Evaluation of Southern Soybean Planting Dates

Trial Objective

- Soybean products are planted across diverse cropping systems in the Mid-South.
- This diversity leads to soybeans being planted across many dates, with various types of planting equipment. This variation results in different emergence patterns, final stand variabilities, and various reports of crop progress and condition.
- Every season, growers want to know if they should increase or decrease populations based on variety, planting date, or other factors.
- For these reasons, the Scott Learning Center designed demonstrative plots to evaluate planting date, variety, and seeding rate effects on soybean yield.

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 Loam	Soybean	Conventional	See Above	As mature	75	See Below

Table 1. Soybean products planted.

Asgrow® brand	Trait	Maturity
AG43XF2	XtendFlex®	4.3
AG46XF3	XtendFlex®	4.6
AG48XF2	XtendFlex®	4.8
AG48XF3	XtendFlex®	4.8

- All field work, tillage, and herbicides were conducted per local standards.
  - » Planting Dates
    - March 7, 2023 – Ultra early, probably the first soybean planted in the Mid-South in 2023.
    - March 28, 2023 – Somewhat early for our latitude.
    - April 17, 2023 – Normally our highest yielding date.
    - May 4, 2023 – The numerically highest yielding date for 2023.
  - » Seeding Rates
    - 80,000 seeds/acre
    - 120,000 seeds/acre
  - » Experimental Design
    - A single-replication strip plot with
    - Plot size approximately 0.1 acre (8 rows 150 feet long)
    - Twin rows were 7.5 inches apart and seed beds were 38 inches apart
    - Planted with a Monosem designed planter

- Desiccants of appropriate chemistry were applied according to label instructions as crops matured.
- Plots were harvested with a commercial combine, and grain yield values adjusted to 13.5% moisture content for data presentation.
- 2023 was a season that started out cool and dry, transitioned to cool and wet, then finally became warm and wet. This extended cool and/or wet period during the planting and emergence time affected the yield potentials of many soybean products. Therefore, many later-planted soybean crops had greater yields both at the Scott Learning Center and in commercial production fields.

Understanding the Results

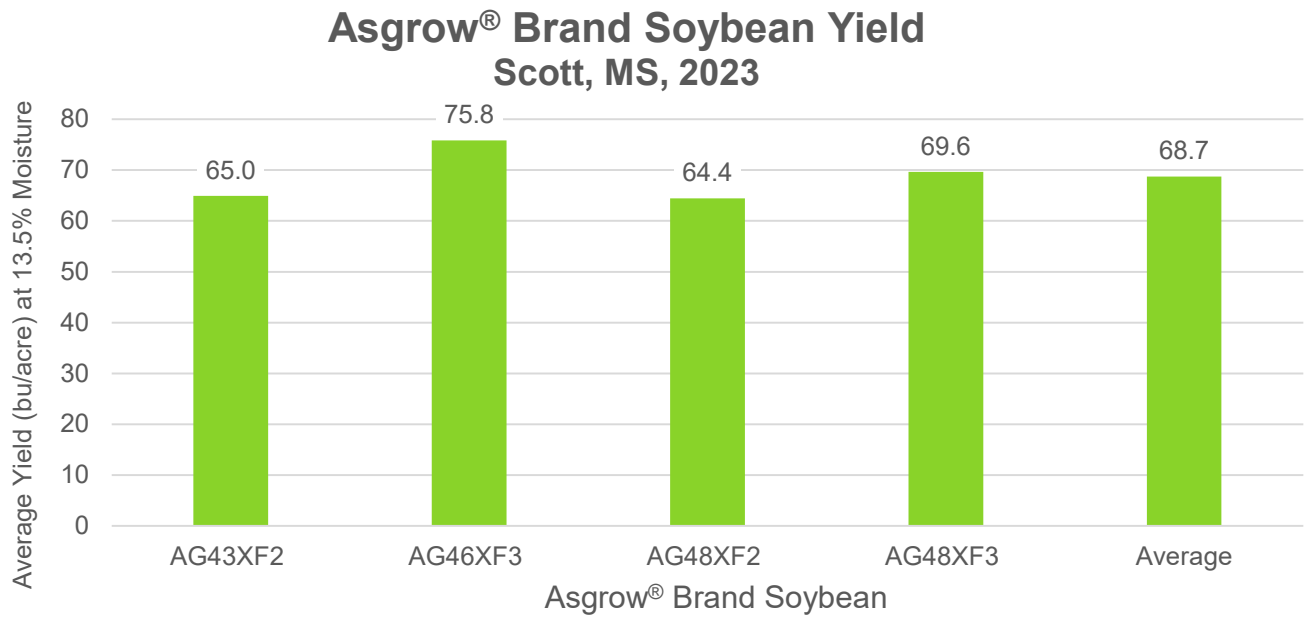

Figure 1. Average yield of four Asgrow® brand soybean products.

- General Yield
  - Across all planting dates, populations, and varieties the trial average was 68.7 bu/acre at 13.5% moisture content.
- Varietal Yields
  - The varietal yield range was from 64.4 to 75.8 bu/acre. The AG46XF3 brand demonstrated the highest average yield across the 4 planting dates. All tested varieties showed competitive performance across the study.

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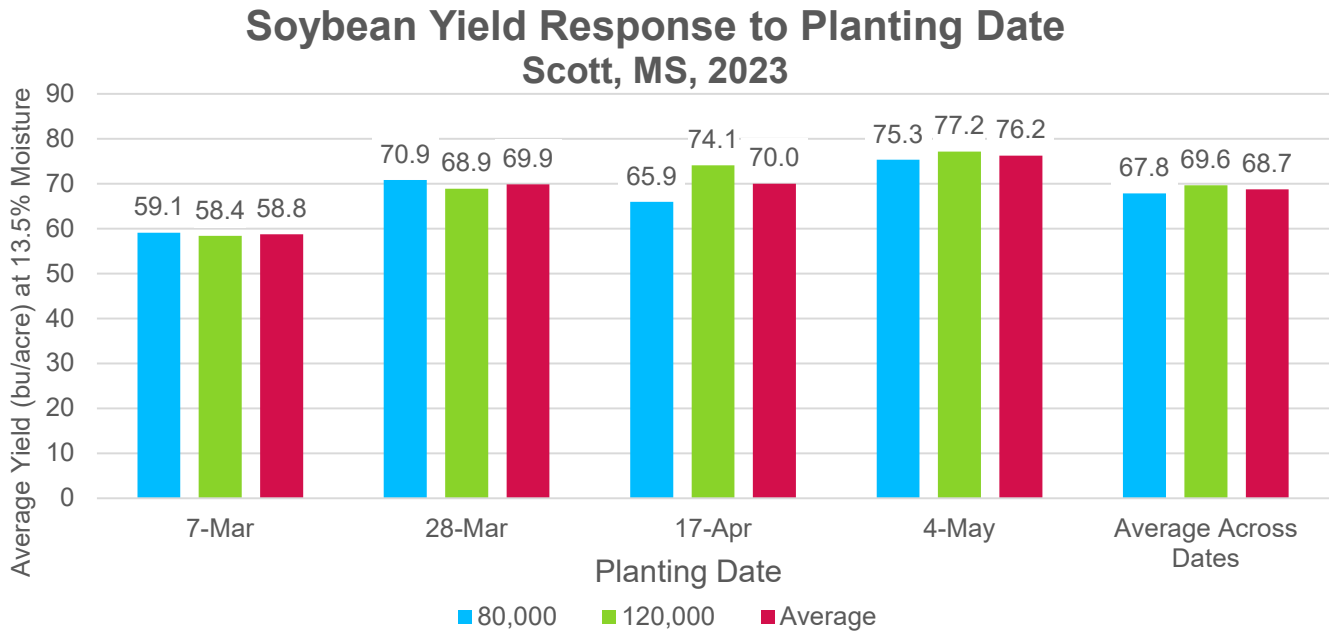

Figure 2. Soybean yield response to planting date at 80,000 and 120,000 seeds/acre planting rates, averaged across soybean products.

- Population Yield Response
  - » Little response to either an increase or decrease in planting population were measured across the study. Little to no interaction appeared to be present with planting date.

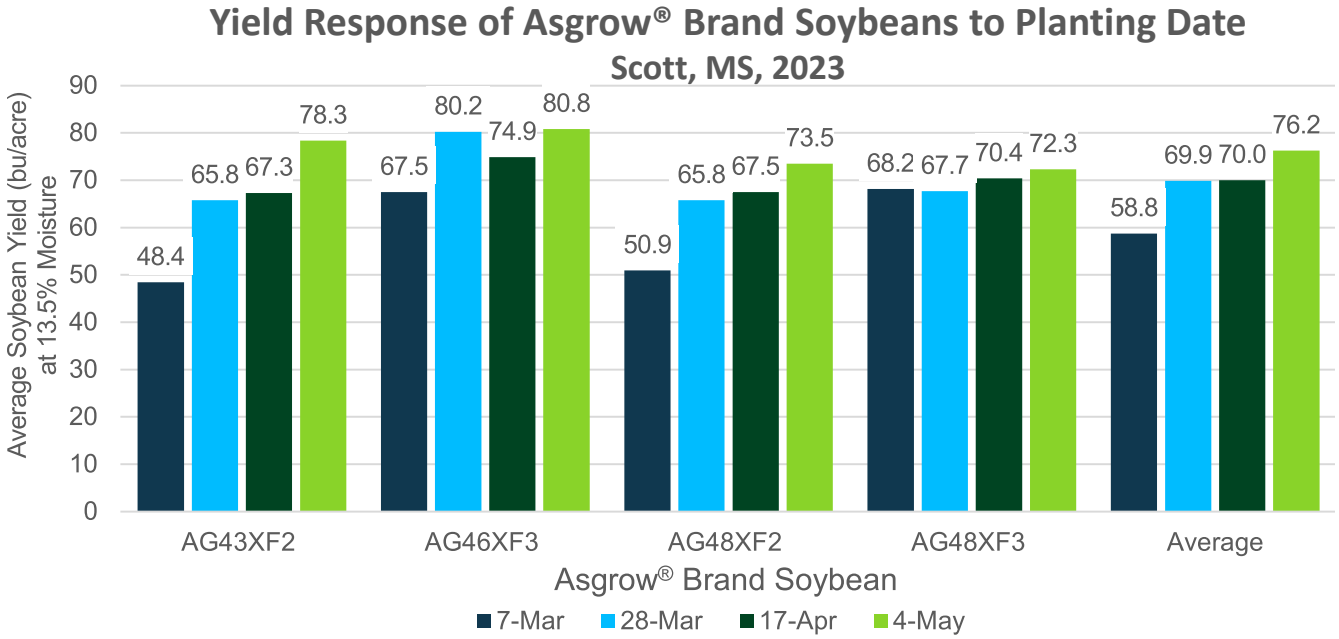

Figure 3. Yield response of Asgrow® brand soybean products to planting date, averaged across planting rates.

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- Planting Date Yield Response
  - » Across varieties the May 4th planting date had the highest average yield at 76.2 bu/acre, while the early March 7th date only yielded 58.8 bu/acre on average across these four varieties. This would be a $244.86/acre ($14.00/bu on November 16, 2023) penalty for the premature planting scenario.
  - » Generally, delayed planting led to increased yields across these soybean products.
  - » Three of the four products had yield penalties from the earliest planting date. The later-maturing soybean product maintained yields, consistent with previous results.
  - » The earliest maturity product (AG43XF2, maturity 4.3) had the greatest yield gap between the earliest planting date (48.4 bu/acre average) and the latest planting date (78.3 bu/acre average).
  - » One variety with 4.8 maturity (AG48XF3) had an average yield of 4.2 bu/acre less on the earliest planting date than on the latest planting date.

Key Learnings

- As demonstrated previously, later-maturing soybean products (4.5 maturity) are often more resilient to non-ideal (cool, wet, and short photoperiod) planting conditions.
- Most soybean varieties have a favorable yield response to later planting dates, possibly due to improving emergence and growth conditions.
- These data do not support increasing planting rates. The current practice of 110,000 to 140,000 seeds/acre appears to be adequate for southern soybean yield goals.
- Yield response is specific to varieties and growers should make planting date decisions based on previous experience, weather forecasts, and in consultation with a local Asgrow® brand representative.
- Later (4.5 to 5.0) maturity varieties are recommended to plant first while conditions are not ideal. Early- to mid- (3.8 to 4.4) maturity varieties can be transitioned to as growing conditions become more favorable.

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.

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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.

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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.

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