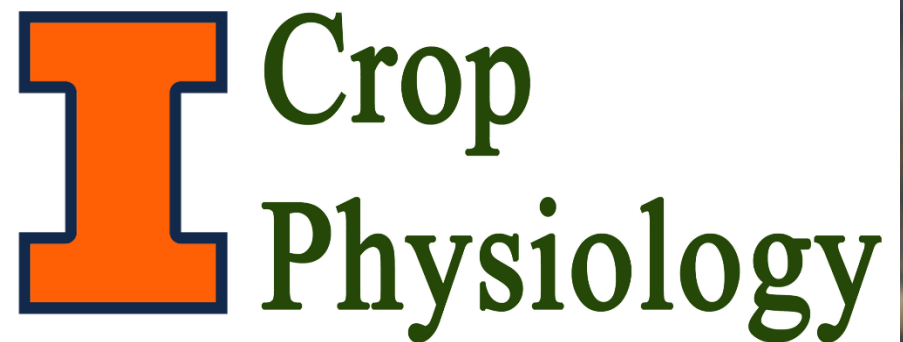


# Illinois Soybean Planting Date Management 2024 Variety Yield Report

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# 2024 Illinois Soybean Planting Date Management Report

We examined multiple soybean varieties and management practices across different planting dates to help identify which combinations of seed selection and agronomic management are best suited to optimize soybean yield based on the planting date.

## Research Approach

Sixteen different soybean varieties (equally represented by Asgrow and Golden Harvest brands) with four different management practices (none, preplant fertility, R3 foliar protection, or preplant fertility + R3 foliar protection) and two row spacings (20 or 30 inches) were replicated across four different planting dates. This approach allows for a comprehensive screening for optimizing seed selection and management practices to achieve the highest yield potential based on the date planted.

## Trial Implementation

The experimental plots were planted using a precision plot planter (SeedPro 360, ALMACO). They were sown in replicated blocks on a single field on 16 April, 11 May, 3 June, and 20 June at Champaign, IL (40°03'05.0"N 88°14'12.5"W) (Figure 1). Plots were 16 feet in length and two rows in width. For weed control, pre-plant applications of Tendovo (Syngenta) (64 oz/acre) were made on day of planting (planting dates 1 and 2) and supplemented with Liberty (BASF) (36 oz/acre) (planting dates 3 and 4). In-season weed control was applied 3 June 2024 to planting date 1 with Flexstar GT (Syngenta) (4 pt per acre) and Warrant (Bayer) (1.75 qt per acre). Zidua SC (BASF) (4 oz per acre), Liberty (BASF) (36 oz per acre), and Roundup PowerMAX 3 (Bayer) (30 oz per acre) was applied to planting date 2. Planting dates 3 and 4 were treated with Zidua SC (BASF) (4 oz per acre) and Liberty (BASF) (43 oz per acre). Weed management varied slightly among planting dates to account for differences in weed emergence patterns, and any variation from these differences is considered part of the planting date effect. Weed escapes were removed by hand to prevent influence of weed pressure on yields across the various planting dates.

## How Varieties Were Tested

The 16 commercial varieties, their relative maturity, and seed treatment are listed in Table 1 and were assessed for their responses to the different levels of agronomic management across four planting dates (Table 2). Varieties were grown in two row spacing arrangements: 30 or 20 inches between rows. Phosphorus (P) and sulfur (S) fertility was achieved by applying 150 pounds/acre of MicroEssentials S10 (The Mosaic Co.) (12-40-0-10S) (18 lbs N, 60 lbs P<sub>2</sub>O<sub>5</sub>, and 15 lbs S per acre) broadcasted (unincorporated) at planting for each respective planting date. Foliar protection (fungicide and insecticide) was achieved by applying Miravis Top (13.7 oz per acre) and Endigo ZC (4 oz per acre) (Syngenta) with Petrichor (4 oz per acre) (CHS Inc.) as the adjuvant at the R3 growth stage (beginning pod development) on 22 July (planting date 1), 26 July (planting date 2), 14 August (planting date 3), and 30 August (planting date 4). Each variety was planted at 140,000 seeds per acre. The soil fertility levels are shown in Table 3, and the 2024 precipitation and temperature data are listed in Table 4.

## Data Collection and Analysis

Plant stand was assessed by counting all plants in one meter from a uniform section of a single row in each plot. Plots were harvested on 3 October (planting date 1), 14 October (planting date 2), 22 October (planting date 3), and 28 October (planting date 4). Grain yield is reported as bushels per acre at 13% moisture. Treatments were arranged in a split-split-split-plot experimental design, with planting date as the main plot (n=4), row spacing (n=2) as the sub plot, variety (n=16) as sub-sub plot, and fertility (n=2) and/or foliar protection (n=2) applications randomized within variety as the sub-sub-sub-plots. This design optimizes the inference of variety response to the agronomic management factors by blocking managements within each respective planting date (Figure 1). Statistical analysis was performed using a linear mixed model approach with PROC MIXED in SAS (version 9.4; SAS Institute, Cary, NC), and means were separated using Fisher's protected LSD test at the 0.10 level of significance. The normality of residuals was assessed using PROC UNIVARIATE, and the assumption of homoscedasticity was tested using the Brown-Forsythe modification of the Levene Test in PROC GLM.

## Growing Conditions

The growing season started with saturated soils with above average rainfall in April (+2.6 inches) and May (+1.2 inches) (Table 4). The month of June experienced less than average rainfall with average temperatures, with dry conditions during establishment of the second two planting dates. The plots received 3.2 inches above average precipitation in July. August and September received adequate rainfall for late forming pods to fully set for the later planting dates.

**Table 1.** Variety entries in the evaluation of soybean yield response to management and planting date.

Brand	MG	Variety	Seed Treatment
Asgrow	2.9	AG29XF5	Acceleron + Ileva
Asgrow	3.0	AG30XF4	Acceleron + Ileva
Asgrow	3.5	AG35XF1	Acceleron + Ileva
Asgrow	3.5	AG35XF1	Untreated
Asgrow	3.5	AG35XF5	Acceleron + Ileva
Asgrow	3.6	AG36XF4	Acceleron + Ileva
Asgrow	3.7	AG37XF5	Acceleron + Ileva
Asgrow	3.9	AG39XF3	Acceleron + Ileva
Golden Harvest	2.7	GH2775E3	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.3	GH3355E3S	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.4	GH3415E3S	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.4	GH3445XF	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.6	GH3655E3S	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.7	GH3765XF	CruiserMaxx + Vibrance + Saltro
Golden Harvest	3.9	GH3994E3	CruiserMaxx + Vibrance + Saltro
Golden Harvest	4.0	GH4093ES	CruiserMaxx + Vibrance + Saltro

**Table 2.** Agronomic treatments applied as a complete factorial for evaluation of commercial soybean varieties planted at Champaign, IL in 2024.

Planting Date	Row Spacing	Fertility <sup>1</sup>	Foliar Protection <sup>2</sup>
16 April	30-inch	None	None
11 May			
3 June	20-inch	N, P, and S	Fungicide and Insecticide
20 June			

<sup>1</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>2</sup> Foliar protection supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

**Table 3.** Preplant soil test levels for the trial site at Champaign, IL.

OM	CEC	pH	P	K	Ca	Mg	S	Zn
%	meq/100g				ppm			
3.4	17.5	6.6	22	76	2372	460	11	1.3

Soil samples were taken from the 0-6 inch depth before planting and extracted using Mehlich III.

**Table 4.** Temperature and precipitation data for the trial site at Champaign, IL in 2024.

Month	Precipitation		Temperature	
	2024	Average <sup>1</sup>	2024	Average <sup>1</sup>
	inches		°F	
April	6.6	4.0	55	53
May	6.2	5.0	67	63
June	2.4	4.7	75	72
July	7.6	4.4	74	75
August	5.1	3.5	74	74
September	2.5	3.3	69	67
Total	30.4	24.9	-	-

<sup>1</sup>Average climate data from Champaign, IL from 1989-2020. Data was obtained from the Illinois State Water Survey.



**Figure 1.** Planting date comparisons photographed on 1<sup>st</sup> July. Comparisons are 16 April vs. 11 May (left); 11 May vs. 3 June (center); and 3 June vs. 20 June (right)

### **Climbing Down the Ladder of Yield by Planting Date**

With favorable weather conditions throughout the growing season, we observed a steep decline in yield from the earliest planting date to the three later planting dates. When averaged across managements, the April planting date yielded the highest at 72 bushels per acre, followed by the second planting date in May (59 bushels), the third planting date in early June (58 bushels), and bottoming out with the fourth planting date in late June (52 bushels) (Tables 5 and 6). All sixteen varieties achieved their highest yields when planted in April, with an average 13-bushel increase when compared to the second planting date (Table 6). This difference may be partially due to a reduction in plant stand as May-June planting dates had over 7,000 fewer plants per acre than the varieties planted in April (Table 7). While it was not observed in the earlier plantings, the later planted plots exhibited potassium deficiency, which likely contributed to their lower yields. In addition to low soil K test values (Table 3), later planted soybeans were in early vegetative growth stages in June, which was the only month receiving substantially lower rainfall than normal (50% of normal rainfall) when moisture is critical for the availability of soil K. In summary, earlier planting resulted in higher yields, with an exceptional advantage for the April planted soybean.

### **Fertility and/or Foliar Protection, Yet Again. But Row Spacing?**

Applying fertility and foliar protection increases yield, like what was observed in the 2022 and 2023 versions of this study. Averaged across planting dates, fertility resulted in only a 1.4-bushel yield increase while foliar protection alone had a 3.2-bushel per acre increase. The value of fertility was greater as the planting date became later, where rapid growth of June-planted soybean is more than the soil supply can accommodate. When supplied together, the yield response was 4.8 bushels, suggesting that the value of these practices is additive and that foliar protection provides a larger yield response than P & S fertility, independent of planting date. The response of fertility and foliar protection applied together varied slightly by planting date. The April and June planting dates had a 5 to 6-bushel increase, while the May planting date resulted in only a 2-bushel increase (Table 5). Narrow rows resulted in a positive increase for three of the four planting dates, worth 2-8 bushels. Notably, the two later planting dates in June responded more to narrow rows compared to the first two planting dates, indicating that row spacing does not matter as much when soybeans were planted early (Tables 8 and 9).

### **Variety Selection: The Foundation to Success**

Building the foundation starts with variety selection, which resulted in the greatest range in yield values compared to other management practices. The variety range in yield was 20 bushels for the April planted soybean, 18 bushels for May, 14 bushels for early June, and 15 bushels for the late June planting (Table 6). Averaged across all planting dates, GH3415E3S was the highest yielding variety at 67 bushels per acre (Table 6). Each variety responds differently, especially when it comes to choosing the corresponding management practices. In previous years, we have seen the trend of later MG cultivars yielding higher than earlier MGs, and among the Asgrow varieties this trend was observed in 2024. Conversely some of the early MG Golden Harvest varieties performed as well or better than the later ones for the April and early June plantings (Tables 8 and 10), while for the May and late June dates, both early and late MGs had high yields (Tables 9 and 11), indicating that as planting is delayed longer MG varieties are still an option.

### **The Final Four**

Our teams for the final four are planting date, fertility and/or foliar protection, row spacing, and variety selection, earning their spot because they are the fundamentals when it comes to maximizing the yield potential of soybean. Planting date qualifies in the tournament as soybean yields decreased as planting date was delayed, where all soybeans yielded best when planted earlier. Applying fertility and foliar protection together improved yields more than applying fertility alone, though foliar protection alone routinely outplayed fertility on its own. Row spacing won their elite eight game with the later planting dates in June showing more of a response to 20-inch rows than 30-inch, whereas early planting dates had minimal response to row width. Variety selection goes on to win the championship as they had the greatest influence on yield. The highest individual yield observed was AG39XF3 yielding 87 bushels per acre when planted in a 30-inch row in April with fertility and foliar protection applied (Table 8). This shows the importance of selecting the right variety and matching it with the correct management practice to maximize its full yield potential. We hope that this report provides value to growers in building their own “Final Four” by selecting the appropriate variety and implementing management practices that align with the selected variety’s potential.

**Table 5.** Planting date and management interaction effects on soybean grain yield at Champaign, IL in 2024. Yield values are the average of sixteen soybean varieties planted on four different dates and across eight different management combinations of row spacing, fertility, and foliar protection.

Row Spacing	Fertility <sup>2</sup>	Foliar Protection <sup>3</sup>	Management Average	Treatment Yields (bushels per acre) <sup>1</sup>			
				Planting Date			
				April 16	May 11	June 3	June 20
30-inch	None	None	55.6	70.1	57.3	49.4	45.8
	+ Fertility	None	57.1	68.6	59.1	53.1	47.8
	None	+ Foliar Protection	59.3	71.8	61.0	55.3	49.1
	+ Fertility	+ Foliar Protection	60.2	73.4	58.3	56.4	52.9
20-inch	None	None	59.5	70.3	57.7	59.1	51.1
	+ Fertility	None	60.8	71.1	57.4	60.3	54.5
	None	+ Foliar Protection	62.3	72.5	58.8	62.8	55.0
	+ Fertility	+ Foliar Protection	64.5	77.7	60.9	63.8	55.7
<b>Mean</b>			59.9	71.9	58.8	57.5	51.5
<b>Management Main Effects</b>							
Row Spacing	30-inch		58.1	70.9	59.0	53.5	48.9
	20-inch		61.8	72.9	58.7	61.5	54.1
	<b>LSD (<math>P \leq 0.10</math>)</b>		1.5	NS	NS	4.1	2.6
Fertility	None		59.2	71.0	58.6	56.6	50.2
	+ Fertility		60.7	72.7	59.0	58.4	52.7
	<b>LSD (<math>P \leq 0.10</math>)</b>		0.6	0.8	NS	0.7	NS
Foliar Protection	None		58.3	70.0	57.9	55.5	49.8
	+ Foliar Protection		61.6	73.8	59.7	59.6	53.2
	<b>LSD (<math>P \leq 0.10</math>)</b>		0.6	0.8	0.7	0.7	NS
Fertility × Foliar Protection							
Fertility × Foliar Protection	None	None	57.6	70.1	57.4	54.2	48.4
	+Fertility	None	59.0	69.9	58.3	56.7	51.1
	None	+Foliar Protection	60.8	72.0	59.9	59.0	52.1
	+Fertility	+Foliar Protection	62.4	75.5	59.6	60.2	54.3
<b>LSD (<math>P \leq 0.10</math>)</b>		NS	1.1	NS	NS	NS	

<sup>1</sup> Values are the average of sixteen varieties and four replications and are presented at 13% moisture.

<sup>2</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>3</sup> Foliar protection supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

† Row Spacing × Fertility × Foliar Protection LSD ( $P \leq 0.10$ ) = NS (April 16), NS (May 11), 1.7 (June 3), 2.7 (June 20).

**Table 6.** Yield averages of 16 soybean varieties in response to four different planting dates at Champaign, IL in 2024.

Brand	MG	Variety	Variety Average	Planting Date Yields ( bushels per acre ) <sup>1</sup>			
				April 16	May 11	June 3	June 20
Asgrow	2.9	AG29XF5	57.8	63.5	63.4	61.3	42.7
Asgrow	3.0	AG30XF4	53.8	68.6	50.0	49.4	47.3
Asgrow	3.5	AG35XF1	59.3	70.7	60.3	55.7	50.6
Asgrow	3.5	AG35XF1‡	60.9	69.7	57.9	63.3	52.5
Asgrow	3.5	AG35XF5	62.1	72.0	59.0	59.4	58.1
Asgrow	3.6	AG36XF4	58.7	70.8	61.1	56.1	47.0
Asgrow	3.7	AG37XF5	57.7	72.5	58.3	56.2	44.0
Asgrow	3.9	AG39XF3	61.6	79.0	57.3	59.2	51.0
Golden Harvest	2.7	GH2775E3	52.9	60.2	50.8	52.4	48.5
Golden Harvest	3.3	GH3355E3S	64.8	79.5	68.0	56.7	55.0
Golden Harvest	3.4	GH3415E3S	66.5	79.9	65.7	62.9	57.4
Golden Harvest	3.4	GH3445XF	56.8	68.6	54.4	55.8	48.3
Golden Harvest	3.6	GH3655E3S	64.8	79.4	61.5	60.8	56.4
Golden Harvest	3.7	GH3765XF	60.9	71.9	56.4	57.5	57.6
Golden Harvest	3.9	GH3994E3	60.9	74.2	61.6	56.1	51.8
Golden Harvest	4.0	GH4093ES	59.5	69.5	55.3	57.6	55.5
<b>LSD (P ≤ 0.10)</b>			2.4	3.7	5.8	4.4	4.4
<b>Mean</b>			59.9	71.9	58.8	57.5	51.5
<b>Range</b>			53-67	60-80	50-68	49-63	43-58

<sup>1</sup> Values are the average of eight row spacing x fertility x foliar protection treatments across four replications and are presented at 13% moisture.

‡ No seed treatment applied.

**Table 7.** Stand count averages of 16 soybean varieties in response to four different planting dates at Champaign, IL in 2024.

Brand	MG	Variety	Planting Date Stands ( plants per acre ) <sup>1</sup>			
			April 16	May 11	June 3	June 20
Asgrow	2.9	AG29XF5	133,718	128,295	125,086	126,829
Asgrow	3.0	AG30XF4	128,406	101,860	115,291	107,987
Asgrow	3.5	AG35XF1	136,374	134,699	127,410	126,995
Asgrow	3.5	AG35XF1‡	124,505	123,233	128,489	116,370
Asgrow	3.5	AG35XF5	138,366	125,668	124,754	127,797
Asgrow	3.6	AG36XF4	139,030	131,545	122,596	124,422
Asgrow	3.7	AG37XF5	127,078	124,476	127,825	117,532
Asgrow	3.9	AG39XF3	134,133	126,000	126,663	116,868
Golden Harvest	2.7	GH2775E3	127,161	120,687	119,109	117,449
Golden Harvest	3.3	GH3355E3S	128,406	123,505	113,465	107,675
Golden Harvest	3.4	GH3415E3S	131,145	125,557	129,485	118,777
Golden Harvest	3.4	GH3445XF	137,068	126,825	128,074	126,663
Golden Harvest	3.6	GH3655E3S	142,765	134,632	126,248	127,327
Golden Harvest	3.7	GH3765XF	136,623	125,446	129,734	116,907
Golden Harvest	3.9	GH3994E3	142,516	129,813	134,714	110,560
Golden Harvest	4.0	GH4093ES	129,900	131,141	125,252	123,260
		<b>LSD (<math>P \leq 0.10</math>)</b>	5493	5744	5145	6189
		<b>Mean</b>	133,575	125,836	125,262	119,589
		<b>Range (x1000)</b>	124.5-142.8	101.9-134.7	113.4-134.7	107.6-127.7

<sup>1</sup> Values are the average of eight row spacing x fertility x foliar protection treatments across four replications and were assessed by counting all plants in a meter of yield row of each plot.

‡ No seed treatment applied.

**Table 8.** Yield averages of 16 soybean varieties in response to differing levels of management when planted at Champaign, IL, on April 16<sup>th</sup> 2024.

Brand	MG	Variety	Variety Average	Treatment Yields (bushels per acre) <sup>1</sup>							
				30-inch row spacing				20-inch row spacing			
				Control	+ Fertility <sup>2</sup>	+ FP <sup>3</sup>	+ Fert & FP	Control	+ Fertility	+ FP	+ Fert & FP
Asgrow	2.9	AG29XF5	63.5	60.9	61.7	63.6	59.4	61.7	65.5	64.3	71.3
Asgrow	3.0	AG30XF4	68.6	59.8	66.4	67.0	70.0	68.0	69.1	70.1	78.0
Asgrow	3.5	AG35XF1	70.7	74.5	65.4	71.5	72.7	71.5	68.2	68.9	72.8
Asgrow	3.5	AG35XF1‡	69.7	64.9	66.8	69.2	76.5	67.1	67.4	69.9	75.4
Asgrow	3.5	AG35XF5	72.0	67.6	66.5	71.5	77.6	70.6	69.5	74.3	78.5
Asgrow	3.6	AG36XF4	70.8	73.7	69.1	73.6	68.3	67.2	69.1	68.3	77.2
Asgrow	3.7	AG37XF5	72.5	67.0	65.1	67.6	69.0	73.5	78.2	74.2	85.5
Asgrow	3.9	AG39XF3	79.0	75.7	80.3	79.4	86.6	75.8	73.3	77.6	83.5
Golden Harvest	2.7	GH2775E3	60.2	57.8	55.8	60.1	61.1	61.8	59.6	62.6	62.9
Golden Harvest	3.3	GH3355E3S	79.5	75.1	78.8	78.1	78.5	81.1	78.4	81.8	84.3
Golden Harvest	3.4	GH3415E3S	79.9	75.6	77.6	83.5	84.6	75.8	78.5	80.5	83.1
Golden Harvest	3.4	GH3445XF	68.6	69.4	66.5	69.4	68.3	65.7	70.3	65.8	73.4
Golden Harvest	3.6	GH3655E3S	79.4	77.6	78.3	78.2	82.4	76.7	78.4	81.1	82.5
Golden Harvest	3.7	GH3765XF	71.9	73.2	67.8	71.8	77.2	68.1	70.2	69.6	77.1
Golden Harvest	3.9	GH3994E3	74.2	75.1	71.8	76.7	76.1	68.8	73.0	74.5	77.4
Golden Harvest	4.0	GH4093ES	69.5	69.5	62.8	63.7	65.4	71.0	68.3	75.3	80.4
<b>LSD (<math>P \leq 0.10</math>)</b>			3.7	6.7	6.4	7.8	5.4	7.9	8.0	7.8	7.0
<b>Mean</b>			71.9	69.8	68.8	71.6	73.4	70.3	71.1	72.4	77.7
<b>Range</b>			60-80	58-78	56-80	60-84	59-87	62-81	60-79	63-82	63-86

<sup>1</sup> Values presented at 13% moisture.

<sup>2</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>3</sup> FP, Foliar protection: supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

‡ No seed treatment applied.



**Table 9.** Yield averages of 16 soybean varieties in response to differing levels of management when planted at Champaign, IL, on May 11<sup>th</sup> 2024.

Brand	MG	Variety	Variety Average	Treatment Yields (bushels per acre) <sup>1</sup>							
				30-inch row spacing				20-inch row spacing			
				Control	+ Fertility <sup>2</sup>	+ FP <sup>3</sup>	+ Fert & FP	Control	+ Fertility	+ FP	+ Fert & FP
Asgrow	2.9	AG29XF5	63.4	65.8	58.4	58.7	59.4	67.2	61.1	65.4	70.9
Asgrow	3.0	AG30XF4	50.0	43.7	52.4	51.3	50.8	48.2	50.2	49.5	53.9
Asgrow	3.5	AG35XF1	60.3	62.7	57.1	62.9	58.0	62.3	56.4	61.4	61.8
Asgrow	3.5	AG35XF1‡	57.9	57.5	63.0	63.8	63.6	51.0	53.2	52.3	58.8
Asgrow	3.5	AG35XF5	59.0	53.5	65.0	61.3	58.8	54.0	59.2	56.4	63.7
Asgrow	3.6	AG36XF4	61.1	65.3	57.4	66.4	59.8	58.9	57.9	60.9	61.9
Asgrow	3.7	AG37XF5	58.3	60.1	54.9	59.8	55.6	59.7	56.3	60.1	59.8
Asgrow	3.9	AG39XF3	57.3	53.1	62.8	61.6	63.0	52.0	53.0	55.5	57.3
Golden Harvest	2.7	GH2775E3	50.8	40.4	55.3	48.9	45.2	52.0	53.2	53.2	58.1
Golden Harvest	3.3	GH3355E3S	68.0	69.2	64.5	68.2	63.7	66.2	69.3	72.4	70.2
Golden Harvest	3.4	GH3415E3S	65.7	60.2	72.9	68.5	68.5	59.2	65.9	63.9	66.8
Golden Harvest	3.4	GH3445XF	54.4	58.9	46.7	54.7	50.8	58.3	53.3	58.5	54.2
Golden Harvest	3.6	GH3655E3S	61.5	56.4	65.7	66.2	62.3	56.9	60.9	59.8	63.5
Golden Harvest	3.7	GH3765XF	56.4	50.8	59.1	58.9	60.2	53.3	55.3	56.1	57.8
Golden Harvest	3.9	GH3994E3	61.6	63.6	60.4	67.4	59.6	64.1	57.6	61.9	58.3
Golden Harvest	4.0	GH4093ES	55.3	55.7	52.7	56.8	53.2	56.9	55.7	53.2	57.7
		<b>LSD (<math>P \leq 0.10</math>)</b>	5.8	9.9	10.9	8.1	12.2	7.1	9.8	6.5	9.6
		<b>Mean</b>	58.8	57.3	59.3	61.0	58.3	57.5	57.4	58.8	60.9
		<b>Range</b>	50-68	40-69	47-73	49-69	45-69	48-67	50-69	50-72	54-71

<sup>1</sup> Values are presented at 13% moisture.

<sup>2</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>3</sup> FP, Foliar protection: supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

‡ No seed treatment applied.

**Table 10.** Yield averages of 16 soybean varieties in response to differing levels of management when planted at Champaign, IL, on June 3<sup>rd</sup> 2024.

Brand	MG	Variety	Variety Average	Treatment Yields (bushels per acre) <sup>1</sup>							
				30-inch row spacing				20-inch row spacing			
				Control	+ Fertility <sup>2</sup>	+ FP <sup>3</sup>	+ Fert & FP	Control	+ Fertility	+ FP	+ Fert & FP
Asgrow	2.9	AG29XF5	61.3	49.5	53.0	56.4	60.3	63.8	65.4	70.5	71.7
Asgrow	3.0	AG30XF4	49.4	41.6	44.3	46.2	44.6	57.2	52.8	56.2	52.6
Asgrow	3.5	AG35XF1	55.7	48.5	50.2	55.7	59.6	54.7	54.0	61.5	61.7
Asgrow	3.5	AG35XF1‡	63.3	54.0	67.9	59.6	58.8	64.3	65.1	67.9	68.5
Asgrow	3.5	AG35XF5	59.4	48.7	54.0	54.0	54.1	64.3	64.8	66.0	69.4
Asgrow	3.6	AG36XF4	56.1	52.8	56.0	61.0	65.4	49.5	51.4	54.2	58.1
Asgrow	3.7	AG37XF5	56.2	51.0	48.5	55.9	57.4	57.7	58.1	61.4	59.7
Asgrow	3.9	AG39XF3	59.2	46.9	51.7	49.4	53.2	65.8	69.2	64.1	73.4
Golden Harvest	2.7	GH2775E3	52.4	41.8	48.2	43.6	44.4	59.0	62.9	59.3	60.3
Golden Harvest	3.3	GH3355E3S	56.7	53.0	54.5	56.6	59.7	55.4	51.2	60.8	62.1
Golden Harvest	3.4	GH3415E3S	62.9	55.2	60.5	61.3	60.0	63.2	70.1	68.0	65.3
Golden Harvest	3.4	GH3445XF	55.8	48.9	47.8	55.2	57.5	55.5	53.3	63.8	64.7
Golden Harvest	3.6	GH3655E3S	60.8	54.4	60.4	61.6	59.7	58.9	62.9	61.8	66.6
Golden Harvest	3.7	GH3765XF	57.5	48.7	53.5	59.4	59.0	59.5	60.5	60.1	59.6
Golden Harvest	3.9	GH3994E3	56.1	48.5	49.0	56.4	54.1	57.9	59.1	60.6	62.9
Golden Harvest	4.0	GH4093ES	57.6	47.1	49.4	52.2	54.6	58.1	64.0	68.5	66.7
		<b>LSD (<math>P \leq 0.10</math>)</b>	4.4	7.3	11.4	6.0	7.5	5.5	8.6	6.1	6.0
		<b>Mean</b>	57.5	49.4	53.1	55.3	56.4	59.1	60.3	62.8	64.0
		<b>Range</b>	49-63	42-55	44-68	44-62	44-65	50-66	51-70	54-71	53-73

<sup>1</sup> Values are presented at 13% moisture.

<sup>2</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>3</sup> FP, Foliar protection: supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

‡No seed treatment applied.

**Table 11.** Yield averages of 16 soybean varieties in response to differing levels of management when planted at Champaign, IL, on June 20<sup>th</sup> 2024.

Brand	MG	Variety	Variety Average	Treatment Yields (bushels per acre) <sup>1</sup>							
				30-inch row spacing				20-inch row spacing			
				Control	+ Fertility <sup>2</sup>	+ FP <sup>3</sup>	+ Fert & FP	Control	+ Fertility	+ FP	+ Fert & FP
Asgrow	2.9	AG29XF5	42.7	33.5	41.2	43.0	45.6	42.1	46.1	46.2	44.0
Asgrow	3.0	AG30XF4	47.3	47.5	40.8	44.1	50.2	45.3	51.3	47.4	52.1
Asgrow	3.5	AG35XF1	50.6	40.7	46.4	46.3	48.6	56.0	53.3	57.9	55.8
Asgrow	3.5	AG35XF1‡	52.5	53.7	49.0	52.7	58.9	48.2	50.8	55.1	52.2
Asgrow	3.5	AG35XF5	58.1	54.4	51.1	55.0	61.4	59.5	59.9	57.2	66.0
Asgrow	3.6	AG36XF4	47.0	39.1	46.4	46.0	49.0	43.7	50.6	49.6	51.3
Asgrow	3.7	AG37XF5	44.0	32.6	37.8	38.0	38.4	47.4	53.5	53.4	50.9
Asgrow	3.9	AG39XF3	51.0	46.1	48.9	49.6	56.2	49.8	52.2	49.5	55.9
Golden Harvest	2.7	GH2775E3	48.5	45.1	41.3	43.0	48.7	47.9	56.4	52.2	52.9
Golden Harvest	3.3	GH3355E3S	55.0	51.5	55.1	56.1	57.4	52.2	55.1	56.7	55.7
Golden Harvest	3.4	GH3415E3S	57.4	52.7	50.2	54.5	59.2	53.3	63.3	63.7	62.9
Golden Harvest	3.4	GH3445XF	48.3	38.2	44.9	45.9	44.9	51.3	50.8	55.8	54.4
Golden Harvest	3.6	GH3655E3S	56.4	49.6	49.5	49.4	56.9	56.0	61.5	63.5	65.3
Golden Harvest	3.7	GH3765XF	57.6	56.7	57.4	56.9	64.8	54.1	57.1	59.0	54.6
Golden Harvest	3.9	GH3994E3	51.8	44.8	52.4	53.0	51.1	52.3	52.7	53.7	54.5
Golden Harvest	4.0	GH4093ES	55.5	45.8	51.7	51.8	55.7	57.8	57.9	59.8	63.2
<b>LSD (<math>P \leq 0.10</math>)</b>			4.4	8.3	5.8	7.7	5.3	10.1	7.9	7.8	8.4
<b>Mean</b>			51.5	45.8	47.8	49.1	52.9	51.1	54.5	55.0	55.7
<b>Range</b>			43-58	33-57	38-57	38-57	38-65	42-60	46-63	46-64	44-66

<sup>1</sup> Values are presented at 13% moisture.

<sup>2</sup> Fertility supplied as 150 lbs per acre MicroEssentials S10 (12-40-0-10S) to supply 60 lbs P<sub>2</sub>O<sub>5</sub> and 15 lbs S per acre.

<sup>3</sup> FP, Foliar protection: supplied as fungicide (Miravis Top) and insecticide (Endigo ZC) at 13.7 and 4 oz per acre, respectively.

‡No seed treatment applied.