DEKALB

ASGROW

DELTAPINE

2020

# SCOTT LEARNING CENTER FIELD RESEARCH

@Bayer4CropsScottLC

@ideasgotogrow

CORN
SOYBEANS
COTTON

# SCOTT
## LEARNING CENTER

Welcome to the 2020 Field Research Book for the Scott Learning Center in Scott, MS. This book summarizes the results from our 2020 field research program. The Scott Learning Center (SLC) targets its research on corn, cotton, and soybean for Southern U.S. crop production.

2020 presented many challenges for agriculture around the Southern U.S. From pandemics, floods, and drought to multiple hurricanes, the staff at the Learning Center continued to plant, maintain and harvest a robust set of research plots in spite of the difficulties encountered by Southern growers during the season.

Within this book you will find information about cotton variety response to plant growth regulator applications, soybean planting date and planting error studies, as well as a variety of corn production practice evaluations. Our 2020 program also included many trials evaluating exciting new germplasm offerings from Asgrow®, DEKALB® and Deltapine®. We welcome you to use this data as part of the decision-making process on your farms.

The SLC continues to focus on grower questions/solutions and many of the studies in this book were the result of observations made in our area or specific questions asked by customers. Please feel free to call us or provide any feedback on how we can add to or improve our program for 2021. There is a QR code contained in this book leading to a survey that will help us improve the program at Scott.

We hope to welcome visitors during 2021 and would invite anyone interested to contact the Learning Center Staff to schedule a visit. Our contacts are listed below.


Krista Fratesi – krista.fratesi@bayer.com

Joseph Cummins – joseph.cummins@bayer.com

Jay Mahaffey – jay.mahaffey@bayer.com


Thank you and please call or email to schedule a visit.

**The Staff of the Scott Learning Center**

### CUSTOMER SURVEY:

Please help us grow our program at the SLC. This QR code leads to a survey about the value to farmers of the data generated by the SLC. Responses to this survey will be anonymous and will help keep the Scott Learning Center moving forward to the benefit of southern agriculture.

### CATEGORY:

The reports in this book are arranged by crop. Each report is also tagged with one of these icons to quickly show you what it's about.

TABLE OF
# CONTENTS

# DEKALB® Brand Product Response to Soil Environments

## Trial Objective

- New corn products should be evaluated for response to soil type prior to planting. Product placement for any farming operation is important to help maximize the value of the selected products for the acre planted.
- New corn products and refuge products remain a focus of our program at the Bayer Learning Center at Scott, Mississippi.
- This trial was conducted to:
  - » Help evaluate the adaptation of new, existing, and refuge DEKALB® brand corn products to two radically different soil types.
  - » Evaluate yield potential for new, existing, and refuge corn products from DEKALB® brand as an aid to help growers:
    - With corn product placement.
    - Remain compliant with refuge management plans.
    - Collect optimum value from DEKALB® brand corn products.
- This information is important for correctly placing products for maximum yield potential, good stewardship of biotechnology traits, maintaining compliance, and optimizing performance of DEKALB® brand products over time.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Commerce Silt Loam | Cotton | Conventional | 04/28/20 | 09/17/20 | 250 | 37,500 |
| Scott, MS | Sharkey Clay | Soybean | Conventional | 05/06/20 | 09/11/20 | 200 | 37,500 |

- Plot design was a large block, single replicate design.
- Nitrogen was applied in-season at 240 lb/acre. All other agronomic practices were per the standards for the area.
- Soil types on which corn products were evaluated:
  - » Commerce Silt Loam, SAND, CEC = 18 meq/100g
  - » Sharkey Clay, CLAY, CEC = 45 meq/100g
- For each soil type, corn products were planted at a seeding rate of 37,500 seeds/acre and about 95% of the seeds emerged.
- A commercial scale planter was used.
- For this trial, 20 DEKALB® brand products were planted (Table 1).

# *DEKALB® Brand Product Response to Soil Environments*

**Table 1. DEKALB® brand corn products planted by each soil type.**

| | | | Soil Types | |
|---|---|---|---|---|
| **DEKALB® Brand Corn Product** | **Biotechnology Trait** | **Relative Maturity** | **Commerce Silt Loam** | **Sharkey Clay** |
| DKC62-53 | VT Double PRO® Technology | 112 | | X |
| DKC62-08 | SmartStax® Technology | 112 | | X |
| DKC63-57 | VT Double PRO® Technology | 113 | | X |
| DKC64-35 | VT Double PRO® Technology | 114 | X | X |
| DKC65-95 | VT Double PRO® Technology | 115 | X | X |
| DKC65-99 | Trecepta® Technology | 115 | X | X |
| DKC66-18 | VT Double PRO® Technology | 116 | X | X |
| DKC66-75 | VT Double PRO® Technology | 116 | X | |
| DKC67-37 | SmartStax® Technology | 117 | X | X |
| DKC67-44 | VT Double PRO® Technology | 117 | X | X |
| DKC67-94 | Trecepta® Technology | 117 | X | X |
| DKC68-26 | VT Double PRO® Technology | 118 | X | X |
| DKC68-69 | VT Double PRO® Technology | 118 | X | |
| DKC69-16 | SmartStax® Technology | 119 | X | X |
| DKC69-99 | Trecepta® Technology | 119 | X | X |
| DKC70-27 | VT Double PRO® Technology | 120 | X | X |
| DKC62-05 | Roundup Ready® Corn 2 | 112 | | Refuge |
| DKC66-94 | Roundup Ready® Corn 2 | 116 | | Refuge |
| DKC68-24 | Roundup Ready® Corn 2 | 118 | | Refuge |
| DKC70-25 | Roundup Ready® Corn 2 | 120 | | Refuge |

- Harvest Information
  - » Trial was harvested with a commercial scale combine.
  - » Data was recorded using Precision Planting® YieldSense yield monitor.
  - » Corn grain yield data were corrected to 15.5% moisture for presentation.

# *DEKALB® Brand Product Response to Soil Environments*

## Understanding the Results

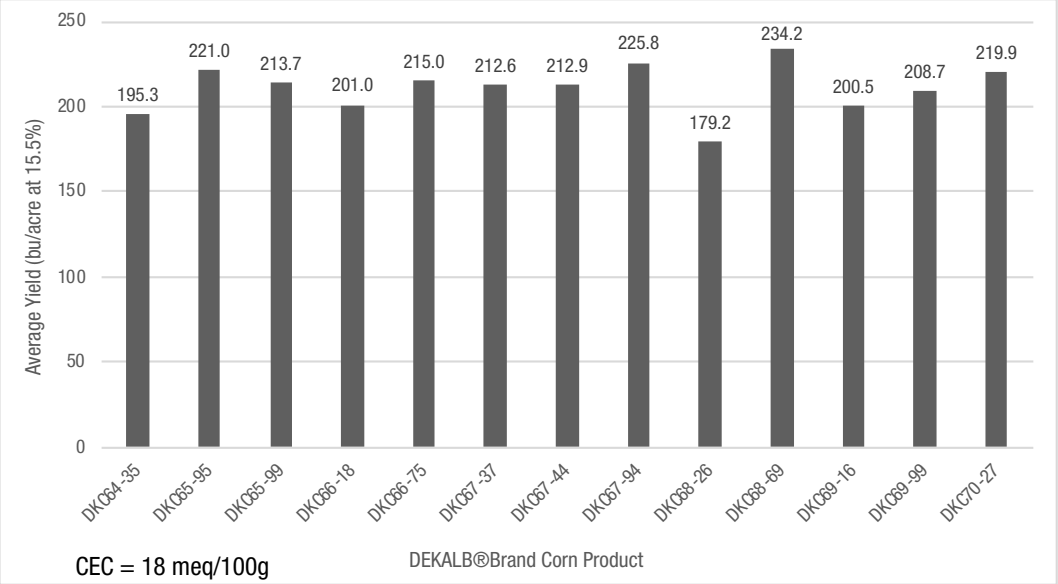


***Figure 1. DEKALB® brand corn product evaluation on Commerce silt loam soil type.***

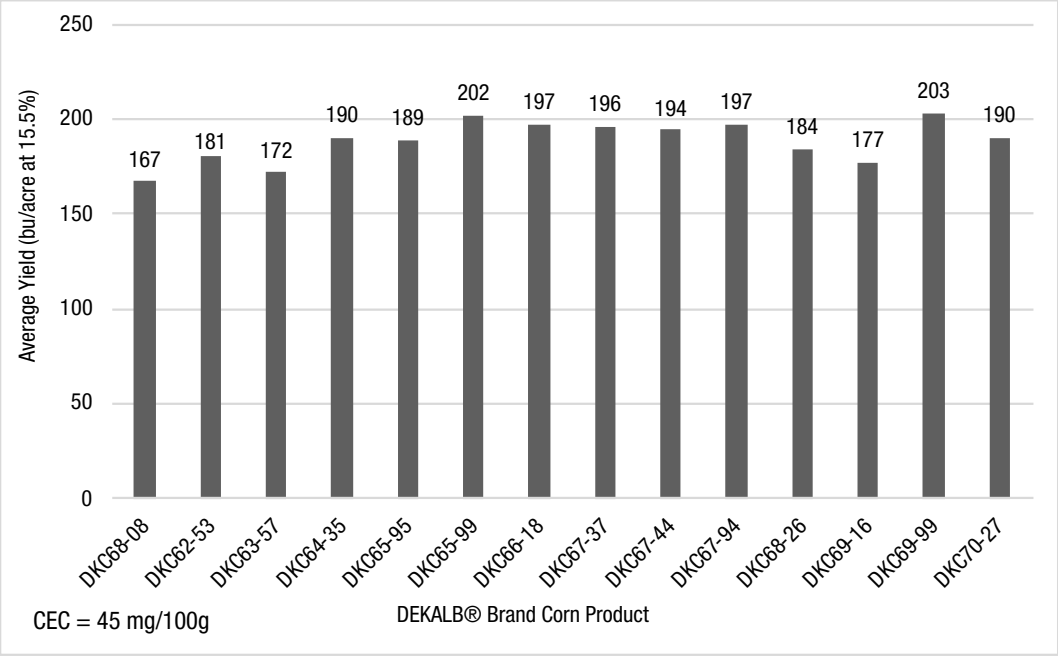


***Figure 2. DEKALB® brand corn product evaluation on Sharkey clay soil type.***

# *DEKALB® Brand Product Response to Soil Environments*

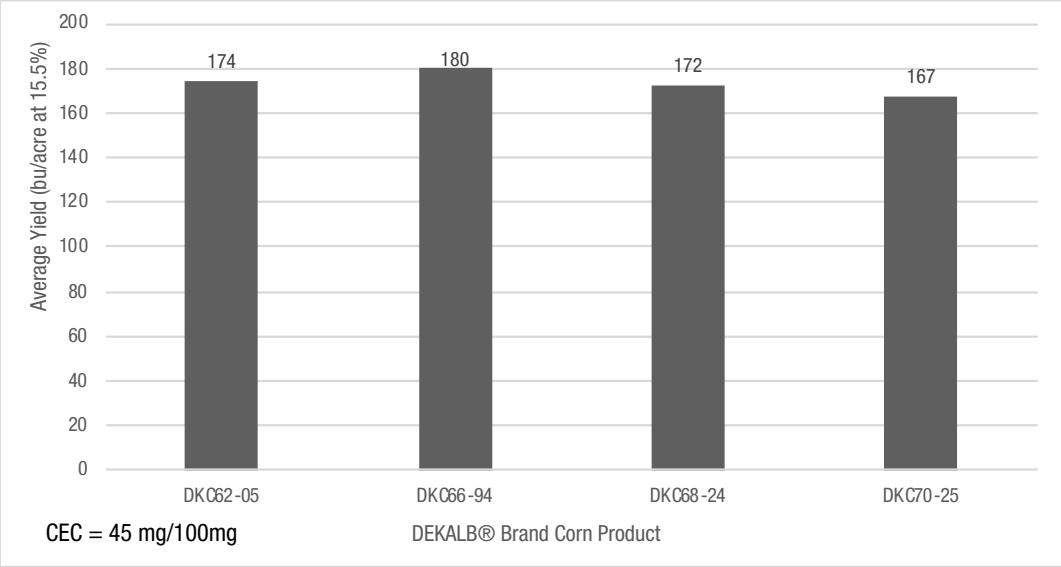


***Figure 3. DEKALB® brand corn products used as refuge on Sharkey clay soil type.***

## Key Learnings

- Corn products should be evaluated for yield and standability response to population prior to planting.
- Differences do exist, use the correct products for your production environment.
- Please see your local DEKALB® brand seed representative for more information.

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

IMPORTANT IRM INFORMATION: RIB Complete® corn blend products do not require the planting of a structured refuge except in the Cotton-Growing Area where corn earworm is a significant pest. See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

ALWAYS READ AND FOLLOW IRM, WHERE APPLICABLE, GRAIN MARKETING AND ALL OTHER STEWARDSHIP PRACTICES AND PESTICIDE LABEL DIRECTIONS. Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Glyphosate will kill crops that are not tolerant to glyphosate. Insect control technology provided by Vip3A is utilized under license from Syngenta Crop Protection AG. Herculex® is a registered trademark of Dow AgroSciences LLC. Agrisure Viptera® is a registered trademark of a Syngenta group company. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. Respect the Refuge and Corn Design® and Respect the Refuge® are registered trademarks of National Corn Growers Association. DEKALB and Design®, DEKALB®, Roundup Ready 2 Technology and Design™, Roundup Ready®, SmartStax®, Trecepta® and VT Double PRO® are trademarks of Bayer Group. All other trademarks are the property of their respective owners. ©2020 Bayer Group. All rights reserved. 1019_R5

Insect Resistance Management
Planting Refuges, Preserving Technology

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management,** for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

LIBERTY LINK®

RESPECT THE REFUGE®

Roundup Ready® 2 TECHNOLOGY





ENVIRONMENT

# *Response of Corn Products to Soil Preparation, Seeding Rate, and Planting Depth*

## Trial Objective

- Rainy fall and spring weather patterns can result in wet soils that prevent raised beds from being prepared. Heavy spring rains can lead to deteriorated seedbed conditions for fields that were prepared in the fall. For these reasons, it is not uncommon for fields to be planted into less than ideal field conditions.
- Adequate drainage is necessary for maximum yield potential in the coastal Mid-South. Poor drainage can hamper stand establishment due to soil saturation. For this reason, preparing raised beds for planting are a common practice in the Mid-South. However, when time is tight due to weather conditions, bedding can be a step that growers are tempted to skip.
- The objective of this study was to evaluate the yield potential of corn products to different soil preparation scenarios, planting depths, and seeding rates.
  - Previous work at the Bayer Learning Center at Scott, Mississippi has shown a positive yield response to proper field preparation and deeper planting depths. Past data has shown a greater yield response to deeper planting depths for earlier, cooler planting dates.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Clay silt loam | Cotton | Various | 05/4/20 | 9/11/20 | 200 | 32K, 37K |

- Two DEKALB® brand VT Double PRO® corn products (DKC66-75 brand and DKC68-69 brand) were selected for this demonstration.
- Treatments included:
  - Two seeding rates:
    - 32,000 seeds/acre
    - 37,000 seeds/acre
  - Two planting depths:
    - 1.25 inches
    - 2.5 inches
  - Four soil preparation methods:
    - Spring disk flat and rehipped: Harrow plowed flat and rebedded in the spring (Figure 1, left).
    - Spring disk flat and plant flat: Conventional tillage without bedding performed in the spring (Figure 1, right).
    - No-till: Corn planted into standing, mown-off cotton stalks (Figure 2).
    - Reduced tillage: Stale seedbed rehipped in the spring with minimal tillage (Figure 3, left).
- All weed control, insect control, and irrigation inputs were applied per local standards on all treatments.

# *Response of Corn Products to Soil Preparation, Seeding Rate, and Planting Depth*

***Figure 1. Spring disk flat and rehipped (left) and spring disk flat and plant flat (right) soil preparation treatments.***

***Figure 2. No-till soil preparation treatment.***

***Figure 3. Reduced-till treatment of stale seedbed rehipped (left) and no-till treatment of mowed cotton stalks (right) soil preparation treatments.***

## Understanding the Results

- Seeding rate: Due to spring rains in 2020, most southern corn was planted late which limited yield potential. Therefore, the typical response to seeding rate was not observed in this study. In addition, both corn products are well adapted to the seeding rates used in this study and were able to optimize yield potential across the parameters tested. Because no differences were noted due to seeding rate, data was combined for the purposes of this report.

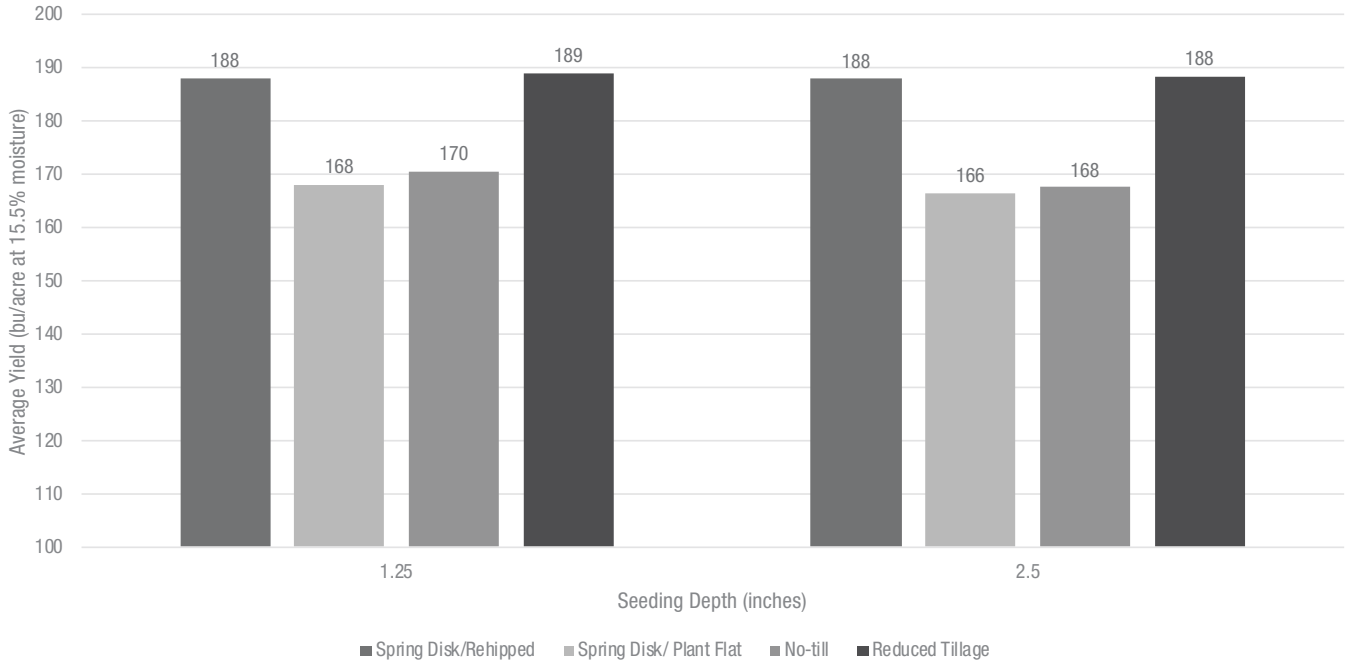


***Figure 4. Average corn yield response to soil preparation and seeding depth in 2020.***

# *Response of Corn Products to Soil Preparation, Seeding Rate, and Planting Depth*

- Planting depth: There were no substantial average yield differences due to planting depth in 2020 (Figure 4). In previous demonstrations, we typically observed more of an impact from planting depth than we observed in this demonstration, which showed basically zero impact. This is likely due to not planting into cold, wet soils and not having a large predation of seed by birds. These are the two primary reasons that we typically plant corn deeper.

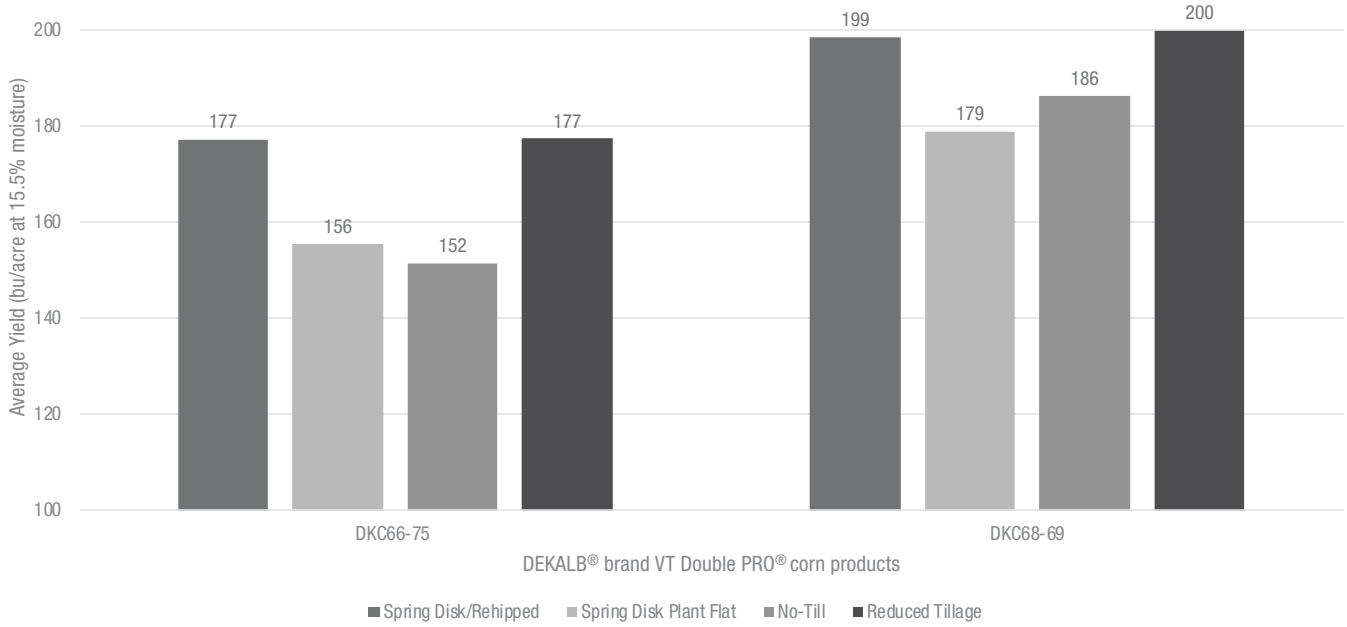


***Figure 5. DEKALB® brand VT Double PRO® corn product average yield response to soil preparation in 2020.***

- Corn product: The corn products in this demonstration responded differently to soil preparation method. These results highlight the importance of corn product selection and positioning them to maximize their genetic potential. The field for this study was a stressful production system and DKC66-75 Brand is not well suited for this environment.

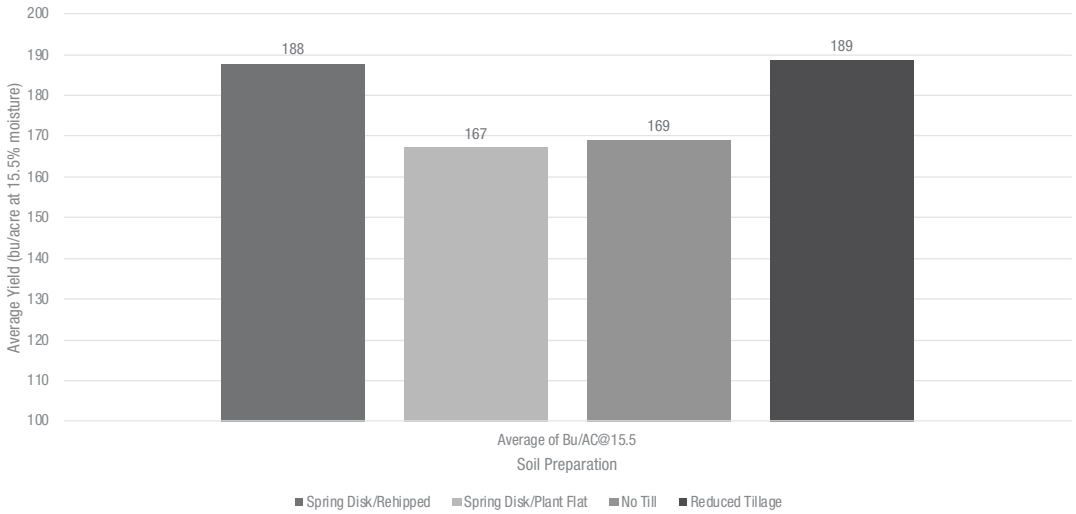


***Figure 6. Average corn yield response to soil preparation in 2020.***

# *Response of Corn Products to Soil Preparation, Seeding Rate, and Planting Depth*

- Soil Preparation: In this demonstration, the reduced tillage and spring disked/rehipped systems showed average yield increases of 20 bu/acre compared to flat planted or no till treatments. This is likely due to improvements in drainage. Raised beds can help relieve seedlings from saturated soils. Observations were similar in 2019 where the no-till and flat planted system did not yield as those with beds.
- The results from 2019 and 2020 indicate an ability to reduce tillage as long as good drainage is established with the system chosen.
- For details on 2019 results, please visit https://www.dekalbasgrowdeltapine.com/en-us/agronomy/response-corn-products-to-soil-preparation-seeding-rate-and-planting-depth.html.

## Key Learnings

- Corn product selection remains a very important component in maximizing corn yield potential.
- In this demonstration, planting depth did not appear to have an impact when considering tillage system, corn product or seeding rate. However, growers should remain focused on planting at recommended depths to mitigate risk of bird damage and uneven emergence.
- Seeding rate did not greatly increase yields in 2020 but yield potential may have been limited by the delayed planting date. Growers should consider corn product, planting date, soil types and maximum yield potential when selecting a seeding rate.
- The tillage system used impacted yield potential in this study. Abundant rainfall and excessive soil moisture is the most prominent factor challenging southern corn growers during the planting season. Management options like soil preparation can help improve outcomes. Growers should establish/reestablish drainage (regardless of tillage system) as needed to help optimize yield potential.

## Legal Statements



3013_R6_20

# Response of Corn Refuge Products to Seeding Rate

## Trial Objective

All southern corn growers are required to plant a non-insect protected corn refuge if growing Bt (Bacillus thuringiensis) corn. The objectives of this trial are to:

- Evaluate the response of refuge (non-Bt) corn products to seeding rate.
- Determine the population that optimizes the yield potential and standability for each refuge corn product.
- Show growers how to optimize the performance of refuge corn products in their corn refuges.
- Encourage improved grower compliance with refuge requirements.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Planting Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Mixed - Clay Silt loam | Cotton | Conventional | 05/02/20 | 09/11/20 | 200 | 23,000<br>28,000<br>33,000<br>38,000<br>43,000 |

- This demonstration was conducted as a non-replicated large block.
- Four DEKALB® brand Roundup Ready® Corn 2 products were planted at five seeding rates. Emergence was approximately 95% of the planted seeding rate.
  - DKC62-05 Brand
  - DKC66-94 Brand
  - DKC68-24 Brand
  - DKC70-25 Brand
- Nitrogen was applied at 240 lb/acre as 32% liquid UAN. All weed control, insect control, and irrigation inputs were applied per local standards.
- All data was collected using Precision Planting® 20/20 SeedSense® via Climate FieldView™Platform. Average yield data were corrected to 15.5% moisture in the analysis.

## Understanding the Results

- Three brands in this demonstration, DKC62-05 Brand, DKC66-94 Brand, and DKC68-24 Brand increased average yield as seeding rate increased, except DKC70-25 Brand.
- Refuge corn products tested in this demonstration exhibited acceptable average yields according to expected potential yield.

# *Response of Corn Refuge Products to Seeding Rate*

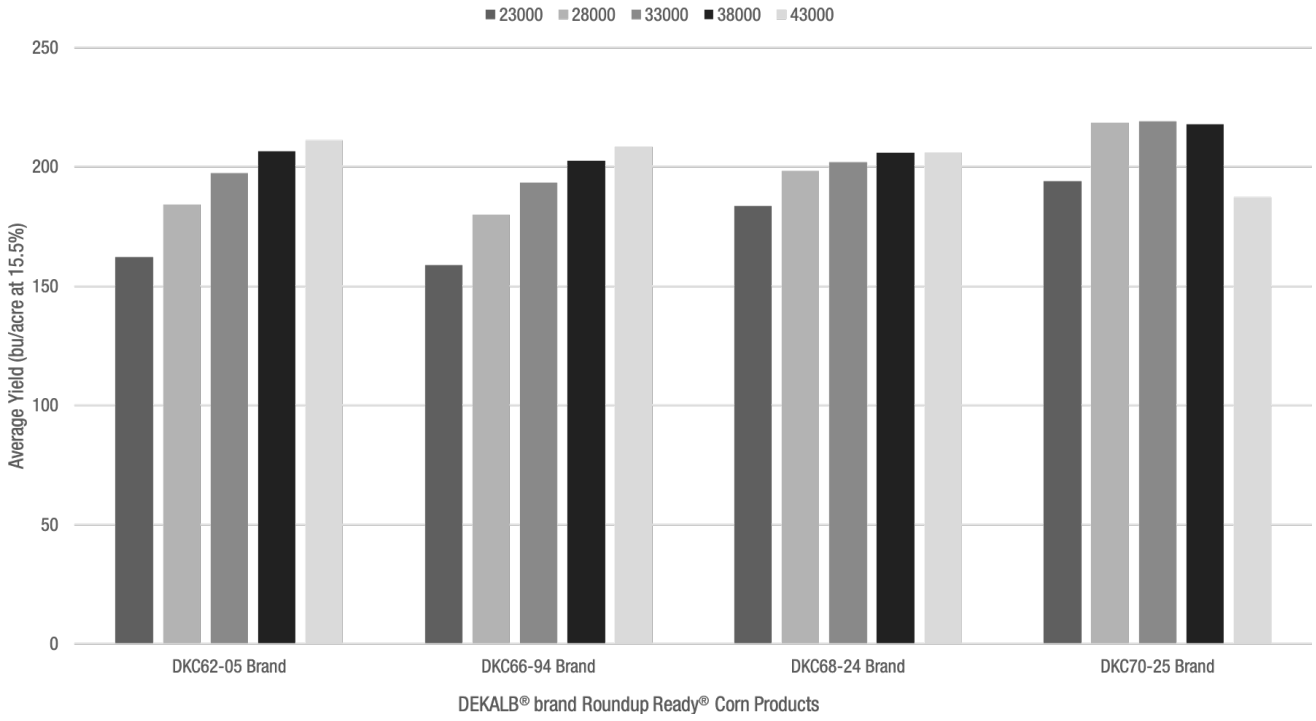


***Figure 1. Response of four refuge corn brands to seeding rate (seeds/acre).***

## Key Learnings

- For this demonstration, refuge corn products generally produced higher yields at higher seeding rates. Seeding rates should be adjusted according to the production environment.
- Refuge corn product characteristics, yield potential, and agronomic practices are considerations when selecting refuge corn products.
- Contact your DEKALB® brand seed representative for questions about specific corn products and refuge requirements.

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Glyphosate will kill crops that are not tolerant to glyphosate. Services and products offered by The Climate Corporation are subject to the customer agreeing to our Terms of Service. Our services provide estimates or recommendations based on models. These do not guarantee results. Before making financial, risk management and farming decisions, agronomists, commodities brokers and other service professionals should be consulted. More information at http://www.climate.com/disclaimers. FieldView™ is a trademark of The Climate Corporation. DEKALB® and Roundup Ready® are registered trademarks of Bayer Group. All other trademarks are the property of their respective owners.  3013_R12

# *Standability and Yield Potential of DEKALB® Corn Products to Seeding Rate*

## Trial Objective

- Research has indicated that corn yield has a positive correlation with seeding rate until a threshold is reached. Further increases beyond this threshold negatively impacts yield and/or economic return for the product.[1,2] Defining the seeding rate threshold for a corn product is difficult as it's highly affected by management practices and the environmental conditions during the growing season.
- However, knowing this threshold is critical as it forms the basis upon which other management practices are based.
- The objective of this trial was to evaluate the yield potential and standability of DEKALB® corn products to seeding rate.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Planting Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Silt loam | Soybean | Conventional | 5/1/2020 | 9/17/2020 | 250 | 17,500<br>22,500<br>27,500<br>32,500<br>37,500<br>42,500 |

- All weed control, insect control, and irrigation inputs were applied per local standards.
- Eight DEKALB® corn products were planted on bedded single rows with 38-inch row spacing at 17,500, 22,500, 27,500, 32,500, 37,500, and 42,500 seeds/acre.
  - » DKC65-95 brand, VT Double PRO® Technology
  - » DKC65-99 brand, Trecepta® Technology
  - » DKC66-18 brand, VT Double PRO® Technology
  - » DKC67-37 brand, SmartStax® Technology
  - » DKC67-44 brand, VT Double PRO® Technology
  - » DKC67-94 brand, Trecepta® Technology
  - » DKC69-99 brand, Trecepta® Technology
  - » DKC70-27 brand, VT Double PRO® Technology
- 240 lb of nitrogen was applied as 32% liquid UAN.
- The trial was conducted as a single replicate strip plot and each plot was approximately 0.6 acre.
- All data was collected using Precision Planting® 20/20 SeedSense® via Climate Fieldview™ Platform. Yields were corrected to 15.5% in the analysis.

# *Standability and Yield Potential of DEKALB® Corn Products to Seeding Rate*

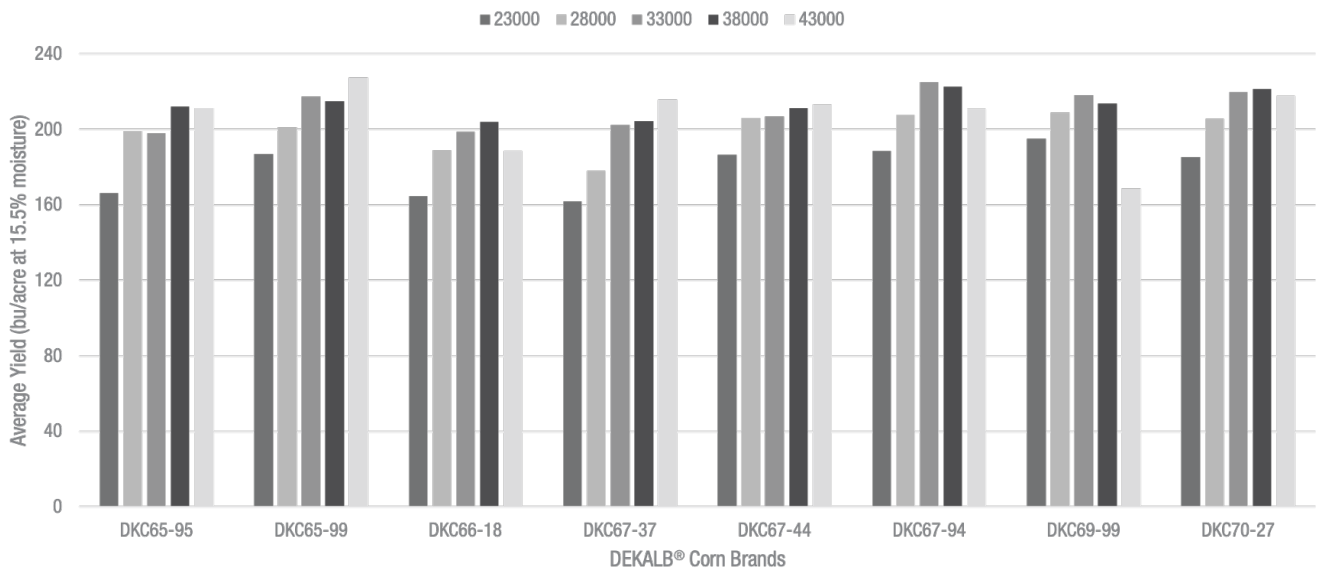


***Figure 1. Average yield of DEKALB® corn brands in 2020 at Scott Learning Center by seeding rate.***

- Not all products in this demonstration responded the same to seeding rate in either yield or standability. Individual product response to increasing seeding rate varied across corn products but followed an upward trend in average yield (Figure 1). Generally, corn seeding rates are most favorable in the 33,000 to 38,000 range for most of the tested products in this demonstration.
  - » Across all corn products, the return on investment (ROI) for a 10,000 seeds/acre increase in seeding rate was $10.54/acre (Table 1).
  - » Of the eight products tested, six of them responded favorably to higher seeding rates with a range of $9.00 to $56.00/acre for a 10,000 seeds/acre increase in seeding rate (Table 1).
  - » The average ROI for these six products was $20.42/acre over seed costs (Table 1).
  - » The remaining two products showed either lodging issues or little yield response to increasing seeding rate. This led to a negative average ROI of -$19.10/acre for greatly increasing seeding rate (Table 1).
  - » It is important to note that while these returns on investment are from one season of data, the average yield results based on seeding rate are similar to other SLC research in previous years.

# *Standability and Yield Potential of DEKALB® Corn Products to Seeding Rate*

***Table 1. Economic effect of seeding rate on corn productivity. Average gross income was adjusted for seed cost using an estimated $3.75 per 1,000 seed across all corn products, and corn price at $3.50/bu.***

| DEKALB® Corn Brand | Corn Seeding Rate (seeds/acre) | | | | | 28,000 vs 38,000 Average Yield Difference (bu/acre) | Value at Grain Price $3.50/bu | Cost (per 10,000 seeds) | Net Return on Investment for 28,000 vs 38,000 seeds per acre |
|---|---|---|---|---|---|---|---|---|---|
| | 23,000 | 28,000 | 33,000 | 38,000 | 43,000 | | | | |
| DKC65-95 | 166.5 | 199.1 | 198.2 | 212.3 | 211.2 | 13.2 | 46.21 | 37.50 | 8.71 |
| DKC65-99 | 187.3 | 201.3 | 217.5 | 215.0 | 227.5 | 13.8 | 48.20 | 37.50 | 10.70 |
| DKC66-18 | 164.6 | 189.0 | 198.8 | 204.1 | 188.7 | 15.1 | 52.69 | 37.50 | 15.19 |
| DKC67-37 | 162.0 | 178.0 | 202.4 | 204.6 | 215.9 | 26.6 | 92.98 | 37.50 | 55.48 |
| DKC67-44 | 186.6 | 206.0 | 207.0 | 211.5 | 213.4 | 5.5 | 19.29 | 37.50 | -18.21 |
| DKC67-94 | 188.7 | 207.8 | 225.0 | 222.5 | 211.2 | 14.8 | 51.69 | 37.50 | 14.19 |
| DKC69-99 | 195.0 | 209.0 | 218.2 | 214.0 | 168.9 | 5.0 | 17.52 | 37.50 | -19.98 |
| DKC70-27 | 185.6 | 205.7 | 219.7 | 221.7 | 218.0 | 15.9 | 55.75 | 37.50 | 18.25 |
| All Corn Products | 179.5 | 199.5 | 210.9 | 213.2 | 206.8 | 13.7 | 48.0 | 37.50 | 10.54 |

## Key Learnings

- Knowing the optimal seeding rate of a corn product can help maximize yield potential.
- Our observations at Scott Learning Center showed that corn products can and do respond favorably to higher seeding rates. However, high plant populations can result in lodging and exacerbate harvest difficulties. Conversely, full yield potential may not be realized with lower than optimal seeding rates.
- Growers should carefully evaluate each new corn product planted for its response to population in both standability and yield with multiple years and locations used for reference.
- Seeding rate should be adjusted based on field yield potential levels and soil types, as well as the potential return on investment.
- The cost of seed corn is one of the largest variable input costs for most corn growers.[3] Minimizing that cost includes wise selection of seeding rates. This research can help growers evaluate DEKALB corn product seeding rates for their operations.
- Contact your local Field Sales Representative or Technical Agronomist for planting recommendations for the current situation and year.

## Sources

[1] Fromme, D.D., Spivey, T.A., and Grichar W.J. 2019. Agronomic response of corn (Zea mays L.) hybrids to plant populations. International Journal of Agronomy. Vol 2019. https://doi.org/10.1155/2019/3589768.

[2] Nielsen, R.L., Camberato, J., and Lee, J. 2019. Yield response of corn to plant population in Indiana. Agronomy Department. Purdue University. http://agry.purdue.edu.

[3] Langemeir, M.R., Dobbins, C.L., Nielsen, R.L., Vyn, T.J., Casteel, S., Johnson, B. 2019. Purdue crop cost and return guide. Purdue Extension. ID-166-W. http://ag.purdue.edu.

Websites verified 09/29/2020





ENVIRONMENT

# *Standability and Yield Potential of DEKALB® Corn Products to Seeding Rate*

## Legal Statements

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

IMPORTANT IRM INFORMATION: RIB Complete® corn blend products do not require the planting of a structured refuge except in the Cotton-Growing Area where corn earworm is a significant pest. See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Glyphosate will kill crops that are not tolerant to glyphosate. Insect control technology provided by Vip3A is utilized under license from Syngenta Crop Protection AG. Services and products offered by The Climate Corporation are subject to the customer agreeing to our Terms of Service. Our services provide estimates or recommendations based on models. These do not guarantee results. Before making financial, risk management and farming decisions, agronomists, commodities brokers and other service professionals should be consulted. More information at http://www.climate.com/disclaimers. FieldView™ is a trademark of The Climate Corporation. Herculex® is a registered trademark of Dow AgroSciences LLC. Agrisure Viptera® is a registered trademark of a Syngenta group company. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. Respect the Refuge and Corn Design® and Respect the Refuge® are registered trademarks of National Corn Growers Association. DEKALB®, Roundup Ready 2 Technology and Design™, Roundup Ready®, SmartStax®, Trecepta® and VT Double PRO® are trademarks of Bayer Group. SeedSense® is a registered trademark of Precision Planting, LLC. All other trademarks are the property of their respective owners. ©2020 Bayer Group. All rights reserved.

3013_R1_20

Insect Resistance Management
Planting Refuges, Preserving Technology

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management,** for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

LIBERTY LINK®

RESPECT THE REFUGE®

Roundup Ready® 2 TECHNOLOGY





ENVIRONMENT

# *Effects of Corn Seed Placement on Yield Potential*

## Trial Objective

- Demonstrations at the Bayer Learning Center at Scott, Mississippi in 2018 and 2019 showed comparable yield potential for broadcast soybean production to plantings with 38-inch single, 38-inch twin, and 30-inch single row spacing.
- Wet conditions delayed corn planting in 2019, which led to growers asking the question-– Can I broadcast seed corn when I am pushed for time at planting?
- This demonstration was conducted to quantify the effect of precision corn seed placement with row-planted systems versus a broadcast planting technique.
- This study attempts to demonstrate the potential of using an alternative planting technique, like broadcast planting corn, in difficult planting conditions.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Planting Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Clay Silt loam | Soybean | Conventional | 5/22/20 | 9/18/20 | 200 | 36K |

- All cultural inputs (insect, weed and disease management) were per the local standards for the area with 240 lb/acre of liquid N applied early in-season via a soil application.
  - Four DEKALB® corn products were planted:
    - DKC64-35, VT Double PRO®, 114 Relative maturity
    - DKC66-18, VT Double PRO®, 116 Relative maturity
    - DKC67-44, VT Double PRO®, 117 Relative maturity
    - DKC70-27, VT Double PRO®, 120 Relative maturity
- Treatments
  - Row-planted system: 36000 seeds per acre were planted using precision corn planting equipment at two different depths:
    - ½-inch
    - 2-inch
  - Broadcast system: 36000 seeds per acre by weight were planted using a fertilizer spreader. This was determined by the seeds per pound listed on the seed bag and the land area to be seeded.
- Plots were planted as single replicate strip plots that were .10 acres each.
- Data were corrected to 15.5% moisture for analysis.
- This trial was planted late to simulate a delayed planting date situation and as such, the expected yield potential was lower than the typical expected yield for the area.

# *Effects of Corn Seed Placement on Yield Potential*

## Understanding the Results

***Figure 1. Inconsistent corn emergence with broadcast seeding method.***

***Figure 2. Height differences between seeding depth of ½-inch (left) and 2-inch depth (right).***

# *Effects of Corn Seed Placement on Yield Potential*

- Emergence
  - Precision system: typical uniform emergence to a stand of approximately 33000-34000 plants/acre.
  - Broadcast system: Extremely variable emergence to a stand in the range of 38000-60000 plants/acre due to difficulty in accurately applying seed to the field by weight (Figure 1).
- Early Season
  - Precision system: The deeper planted (2 inches deep) appeared healthier throughout the season than either the broadcast or the ½-inch deep planted (Figure 2).
  - Broadcast system: The broadcast corn was not uniform in appearance during the season and emerged at widely varying times for about 4 weeks post planting.
- Harvest
  - Precision system: We observed a 27 bu/acre average yield increase across all corn products in this demonstration for the 2-inch deep planted corn when compared to the ½-inch deep corn.
  - Broadcast system: We observed a 56 bu/acre average increase in the 2-inch deep planted system compared to the broadcast planted corn.

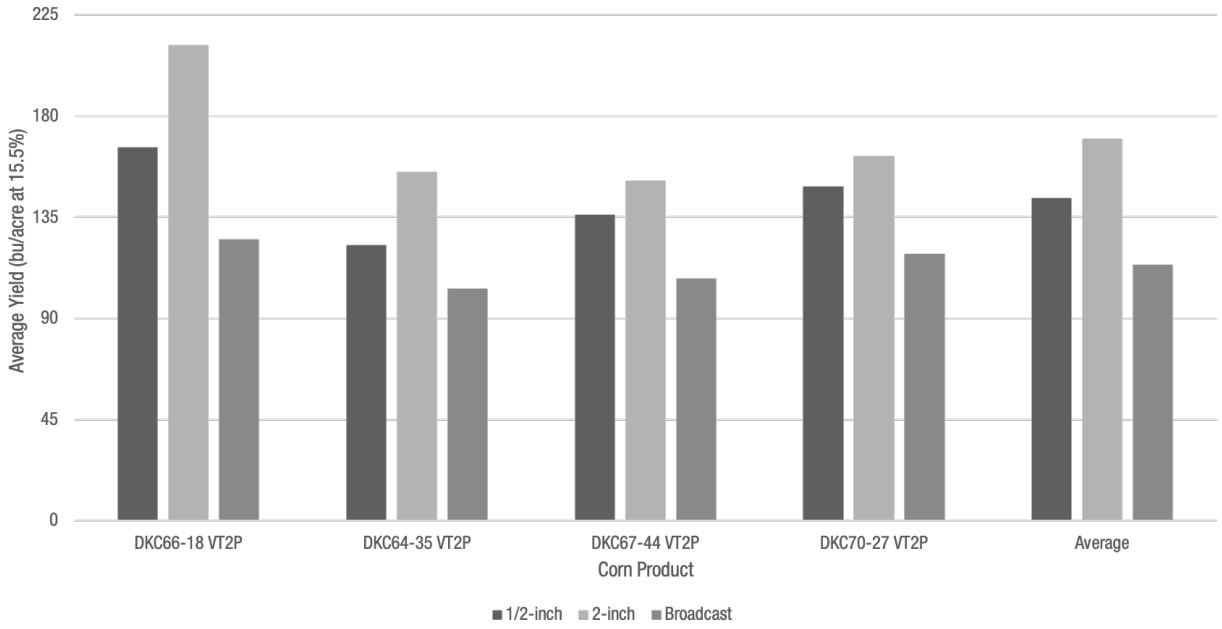


***Figure 3. Average yield of all corn products and planting treatments, including average yield off all corn products across each planting treatment.***

## Key Learnings

- For this demonstration, precise seed placement and deeper seeding depths had a positive influence on corn yield potential. These parameters can only be established at planting.
- Under the late planting conditions at Scott Learning Center, broadcast planting of corn is not recommended, and taking the time to precision plant corn increased yield potential.

# *Effects of Corn Seed Placement on Yield Potential*

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

IMPORTANT IRM INFORMATION: RIB Complete® corn blend products do not require the planting of a structured refuge except in the Cotton-Growing Area where corn earworm is a significant pest. See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Roundup Ready® 2 Technology contains genes that confer tolerance to glyphosate. Glyphosate will kill crops that are not tolerant to glyphosate. Respect the Refuge and Corn Design® and Respect the Refuge® are registered trademarks of National Corn Growers Association. DEKALB®, Roundup Ready 2 Technology and Design™, Roundup Ready® and VT Double PRO® are trademarks of Bayer Group.  3013_R13

Insect Resistance Management
*Planting Refuges, Preserving Technology*

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management,** for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

Roundup Ready 2 TECHNOLOGY

RESPECT THE REFUGE®





ENVIRONMENT

# Yield Response of Asgrow® Soybean Products to Soil Type

## Trial Objective

- It is important for any farming operation to consider individual soybean product adaptation to soil type when selecting soybean products. Demonstration large plot trials were conducted to evaluate the yield potential of current and new Asgrow® soybean products on silt loam and heavy clay soil types.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Commerce silt loam | Corn | Conventional | 5/13/20 | 10/2/20 | 80 | 120K |
| Scott, MS | Sharkey clay | Corn | Conventional | 5/13/20 | 10/4/20 | 80 | 120K |

- Treatments consisted of 15 Asgrow® soybean brands planted in two different soil types: Commerce silt loam (SAND) with a CEC of 18 meq/100g, and Sharkey clay (CLAY) with a CEC of 45 meq/100g.
  - AG43X0 brand
  - AG44XF1 brand
  - AG45X8 brand
  - AG45XF0 brand
  - AG46X0 brand
  - AG46X6 brand
  - AG46XF0 brand
  - AG47X9 brand
  - AG47XF0 brand
  - AG48X9 brand
  - AG48XF0 brand
  - AG52X9 brand
  - AG53X0 brand
  - AG53X9 brand
  - AG55X7 brand
- The trial was conducted on single replication large plots: 0.15 acre plots.
- Seeding rate for both soil types was 120,000 and emergence on both soil types was approximately 80%.
- All weed control, insect control, and irrigation inputs were applied per local standards.
- Plots were harvested with a commercial harvest equipment and data were collected using the Climate FieldView™ Platform and Precision Planting® YieldSense™ yield monitoring systems.
- All yields were corrected to 13.5% moisture.

# *Yield Response of Asgrow® Soybean Products to Soil Type*

## Understanding the Results

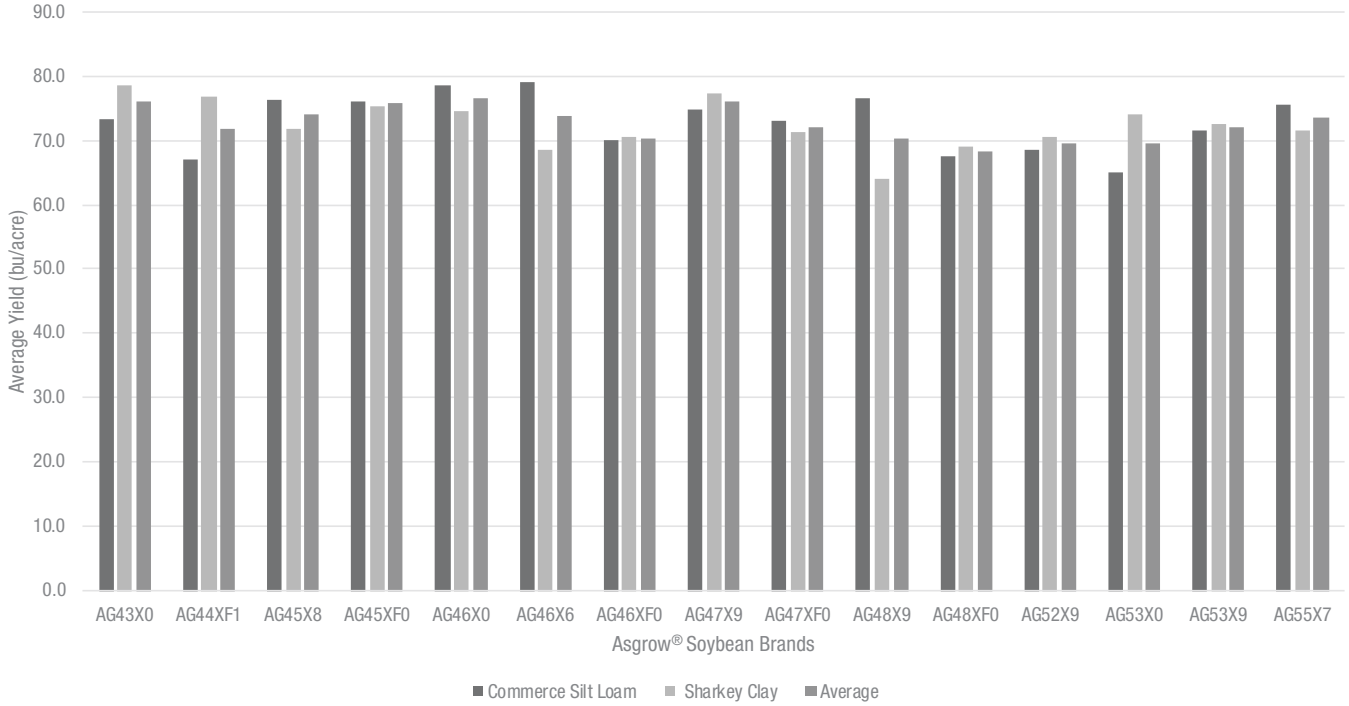


***Figure 1. Average yield (bu/acre) of soybean products on two soil types (Commerce silt loam and Sharkey clay) in 2020.***

- Most of the soybean products in this trial demonstrated acceptable yield potential in these production systems (Figure 1).
- The new 2021 Asgrow® XtendFlex® soybean products (AG44XF1, AG45XF0, AG46XF0, AG47XF0, and AG48XF0) were competitive with existing, well-adapted products (Figure 1).

## Key Learnings

- Current and new Asgrow® brand soybeans offer growers high yield potential options. Differences exist, so selecting the proper soybean product for the production environment is important.
- Prior to placing soybean products on their farm, growers should consult with their local Bayer® seed representative to ensure proper placement regarding yield potential, disease package, and soil type adaptation for each product.

# *Yield Response of Asgrow® Soybean Products to Soil Type*

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

For more information regarding the intellectual property protection for the seed products identified in this publication, please see www.asgrowanddekalb.com. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

Services and products offered by The Climate Corporation are subject to the customer agreeing to our Terms of Service. Our services provide estimates or recommendations based on models. These do not guarantee results. Before making financial, risk management and farming decisions, agronomists, commodities brokers and other service professionals should be consulted. More information at http://www.climate.com/disclaimers. FieldView™ is a trademark of The Climate Corporation. Asgrow and the A Design®, Asgrow®, Bayer, Bayer Cross, Roundup Ready 2 Yield® and XtendFlex® are registered trademarks of Bayer Group. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. All other trademarks are the property of their respective owners.  3011_R17_20

# Planting Errors and Yield Compensation in Soybeans

## Trial Objective

- Each planting season there are soybean fields in the South with unintentionally high plant populations due to equipment or operator planting errors.
- Previous work has shown that high populations of soybeans can be more susceptible to lodging. Soybean plants are also typically capable of overcoming many stand deficiencies including skips, missing rows and non-uniform emergence.
- This study was conducted to evaluate the effectiveness of using conventional techniques to remediate excessive seeding rate planting errors and to reinforce previous work on the compensatory ability of soybean.
  Two primary questions were asked:
  - Should/can overplanted soybean populations be reduced?
  - Do soybean products continue to demonstrate the ability to compensate for missing plants, skips in stands and missing rows?

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Mixed Silt loam | Cotton | Conventional | 5/2/20 | 10/2/20 | 80 | 120K, 360K |

- All agronomic inputs were per local standards.
- Two Asgrow® soybean products were planted:
  - AG46X0 Brand
  - AG48X9 Brand
- Two seeding rates were used for this study:
  - Standard: 120,000 seeds/acre
  - High: 360,000 seeds/acre
- Remediation treatments were applied at three weeks post planting:
  - UTC 120K: Untreated control (UTC) planted at 120,000 seeds/acre with NO remediation treatment applied (Figure 1).
  - UTC 360K: Untreated control planted at 360,000 seeds/acre with NO remediation treatment applied (Figure 1).
  - Bed Conditioner: Planted at 360,000 seeds per acre and one pass with a conventional bed conditioner to attempt to reduce standing plant number (Figure 2).
  - Plowed: Planted at 360,000 seeds per acre and Orthman bedder run at an angle across the rows to non-uniformly reduce the standing population. Rows were rerun for irrigation and drainage. This resulted in large 3- to 4-foot skips distributed uniformly across the plot area (Figure 3).
  - Rotary Hoe: Planted at 360,000 seeds per acre and one pass with a conventional rotary hoe to attempt to reduce standing plant number (Figure 4).
  - Spray Out 1:1: Planted at 360,000 seeds per acre and a broad-spectrum herbicide applied to every other row to result in a 1:1 skip row (76-inch row spacing) (Figure 5).

# *Planting Errors and Yield Compensation in Soybeans*

- Plots were single replicate strip plots of approximately 0.2 acre.
- Post-treatment stand counts were taken on representative plot areas to quantify stand.
- Yields were collected using commercial harvest equipment with the Climate FieldView™ Platform digital app and Precision Planting® YieldSense™ yield monitoring systems.

***Figure 1. High vs standard population soybean: untreated control soybean plots planted at 120,000 seeds/acre (left) and 360,000 seeds/acre (right).***

***Figure 2. Bed conditioner vs high population: bed conditioner treatment (left) and untreated soybeans planted at 360,000 seeds/acre (right).***

***Figure 3. Soybean planted at 360,000 seeds per acre and plowed with an Orthman bedder run at an angle across the rows to non-uniformly reduce the standing population.***

***Figure 4. Soybean planted at 360,000 seeds per acre and remediated with one pass with a conventional rotary hoe.***

# *Planting Errors and Yield Compensation in Soybeans*

***Figure 5. Soybean planted at 360,000 seeds per acre and a broad-spectrum herbicide applied to every other row to result in a 1:1 skip row (76-inch row spacing).***

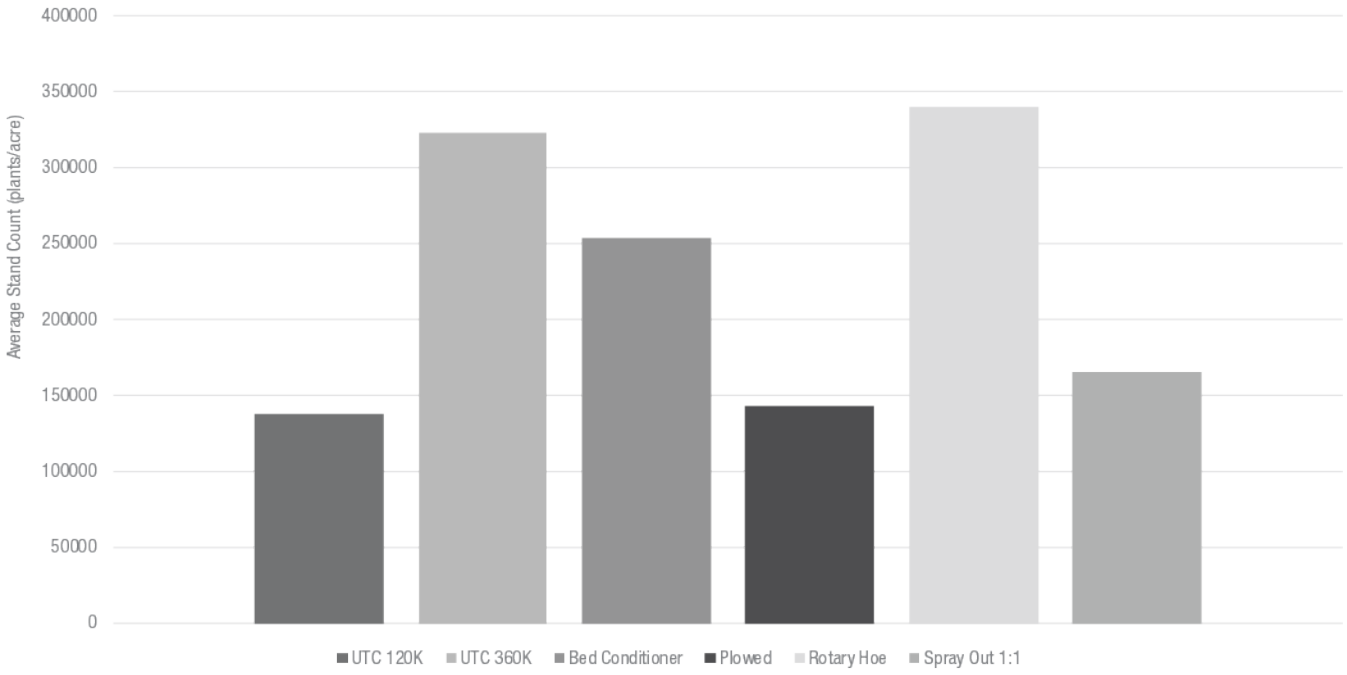


***Figure 6. Effect of planter error remediation treatments on average soybean stand count in 2020.***

# *Planting Errors and Yield Compensation in Soybeans*

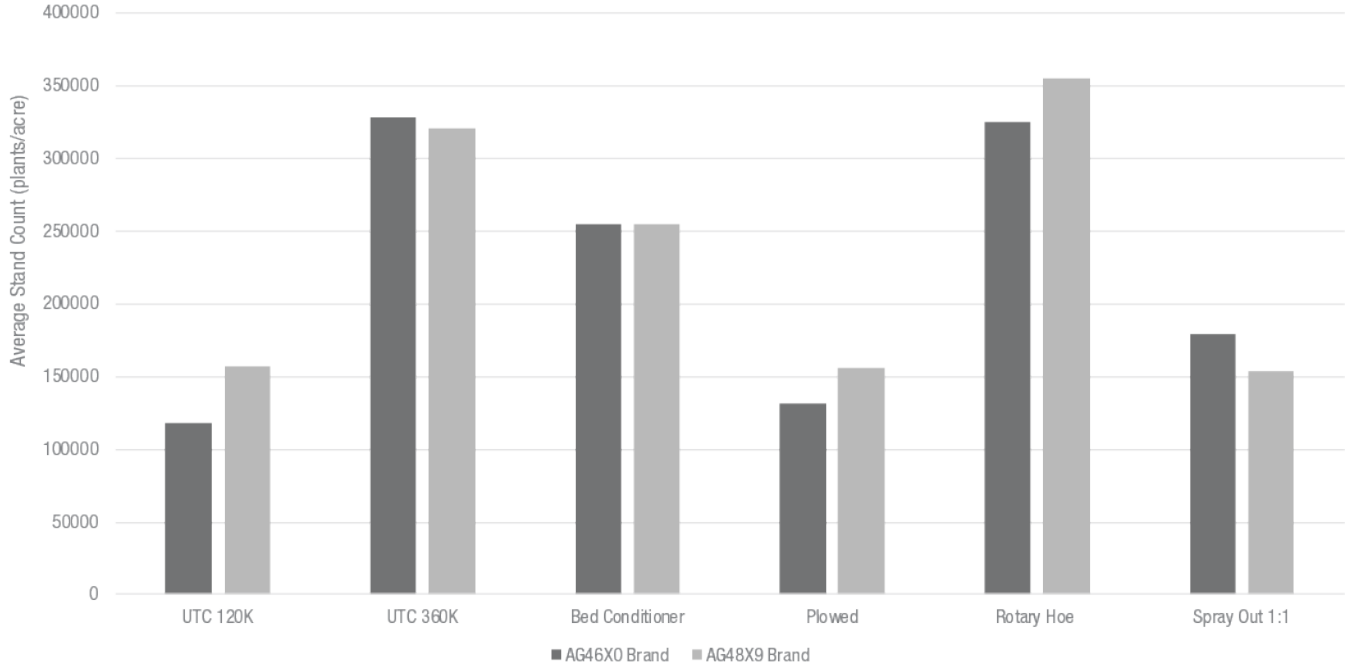


***Figure 7. Effect of soybean planting error remediation treatments on stand counts of Asgrow® soybean products in 2020.***

- The rotary hoe treatment did not substantially reduce standing plant populations and in some cases, increased plant population (Figures 6 and 7).
- The bed conditioner treatment reduced the stand (Figures 6 and 7) but did not increase average yield compared to the untreated control with either the standard or high seeding rates (Figures 8 and 9).

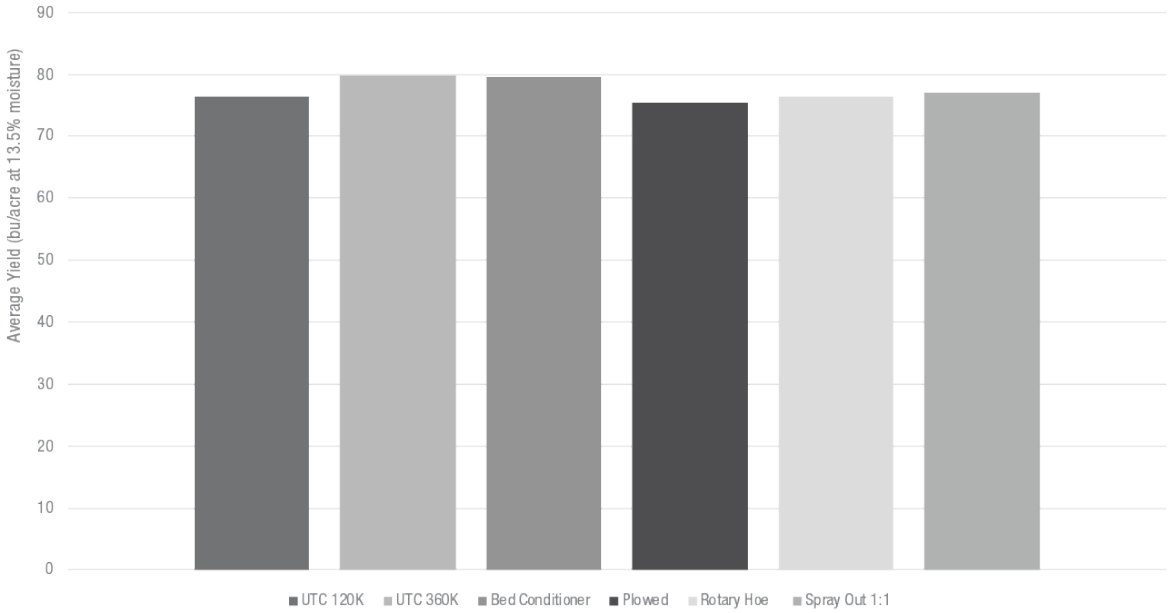


***Figure 8. Average yield response of Asgrow® soybean products combined over planting error remediation treatments in 2020.***

# *Planting Errors and Yield Compensation in Soybeans*

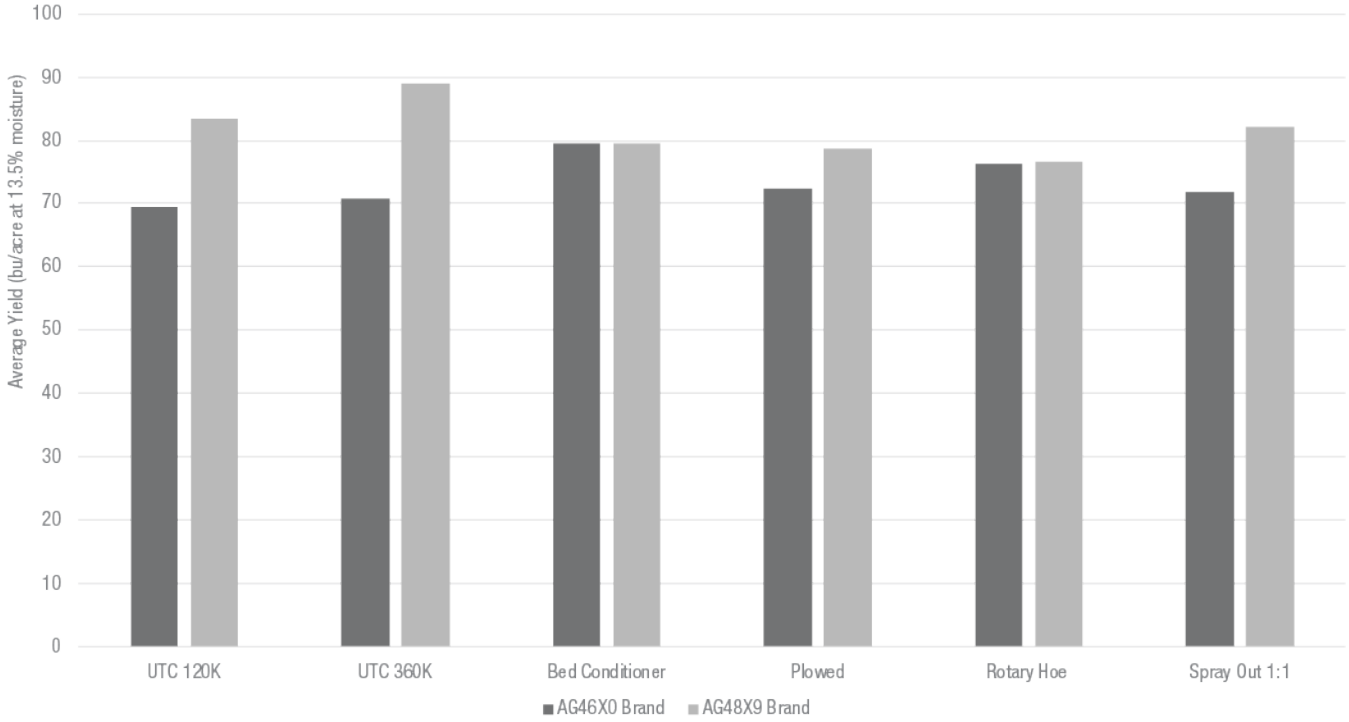


***Figure 9. Response of Asgrow® soybean products to planting error remediation treatments in 2020.***

- There was little difference in average yield response observed across the study (Figures 8 and 9).
- Similar to previous work, the remediated soybean plots were able to compensate for lower plant populations even with an entire row missing in the Spray Out 1:1 treatment (Figures 8 and 9).
- As in previous studies, the soybean plants were also able to almost completely compensate for 3- to 4-foot skips in the field as created in the plowed treatment (Figures 8 and 9).

## Key Learnings

- None of the stand reduction treatments were necessary in this case. Despite the excessively high planting error of 360,000 seeds/acre, the soybeans were best left without remediation.
- Little yield response to population or stand variability was observed across the study. This is similar to previous results from the Scott Learning Center.
- In 2020, soybeans maintained the ability to compensate for large amounts of variability across the field whether with missing rows or large skips in this simulation.

# *Planting Errors and Yield Compensation in Soybeans*

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba or glyphosate are approved for in-crop use with Roundup Ready 2 Xtend® soybeans. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Roundup Ready 2 Xtend® soybeans contain genes that confer tolerance to glyphosate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

# Soybean Planted on Different Dates and Harvested on the Same Date

## Trial Objective

- The Bayer Learning Center at Scott, Mississippi has several years of data regarding planting soybeans from widely different maturity groups on various dates ranging from early to late for our latitude.
- Many growers in the Midsouth face a dilemma in planting fields affected by flood waters. Sections of the field will typically dry earlier than others as flood waters recede. Late-planted soybeans often face major challenges from late season weather patterns (hurricanes, rainfall, and frost) as well as late season insect and disease pressure as compared to earlier planting dates. Therefore, to minimize the risk, as much of the field should be planted as early as possible.
- Questions often arise about harvest difficulties in this scenario.
    - » Can an earlier maturity group be planted later (after waters recede) and minimize harvest difficulties associated with different planting dates?
        - * Or stated another way, can two different maturity groups be planted on different dates and harvest at the same time?
    - » A single harvest date could minimize concerns with several issues including:
        - * Multiple harvest desiccation/harvest events per field.
        - * Maintaining productivity even if yields are somewhat lower by reducing production costs (insects), risk (disease, weather and harvest costs).
    - » What is the yield potential in this type of system?

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (bu/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Mixed Silt loam | Corn | Conventional | 5/25/2020, 6/16/2020 | 9/8/2020 through 10/23/2020 | 85 | 120,000 |

- All agronomic practices were per local standards.
- 14 days prior to listed harvest dates appropriate desiccants were applied to facilitate harvest.
- All yield data was collected using commercial equipment recorded using Precision Planting® YieldSense™ yield monitoring systems and corrected to 13.5% moisture for reporting.
- Single replicate strip plot design with plot size of approximately 1 acre.
- Planting dates
    - » Single soybean product treatments
        - * May 25, 2020
        - * June 16, 2020
        - * Prepped and harvested as agronomically appropriate
    - » 50/50 treatments included 2 different soybean products planted on different dates (Figure 1).
        - * 50% on May 25 planted to later maturity groups.

***Figure 1. The 50/50 treatments included two soybean products planted on two different dates and harvested on a single date.***

# *Soybean Planted on Different Dates and Harvested on the Same Date*

* 50% on June 16 planted to earlier maturity groups.
* Prepared for harvest and harvested on dates close the single soybean product treatments.

## Understanding the Results

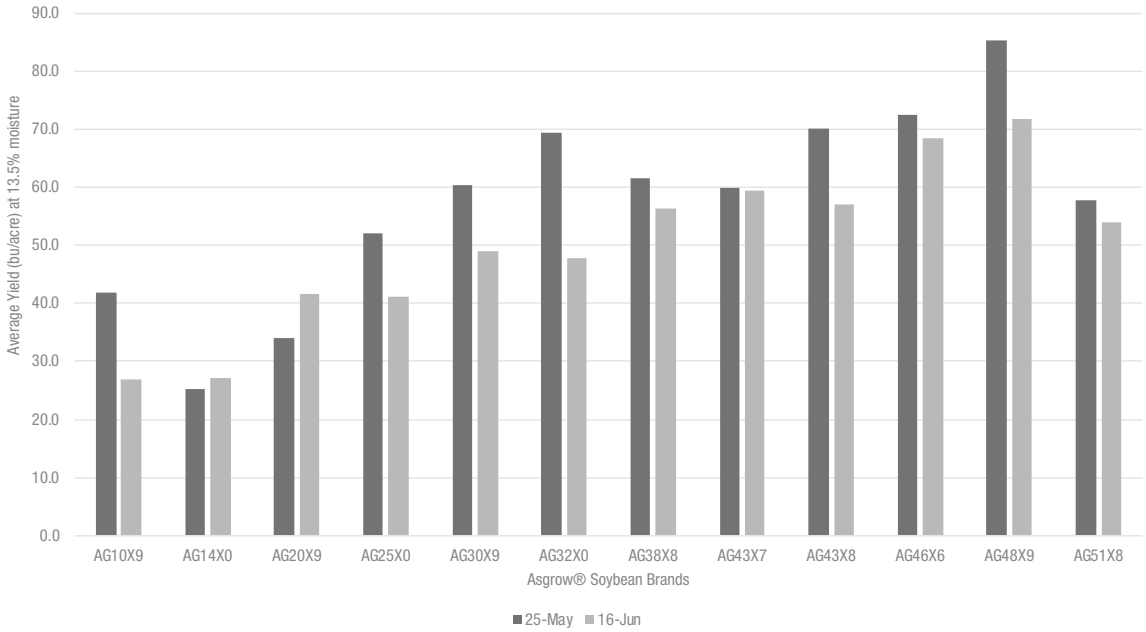


***Figure 2. Effect of planting date on yield of Asgrow® soybean brands at Scott, Mississippi in 2020.***

- Even though early planting was delayed by weather events during 2020, generally speaking, the earlier planting dates were yielded higher in most soybean products, which is typical for the Bayer Learning Center at Scott, Mississippi (Figure 2).
- Mid to late maturity group (MG) 4 soybean products yielded best in this study (Figure 2).

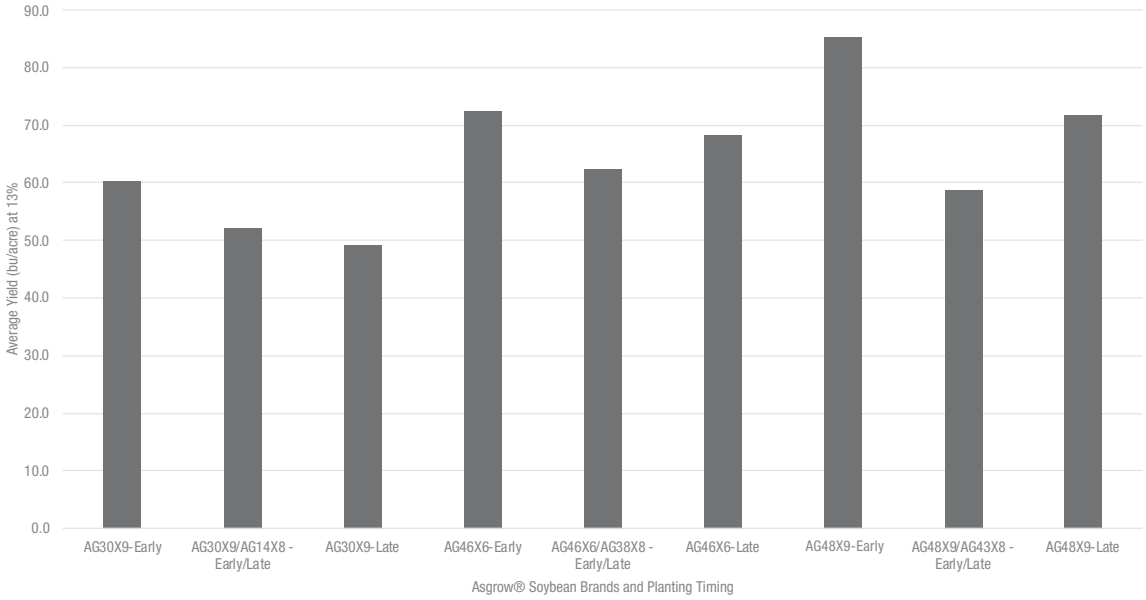


***Figure 3. Effect of planting timing on yield of Asgrow® soybean brands at Scott, Mississippi in 2020.***

# *Soybean Planted on Different Dates and Harvested on the Same Date*

- For this trial, early planting of the regionally-adapted (normal) soybean products appeared to have the highest yield potential.
- When considering an early planting of a normal soybean product followed by later planting of early soybean products, growers should consider the possible risks/gains.
- In this case the timely planted/normal soybean product followed by the later planted/early soybean product showed potential, but not without a yield penalty.
- In two of the three cases presented here the timely/normal soybean planting had a higher yield than the late/early soybean planting by an average of 18.4 bu/acre or an average loss of $220/acre at a $12.00/bu market price. The potential benefit of the mixed planting would be harvest timing that could avoid the expense and trouble of moving harvest equipment to the field multiple times for harvest, but this benefit may come at a relatively high yield cost.
- In some cases, the later planted, later maturing soybean products suffered an 8.9 bu/acre yield loss or $107/acre loss. A disadvantage could be additional insect control and weather-related risks associated with a longer growing season.
- Growers should carefully evaluate these various scenarios (including how much of the field should be planted early versus late, this was a 50% mixture) and the associated decision points before selecting mixed plantings of soybean to manage harvest timing.
- This study shows there does appear to be potential to choose earlier MG soybean products for late planting of partial fields behind flood waters. Some yield reduction was observed but that would be offset by savings in late season inputs, increased yields from early planting of partial fields and decreased harvest costs (Figure 3).

## Key Learnings

- Growers should take many parameters (soil type, disease pressure, crop rotation, etc.) into consideration when making decision about soybean products, planting dates and harvest timing.
- Growers should consult with their local Bayer seed representative for more information.

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.



LIBERTY LINK®

Roundup Ready 2 All TECHNOLOGY





ENVIRONMENT

# Evaluation of New Deltapine® Cotton Varieties

## Trial Objective

- Each season, new Deltapine® cotton varieties are evaluated at the Bayer Learning Center in Scott, Mississippi for yield potential and growth habit. This information helps define the management practices needed to optimize the performance of existing and newly-introduced Deltapine cotton varieties.
- This study was conducted to evaluate new cotton varieties in the cotton production system at Scott, Mississippi.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (lbs/acre) | Planting Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS Highway Plot | Commerce Silt loam – 18 CEC | Corn | Conventional | 5/12/2020 | 10/1/2020 | 1500 | 41,000 |
| Scott, MS Buckshot Plot | Clay Silt Loam – 41 CEC | Corn | Conventional | 5/10/2020 | 10/10/2020 | 1000 | 41,000 |

- Sixteen Deltapine® cotton varieties were included in this study.
  - DP 1612 B2XF
  - DP 2012 B3XF
  - DP 1614 B2XF
  - DP 1916 B2XF
  - DP 1518 B2XF
  - DP 2020 B3XF
  - DP 1522 B2XF
  - DP 1822 XF
  - DP 1823 NRB2XF
  - DP 2123 B3XF
  - DP 1725 B2XF
  - DP 2127 B3XF
  - DP 2038 B3XF
  - DP 1845 B3XF
  - DP 1646 B2XF
  - DP 2055 B3XF
- Cotton varieties were planted at both Highway and Buckshot site locations in single replicate strip plots 6 rows wide and 600 feet long, approximately 0.3 acre/plot.
- 80 lbs nitrogen/acre was applied as 32% soil applied liquid.
- Stance® plant growth regulator (PGR) was applied to all varieties, with a total of 16 oz/acre applied for the season. Application dates and rates are as follows:
  - 7/10/2020 – 4 ounces/acre applied
  - 7/17/2020 – 4 ounces/acre applied
  - 7/26/2020 – 4 ounces/acre applied
  - 8/05/2020 – 4 ounces/acre applied
- All weed control, insect control, and irrigation inputs were applied per local standards.
- Plots were harvested for yield and lint samples were ginned using research gins at Scott, Mississippi to estimate turnout.

# *Evaluation of New Deltapine® Cotton Varieties*

- Noted weather impacts to this study include:
  - The first PGR application was delayed approximately 10 days past optimal application date due to rain on the intended day of application and repeated rain events afterwards.
  - This plot was harvested after two major hurricane events which influenced harvestability and final yield potential.

## Understanding the Results

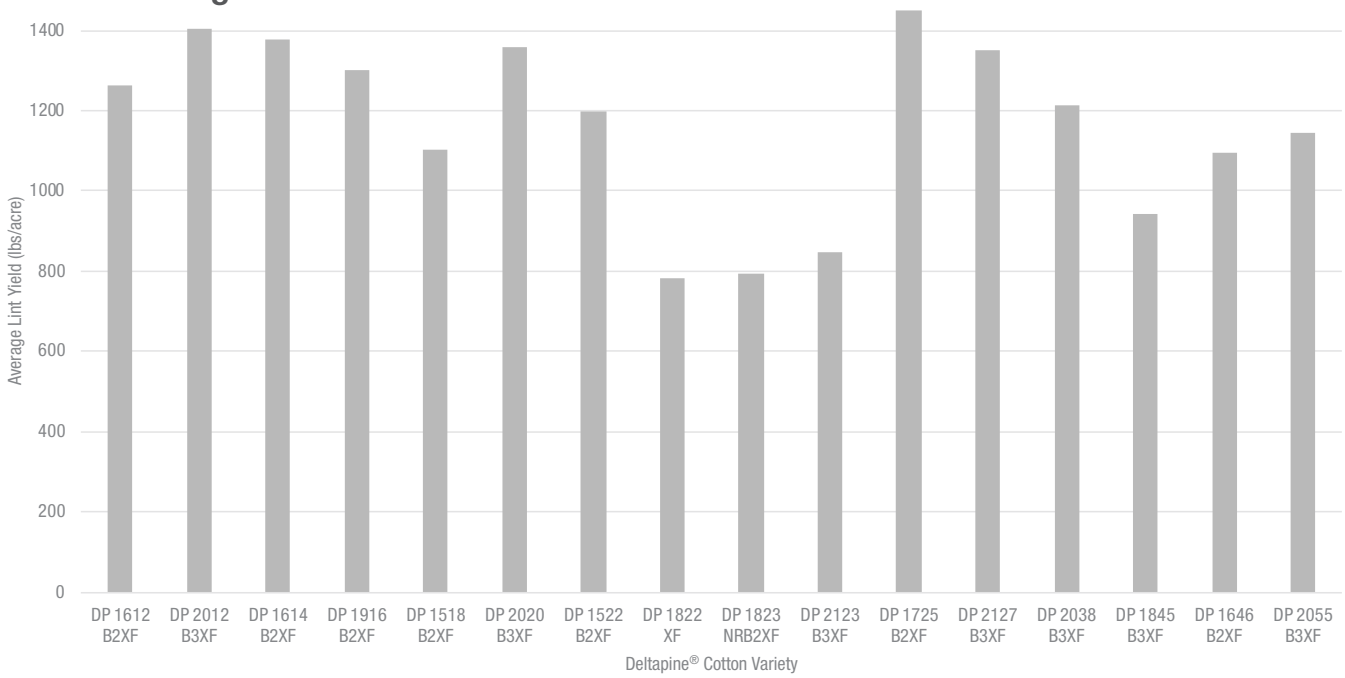


***Figure 1. Calculated average lint yield (lb/acre) by cotton variety at Highway site in 2020.***

- Despite weather challenges encountered in 2020, new and current commercial Deltapine® cotton varieties tested appeared to have high yield potential at both the Highway and Buckshot site locations in Scott, Mississippi (Figures 1,2).
- This trial included varieties that are not well-adapted to the growing conditions in the Midsouth.
  - DP 1822 XF is a West Texas cotton variety with no Bt traits and may have lost yield due to no protection from Lepidopteran pests.
  - DP 2123 B3XF is a Texas cotton variety and is best fit in dryland environments.
  - DP 1823NR B3XF is a root-knot nematode resistant (RKN) cotton variety and is best fit in short-season environments.
  - DP 2055 B3XF is the most full-season cotton variety in the set and may have been challenged with timely maturity.

# *Evaluation of New Deltapine® Cotton Varieties*

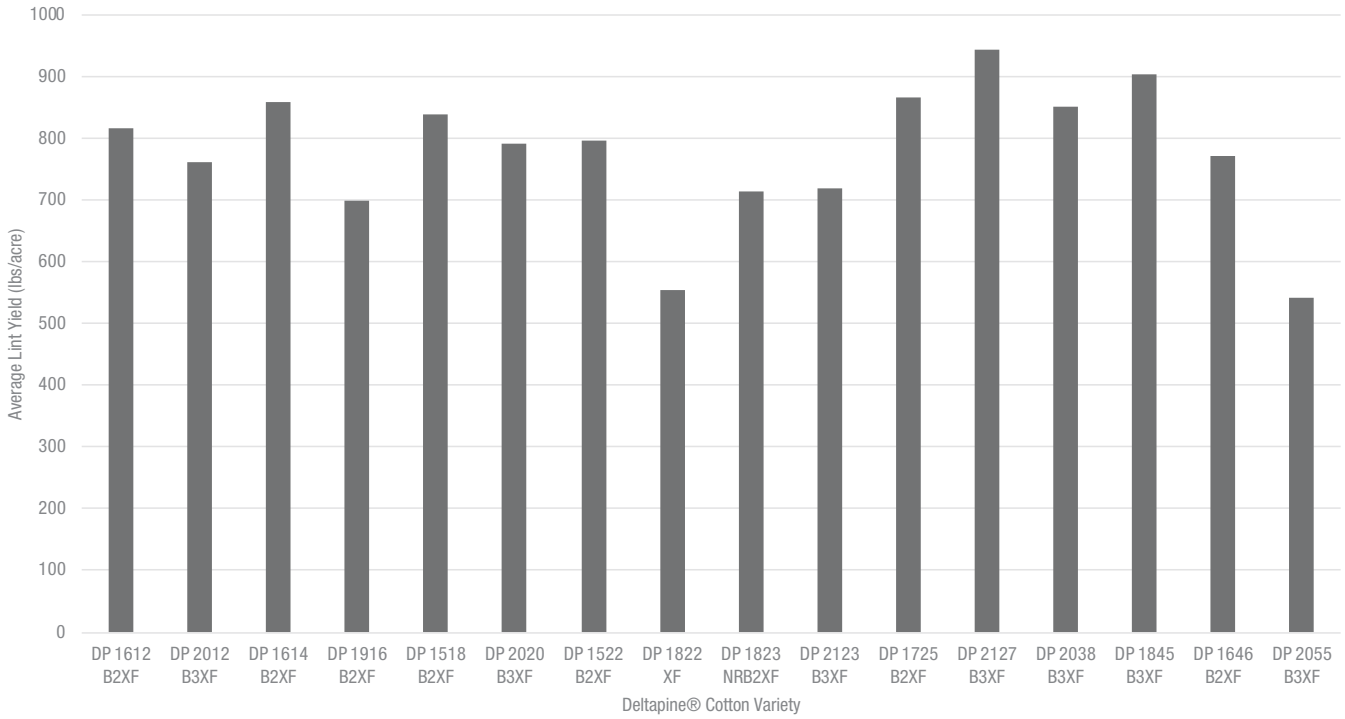


***Figure 2. Calculated average lint yield (lb/acre) by cotton variety at Buckshot site in 2020.***

## Key Learnings

- Cotton variety selection is one of the most important management decisions a grower must make each growing season. Selecting multiple cotton varieties allows for flexibility in relative maturity, management decisions, and risk aversion.
- Evaluation of the new Deltapine® cotton varieties provides data to help growers make informed variety selection decisions.
- Consult your local Bayer representatives for further information about variety placement and management for the 2021 season.

# *Evaluation of New Deltapine® Cotton Varieties*

## Legal Statements

The information discussed in this report is from a multiple site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

Insect control technology provided by Vip3A is utilized under license from Syngenta Crop Protection AG. Not all products are registered in all states and may be subject to use restrictions. The distribution, sale, or use of an unregistered pesticide is a violation of federal and/or state law and is strictly prohibited. Check with your local dealer or representative for the product registration status in your state. Bollgard II®, Bollgard®, Deltapine®, Respect the Refuge and Cotton Design®, Stance® and XtendFlex® are registered trademarks of Bayer Group. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. For additional product information call toll-free 1-866-99-BAYER (1-866-992-2937) or visit our website at www.BayerCropScience.us. Bayer CropScience LP, 800 North Lindbergh Boulevard, St. Louis, MO 63167.  3014_R4_20

Insect Resistance Management
*Planting Refuges, Preserving Technology*

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management,** for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

Roundup Ready 2 TECHNOLOGY

RESPECT THE REFUGE®

LIBERTY LINK®





ENVIRONMENT

# *Meta-Analysis of Deltapine® Cotton Variety Response to Plant Growth Regulators at the Bayer Learning Center at Scott, MS from 2011 through 2020*

## Trial Objective

- The plant growth regulator (PGR) mepiquat chloride benefits cotton production by helping balance vegetative growth with reproductive growth. PGR applications of the appropriate rate and timing are essential to the management of cotton varieties in the coastal U.S.
- Each season new Deltapine® cotton varieties from across the cotton growing region are evaluated at the Bayer Learning Center at Scott, Mississippi for PGR application response and demand in the productive Delta system.
- Differential responses to PGR applications have been observed each year among the Deltapine cotton varieties tested.
- This is a summary of Deltapine cotton variety PGR application response data from 2011 through 2020.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (lbs/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Commerce/ Forestdale silt loam | Corn | Conventional | May 1 or later | Vary | 1900 | 41,000 to 45,000 |

- A total of 10 to 18 Deltapine® cotton varieties were tested each season.
- These studies were set up to encourage excessive vegetative growth with strong background fertility levels, the previous corn crop, irrigation, and relatively high rates of nitrogen fertility (100 to 120 lb/acre of actual nitrogen soil applied as 32% liquid N).
- All other agronomic inputs (weed control, insect control and irrigation) were per local standards for each treatment.
- There was no PGR trial in 2014 and no passive regime in the 2016 trial.
- All PGR plots were treated with labeled but varying rates and application timings of currently available mepiquat chloride (standard 4.2% formulation). These application rates and timings were used to separate differences in Deltapine cotton variety responses and not necessarily to provide specific guidance on PGR management for an individual field, farm, or variety. Application regimes (Table 1) included:
  - » An untreated control with no PGR applied.
  - » Passively managed regime (representing older growth management methods): three application rates and three timings totaling 34 to 38 oz/acre applied per season at delayed timing.
  - » Aggressively managed regime: three applications at a maximum label rates at three timings totaling 48 oz/acre applied per season.
- Growth characteristics of Deltapine® cotton varieties tested were evaluated by:
  - » Stand establishment: monitored for normal emergence (data not presented)
  - » Plant growth: monitored in season
  - » End-of-season plant height: 10 plants/plot measured at harvest

**Table 1. Passive and aggressive PGR treatment rates and application timings.**

| Regime | Treatment | Number of Cotton Nodes at PGR application | PGR Rate (ounces/acre) |
|---|---|---|---|
| Passive | 1 | 10 - 12 | 8 - 10 |
| | 2 | 15 - 17 | 10 - 12 |
| | 3 | 20 - 21 | 16 |
| Aggressive | 4 | 8 - 9 | 16 |
| | 5 | 12 - 13 | 16 |
| | 6 | 15 - 16 | 16 |

  - » Height reduction from either the passively or aggressively managed treatments versus the untreated check.
  - » Representative turnouts from trials at the Scott Learning Center were used to estimate lint yield/acre to evaluate yield effects of PGR treatments.
- Deltapine cotton variety sensitivity to PGRs – PGR application growth reduction was calculated as the percentage that plant height was reduced when compared to the untreated plot.
  - » Cotton varieties were then characterized by the percent growth reduction to indicate PGR sensitivity within each year as either:
  - » More Responsive – Cotton varieties considered more responsive were the top 50% of the Deltapine cotton varieties within the year tested.
  - » Less Responsive– Cotton varieties considered less responsive were the bottom 50% of the Deltapine cotton varieties within the year tested.

## Understanding the Results

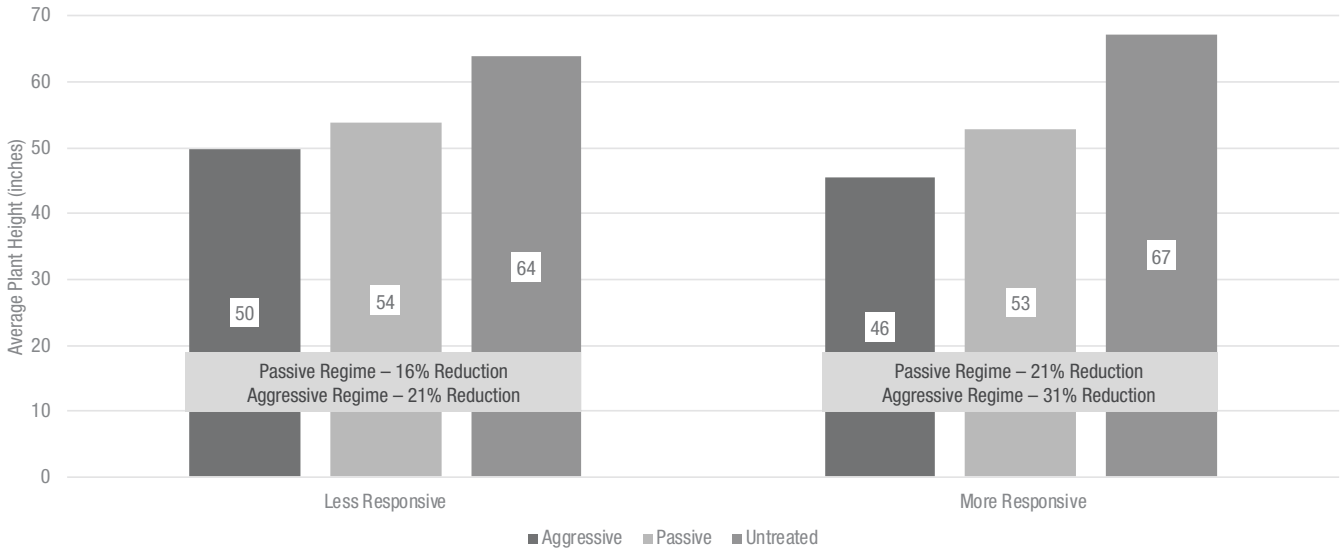


***Figure 1. Average cotton plant height by PGR regime from 2011 through 2020.***

- All conclusions from this data are highly interactive with the production system and environmental conditions during each growing season and should be viewed as such.
- The More Responsive cotton varieties demonstrated as much as 10% greater height reduction in the aggressive regime over the untreated checks when compared to the Less Responsive cotton varieties (Figure 1).

# *Meta-Analysis of Deltapine® Cotton Variety Response to Plant Growth Regulators at the Bayer Learning Center at Scott, MS from 2011 through 2020*

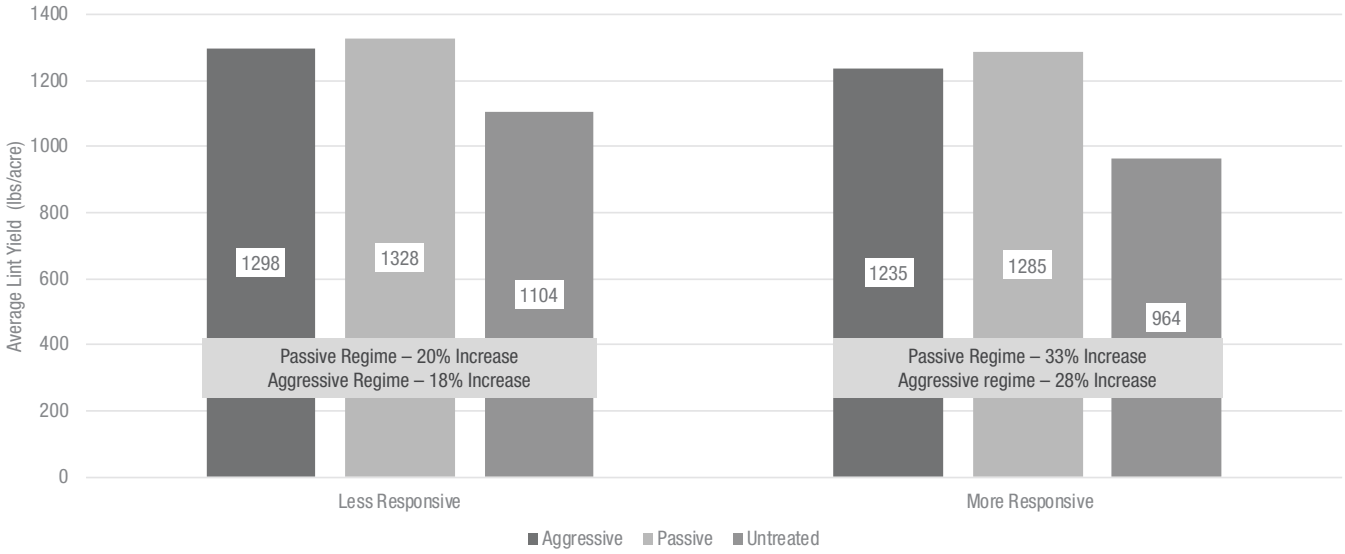


***Figure 2. Average cotton yield by PGR regime from 2011 through 2020.***

- The Less Responsive cotton varieties demonstrated slightly higher yield potential than the More Responsive cotton varieties in all PGR regimes (Figure 2).

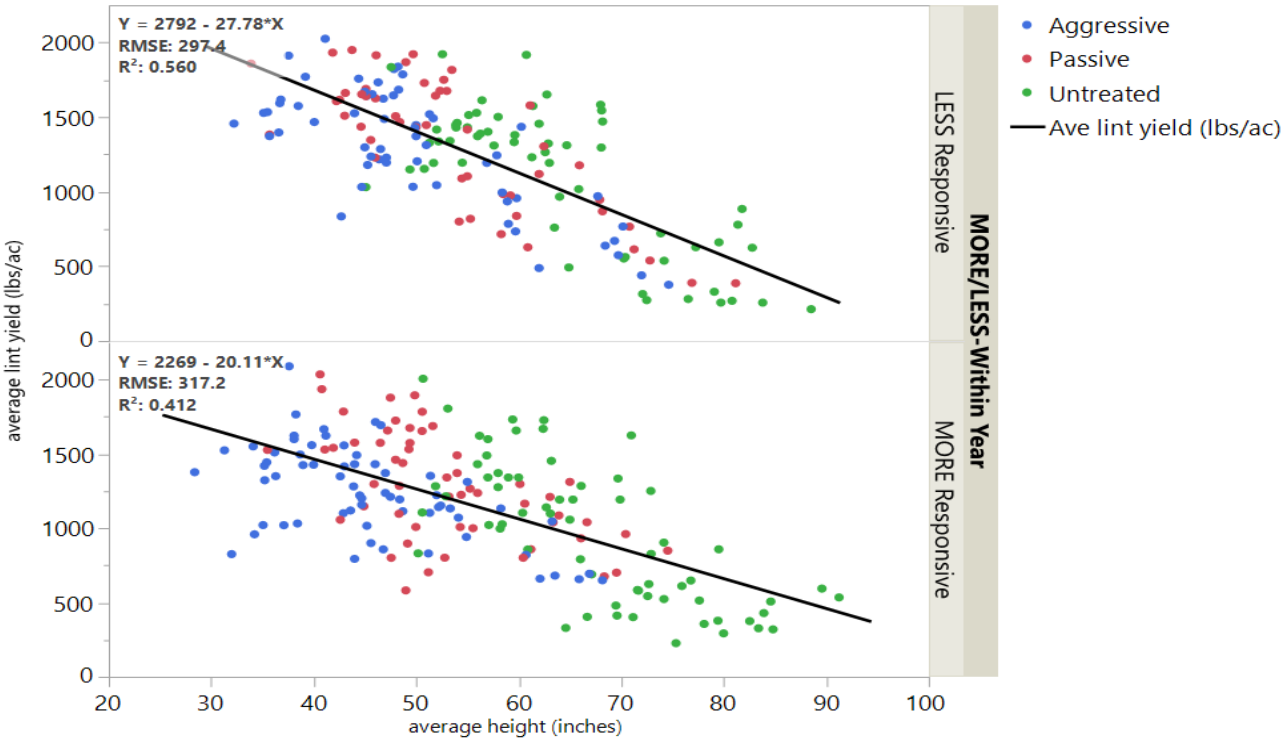


***Figure 3. Linear regression of average lint yield versus average height in Less Responsive and More Responsive Deltapine® cotton varieties from 2011 through 2020 at the Scott Learning Center. (Student t-test was significant at P=0.0175).***

# *Meta-Analysis of Deltapine® Cotton Variety Response to Plant Growth Regulators at the Bayer Learning Center at Scott, MS from 2011 through 2020*

- The Less Responsive cotton varieties showed a statistically significantly greater decrease in average yield than the More Responsive cotton varieties in response to excessive height (Figure 3).
- Differences in slope between categories:
  - » Less Responsive= -27.78 lbs/inch
  - » More Responsive = -20.11 lbs/inch
- Approximately 15% more of the yield variability can be accounted for in height (as measured by R2) in the Less responsive cotton varieties. So, for each extra inch in height, the Less Responsive cotton varieties will lose an average additional 7.7 lbs lint yield per acre compared to the More Responsive cotton varieties.
- The yield response due to additional height is likely a function of the effect of the plant allocating energy to vegetative growth, the shading that occurs from neighboring plants, and associated fruit shed. Plants can also shade themselves as a result of excess height. An individual fruiting structure (squares particularly) is photosynthetically independent of the plant and if shaded, is more likely to shed just after bloom due to the lack of available sugar. Bolls are not independent, and the plant senses their need for sugar (to make carpals, seed and lint) hormonally. If it's not there for whatever reason, the boll will shed in the week or so after bloom. That's why this is all a big cascade of an effect. None of it occurs due to a single cause.
- When creating management plans for Less Responsive cotton varieties, early and timely applications of PGRs at appropriate rates are even more important.
- When the cotton variety sensitivity to PGR is known, a management system can be built factoring in their growth tendencies.
- To obtain optimal value from the cotton varieties and the traits they contain, this information should be considered for every cotton variety, field, and farm.

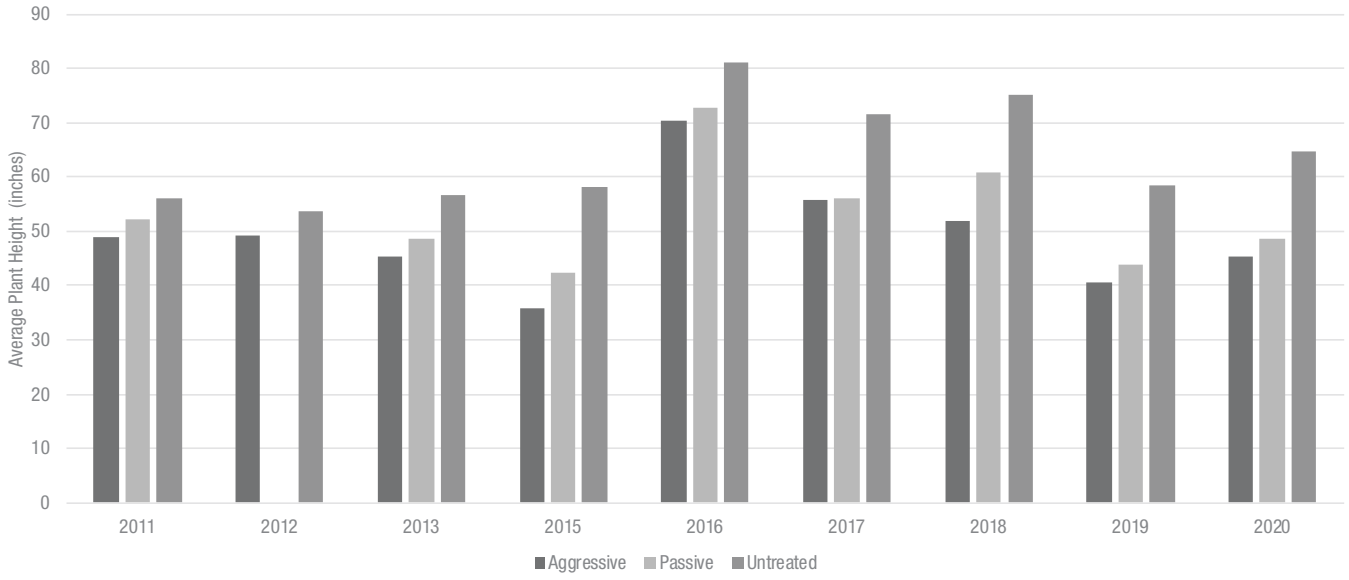


***Figure 4A. Average Plant Height of Less Responsive Deltapine® cotton varieties by PGR regime from 2011 through 2020.***

# *Meta-Analysis of Deltapine® Cotton Variety Response to Plant Growth Regulators at the Bayer Learning Center at Scott, MS from 2011 through 2020*

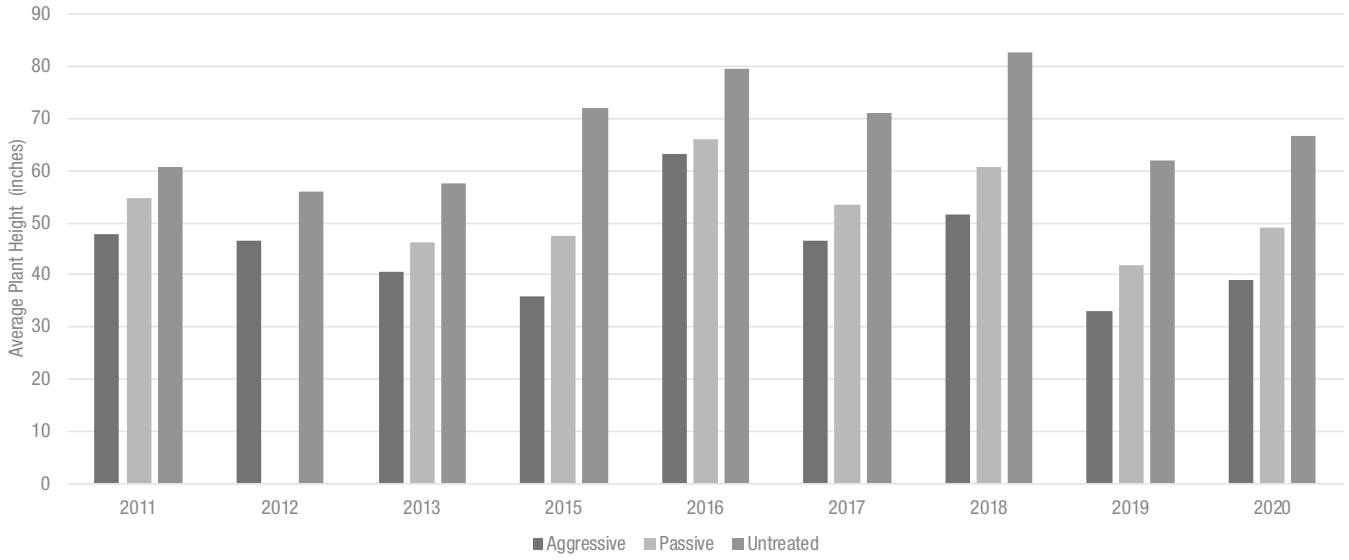


***Figure 4B. Average plant height of More Responsive Deltapine® cotton varieties by PGR regime from 2011 through 2020.***

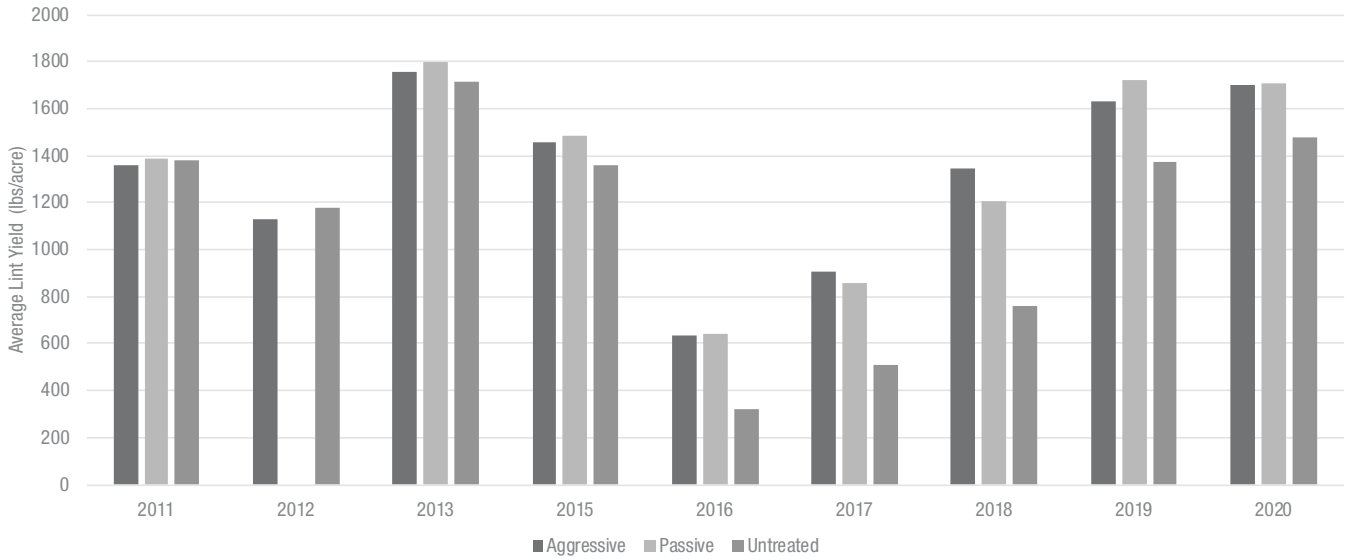


***Figure 5A. Average Lint Yield of Less Responsive Deltapine® cotton varieties by PGR regime from 2011 through 2020.***

# *Meta-Analysis of Deltapine® Cotton Variety Response to Plant Growth Regulators at the Bayer Learning Center at Scott, MS from 2011 through 2020*

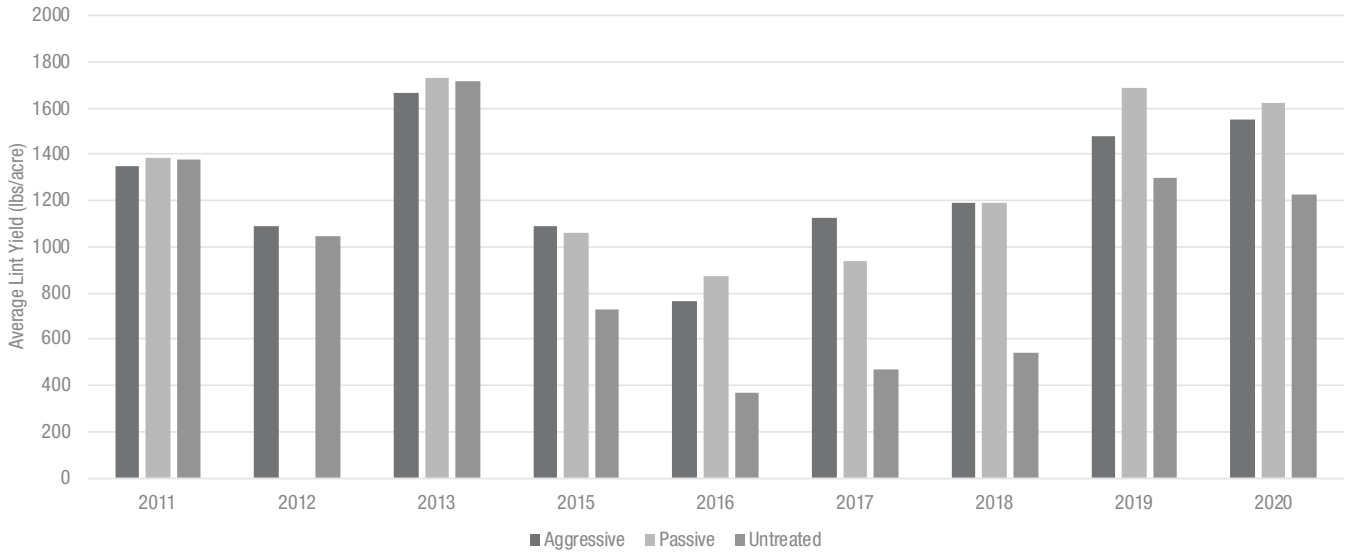


***Figure 5B. Average Lint Yield of More Responsive Deltapine® cotton varieties by PGR regime from 2011 through 2020.***

## Key Learnings

- PGR use in cotton crops is a tool that can be used to help manage excessive vegetative development and increase yield potential.
- Significant differences exist in the response of Deltapine® cotton varieties to PGR application.
- In Less Responsive cotton varieties, the negative response to excessive growth that can occur from inadequate rates of PGR application is greater than in More Responsive cotton varieties (Figure 3).
- For this reason, understanding the PGR sensitivity of cotton varieties is essential in developing a management plan for the product planted on a given farm or field.

## Legal Statements

# *Response of Deltapine® Cotton Varieties to Plant Growth Regulator Regimes*

## Trial Objective

- The plant growth regulator (PGR) mepiquat chloride benefits cotton production by helping to balance vegetative growth with reproductive growth. PGR applications at the appropriate rate and timing are essential for managing cotton varieties in the coastal United States.
- Each season new Deltapine® cotton varieties are evaluated at the Bayer Learning Center at Scott, Mississippi for response to plant growth regulator applications in the productive Delta system.
- The primary objectives of this study were to:
  - » Evaluate the growth habit of new cotton products in comparison with existing Deltapine cotton varieties.
  - » Evaluate cotton variety response to mepiquat chloride application in one of three application regimes.

## Research Site Details

| Location | Soil Type | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield (lbs/acre) | Seeding Rate (seeds/acre) |
|---|---|---|---|---|---|---|---|
| Scott, MS | Commerce silt loam | Corn | Conventional | 5/12/20 | 10/1/18 | 1900 | 45,000 |

- This study was set up to encourage excessive vegetative growth in a field following corn with high fertility (120 lb/acre of actual nitrogen soil applied as 32% liquid N) and irrigation applications.
- All other agronomic inputs (weed control, insect control and irrigation) were per local standards for each treatment.
- Single replicate strip plots were planted of 6 rows x 400 feet or approximately 0.2 acre/plot.
- Application regimes of mepiquat chloride (standard 4.2% formulation) were as follows: (Table 1).
  - » An untreated check with no PGR applied.
  - » Passive regime (representing older growth management methods) – three application rates and three timings totaling 38 oz/acre applied with delayed early application on July 10, 2020 at a reduced rate.
  - » Aggressive regime- three applications at a maximum label rates at three timings totaling 48 oz/acre applied.

**Table 1. 2020 passive and aggressive PGR treatment rates and application timings.**

| Regime | Date | PGR Rate (oz/acre) |
|---|---|---|
| Passive | July 10 | 10 |
| | July 26 | 12 |
| | August 10 | 16 |
| Aggressive | July 1 | 16 |
| | July 10 | 16 |
| | July 26 | 16 |

# *Response of Deltapine® Cotton Varieties to Plant Growth Regulator Regimes*

- Growth characteristics of new Deltapine® cotton varieties were evaluated as follows:
  - » End-of-season plant height measurement indicating the growth nature of the new product.
  - » Height reduction measurement from either the passively or aggressively managed treatments versus the untreated check.
  - » Representative turnouts from other trials at Scott Learning Center were used to estimate average lint yield per acre to evaluate yield effects of PGR treatments.

## Understanding the Results

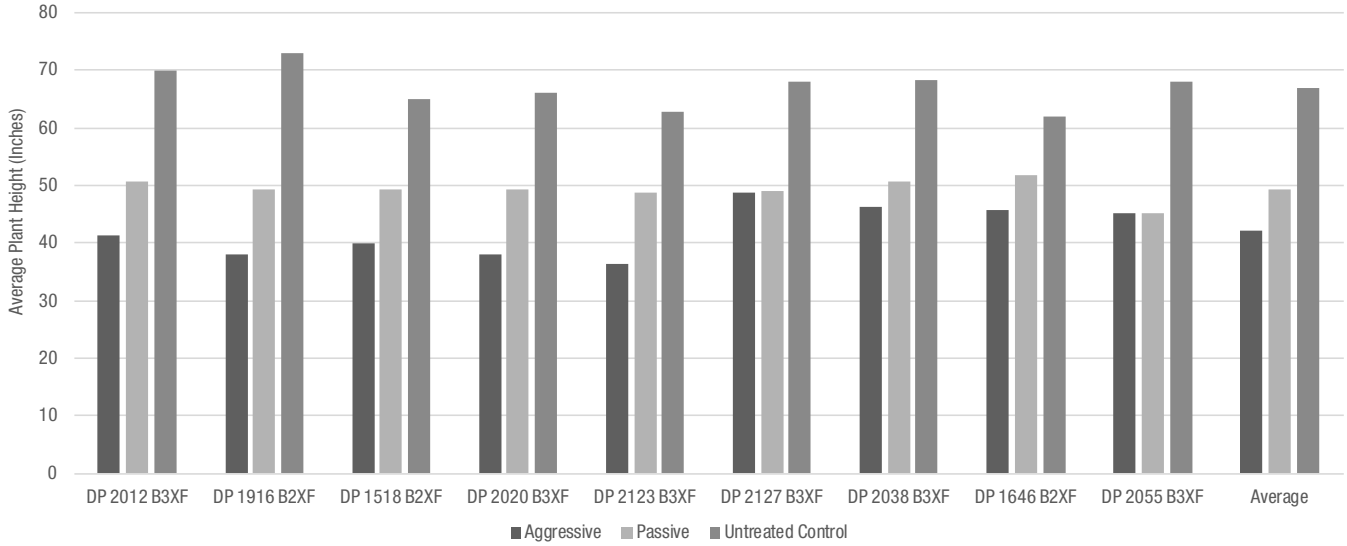


***Figure 1. 2020 average cotton height by cotton variety and PGR regime.***

- The untreated control treatments averaged 67 inches tall at season end (Figure 1). Passive treatments were an average of 49 inches with 18 inches reduction and the aggressive treatments were 42 inches with 25 total inches in height reduction. This echoes results from previous years.

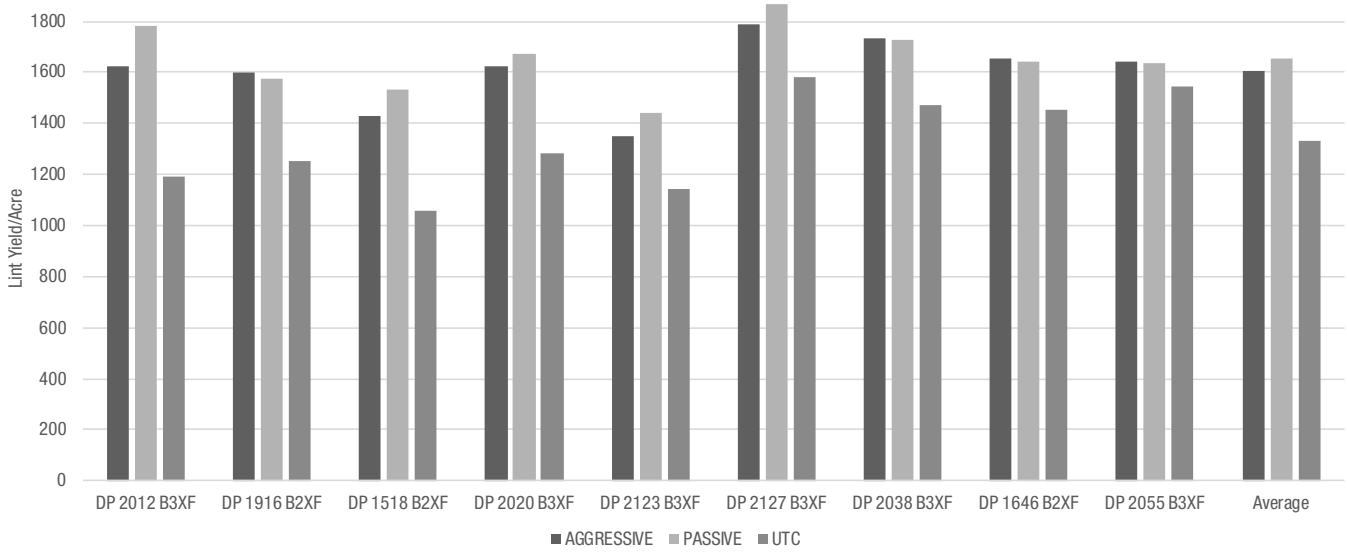


***Figure 2. 2020 average cotton yield by cotton variety and PGR regime.***

# *Response of Deltapine® Cotton Varieties to Plant Growth Regulator Regimes*

- Like 2019, 2020 was not a year where an aggressive PGR approach was needed at the Bayer Learning Center in Scott, Mississippi. This is seen in both the height data and yield results; plots were generally shorter, and the untreated controls had higher yields than historical averages (Figures 1 and 2).
- On average across all cotton varieties, both PGR regimes improved yields in this trial by approximately 300 lbs/acre compared to the untreated control (Figure 2).

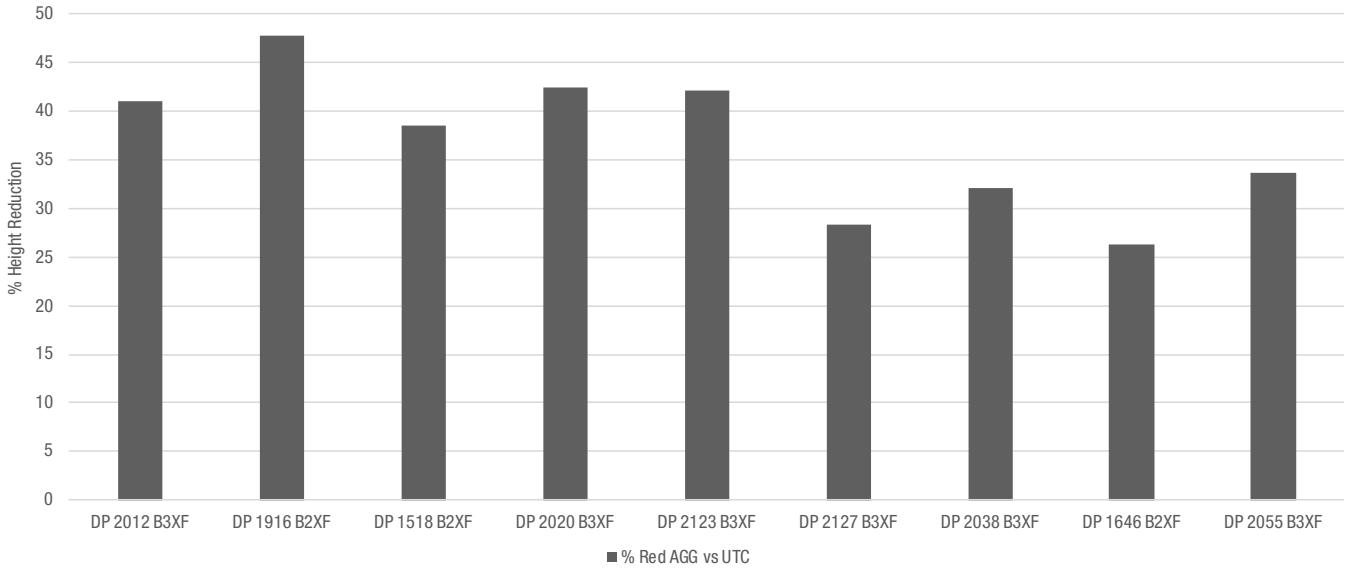


***Figure 3. 2020 percent height reduction (compared to untreated control) of aggressive PGR regime on cotton varieties.***

- Earlier, more determinate cotton varieties were more sensitive to higher rates and earlier timings of PGR use as measured in percent height reduction. When comparing the untreated control to the aggressive treatments, cotton variety DP 2123 B3XF and earlier demonstrated greater response to PGR rates and timings as measured in height reduction with 42% reduction in height compared to 30% in the later, less determinate varieties (DP 2127 B3XF and later) (Figure 3).

## Key Learnings

- Correct PGR use is essential to optimize the growth habit of modern cotton varieties.
- Earlier maturity varieties can be more sensitive to PGR applications compared with later maturity cotton varieties. Therefore, rate and timing of early applications are more important for later maturity cotton varieties for obtaining the needed growth control. This is particularly true in high fertility environments that favor vegetative growth.
- Plant growth monitoring and understanding historical varietal response to PGR application can help determine PGR application decisions.
- These data can be useful in considering the stress tolerance associated with cotton products. Typically, cotton varieties that are more sensitive to PGR applications can be more sensitive to stress and should be considered when determining field placement. Cotton varieties that are less sensitive to PGR applications are somewhat more stress tolerant and can typically be planted into more stressful production systems.
- Consult your local Bayer representatives for more information about Deltapine® cotton variety placement and management for the 2021 season.

# *Response of Deltapine® Cotton Varieties to Plant Growth Regulator Regimes*

## Legal Statements

The information discussed in this report is from a single site, unreplicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Bayer is a member of Excellence Through Stewardship® (ETS). Bayer products are commercialized in accordance with ETS Product Launch Stewardship Guidance, and in compliance with Bayer's Policy for Commercialization of Biotechnology-Derived Plant Products in Commodity Crops. Commercialized products have been approved for import into key export markets with functioning regulatory systems. Any crop or material produced from this product can only be exported to, or used, processed or sold in countries where all necessary regulatory approvals have been granted. It is a violation of national and international law to move material containing biotech traits across boundaries into nations where import is not permitted. Growers should talk to their grain handler or product purchaser to confirm their buying position for this product. Excellence Through Stewardship® is a registered trademark of Excellence Through Stewardship.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. It is a violation of federal and state law to use any pesticide product other than in accordance with its labeling. NOT ALL formulations of dicamba, glyphosate or glufosinate are approved for in-crop use with products with XtendFlex® Technology. ONLY USE FORMULATIONS THAT ARE SPECIFICALLY LABELED FOR SUCH USES AND APPROVED FOR SUCH USE IN THE STATE OF APPLICATION. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicide products for in-crop use with Roundup Ready 2 Xtend® soybeans or products with XtendFlex® Technology.

B.t. products may not yet be registered in all states. Check with your seed brand representative for the registration status in your state.

Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

Products with XtendFlex® Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Glyphosate will kill crops that are not tolerant to glyphosate. Dicamba will kill crops that are not tolerant to dicamba. Glufosinate will kill crops that are not tolerant to glufosinate. Contact your seed brand dealer or refer to the Bayer Technology Use Guide for recommended weed control programs.

Insect control technology provided by Vip3A is utilized under license from Syngenta Crop Protection AG. Bollgard II®, Bollgard®, Deltapine®, Respect the Refuge and Cotton Design® and XtendFlex® are registered trademarks of Bayer Group. LibertyLink® and the Water Droplet Design® is a trademark of BASF Corporation. ©2021 Bayer Group. All rights reserved. 5013_R1_20

Insect Resistance Management
Planting Refuges, Preserving Technology

Before opening a bag of seed, be sure to read, understand and accept the stewardship requirements, **including applicable refuge requirements for insect resistance management,** for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with the most recent stewardship requirements.

LIBERTY LINK®

RESPECT THE REFUGE®

Roundup Ready® 2 TECHNOLOGY





ENVIRONMENT


@dekalbasgrowseed @Deltapine | @Asgrow_DEKALB @DELTAPINE
BAYER