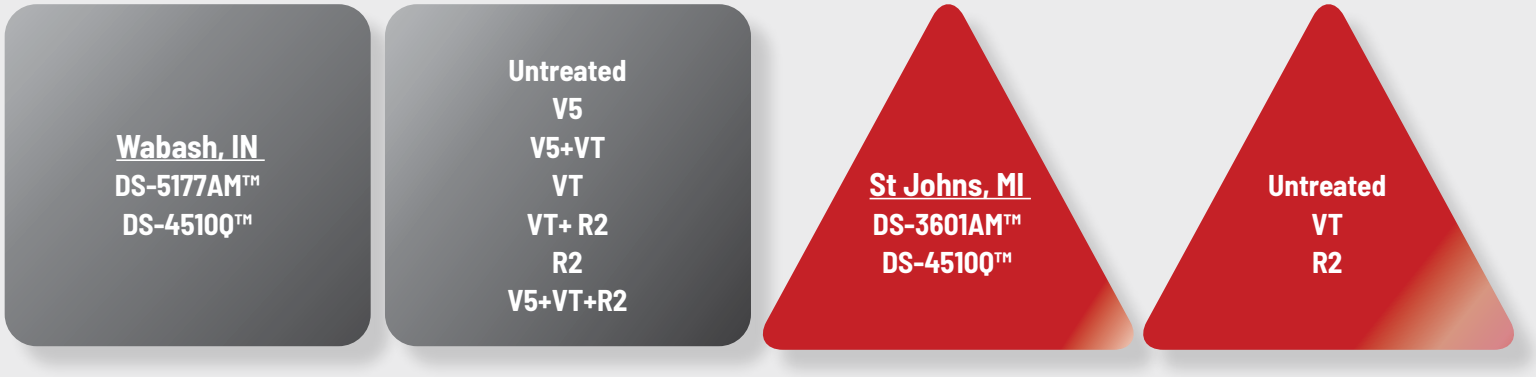
# Foliar Fungicide Timing

With the onset of polycyclic diseases such as tar spot, the timing of fungicide applications has become a major topic of discussion.

Structured fungicide applications have become common practice in many management strategies. Common timings for foliar fungicides are V5, VT (tassel), and R2-3. This trial will look at these single applications as well as combined timings.

The environment and the time of infection will determine the impact of fungicide applications, and notes on foliar disease pressure will be taken throughout the growing season.

## TREATMENT




Fungicide applied = Aproach® Prima at 6.8 ounces per acre

## RESULTS

**TABLE 1:** *2022 DAIRYLAND SEED AGRONOMY TEAM RESULTS*

| Treatment | Average of Yield | Estimate of Yield (LSD * 0.10 = 4.9) | Yield Difference |
|---|---|---|---|
| Brown Silk | 249.78 | 186.32 | A |
| Untreated | 243.67 | 179.50 | B |
| V5 | 249.82 | 185.64 | A |
| V5 & VT | 246.94 | 182.76 | AB |
| V5 & VT & Brown Silk *(St. Johns only)* | 185.05 | 173.11 | C |
| VT | 251.26 | 187.08 | A |
| VT & Brown Silk | 242.59 | 178.41 | B |

# RESULTS (CONTINUED)

**TABLE 2: 2023** *WABASH: A COMBINATION OF DS-4510Q™ AND DS-5177AM™*

| Treatment | Yield | Yield Difference |
|---|---|---|
| Untreated | 267 | A |
| V5 | 263 | A |
| V5 + VT | 259.5 | A |
| VT | 261 | A |
| VT + R2 | 263 | A |
| R2 | 257 | A |
| V5 + VT + R2 | 261.5 | A |

**TABLE 3: 2023** *ST. JOHNS, MI: A COMBINATION OF DS-3601AM™ AND DS-4510Q™*

| Treatment | Yield |
|---|---|
| Untreated | 194 |
| VT | 207 |
| R2 | 197 |

# CONCLUSION

The Wabash, IN site did not show any significant difference between treatments.

We experienced foliar diseases in this plot and scoring between diseases pressure at tassel time. There was a slight difference in disease infection between treatments, but late season notes scored all hybrids about the same. It is difficult to show separation in treatments when we do not have control of the environment. GLS, NCLB and tar spot were all noted across the plot at the Wabash site, but at harvest, we did not see any significant yield separation in treatments.

The St. Johns, MI site showed a significant separation in yield. The VT timing was significantly better than the untreated check. VT is the recommended timing for fungicide application for disease control, as well as added plant health, by most fungicide manufactures. The St. Johns site did not see significant disease pressure until after the corn was dented. This is the stage where it is not beneficial to apply a fungicide. Fungicide applications can have plant health benefits. This added health is likely what contributed to a positive response with fungicide applications in the St Johns, MI location.

Fungicide timing continues to be a topic of discussion among growers. Environment, disease presence and development stage of the crop all weigh in when making the decision to apply a foliar fungicide. Digital disease models such as Tar Spotter, as well as others, can be a good reference or starting point when deciding when and where to scout for disease pressure and determine if a fungicide application is needed.

We will continue to look at fungicide applications and their timing efficacy.

# Harvest Timing of Corn and Phantom Yield Loss Multi-Year Findings

Dairyland Seed agronomists wanted to verify yield due to allowing corn to dry in the field as opposed to harvesting corn at a higher moisture.

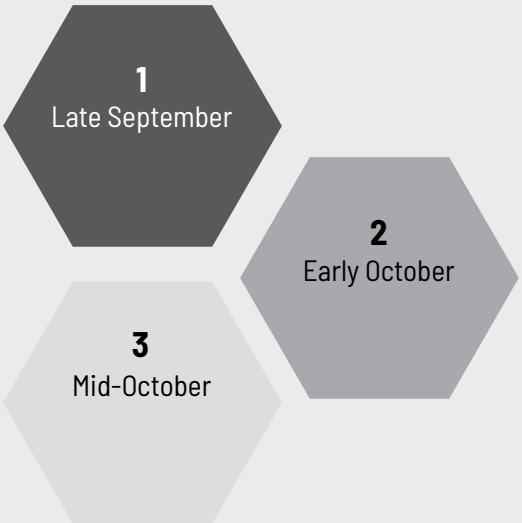
Studies from various sources have shown that the optimum harvest moisture is 25%. Based on this information, there is continued interest in harvest moisture and timing and how that impacts yield.

Harvesting at a higher moisture has shown to reduce mechanical damage and loss. In addition to mechanical loss, there exists some unexplained yield loss. The grain yield lost between an earlier harvest and allowing the corn to field dry is often referred to as phantom yield loss.

Where is this loss? Some speculate it is because of harvest loss at the head or combine, lodging and natural processes that utilize carbohydrates until the plant is harvested.

Over three years, we used several hybrids to gain a more general look at his subject. We would expect individual hybrids to show differences more or less than the aggregated data.

## MULTI-YEAR TREATMENTS FROM 2021 AND 2022




## RESULTS

***TABLE 1-3:*** *MULTI-YEAR RESULTS FROM 2021 AND 2022*

| Treatment | Average Adjusted Yield | Yield Estimate (LSD * 0.10 = 7.05) | Yield Difference |
|---|---|---|---|
| 1 | 234.4 | 223 | A |
| 2 | 233.5 | 222.1 | A |
| 3 | 225 | 213.6 | B |

| Treatment | Average Moisture | Moisture Estimate (LSD * 0.10 = 1.66) | Moisture Difference |
|---|---|---|---|
| 1 | 21.85 | 18.22 | B |
| 2 | 16.96 | 15.47 | A |
| 3 | 16.72 | 16.17 | A |

| Treatment | Average Test Weight | Test Weight Estimate (LSD * 0.10 = 1.23) | Test Weight Difference |
|---|---|---|---|
| 1 | 56.01 | 56.51 | B |
| 2 | 57.83 | 58.16 | A |
| 3 | 58.18 | 57.16 | AB |

***TABLE 4:*** *MULTI-YEAR RESULTS FROM 2021, 2022 AND 2023 COMBINED DATA*

| Harvest Timing | Yield | Yield Difference | Moisture | Moisture Difference | Test Weight | Test Weight Difference |
|---|---|---|---|---|---|---|
| Early | 227.2 | A | 21.28 | B | 56.15 | B |
| Mid | 227.3 | A | 15.85 | A | 58.09 | A |
| Late | 221.2 | B | 15.27 | A | 58.57 | A |
| **Average** | **225.2** | | **17.47** | | **57.6** | |
| LSD * 0.10 | 3.6 | | 0.56 | | 0.73 | |

## DISCUSSION

In the two-year comparison, there exists a clear yield advantage for harvesting in late September to early October. In 2023, harvest was delayed in the calendar basis, but we saw similar moisture levels to the previous two years.

Each year, we found a statistical difference in harvest timing. A point of interest is the marked difference in 2021 and 2022 from early October to mid-October yields. The anomaly was that in 2023 there was an increase in yield as we moved later in the season. An agronomic reason for this may be hard to determine. One possibility is that there was still a certain amount of carbohydrate transfer at those high 20% to 30% moisture levels.

However, if we look at the research in its entirety over many years, hybrids and replications data would support the advantage to earlier harvest.

## CONCLUSION

The three-year summary shows a statistical advantage for harvest beginning in late September to early October.

For those wanting to wait and field dry even longer, our research may suggest the ideal time to be early October. At that timing, we peaked on moisture loss and yield loss is limited. The 2021 -2022 multi-year data would say we were seeing a 10-bushel advantage for early harvest. Factoring in the 2023 data reduces that to six bushels.

# Corn Nitrogen and Utrisha® N

The use of biological products in crop production is becoming a common practice in many operations.

Utrisha® N is a microbe, *Methylobacterium symbioticum*, that is applied foliar to the corn plant at V5. Utrisha® N colonizes the above-ground portion of the corn plant through the stomata and lives off byproducts of photosynthesis. In return, Utrisha® N fixes nitrogen from the atmosphere and makes it available to the corn plant.

We tested Utrisha® N with total nitrogen rates ranging from 80 lbs. to 230 lbs. per acre and compared those results with the untreated check.

## WABASH, IN

- Planting date May 18
- Hybrid: DS-5095AM™
- Study was replicated
- All treatments planted with 40 lbs. of nitrogen
- Nitrogen rates adjusted to treatment totals at sidedress
- Utrisha® N applied at V5 (5 oz/A)

**TREATMENTS:**

1. 80 units of N
2. 140 units of N
3. 170 units of N
4. 200 units of N
5. 230 units of N
6. 80 units of N + Utrisha® N
7. 140 units of N + Utrisha® N
8. 170 units of N + Utrisha® N
9. 200 units of N + Utrisha® N
10. 230 units of N + Utrisha® N

## RESULTS

**TABLE 1:** *2023 ST. JOHNS, MI RESULTS*

| Total Units of Nitrogen | Yield without Utrisha N (Bu/A) | Yield with Utrisha N (Bu/A) | Advantage (Bu/A) |
|---|---|---|---|
| 175 | 189.2 | 194.8 | 5.6 |
| 135 | 192.8 | 195.5 | 2.7 |
| 80 | 187.1 | 194.9 | 7.8 |
| **Average** | **189.7** | **195.1** | **5.4** |

## ST. JOHNS, MI

- Planting date May 6
- Hybrid: DS-3900AM™
- Study was replicated
- All treatments received: 300 lbs/A potash + 125 lbs/A MAP DBC (Fall); 5 gal/A Pro-Germinator + 4 gal/A Sure-K + 0.50 gal/A Micro 500 + 0.25 gal/A Mn + 0.25 gal/A eNhance (IF); 15 gal/A 28% (Conceal)
- Nitrogen rates adjusted to treatment totals at side dress
- Utrisha® N applied at V5 (5 oz/A)

**TREATMENTS:**

1. 80 units of N
2. 135 units of N
3. 175 units of N
4. 80 units of N + Utrisha® N
5. 135 units of N + Utrisha® N
6. 175 units of N + Utrisha® N

**TABLE 2:** *2023 WABASH, IN RESULTS*

| Total Units Nitrogen | Yield without Utrisha N (Bu/A) | Yield with Utrisha N (Bu/A) | Advantage (Bu/A) |
|---|---|---|---|
| 230 | 254.4 | 248.6 | -5.8 |
| 200 | 255.1 | 244.3 | -10.8 |
| 170 | 254.7 | 248.6 | -6.1 |
| 140 | 246.5 | 244.8 | -1.7 |
| 80 | 224 | 240.6 | 16.6 |
| **Average** | **246.9** | **245.4** | **-1.6** |

***TABLES 3 AND 4:*** *2022 RESULTS FROM WABASH, IN AND ST. JOHNS, MI*

| Row Labels | Yield Estimate | Yield Difference (LSD * 0.10 = 4.2) | Moisture Estimate | Moisture Difference (LSD * 0.10 = 0.35) | Test Weight Estimate | Test Weight Difference (LSD * 0.10 = 0.26) |
|---|---|---|---|---|---|---|
| Both | 251.9 | NS | 18.94 | NS | 56.6 | B |
| None | 248.9 | NS | 18.88 | NS | 56.54 | B |
| PROVEN 40 | 248.6 | NS | 18.85 | NS | 56.58 | B |
| Utrisha N | 251.4 | NS | 18.88 | NS | 57 | A |

| Row Labels | Yield Estimate | Yield Difference (LSD * 0.10 = 3.6) | Moisture Estimate | Moisture Difference (LSD * 0.10 = 0.30) | Test Weight Estimate | Test Weight Difference (LSD * 0.10 = 0.23) |
|---|---|---|---|---|---|---|
| High | 251.9 | NS | 18.94 | NS | 56.6 | B |
| Low | 249 | NS | 18.67 | NS | 56.74 | B |
| Med | 249.9 | NS | 18.65 | NS | 56.82 | B |

# CONCLUSION

There was no significant difference in moisture or test weight for either location this year.

At both Wabash and St. Johns, the Utrisha® N applied with 80 total pounds of nitrogen resulted in the highest advantage. Other Utrisha® N treatments at Wabash did not show an advantage, which suggests that nitrogen was not the most limiting factor to yield. By reducing the total pounds of nitrogen to 80 units, we forced nitrogen to become the limiting factor. This allowed the plant to capitalize on nitrogen being fixed by the bacteria in Utrisha®N.

Last year's results showed no significant difference in yield for either Wabash or St. Johns. The lowest total nitrogen rates used last year were 135 pounds for Wabash and 170 pounds for St. Johns.

We concluded that nitrogen was not the most limiting yield factor and noted how even the lower nitrogen rates did not yield significantly less than the higher nitrogen rates.

This suggested that products like Utrisha N were capable of insuring yield in reduced nitrogen scenarios. By lowering the total nitrogen ranges this year for St. Johns, we were able to make nitrogen a yield limiting factor. This resulted in positive advantages with Utrisha® N for each nitrogen range.

Each year is different and presents its own set of challenges, but the yield results we are seeing with reduced nitrogen rates are very encouraging.

# Utrisha® P

In 2023, we looked at the new biological offering Utrisha® P from Corteva Agriscience™ at Wabash, IN on corn and soybeans.

The premise of this product is that it can help unlock below-ground phosphorus availability leading to improved soil exploration, plant vigor, and hopefully, improved yield potential.

Utrisha® P is a plant growth promoting bacteria that colonizes the root zone at soil temps above 54°F during the growing season. These bacteria work to produce enzymes that can liberate phosphorous by capturing available and soil-bound phosphorus in the rhizosphere.

This can lead to enhanced nutrient uptake and water availability to the plant for optimized potential in the bin.

## CORN

**Method:**

- DS-4833AM™ tested at the Wabash, IN location.

**Treatment**:

- Treated with 14 oz. 6 24 6 starter fertilizer in furrow.
- Treated with 14 oz. Utrisha® P in furrow.
- Basic seed treatment nothing additional in furrow.

***TABLE 1:*** *2023 RESULTS OF UTRISHA® P TESTING ON CORN*

| Treatment | Average Test Weight | Average Yield |
|---|---|---|
| 6-24-6 | 57.1 | 286.11 |
| Utrisha P | 57.3 | 282.5 |
| No In-Furrow | 56.9 | 282.5 |

## SOYBEANS

**Method:**

- DSR-2562E™ planted at the Wabash, IN location.

**Treatment:**

- Utrisha® P at 14 oz
- Untreated check

**TABLE 2:** *2023 RESULTS OF UTRISHA® P TESTING ON SOYBEANS*

| Treatment | Estimate |
|---|---|
| No In-Furrow | 81.6 |
| Utrisha P | 81.6 |
| LSD | N/A |

## CONCLUSION

The drought in the early part of the season may have had some bearing on these results for this year for both crops as early vegetative stage moisture was very minimal.

Per raw data analysis of the corn trial for Utrisha® P, the simple takeaway is that there appears to be no positive or negative aspect of this product in this year.

The corn trial demonstrated that additional available nutrients, 6-24-6, improved yield and test weight, while Utrisha® P had no yield benefit but was able to prop up test weight by 0.4 points when compared to the "No In-Furrow" standard. Figure that one out!

In the soybean data set, the linear model analysis used found no significant statistical difference between the two treatments.

While one year at one location did not provide any concrete positive nor negative to this product for either crop, we will repeat and refine this study for both corn and soybeans in 2024 to get a better understanding of this product's merits.

# Global strength, local focus

## DELIVERING VALUE TO LOCAL CUSTOMERS AROUND THE WORLD

### Best-in-Class R&D

- 100 years of breeding leadership is the foundation for stronger performance with each generation.
- Industry's best researchers are fanatically focused on customer needs.
- Breeders leverage global enabling technologies at local research centers – and leverage the innovation across all product lines.
- More breeding cycles each year integrate the newest traits into our elite germplasm so we can bring products to market faster.

### World-Leading Germplasm

- Advanced technology allows us to characterize more genetic lines more accurately so we can deliver products faster than ever.
- Billions of data points each year allow us to predict performance, giving our customers a competitive advantage.
- Enhanced technological capabilities have expanded our breeding pipeline testing by nearly 20x in the last decade.

### Local Products

- Local product testing and characterization.
- Advancing products that best fit local growing environments.
- Unlocking greater seed and CP customer value.
- Best-in-class seed production.
- Multi-channel, multi-brand route to market.

## YIELD-PROTECTING TRAIT TECHNOLOGIES

### Insect control

Helping farmers manage above- and/or below-ground pests, which can impact performance and profit potential, through native and biotech traits.

### Disease resistance

Native traits help manage yield-robbing diseases that vary by geography and growing season.

### Herbicide tolerance

Herbicide-tolerant (HT) traits give farmers more choices for managing weeds and grasses to help maximize performance without damaging the plant.

### Output

Output traits deliver value-added benefits, like healthier oil for consumers or increased protein for livestock.

# Soil Applied Fungicide for Corn

XyWay® LFR® Liquid Fertilizer Ready is a group 3 triazole fungicide that is applied in a 2x2 application at planting on corn.

XyWay® LFR® is used to control northern corn leaf blight and gray leaf spot up to reproductive stages in corn. XyWay® LFR® promotes early season plant health, and we will look at possible efficacy for tar spot suppression until foliar applications can be made during reproductive development stages of corn.

We will monitor disease progression in all three treatments to rate the control of XyWay® LFR® alone and in conjunction with foliar fungicide applications.

## TREATMENT

1. Untreated
2. XyWay® LFR®
3. XyWay® LFR® + VT foliar application
4. VT application (St. Johns only)

**Wabash, IN Hybrids DS-4219AM™ and DS-4833AM™**

- XyWay® LFR® applied 15.2 ounces per acre in 2x2 at planting (Wabash)
- Veltyma® applied at VT at 7 ounces per acre (Wabash)

**St Johns, MI Hybrids DS- 3601AM™ and DS-45100™**

- XyWay® LFR® applied 15.2 ounces per acre with Conceal (St Johns)
- Aproach® Prima applied at VT 6.8 ounce per acre (St Johns)

## RESULTS

**TABLE 1:** *2022 XYWAY® LFR® RESULTS*

| Treatment | Average of Yield | Estimate of Yield (LSD * 0.10 = 13.2) | Yield Difference |
|---|---|---|---|
| Untreated | 210.334089 | 216.61 | BC |
| VT-only Aproach Prima | 224.593025 | 230.86 | A |
| XyWay LFR 2x2 | 222.538852 | 228.81 | AB |
| XyWay LFR 2x2 + VT Aproach Prima | 221.299971 | 227.57 | AB |
| XyWay LFR 2x2 + Brown Silk Aproach Prima *(St. Johns only)* | 183.35 | 213.48 | C |

# RESULTS (CONTINUED)

**TABLE 2:** *2023 DAIRYLAND SEED WABASH, IN RESULTS OF XYWAY® LFR® STUDY*

| Treatment | Yield |
|---|---|
| Untreated | 194 |
| XyWay LFR | 200 |
| XyWay LFR + Aproach Prima VT | 203 |
| Aproach Prima VT | 207 |

**TABLE 3:** *2023 DAIRYLAND SEED ST. JOHNS, MI RESULTS OF XYWAY® LFR® STUDY*

| Treatment | Yield | |
|---|---|---|
| Untreated | 257 | A |
| XyWay LFR | 265 | B |
| XyWay LFR + Veltyma VT | 260 | AB |

# CONCLUSION

In 2022, there was not much disease pressure in either the Wabash, IN or St. Johns, MI sites.

This study showed that in 2022, a VT application provided the most return in both locations. The VT application yielded the most return at the St. Johns location in 2023, and the XyWay® LFR® application yielded the most at the Wabash site in 2023.

In Wabash, the combination of a VT application and XyWay® LFR® increased yield by three bushels per acre, where the XyWay® LFR® alone increased yield by five bushels per acre over the check.

Maintaining plant health through the season is important to insuring maximum yield potential. XyWay® LFR® application timing is convenient if growers are already applying products off the row in a 2x2 or other similar system. However, if a yield limiting disease does not impact the crop during the residual window on XyWay® LFR®, which is about tassel time, then a later infection can decrease yield.

Tar spot is a concern for growers in both Indiana and Michigan. Ensuring plant health through the season is important, but fungicide applications, either soil or foliar, applied will vary depending on management systems, location and hybrids used.

# Seed Positioning and Orientation

Recent industry research spurred interest in the orientation of corn seed when it is planted. Demonstrations and preliminary observations by Bob Shultz at our Wabash PAR location indicate promising possibilities.

This concept is not totally new. Researchers have been investigating this idea for several years. What is more recent is the ability to do so on a field scale basis. Dairyland Seed agronomists and field staff hand planted three demonstration sites: Mount Hope, WI; Lafayette, MN; and Wabash, IN. Those who attended the local field events could see this concept firsthand. With advances in technology, there now exist planters with the ability to orient seed within the row. Why is there interest in the direction a seed is planted? The position of the seed kernel and the germ side of the seed can influence the ultimate leaf orientation in the row. This can have a possible impact on light capture and yield.

There is also evidence that seed orientation could improve emergence as well. Planter technology companies are investigating the possibility of positioning seeds tip down and orienting in furrow. MK1 Engineering is one company working on this planting technology AeroTube. For additional information, visit their website https://mk1eng.com/.

## TREATMENT

1. Check random drop
2. Tip down, germ facing with row
3. Tip down, germ facing out of row[1]

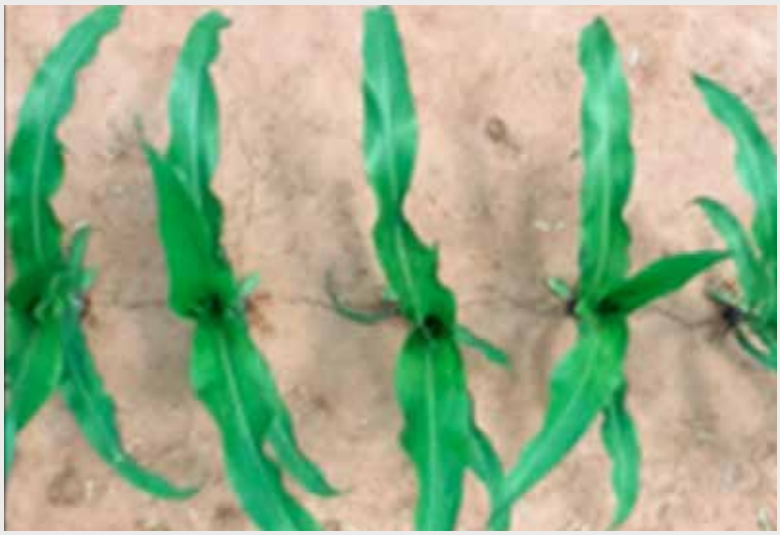


**FIGURE 1:** *GERM ORIENTATION - OKLAHOMA STATE UNIVERSITY, 2012*

## RESULTS

**TABLE 1:** *2023 SEED ORIENTATION STUDY RESULTS*

| | Germ Orientation | Across Row | With Row | Random |
|---|---|---|---|---|
| Bu/A | Grain 1 | 193.16a | 176.82b | 161c |
| Bu/A | Grain 2 | 178.31 | 172.82 | 156.02a |
| Tons DM/A | Silage | 4.72a | 4.365b | 8.7c |

**Letters indicate significant difference*

# CONCLUSION

A review of research on this planting concept showed that yield increased 9% to as much 20%.

The studies referenced for planting seed tip down and seed germ oriented to center are Illinois State University, 2013 => 14% - 19%; Oklahoma State University, 2012 => 09% - 14%; Journal of Production Ag, 1999 => 10% - 20%. The ISU research data will be referenced below.[1]

Additional research related to emergence would indicate an advantage toward seed orientation tip down. In 1970, two researchers, G. P. Pattern and D. M. VanDoren Jr., found that in a controlled laboratory environment "will give earlier, more complete emergence with greater more rapid seedling growth" and "is better able to overcome environmental deterrents to emergence and growth.[2]"

Based the information collected, it would appear as technology progresses, we could see precise seed placement and orientation be positive driver to increasing yields in the near future.

[1] Kaufman, Tyler D., "The Effects of Planting Techniques on Maize Grain Yield and Silage Production" (2013). Theses and Dissertations. 49.https://ir.library.illinoisstate.edu/etd/49

[2] G. P. Pattern and D. M. VanDoren Jr., "Effect of Seed Orientation on Emergence and Growth of Corn" Ohio Agricultural Research and Development Center, Wooster, Ohio, as Journal Article No. 43-70. (1970)

# Corn Emergence and Yield Outcome in Southern Minnesota

The decision to replant a crop due to less than desirable plant populations and emergence patterns caused by equipment malfunctions, obstacles mother nature has thrown our way, or both can be one of the most difficult and agonizing decisions a farmer or agronomist can make.

The spring of 2023 planting season posed many challenges for producers and agronomists in the upper Midwest, due to a cold and varying amount of precipitation around Mother's Day. Areas in southern Minnesota had 7-13 inches of rainfall during this time frame, which caused many replant decisions to be made. Other impacts of this Mother's Day weather event, caused fields that are slow to be planted, delayed further.

The field that we will be looking at was planted on May 20th, 2023, to Dairyland Seed DS-4219AM™. Portions of the field were slightly tacky when doing tillage with a field cultivator. This caused areas of the field to become cloddy, which did not provide the best seed-to-soil contact in those areas. This lack of proper seed-to-soil contact affected planting depth to vary, which also impacted soil temperature and moisture at the seed. The result is that upon scouting the field on June 10th, plants varied in growth stages from just emerging or VE to V5 (collar on 5th leaf).

Much of the field had plant populations ranging from 28-31,000 plants per acre with most of those plants being at the V3-V5 growth stage. The decision not to replant was made based on plant population and growth stage of most of the field, coupled with the late date (June 10th or later) and dry soil conditions with no measurable rainfall predicted. An area of the field which had two 1/1,000th of an acre portions back-to-back with variable growth stages was flagged and monitored during the remainder of the growing season.

On November 16th, a day or two prior to harvest, ear samples were pulled from the two 1/1,000th back-to-back blocks. Yield was calculated from the 50 plants and 56 ears that were collected in those areas. Ear heights, plant populations and kernel rows and length were counted, and kernel size was estimated. The ear number as well as growth stage and plant height were written on tape on the ear to help organize the data.

# RESULTS

Ear heights ranged from 25-40 inches with the average being 31.9 inches.

Kernel seed size ranged from very small to very large and we did vary the factor to calculate yield based on seed size. Kernel rows around varied from 8 to 18 with the average number of rows around being 14.4. Kernel row length varied from 2 to 45 with the average being 29.5 kernels long.

Plant populations were 25,000 plants in both blocks.

Yield estimations ranged from 7 to 189 bushel per acre.

**TABLE 1:** *SUMMARY OF OBSERVATION VARIABILITY*

| | Low | High | Average |
|---|---|---|---|
| **Ear Height** | 25 Inches | 40 Inches | 31.9 Inches |
| **Seed Size** | Very Small | Very Large | Average |
| **Rows Around** | 8 | 18 | 14.4 |
| **Kernel Length** | 2 | 45 | 29.5 |
| **Plant Population** | 25K | 25K | 25K |
| **Growth Stage** | V.5 | V5 | V2.6 |
| **Yield Estimate** | 7 | 189 | 110.1 Bu/A |

**FIGURE 1:** *ALL 56 EARS HARVESTED FROM BLOCK.*

**FIGURE 2:** *EAR AND SEED SIZE VARIABILITY.*

# CONCLUSION

The area we used for this test validates a commonly held perception that if a corn plant and its neighbors emerge on a timely basis it tends to equate to a higher yield.

**TABLE 2:** *SUMMARY OF GROWTH STAGE VARIABILITY*

| Growth Stage | # of Ears | Low Range Yield | High Range Yield | Average Yield |
|---|---|---|---|---|
| V.5 | 1 | 83.6 | 83.6 | 83.6 |
| V1 | 4 | 20.0 | 89.1 | 46.8 |
| V1.5 | 11 | 7.0 | 136.0 | 79.5 |
| V2 | 11 | 17.8 | 124.0 | 79.1 |
| V2.5 | 3 | 119.0 | 136.0 | 125.0 |
| V3 | 5 | 123.6 | 176.0 | 149.9 |
| V3.5 | 13 | 72.7 | 189.0 | 146.1 |
| V4 | 7 | 57.3 | 186.7 | 138.0 |
| V5 | 1 | 160.0 | 160.0 | 160.0 |
| **Average** | **6.2** | **73.4** | **142.3** | **112.0** |

In reviewing the data and categorizing the plants based on the stage of growth at the first observation date, we can show the number of ears and break down the low and high range of yields and the averages per growth stage. By doing this, it does show the general trend of early and timelier emergence equating to more yield.

**TABLE 3:** *CONSOLIDATED TABLE OF GROWTH STAGE VARIABILITY*

| Growth Stage | # of Ears | Low Range Yield | High Range Yield | Average Yield |
|---|---|---|---|---|
| V.5 - V2.5 | 30 | 7.0 | 136.0 | 79.7 |
| V3 - V5 | 26 | 57.3 | 189.0 | 145.2 |

If we consolidate the growth stages from V.5 to V2.5, and V3 to V5, we more consistently show that timely emergence with neighboring plants does equate to higher yields.

**FIGURE 3:** *PHOTO OF POTENTIALLY UNHARVESTABLE EARS AND SEED SIZE VARIATION.*

We did harvest every ear that we found on plants knowing full well that not all the ears that were on plants would be harvestable and make it from the head to the combine due to their width or length. We had six plants that put on an additional ear, with that additional ear a node or two below the dominate node or ear.

Other factors that may have influenced results are that not all kernels were counted. If kernels were smaller on any part of the ear, those kernels were not counted on the belief that they would not make it into the hopper on the combine.

Kernel weight is a factor that we could not accurately estimate or predict. Individual kernel weight can impact yield, with higher weights of the same kernel count yielding more than those kernels weighing less.

Standard deviation of plants, or the change in the average distance between plants, was not measured and could have impacted yields, but was not measured. We did encounter instances with a skip or double, which did affect ear size.

Lastly, in any study, increasing the number of replications increases the validity of the information. It would be nice to try this study with different hybrid and row widths as well as increasing and decreasing plant populations.


SCAN THE QR CODE TO VIEW SOYBEAN
PERFORMANCE IN YOUR AREA.


THE GREATEST
SOYBEANS
IN OUR HISTORY

# Soybean Seed Treatment Options for White Mold

The purpose of this study was to evaluate a seed treatment option in conjunction with our present Dairyland Seed treatments for the control of sclerotinia white mold (SWM).

SWM can be a serious disease in soybeans, and in the 2023 growing season, the Midwest saw some issues with it. This disease is usually favored by higher humidity and moderate to cool temperatures.

In 2023, although dry for most of the season, we received some triggering rain events. This rain caused many soybeans to put on lush growth. This increased humidity under the leaf canopy and created an ideal environmental situation for SWM development.

The white mold fungus, *Sclerotinia sclerotiorum*, survives in the soil as sclerotia then germinates (Figure 1) to produce mushrooms (apothecia). The apothecia releases spores that primarily infect the soybeans through sensing flowers around the R1-R3 (first flower-beginning pod) stage. White mold symptoms don't usually appear until the R4-R6 (full pod-full seed) growth stages. Once white mold symptoms are apparent, fungicides will not be effective.

Knowing this, could we use a seed treatment as a preventative for SWM infections? We used replicated plots at our Indiana location and placed in field trials in northern IL and southern WI to evaluate.

It can be difficult to predict when white mold will strike in order to get a realistic look at the utility of this seed treatment.

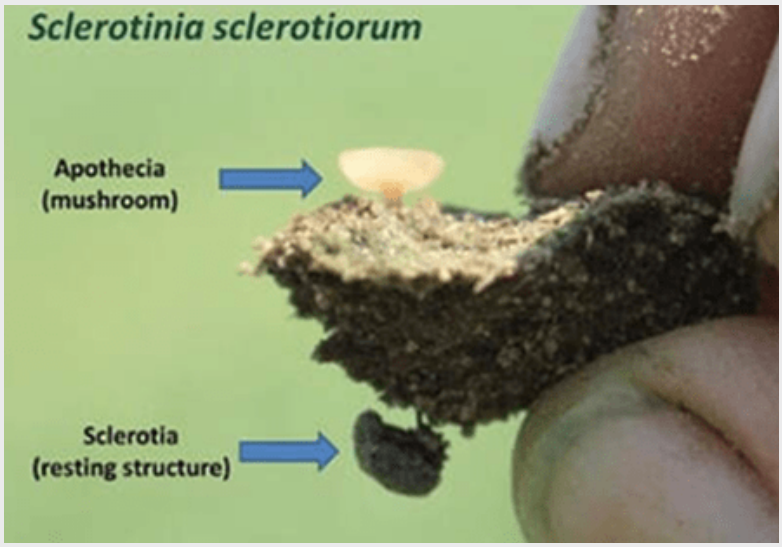



**FIGURE 1:** *WHITE MOLD STRUCTURES. PHOTO BY MARTY CHILVERS, MICHIGAN STATE UNIVERSITY*

# TREATMENT

Heads Up/ILEVO®/Soyfx™
LumiGEN® seed treatment w/ Lumisena® fungicide, ILEVO® and insecticide

# RESULTS

**TABLE 1:** *2023 MULTI LOCATION AND TRIAL RESULTS*

| Variety | Location | Test | Yield |
|---|---|---|---|
| DSR-2717E | Wabash, IN; Block 1 | FX & Heads Up | 64.26 |
| | | Standard | 65.57 |
| | | FX & Heads Up | 64.02 |
| DSR-2902E | Wabash, IN; Block 1 | Standard | 59.54 |
| | | FX & Heads Up | 58.31 |
| | | Standard | 59.58 |
| | | FX & Heads Up | 59.73 |
| DSR-2717E | Wabash, IN; Block 6 | FX & Heads Up | 86.23 |
| | | Standard | 82.81 |
| DSR-2902E | NC ILL On-Farm | Standard | 66.28 |
| | | FX & Heads Up | 71.1 |
| **Treatment Averages** | | **FX & Heads Up** | **67.12** |
| | | **Standard** | **66.76** |

# CONCLUSION

As we review the data on limited locations, the advantage for this specific sclerotinia white mold treatment is limited on an aggregate basis. However, in those cases where it showed an advantage, it was overwhelming. In those cases, it was a 4-to-5 bushel advantage. In the cases where it was not successful, there was a slight yield disadvantage to equal yield.

Why? It is most likely due to standard variability within the plots. Where it did pay off the most seemed to be in areas with heavier SWM pressure, and varieties with limited SWM tolerances. We will further investigate this in the 2024 season on a larger area and with more on farm data. Given the lower cost of goods, and an overall positive return on yield, this may be a viable option to consider in your troubled SWM fields.

# Soybean Foliar Pack Add-On Study

Soybean foliar packages contain several components.

Among other components, these foliar packages will often include micronutrients, sugars, and growth regulators. This comprehensive application plan is quite common, and we will look to see if there is any response to these components applied in order.

We will look at this breakdown in an "add-on" fashion. We will start with the application of a micronutrient pack, then add sugar and then add a growth regulator. The micronutrient pack is added to correct any micronutrients that may be lacking.

Sugar is applied to super load the plant with energy, and the growth regulator contains synthesized plant hormones that trigger cell division and elongation.

## TREATMENT

DSR-2562E™ was planted on May 5 at Wabash, IN and May 15 at St. Johns, MI. Both locations were replicated.

Treatments were applied at the R2-R3 growth stage.

1. Untreated Check
2. Micro 500 (1 qt/A)
3. Micro 500 (1 qt/A) + Growth Regulator (Triad™ 8 oz/A) – St. Johns only
4. Micro 500 (1 qt/A) + Sugar (BW Sweet 2 pt/A)
5. Micro 500 (1 qt/A) + Sugar (BW Sweet 2 pt/A) + Growth Regulator (Triad™ 8 oz/A)

# RESULTS

**TABLE 1:** *SOYBEAN FOLIAR ADD-ON RESULTS*

| Treatment | St. Johns, MI Yield (Bu/A) | Advantage (Bu/A) | Wabash, IN Yield (Bu/A) | Advantage (Bu/A) |
|---|---|---|---|---|
| Untreated | 70.1 | - | 75.6 | - |
| Micro 500 | 73.4 | 3.4 | 76.5 | 0.9 |
| Micro 500 + Sugar | 70.1 | 0.0 | 74.2 | -1.4 |
| Micro 500 + Growth Regulator *(St. Johns only)* | 72.9 | 2.8 | - | - |
| Micro 500 + Sugar + Growth Regulator | 72.5 | 2.4 | 74.2 | -1.4 |
| **Average** | **71.5** | **2.2** | **75.1** | **-0.6** |

# CONCLUSION

Results for both locations showed the greatest advantage with the Micro 500 treatment compared with the untreated check.

The Wabash, IN location did not show an advantage to adding sugar to the Micro 500 or sugar and a growth regulator to the Micro 500. The St. Johns, MI location also did not show an advantage to adding sugar with the Micro 500. However, the growth regulator added with the Micro 500 showed an advantage, and the combination of Micro 500, sugar, and growth regulator also showed an advantage.

Both locations experienced some stress early but good growing conditions as the plants entered the reproductive stages. This likely contributed to higher untreated yields, which could mask some treatment advantages.

# Soybean Rolling to Stimulate Branching for Increased Yield

Intentional damage to the terminal growing point of soybeans is believed to increase branching and produce more nodes from which pods may develop. These practices are often brought up at meetings anecdotally and some claim to have seen increases in yield.

We began this investigation in 2021 with a demonstration of mowing and rolling. Yield data was collected; however, no control data was collected.

In 2022, we performed this trial in Wabash, IN and Mt. Hope, WI. We continued this trial in 2023 at our Mt. Hope location. In those two years, we collected control as well as treatment data.

## 2022 EFFORTS EXPLAINED

**Wabash, IN: DSR-3177E™ and DSR-3587E™ were planted on April 27th at 130,000 seeds per acre in 30-inch rows.**
Treatments:

1. Untreated
2. Roll soybeans at V2-V3 growth stage

**Mt. Hope, WI: DSR-2188E™ and DSR-2562E™ were planted on May 11th at 120,000 seeds per acre in 30-inch rows.**
Treatments:

1. Untreated
2. Roll soybeans at V2-V3 growth stage

**FIGURE 1:** *LEFT CONTROL, ROLLED, MOWED FROM MT. HOPE, WI PAR SITE*

## RESULTS

**TABLE 1:** *2022 SOYBEAN ROLLING RESULTS FOR MT. HOPE, WI AND WABASH, IN*

| Variety | Roll Yield | No Roll Yield | Advantage |
|---|---|---|---|
| DSR-2188E | 74.3 | 79.7 | -5.4 |
| DSR-2562E | 77.7 | 71.1 | 6.6 |
| DSR-3177E | 70.3 | 67.0 | 3.3 |
| DSR-3587E | 73.2 | 72.7 | 0.5 |
| **Average** | **73.9** | **72.6** | **1.3** |

**TABLE 2:** *2023 RESULTS FROM MT. HOPE, WI, ROLLED*

| Variety | Roll Yield | No Roll Yield | Advantage |
|---|---|---|---|
| DSR-1919E | 67.87 | 64.19 | 3.7 |
| DSR-1919E | 70.66 | 59.08 | 11.58 |
| DSR-1919E | 70.58 | - | - |
| **Average** | **69.71** | **61.63** | **8.08** |

**TABLE 3:** *2023 RESULTS FROM MT. HOPE, WI, MOWED*

| Variety | Roll Yield | No Roll Yield | Advantage |
|---|---|---|---|
| DSR-1919E | 63.01 | 68.72 | 5.71 |
| DSR-1919E | 67.15 | 64.44 | 2.71 |
| DSR-1919E | 67.83 | - | - |
| **Average** | **66** | **66.58** | **-0.58** |

| | Roll Yield | No Roll Yield | Advantage |
|---|---|---|---|
| **2-Year Rolled Average** | 72.09 | 69.41 | 2.68 |

## CONCLUSION

In evaluating this practice over the last three seasons, we have seen an overall yield increase. There exists differences year over year and variety to variety. 2021, our demonstration year, compared to other soybean yields on the research farm the mowing and rolling concept showed promise. With that knowledge in hand, we continued in 2022 and 2023. One key management practice was to perform this treatment during the heat of the day while the plant was limber to avoid breaking the plants off at the soil line. The results indicate an average of all rolled treatments to an approximately 2.68 Bu/A advantage to rolling. Yields ranged from a negative 5.4 to a positive 11.5-bushel difference. Individual results by variety show a large range in the advantage to rolling. Depending on the natural branching of the variety, this would be logical. With one year of comparative data in 2022, there seemed a bit of inconsistency. However, that lack of consistency indicates that other yield determining factors, such as weather, could have a larger play than the rolling treatment. As we compiled two years of information together, the data became more conclusive on the advantages of rolling soybeans.

We also evaluated mowing and had minimal response on a limited database. Soybeans respond to the mechanical damage of rolling and mowing by branching and compensating for the lost meristematic or growing point tissue. The loss or damage to the growing points on the soybeans triggered the soybeans to grow through the secondary nodes, which causes branching and the possibility for more pods.

# Soybean Plant Populations

Plant population, or final stand plant population, in soybeans has been a hot topic for the last few years.

The question of what the optimum plant population for highest yield expression is will vary from field to field, as well as areas within a field, with varietal differences also impacting yields by plant population.

Diseases such as sclerotinia white mold (SWN) favor reducing plant population, and nutrient deficiencies such as iron deficiency chlorosis (IDC) favor increasing population. These factors influence the decision-making process on what is the correct plant population for a field or parts of a field. Other factors such as weed control, canopy type (bushy or narrow) and plant height will impact this decision as well.

The other aspect of looking at plant populations is that, whether it be as an agronomist or a farmer, we have all had instances in which plant populations have been reduced by some calamity such as weather (hail, wind, heat, drought, rainfall and drown outs, sandblasting or frost) or animals (deer, turkeys, etc.), and we need to make decisions on if replanting is warranted.

This data will provide a better understanding as to what level the bottom for plant populations might be.

## GRAND MEADOW, MINNESOTA

DSR-1505E™ were planted at various plant populations starting at 120,000 seeds per acre and ratcheting down to 72,000 seeds per acre in mostly 8-18,000 seeds per acre increments in 30-inch rows.

Final plant populations were within 2-4,000 plants of the planting population with the exception of the 101,000 entry, which ended up with a final plant population of 75,000.

This plot was planted on May 20th, 2023, which was an average to slightly later planting date for soybeans in this area, with the harvest date being October 1st, 2023.

# RESULTS

**TABLE 1:** *2023 RESULTS FROM GRAND MEADOW, MN STUDY*

| Variety | Plant Population | Yield | Moisture | Row Length | Row Width | Number of Rows |
|---|---|---|---|---|---|---|
| DSR-1505E | 120K | 40.7 | 9.6 | 727 | 30 | 8 |
| DSR-1505E | 109K | 38.9 | 9.3 | 727 | 30 | 8 |
| DSR-1505E | 92K | 37.1 | 9.4 | 730 | 30 | 8 |
| DSR-1505E | 80K | 35.9 | 9.4 | 726 | 30 | 8 |
| DSR-1505E | 101K* | 34.9 | 9.3 | 730 | 30 | 8 |
| DSR-1505E | 72K | 34 | 9.3 | 726 | 30 | 8 |

****Final Plant Populations were within 2-4000 plants of planting populations for all entries with the exception of the 101K entry which was closer to 75K.****

# CONCLUSION

The yields for this trial appear to be average, but were actually 3-7 bushels better than other fields in the area. This area was affected by a lack of rainfall and drought conditions all growing season, but this drought intensified in August and September, which is a critical time for soybean pod and seed development. I would attribute the 3–7-bushel yield increase versus other fields in the area to above average soil fertility and the ability of the DSR-1505E™ product, which has the potential to yield even in difficult growing conditions, especially in a variable rainfall pattern.

Typically, it has been this agronomist's belief, that plant populations below 90- 95,000 plants per acre in this area would suggest replanting. (As we move our latitude further south as has been referenced in our studies at the Wabash Indiana PAR location in previous years this number maybe closer to 80,000 plants/acre. Conversely, as we move north, this number may increase to 100-110,000 plants/acre.) In looking at the data from this location, this year, as well as other locations from previous years, it would suggest that this belief of needing 90-95,000 plants/acre to be further reviewed and potentially changed. By reducing the planting population from 120,000 to 80,000, a 33% reduction, we decreased yield by 4.8 bushels, an 11.8% reduction. This is still a yield reduction, but not to the level as the reduction in plant population.

In previous site years, we saw a yield increase as plant populations decreased. In this site and year, we experienced the opposite, and the higher plant populations being compared were the highest yielding. We believe that is due to the extreme drought conditions we experienced in southeastern Minnesota in 2023. The increased plant population of 120,000 plants allowed more ground cover or shading for the soil. This shading of the soil resulted in cooler soils as well as allowing less wind to reach the soil level, which reduced the amount of evapotranspiration from the soil and leaf surface area.

The results, much like in previous trials, indicates that this trial needs to be replicated in different locations, with different varieties, over a longer period. Other interesting aspects to see would be replicating this trial in areas with lower fertility levels and a shorter growing season, with differing rainfall amounts. The shorter growing season, lower fertility and varying rainfall levels might suggest other outcomes over a longer period.

# Soybean Foliar Micro Dissection

Micronutrients are essential to crop growth. Micro refers to the amount of these elements needed in comparison to macro nutrients, which are nitrogen, phosphorus and potassium.

Although needed in lesser amounts, micronutrients are crucial to crop growth, and if one of these elements is not available to the plant in the necessary amounts then that can become a yield limiting factor.

This study looks at Micro 500 by AgroLiquid®, which contains boron, copper, iron, manganese, and zinc. We looked at an application of Micro 500, which is all these nutrients applied in one product, and each nutrient applied by themselves and compared these to an untreated check.

## TREATMENTS

1. Untreated
2. Micro 500
3. Boron
4. Copper
5. Iron
6. Manganese
7. Zinc

**Wabash, IN and St. Johns, MI.**

- Varieties DSR-2562E™
- All products applied at 1 quart per acre.
- Application timing R2/R3

## RESULTS

**TABLE 1:** *2023 RESULTS FROM WABASH, IN*

| Treatment | Yield | |
|---|---|---|
| Boron | 84.3 | A |
| Zinc | 82.53 | B |
| Untreated | 81.64 | BC |
| Mg | 81.26 | BC |
| Micro 500 | 80.4 | C |
| Iron | 80.26 | C |
| **Average** | **81.73** | |
| **LSD * 0.10** | **1.62** | |

**TABLE 2:** *2023 RESULTS FROM ST. JOHNS, MI*

| Treatment | Yield |
|---|---|
| Boron | 71.5 |
| Zinc | 65.7 |
| Untreated | 69.3 |
| Mg | 66.2 |
| Micro 500 | 67.8 |
| Iron | 69 |
| Average | 68.25 |

# CONCLUSION

Treatments at the Wabash, IN site had four replications, and the St Johns, MI location had two replications. Plants acquire micronutrients through their roots, so soil type, organic matter, texture and moisture all contribute to the possibility of micronutrient deficiencies.

In this initial year of this study, we saw where the application of boron showed the greatest yield increase in both locations. Boron is a very soluble nutrient in soil. For boron to be taken up by the plant, it must be in soil solution, which is the water matrix that surrounds soil particles.

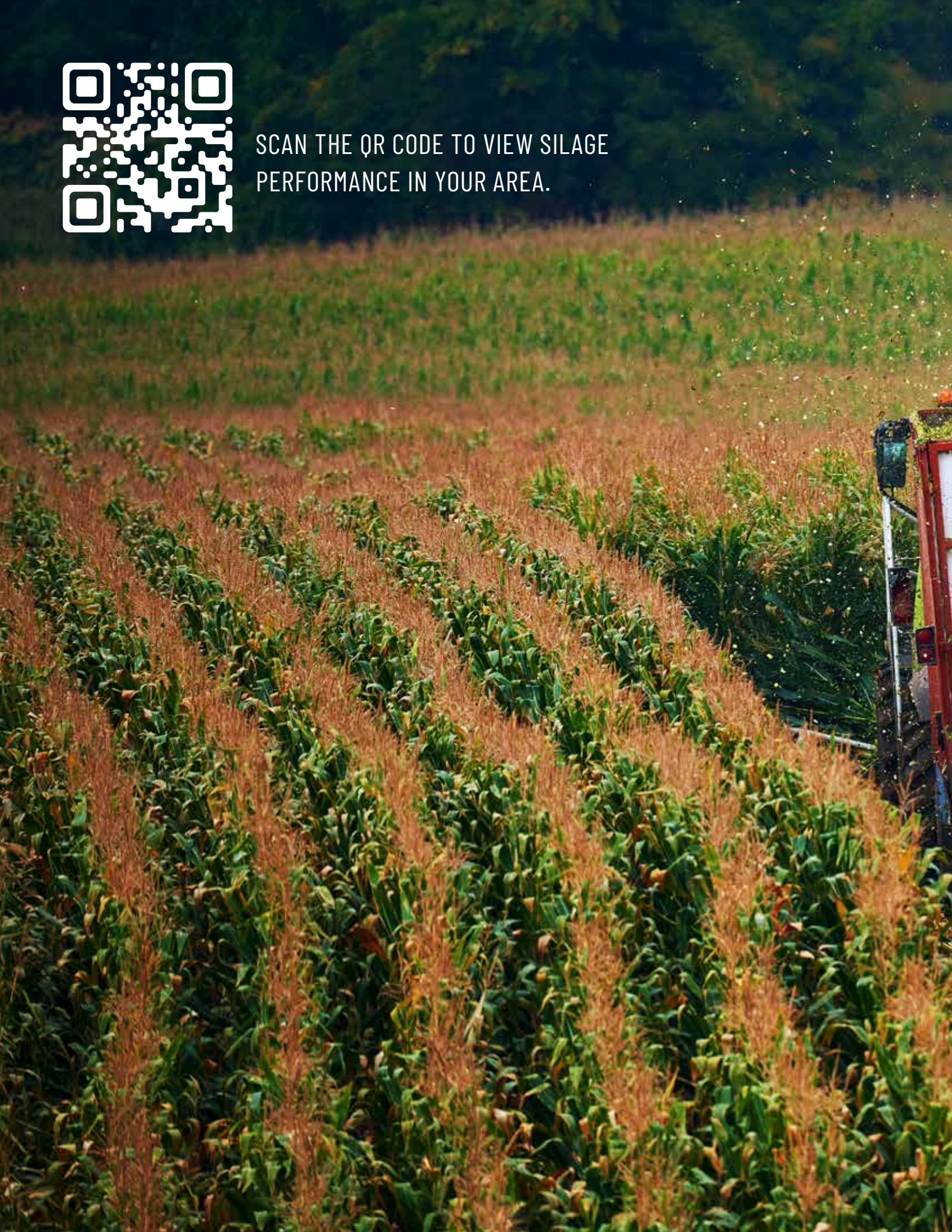
The testing sites for this study both experienced droughty conditions during the growing season. These dry conditions could have limited the amount of boron that the plants were able to take up, and although no boron deficiency was noted at either location, the application of boron was enough to increase the yield.

The application of foliar fertilizers is common in areas where growers are trying to achieve that next level in yield. With all the foliar fertilizer products on the market, it can be difficult to determine which nutrient or combination of nutrients is right for a given scenario.

Many growers adopted the trial-and-error method in regard to foliar fertilizer, which works to eliminate products that may not fit particular geographies or management systems but can be costly and time consuming.

If micronutrient deficiencies are a yield limiting concern on an operation, the best method to determine which nutrients to apply can be achieved by establishing a baseline through three to five years of tissue sampling.

This accumulated data will help reveal which, if any, nutrients are limiting to yield, and the limiting nutrients can then be applied to help protect maximum yield potential.



SCAN THE QR CODE TO VIEW SILAGE PERFORMANCE IN YOUR AREA.


OUR STRONGEST
SILAGE
LINEUP EVER

# Foliar Fungicide Use for Increased Silage Yield and Quality

This is the third and final year of our investigation of applying fungicide for corn silage production.

For two years, we used a mix of dual purpose, HiDF and BMR hybrids. For 2023, we focused on a Bovalta™ BMR corn silage hybrid. We collected silage yield via hand harvest. In addition, we sent samples to the lab for feed quality data.

## TREATMENTS

**2021:**

1. BMR-3508RA™ + Fungicide
2. BMR-3508RA™ w/o Fungicide
3. HiDF-4999Q™ + Fungicide
4. HiDF-4999Q™ w/o Fungicide
5. DS-5279Q™ + Fungicide
6. DS-5279Q™ w/o Fungicide

**2022:**

1. DB-5211AMXT™ + Fungicide
2. DB-5211AMXT™ w/o Fungicide
3. HiDF-5000Q™ + Fungicide
4. HiDF-5000Q™ w/o Fungicide
5. DS-5279Q™ + Fungicide
6. DS-5279Q™ w/o Fungicide

**2023:**

1. DB-5005Q™ + Aproach® Prima
2. DB-5005Q™ w/o Fungicide

## RESULTS

**TABLES 1 AND 2:** *2021 SILAGE CORN FUNGICIDE TRIAL*

| Product | Tons/A | Starch | NDFD | Tons/A | Starch | NDFD |
|---|---|---|---|---|---|---|
| No Fungicide | | | | Fungicide | | |
| BMR-3508RA | 25.1 | 37.7 | 58.5 | 24.8 | 39.0 | 60.4 |
| HIDF-4999Q | 25.2 | 38.4 | 55.8 | 28.4 | 40.1 | 57.7 |
| DS-5279Q | 31.1 | 38.4 | 56.2 | 30.1 | 39.0 | 56.5 |
| **Average** | **27.1** | **38.2** | **56.8** | **27.8** | **39.4** | **58.2** |

| Product | GLS % | NCLB % | Tar Spot % | GLS % | NCLB % | Tar Spot % |
|---|---|---|---|---|---|---|
| No Fungicide | | | | Fungicide | | |
| BMR-3508RA | 7.5 | 1.5 | 0.0 | 17.5 | 5.0 | 0.25 |
| HIDF-4999Q | 50.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.25 |
| DS-5279Q | 65.0 | 0.0 | 0.0 | 2.0 | 0.5 | 0.25 |

**TABLES 3:** *2022 WABASH, IN PAR TRIALS*

| Product | Tons/A | Starch | NDFD | Tons/A | Starch | NDFD |
|---|---|---|---|---|---|---|
| No Fungicide | | | | Fungicide | | |
| HIDF-5000Q | 29.54 | 34.27 | 54.43 | 30.45 | 31.57 | 53.67 |
| DS-5279Q | 29.54 | 37.30 | 58.07 | 31.85 | 36.94 | 56.80 |
| DB-5211AMXT | 27.91 | 31.70 | 58.28 | 26.18 | 31.29 | 61.42 |
| **Average** | **28.99** | **34.42** | **56.93** | **29.49** | **33.27** | **57.30** |

**TABLES 4:** *2023 WABASH, IN PAR TRIALS*

| Product | Tons/A | Starch | NDFD | Tons/A | Starch | NDFD |
|---|---|---|---|---|---|---|
| No Fungicide | | | | Fungicide | | |
| DB-5005Q | 24.10 | 32.97 | 60.83 | 27.67 | 30.83 | 58.50 |

**TABLE 5:** *2023 WABASH, IN PAR TRIALS, OVERALL DISEASE PERCENTAGE*

| Overall % Disease | | |
|---|---|---|
| | No Fungicide | Fungicide |
| Rep 1 | 15 | 5 |
| Rep 2 | 10 | 2 |
| Rep 3 | 10 | 2 |
| Combined | 11.67 | 3 |

**TABLE 6:** *THREE YEAR AVERAGE WITH 21 COMBINED REPLICATIONS OVER VARIOUS HYBRIDS AND YEARS*

| Year | Tons | Starch | NDFD | Tons | Starch | NDFD |
|---|---|---|---|---|---|---|
| No Fungicide | | | | Fungicide | | |
| 2023* | 24.1 | 32.97 | 60.833 | 27.67 | 30.83 | 58.5 |
| 2022 | 28.99 | 34.42 | 56.93 | 29.49 | 33.27 | 57.3 |
| 2021 | 27.12 | 38.17 | 56.82 | 27.77 | 39.36 | 58.23 |
| 3-year Ave. | 26.74 | 35.19 | 58.194 | 28.31 | 34.49 | 58.01 |
| ** 2023 BMR hybrid only* | | | | 1.57 | -0.7 | -0.18444 |

## RESULTS

Limited disease levels in all three years at the Wabash, IN site may have reduced the impact of fungicide applications.

In 2021, disease ratings were taken and reported. In 2022, disease ratings were taken; however, little to no disease was present at the late August rating date.

For the 2023 season, we used a combined rating for disease, which was still relatively low. Each season, we assessed gray leaf spot, northern corn leaf blight and tar spot. It is typical to see tar spot increase in mid-to-late September at this location. However, for this study, silage harvest is usually completed by this time frame.

In 2021, we observed increased tonnage of about 1,400 lbs. (0.7 tons), and in 2022, it was slightly less at 1,000 lbs. (0.5 tons).

In 2023, we noted a considerable increase in silage tonnage to well over three tons. This makes three-year data with over 21 replications show roughly a 1.5 ton/A advantage for using fungicide.

Starch data for all years showed mixed results. The 'average by year' numbers may have skewed the information to show decreased starch. However, more data points in previous years may indicate limited-to-no-effect on starch.

The NDFD30 numbers showed an increase for two years. However, for 2022, the difference was not as great as in 2021, with a 0.89 increase in NDFD30. In 2023, there was a slight decrease in NDFD30.

## CONCLUSION

Even under little-to-no disease pressure, we record an advantage to applying fungicide for corn silage production.

Our multi-year observations show enough yield enhancement to have a positive ROI for the use of fungicide.

Even with a decreased silage quality for 2023, we feel there is still a "feed hygiene" advantage and most likely improved NDFD30 starch values.

# Curiosity Corner

In this section, we will report on a myriad as demonstrations or mini trials if you wish.

Curiosity Corner was aptly named for the innate curiosity of our contract researcher in Wabash, IN, Bob Shultz. He is constantly looking at new and interesting concepts in agronomy.
So, we will present this information with a bit of caution. In many cases, it is one small side-by-side or a simple demonstration strip to "test the waters" of something we may need to look at further.

A special thanks to Ryan Kussmaul, who contributed a couple "curious" tests as well this year from our Mt. Hope, WI location.

We will not offer a complete commentary on each project, instead we simply present the data for you to consider. Most likely, we will develop some of the projects into full research plots in the future.

| Test and Treatment | | |
|---|---|---|
| **Hybrid/Variety** | **Simulated Hail with Aproach Prima and Utrisha N** | **Yield (Bu/A)** |
| DS-4365V | Hail/6.8 oz. Aproach Prima/Utrisha N | 254.82 |
| DS-4365V | Hail/6.8 oz. Aproach Prima V7 | 263.2 |
| DS-4365V | Hail/No Treatment | 245.72 |
| DS-4365V | Hail/Split Rate Aproach Prima/Utrisha N | 251.94 |

| Hybrid/Variety | Low Population and Utrisha N 2 | Yield (Bu/A) |
|---|---|---|
| DS-4365V | Utrisha N 5 oz./Population = 23,000 | 227.59 |
| DS-4365V | No treatment/Population = 23,000 | 217.69 |

| Hybrid/Variety | Low Population and Utrisha N | Yield (Bu/A) |
|---|---|---|
| DSR-1919E | Utrisha N/Population = 60,000 | 68.7 |
| DSR-1919E | Untreated/Population = 60,000 | 64.65 |

| Hybrid/Variety | High Yield and Starter Products | Yield (Bu/A) |
|---|---|---|
| DS-4833AM | 6-24-6 & BW Fusion & Irrigated | 314.98 |
| DS-4833AM | BW Fusion & Irrigated | 303.87* |
| DS-4833AM | 6-24-6 & Irrigated | 299.61 |
| DS-4833AM | Tram Non-irrigated | 286.92 |

# DAIRYLAND SEED

## Western Customer Service Center

8992 Kussmaul Rd
Mount Hope, WI 53816-9760

**PHONE** (608) 988-4266
**FAX** (608) 988-1019
**TOLL-FREE** (800) 988-4266

## Headquarters

**MAILING ADDRESS**
P.O. Box 958
West Bend, WI 53095-0958

**SHIPPING ADDRESS**
3570 County Highway H
Kewaskum, WI 53040

**PHONE** (262) 626-3080
**FAX** (262) 626-2281
**TOLL-FREE** (800) 236-0163

## Eastern Customer Service Center

15 Ringel Ave
Wabash, IN 46992-5101

**PHONE** (260) 563-3163
**FAX** (260) 225-0461
**TOLL-FREE** (888) 563-3163


dairylandseed@dairylandseed.com | /DairylandSeed | @DairylandSeed | /DairylandSeed

CORTEVA™ agriscience