



Evaluation of Deltapine® Cotton Products on Two Soil Types at Scott, Mississippi (2023)

Trial Objective

- Cotton products and transgenic packages change yearly. Each season the Bayer Learning Center at Scott, MS evaluates a new set of products from the NPE program along with commercial standards. This work is especially relevant as new ThryvOn® Technology products enter the marketplace.
- The primary goal of this study was to evaluate a group of Deltapine® brand cotton products and potential commercial advancements for productivity, adaptation, and fiber quality characteristics on two different soil types.
- A secondary goal was to estimate the impact of Bollgard II® XtendFlex® cotton products and Bollgard® 3 ThryvOn® Cotton with XtendFlex® Technology products on Heliothine insects at the testing sites.

Selecting an adapted cotton product is foundational to a cotton production program. Every tested parameter is important to cotton growers when they are offered new commercial products in the coming seasons.

Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (lb/acre)	Seeding Rate (seeds/acre)
Buckshot Field, Scott, MS	Sharkey Clay	Corn	Conventional	5/9/2023	9/22/2023	1000	44000
Highway Field, Scott, MS	Commerce/Forrestdale silt loam	Corn	Conventional	5/9/2023	10/5/2023	2000	32000

Evaluation of Deltapine[®] Cotton Products on Two Soil Types at Scott, Mississippi (2023)

- All field work, tillage and herbicides were per local standards.
- Deltapine[®] Brand Products planted:
 - » DP 1908 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2211 B3TXF Brand (Bollgard 3 ThryvOn[®] Cotton with XtendFlex[®] Technology)
 - » DP 2012 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2115 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2317 B3TXF Brand (Bollgard 3 ThryvOn[®] Cotton with XtendFlex[®] Technology)
 - » DP 1822 XF Brand (XtendFlex[®] cotton)
 - » DP 2123 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2127 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2328 B3TXF Brand (Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology)
 - » DP 2131 B3TXF Brand (Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology)
 - » DP 2333 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2038 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2239 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
 - » DP 2141 NR B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton) (Nematode Resistant)
 - » DP 1646 B2XF Brand (Bollgard II[®] XtendFlex[®] cotton)
 - » DP 2349 NR B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton) (Nematode Resistant)
 - » DP 2055 B3XF Brand (Bollgard[®] 3 XtendFlex[®] cotton)
- Three non-commercial products were also planted but not included in the data or averages.
- Single replication strip plot
- Plot Size –
 - » Highway Field
 - 6 row plots
 - 0.220 acre/plot
 - » Buckshot Field
 - 12 row plots
 - 0.6 acre/plot
- Plant Growth Regulator (PGR) Applications – All applications made as 4.2% active ingredient (ai) generic mepiquat.
 - » Highway Field
 - 6/21/2023 – 16 oz/acre
 - 7/6/2023 – 16 oz/acre
 - 7/18/2023 – 16 oz/acre
 - » Buckshot Field
 - 7/6/2023 – 8 oz/acre
 - 7/27/2023 – 12 oz/acre



Evaluation of Deltapine[®] Cotton Products on Two Soil Types at Scott, Mississippi (2023)

- Data collected:
 - Machine harvested.
 - HVI testing for fiber quality estimations.
 - Turnout calculated from ginning results.
 - 2023 loan chart used to estimate fiber value and gross returns per acre.

Understanding the Results

- Insect Management:
 - » Thrips:
 - Entire plot area including Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology products managed for thrips.
 - Due to extreme thrips pressure, two applications of labeled thrips insecticides were applied.
 - Thrips control in non-Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology products was observed to be sub-par.
 - Observations in the plots with Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology products demonstrated little to no thrips damage.
 - » Lygus:
 - Entire plot area including Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology products managed for lygus.
 - Three labeled insecticide applications were applied based on recommended state thresholds.
 - » Heliathine Pests:
 - Considerable Heliathine pressure occurred during these studies.
 - However, population thresholds were not exceeded in the Bollgard II[®] or Bollgard[®] 3 products; therefore, insecticides were not applied.
- Seed Cotton and Lint Yields (Figures 1 and 2)
 - » Deltapine[®] DP 1822 XF Brand not included in averages because it lacks the insect protection of other products.
 - » Highway Field
 - Average seed cotton yield of Bollgard II[®] and Bollgard[®] 3 products was 3478 lb/acre with a yield range of 2275 to 4250 lb/acre.
 - Average lint yield/acre of Bollgard II[®] and Bollgard[®] 3 products was 1414 lb lint/acre with a yield range of 955 to 1723 lb lint/acre.
 - The untreated XtendFlex[®] product (Deltapine[®] DP 1822 XF Brand) yielded 711 lb lint/acre or about 50% of the trial average.
 - The Bollgard II[®] XtendFlex[®] Cotton product (Deltapine[®] DP 1646 B2XF Brand) yielded 1143 lb lint/acre with little to no Heliathine damage.



Evaluation of Deltapine® Cotton Products on Two Soil Types at Scott, Mississippi (2023)

- » Buckshot Field
 - As typical, this site was lower yielding than the Highway Field
 - Average seed cotton yield of Bollgard II® and Bollgard® 3 products was 2239 lb/acre with a yield range of 1780 to 2687 lb/acre.
 - Average lint yield/acre of Bollgard II® and Bollgard® 3 products was 910 lb lint/acre with a yield range of 735 to 1109 lb lint/acre.
 - The untreated XtendFlex® product (Deltapine® DP 1822 XF Brand) yielded 476 lb lint/acre.
 - The Bollgard® II XtendFlex® Cotton product (Deltapine® DP 1646 B2XF Brand) yielded 764 lb lint/acre with little to no Heliothine damage.

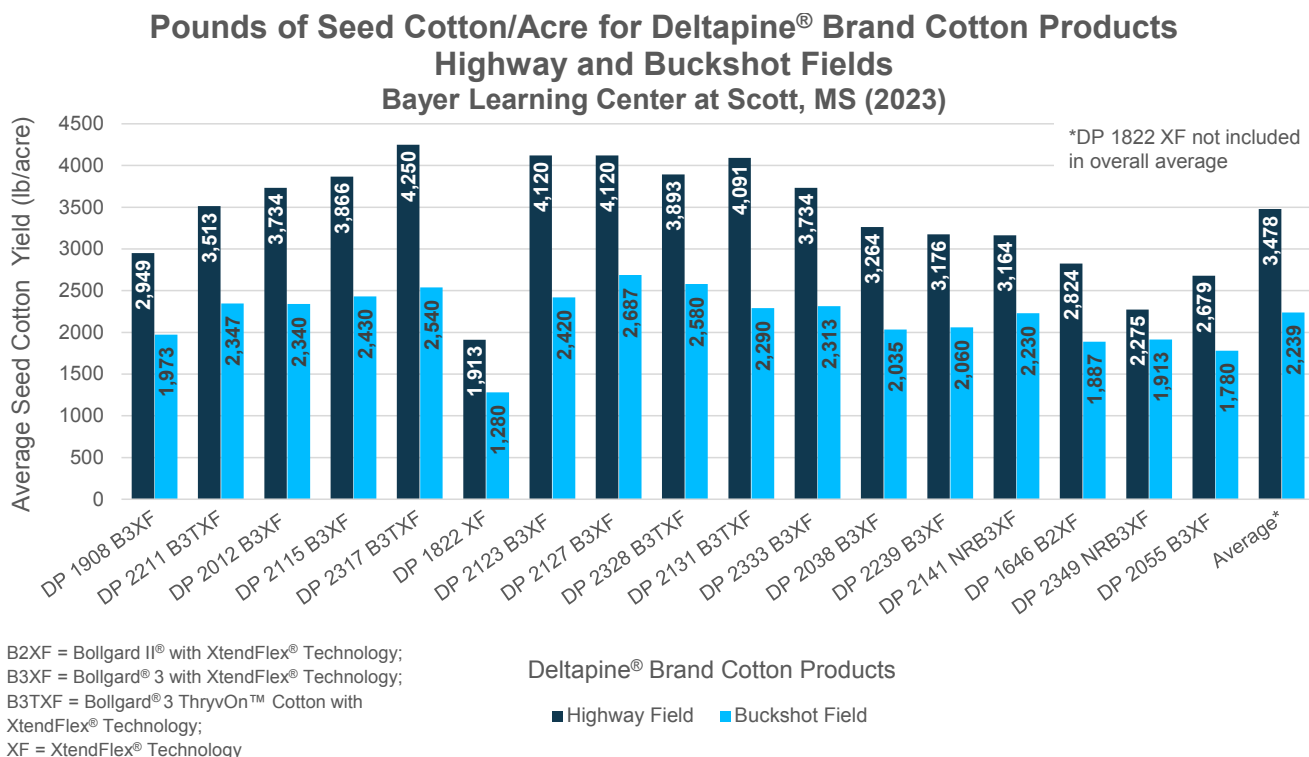


Figure 1. Pounds of seed cotton/acre for Deltapine® Brand cotton products at the Bayer Learning Center at Scott, MS (2023).



Evaluation of Deltapine® Cotton Products on Two Soil Types at Scott, Mississippi (2023)

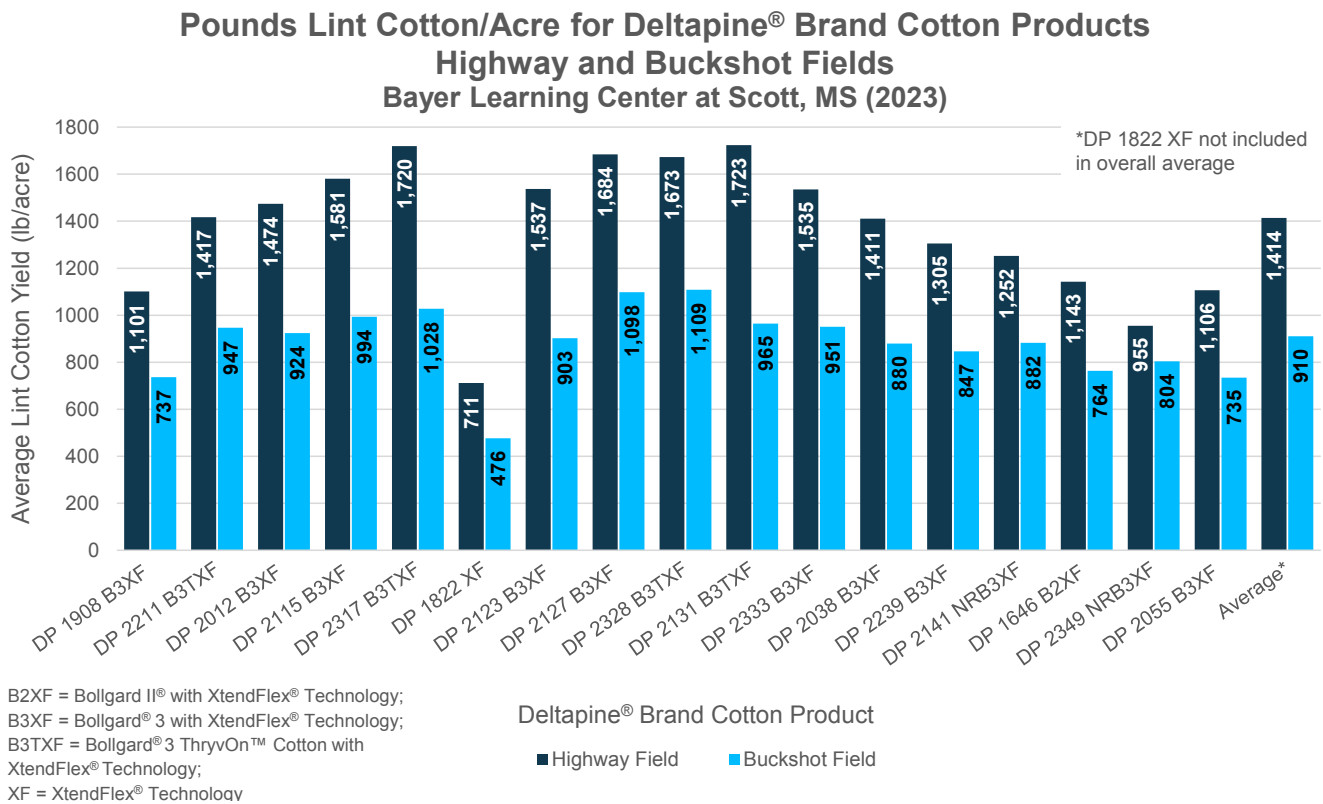


Figure 2. Pounds of lint cotton/acre for Deltapine® Brand cotton products at the Bayer Learning Center at Scott, MS (2023).



Evaluation of Deltapine® Cotton Products on Two Soil Types at Scott, Mississippi (2023)

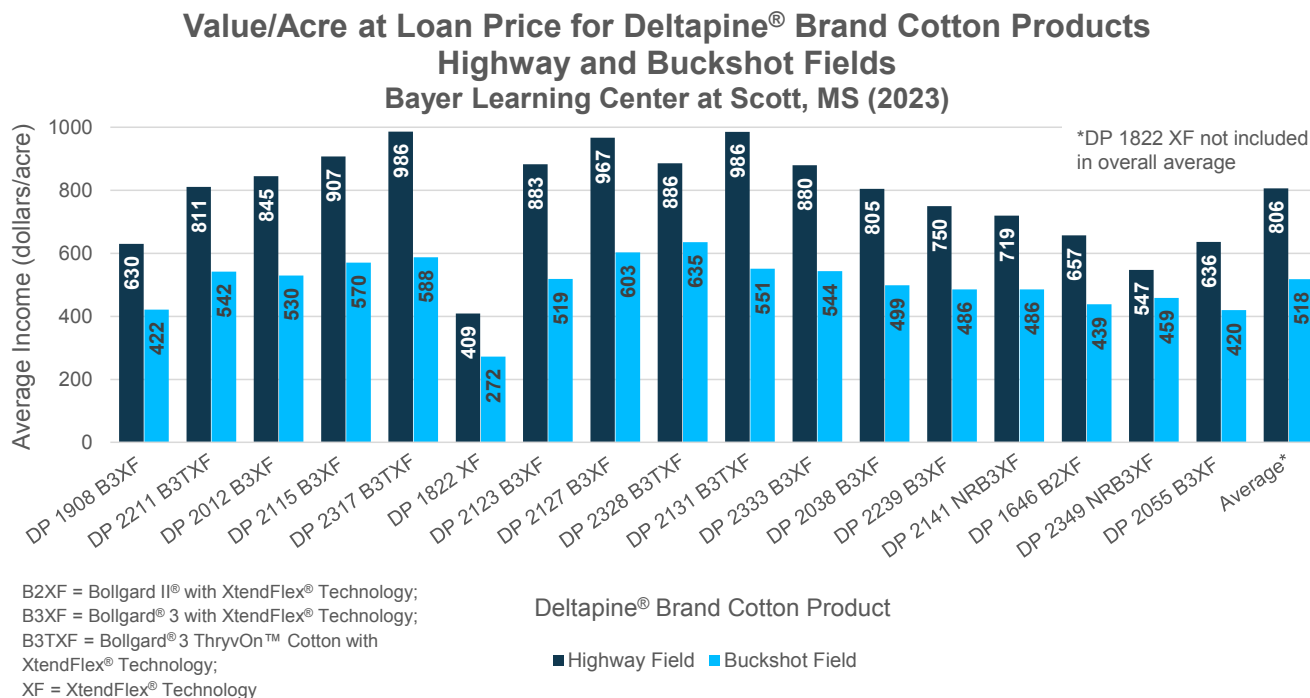


Figure 3. Value produced in dollars/acre for Deltapine® Brand cotton products at the Bayer Learning Center at Scott, MS (2023).

- Value per acre at loan price (Figure 3)
 - » Deltapine® DP 1822 XF Brand was not included in the average because it lacks the insect protection of other products.
 - » High Volume Instrument (HVI) testing was performed on each plot in the series. This allows for the establishment of a fiber price for discounts and premiums from a 2023 loan chart. Base 2023 price was 0.52 cents/lb.
 - » Overall, the cotton crop produced from these studies was of excellent quality with an average loan price across these trials of 56.96 cents/lb. This is roughly a 5-cent premium for fiber quality.
 - » Individual plot yield and HVI data were used to establish a value/acre for each plot in the testing.
 - Highway Field
 - Generated an average income of \$806.00/acre at loan price, not including DP 1822 XF.
 - The income range was from \$986.00/acre (Deltapine® DP 2317 B3TXF) to \$547.00/acre (DP 2349 NRB3XF).
 - Buckshot Field
 - Generated an average of \$518.00/acre at loan price, not including DP 1822 XF.
 - The income range was from \$635.24/acre (Deltapine® DP 2328 B3TXF) to 419.83/acre (Deltapine® DP 2249 NRB3XF).



Evaluation of Deltapine[®] Cotton Products on Two Soil Types at Scott, Mississippi (2023)

Key Learnings

- Across the range of this testing several of the products demonstrated excellent yield potential.
- Bollgard II[®] with XtendFlex[®] Technology demonstrated that it still has tremendous value in an insect control system; however, products containing Bollgard[®] 3 with XtendFlex[®] Technology and Bollgard[®] 3 ThryvOn[®] Cotton with XtendFlex[®] Technology appear to show improved yield potential compared to previous products.
- Several of the leading products in the trial contained ThryvOn[®] Technology.
- It appears from this testing that the Deltapine[®] brand continues to make breeding progress in developing high yielding, high fiber-quality products which contain the newest biotech traits.
- Please contact your Deltapine[®] brand representative for more information.

Legal Statements

The information discussed in this report is from a single site, non-replicated 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 products with XtendFlex[®] Technology.

See the IRM/Grower Guide for additional information. Always read and follow IRM requirements.


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 environmental conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on their growing environment.

The recommendations in this material are based upon trial observations and feedback received from a limited number of growers and growing environments. These recommendations should be considered as one reference point and should not be substituted for the professional opinion of agronomists, entomologists or other relevant experts evaluating specific conditions.

Products with XtendFlex[®] Technology contains genes that confer tolerance to glyphosate, glufosinate and dicamba. Plants that are not tolerant to glyphosate, dicamba, and/or glufosinate may be damaged or killed if exposed to those herbicides. 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. Bayer, Bayer Cross, Bollgard II[®], Bollgard[®], Deltapine[®], Respect the Refuge and Cotton Design[®], Roundup Ready 2 Xtend[®], ThryvOn[®], XtendFlex[®] and XtendFlex[®] are trademarks of Bayer Group. All other trademarks are the property of their respective owners. ©2024 Bayer Group. All rights reserved. 1416_172950



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 Technology/Stewardship Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation and agreement to comply with the most recent stewardship requirements.

