

A black and white photograph of a soybean plant stem with several pods. The pods are in the foreground, and the background is a bright, hazy sky. The text is overlaid on the right side of the image.

2023 SOYBEAN

Variety Yields and Production Practices

2023 Soybean Variety Yields and Production Practices

Soybean production guidelines are prepared by LSU AgCenter cooperating personnel from Louisiana Agricultural Experiment Station researchers and by Louisiana Cooperative Extension Service specialists.

Variety Selection

Variety selection is not a decision to be made lightly as it is the most important decision facing a producer going into the season. No other input can radically change the yield potential to the extent that variety selection can. This decision can be daunting, but through the LSU AgCenter, producers do have information at their disposal to improve this decision-making process.

Fortunately, growers in Louisiana have two types of multi-environment data to use when selecting varieties. The official variety trials (OVT) are small-plot trials where varieties are evaluated. For the 2022 OVT, 118 varieties were entered by 10 seed companies and one university soybean breeding program. The varieties consisted of several different herbicide technologies, and the maturity groups range from 3.8 to 5.6. The trial was replicated at seven research stations across the state in different soil types, including sandy loam, silt loam, silty clay and clay.

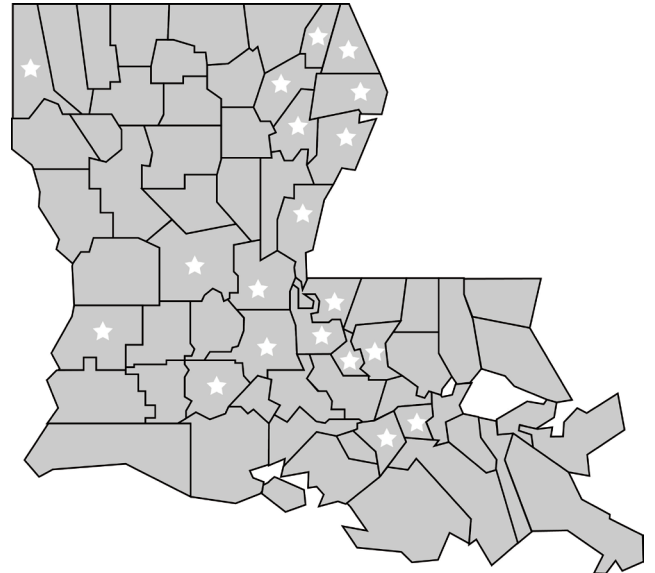
In addition to the OVT, the LSU AgCenter collaborates with soybean producers to evaluate soybean varieties directly on farms. For these core block demonstration plots, LSU AgCenter parish agents cooperate with producers to plant, maintain and harvest strip trials submitted by seed companies and university soybean breeding programs. These demonstrations provide valuable yield data from local growing conditions and agronomic practices. The core block program is designed to evaluate a select number of soybean varieties in large plots located across the state. In some cases, observations from these large plots can result in identification of varieties that are resistant to a number of soilborne maladies. Seven seed companies and one university soybean breeding program submitted varieties for the 2022 core block demonstrations. Thirty-five demonstrations were planted across 19 parishes. The demonstrations were divided by maturity group (MG). A demonstration consisted of varieties with a MG of 4.0 to 4.4; 4.5 to 4.9; or 5.2 to 5.6. The numbers of varieties submitted for each MG were nine (MG 4.0 to 4.4), 15 (MG 4.5 to 4.9) and seven (MG 5.2 to 5.6).

The OVT and the core block demonstrations allow producers to select from the large number of varieties in the OVT and from varieties tested in environments similar to their farms. We would advise growers to make all variety decisions based on multi-year and multi-environment data

and to identify stable varieties that perform well over a range of environments.

For best use of this guide, we recommend evaluating variety yield results based on performance and stability. Performance refers to identifying the varieties that are high yielding in environments that best represent your local farm. Stability refers to the performance of a variety across multiple environments. It is important for growers to consider both factors when making variety decisions.

2022 Soybean Core Block Locations



Other Varietal Characteristics

Variety yield potential is an important trait in selecting a variety, but other varietal characteristics should also be considered. How these criteria rank in importance to the grower may vary from one grower to the next and may vary from one field to the next. Several of these criteria for variety selection are discussed below.

Herbicide Tolerance and Weed Management Programs

Six different herbicide tolerances are available in soybean in 2023. They are Roundup Ready, Enlist, Liberty Link, STS/BOLT, Xtend and XtendFlex. Roundup Ready is tolerant to glyphosate; Enlist is tolerant to glyphosate, glufosinate, and 2,4-D choline; Liberty Link is tolerant to glufosinate; STS/BOLT is tolerant to glyphosate and higher

rates of Classic and other ALS-herbicides; Xtend is tolerant to glyphosate and dicamba, and XtendFlex is tolerant to glyphosate, glufosinate and dicamba. If multiple herbicide technologies are utilized by a producer, they should be careful in their planning because there is no cross tolerance among the varieties. For example, dicamba should only be applied to Xtend and XtendFlex varieties, and 2,4-D choline should only be applied to Enlist varieties. Regardless of the herbicide-tolerant technology utilized, application of a residual herbicide prior to soybean emergence followed by a post-emergence application of a residual herbicide that is tank-mixed with a nonselective herbicide is the best strategy to manage herbicide-resistant weeds. For Enlist, Xtend and XtendFlex varieties, the company websites should be consulted prior to mixing herbicides to ensure whether the desired herbicide combination is legal. Furthermore, research has shown that maintaining soybean weed-free for the first five weeks after emergence can maximize yield.

Disease Resistance

Soybean varieties differ in susceptibility to diseases and nematodes. Aerial blight is an important foliar disease south of Alexandria and is becoming more of an issue in northern parishes. Cercospora leaf blight is a major disease throughout the state. Frogeye leaf spot has been less of an issue in recent years because of resistant varieties but can be found annually. These, and other foliar diseases, may cause significant yield losses and harvest delays. Soilborne diseases may also be a problem in any given year. Sudden death syndrome (SDS) has been confirmed in Louisiana, but it is not widespread and is rarely seen. A soilborne disease with similar foliar symptoms as SDS known as taproot decline has recently been confirmed by pathologists and is likely the most prevalent issue in the state. Phytophthora root rot is an isolated issue and is more prevalent in clay or poorly drained soils. Root-knot nematode is prevalent in sandy soils and is an annual problem in certain areas. When these and other diseases occur in official variety trials, ratings are conducted to identify potential sources of resistance, making variety selection the most economical way for producers to manage diseases. Specialized variety trials may be conducted in certain areas to target specific diseases, such as the taproot decline variety screening at Macon Ridge Research Station.

Insects

Soybeans are damaged by a diverse insect pest complex of stink bugs, threecornered alfalfa hoppers, beetles, several Lepidopteran defoliators (soybean loopers, velvetbean caterpillars, green cloverworms) and pod feeders (corn earworms) from plant emergence until harvest. Soybeans can compensate for considerable insect injury; however, high pest populations can cause severe yield reductions or total crop loss. To reduce yield loss, fields should be

scouted weekly using a shake sheet or sweep net, and proper insecticide materials should be applied when action thresholds have been met. Soybean varieties can differ in their ability to tolerate various insect pests, and those that are less tolerant should be scouted more often.

Scouting fields is especially important for locating the most damaging soybean pest in Louisiana, the redbanded stink bug. This pest feeds only on legumes; thus, earlier maturing varieties have the most potential for redbanded stink bug damage. In general, MG IV soybeans will have more damage than MG V at pod initiation, as seed set begins earlier and lasts longer. This results in longer exposure to stink bugs over time, resulting in greater opportunities for stink bug injury. Planting soybean as early as possible can mitigate late-season damage. As early planted soybean mature and begin to be harvested, the later planted soybean act as a sponge and absorb all the surrounding stink bugs searching for a new host. As a rule, scouting for redbanded stink bugs should begin at R2 and occur every five days, if possible. Failure to detect early populations can result in missed opportunities for control. As a reminder, the action threshold for the redbanded stink bug is 16 insects per 100 sweeps.

For several years, we have screened high-yielding, commercially available soybean varieties for susceptibility to stink bugs to provide agents, consultants and growers information on what to expect from stink bug pressure. No varieties are currently available that provide immunity from stink bugs. Many commercial varieties, however, provide excellent yields under varied growing conditions that are highly susceptible to stink bugs.

Salt-Chloride Tolerance

Soybeans under continuous irrigation may be subjected to high levels of salts or chlorides from well or surface water. Observations from several years at the Macon Ridge Research Station near Winnsboro have made it possible to pinpoint varieties that have resistance or sensitivity to the problem. The problem shows up as leaf scorching and usually occurs shortly after irrigation water is applied. When choosing varieties to be utilized in irrigated systems, excluders (those varieties that can tolerate high chloride levels) should be chosen. However, yield potential of both excluders and includers (those varieties that cannot tolerate high chloride levels) will be reduced in soils with high chloride levels.

Maturity

There is a certain amount of overlap in maturity between groups within the state. Environmental conditions, especially drought and pest pressure, can cause variation in maturity. Most varieties within a group mature in the following range when planted at recommended times:

- Very early maturity (MG 3.0-4.5): Aug. 10 – Aug. 19.
- Early maturity (MG 4.5-4.9): Aug. 20 – Sept. 10.
- Medium maturity (MG 5+): Sept. 11 – Oct. 1.

Where large acreages are involved, varieties of differing maturity should be selected to stagger the harvest and avoid losses from shattering and poor quality.

Lower Pod Height

Pod height is especially important in rough, poorly drained soils and new ground. It is important for all varieties to set pods a reasonable distance above the soil surface to aid in harvestability.

Poor Drainage

Many soybeans in Louisiana are planted on heavy clay soils with poor internal drainage. Research has determined that certain varieties are superior to others under these conditions. Consult results from the St. Joseph Sharkey clay test to select varieties for tolerance to poor drainage. Planting on raised beds is desirable where drainage is less than optimal.

Lodging Resistance

Soybean varieties are more likely to lodge if a population of more than six plants per foot of row is present and if grown on a highly fertile soil. Tall varieties tend to lodge more severely than short ones. When lodging occurs, seed quality and yield are affected. A lodged field is more susceptible to disease and reduces harvest efficiency.

Plant Height

Plant height varies according to growing conditions, planting date, soil type and variety. If canopy closure has been a problem, a taller variety should be selected or a closer row spacing should be adopted. On highly fertile soil, too much growth is sometimes a problem, and a shorter variety is the better choice.

Seed Quality

Poor seed quality is more often found in early maturing varieties. Poor quality is especially true for indeterminate varieties that do not mature uniformly. However, in wet harvest seasons when temperatures and humidity remain high, seed quality issues can often be observed for most varieties. Poor seed quality occurs when fields are not harvested when ready or under heavy disease pressure. When poor conditions occur between physiological maturity (maximum dry matter accumulation) and harvest, chances increase for a decline in seed quality.

Cultural Practices

Lime and Molybdenum

Availability of most plant nutrients is typically greatest in soils with a pH of 5.8 to 7.0. When the soil pH drops below 5.2 on sandy loam and silt loam soils, and below 5.0 on clay soils, manganese toxicity may occur. When the

soil pH drops below 5.0, aluminum toxicity may also occur. Soil testing should be conducted on a regular basis, and agricultural lime should be used to correct low pH soils to proper levels.

In extreme cases, manganese toxicity is expressed as a stunted plant with crinkled leaves. In milder cases, manganese toxicity may result in reduced yields even when visible symptoms are not present. Aluminum toxicity typically affects the roots, resulting in short, thick roots, a condition known as club root. Manganese and aluminum toxicities can be controlled by keeping the soil pH above the critical levels.

Molybdenum is a critical component of the nitrogenase complex that fixes atmospheric nitrogen into a usable form for the soybean plant. Molybdenum is a nutrient needed by soybeans in small quantities. Although our soils typically have enough molybdenum for optimal growth, molybdenum is less available to plants as the soil becomes more acidic. At soil pH below 6.2, molybdenum should be applied as seed treatment at planting. However, if a commercial inoculum is needed and is applied as a seed treatment, molybdenum should not be applied as a seed treatment. The molybdenum salt will reduce the viability of the inoculum and will result in poor nodulation.

Nitrogen

Soybeans need large quantities of nitrogen. Soybeans remove about 4 pounds of nitrogen in each harvested bushel. Fortunately, soybeans are legumes and can obtain most of their nitrogen from the atmosphere. They accomplish this with the aid of the bacterium *Rhizobium japonicum*. These bacteria use soybean roots as a livable environment and form nodules on soybean roots that capture nitrogen from the atmosphere and fix it into a usable form. Seed should be inoculated with *Rhizobium japonicum* bacteria in soils with no recent history of soybeans or when conditions have reduced bacteria survival.

Phosphorus

Phosphorous is critical in the early stages of soybean growth. It stimulates root growth, is essential in the storage and transfer of energy throughout the plant and is an important component of several biochemicals that control plant growth and development. Phosphorus is concentrated in the seed and strongly affects seed formation. Soybeans remove about 0.8 of a pound of phosphate (P₂O₅) per bushel in the harvested portion of the crop.

Phosphorus deficiencies are not easily observed. Usually no striking visual symptoms indicate phosphorus deficiency in soybeans. The most common characteristics of phosphorus-deficient soybean plants are stunted growth and reduced yields.

Phosphorus fertilization rates should be based on soil test results. Soil pH affects the availability of phosphorus, which is most available to soybeans when the soil pH is between 6.0 and 7.0.

Potassium

Potassium is essential in the growth and development of soybeans and is indirectly related to many plant cell functions. Some 60 enzymes require the presence of potassium, and plants with adequate amounts of potassium are better able to resist diseases than potassium-deficient plants. About four times as much potash (K₂O) is required by soybeans as phosphate, (P₂O₅) and about twice as much potash (K₂O) is removed in the seed as phosphate (P₂O₅). Soybeans remove about 1.4 pounds of potash (K₂O) per bushel in the harvested portion of the plant.

Potassium deficiency symptoms are easy to diagnose when they are severe enough to be seen visually and will usually occur on the lower leaves during pod fill as margins (edges) of the leaves appear necrotic (dead and brown). Severe potassium deficiencies can greatly reduce yields. Potassium fertilizer rates should be based on soil test results.

Early Planting

Soybeans should not be planted until the soil temperature reaches 60 degrees Fahrenheit. Because emergence may also be affected by cool soil temperatures after planting, early planting decisions should also consider the forecast up to seven days after planting. Adequate soil temperatures are often observed in April but can vary by location and year. Maturity Group IV and indeterminate Group V varieties perform best in April plantings. Research in north Louisiana has shown instances of high yields for Group IV and V planted in mid-to-late March. In these cases, daily average soil temperatures were generally at or above 60 degrees Fahrenheit at planting. A few (especially determinate types) may be sensitive to planting before early May. Narrow row spacing may be beneficial when planting early because of the potential of reduced plant height. Always use a base fungicide seed treatment when planting early and conditions are less than favorable.

Late Planting

When planting is delayed until June 15 or later, the amount of vegetative growth that the plant produces becomes more critical. It is important to choose varieties that grow rapidly in a short time. When blooming starts, most vegetative growth ceases in determinate varieties. Maturity Group V soybeans should be used when planting after June 1. When planting late, seeding rates should be increased to compensate for reduced vegetative growth.

Seeding Rate

Plant populations that are too dense reduce yields, encourage diseases and lodging, and increase seed cost. When calibrating planters, use seed-per-foot as your guide rather than pounds of seed per acre. Because of varietal difference in seed size, as well as seasonal variation within lots of the same variety, planting rates can be misleading if expressed in pounds per acre. The following rates are recommended:

Row Width (Inches)	Seed/Row Foot	Plants/Row Foot	Population in 1,000s
36-40	8-9	6-8	78-104
30-32	6-7	4-5	78-104
20-24	5-6	4-5	104-130
7-10	4-5	3	104-130
Broadcast	5-6/sq. ft.	3/sq. ft.	150
Late planting	6-7/sq. ft.	4/sq. ft.	200

Planting Dates

Because weather conditions are different from year to year, seeding dates can be affected by environmental conditions. Early or late planting can cause a reduction in plant height in many varieties. Generally, late plantings have less chance of success unless irrigation is available or optimal weather and timely rains occur throughout the growing season. A general rule is that half a bushel per day is lost for every day that planting is delayed past the first week of June.

Optimal seeding dates for each maturity group planted in Louisiana are:

- Group III: April 15 – May 10.
- Group IV: April 15 – May 10.
- Group V: March 25 – May 5.
- Group VI (not typically recommended in Louisiana): March 25 – April 30.

Row Spacing

Varieties respond differently to row spacing. An important consideration is that the canopy closes as quickly as possible to avoid late-season weed problems and to maximize the amount of light captured. Research has shown that narrow row spacing (30 inches or fewer) may outyield wide row spacing in some environments.

Depth of Seeding

Plant only deep enough to get the seed in moist soil. On sandy or silt loam soils, plant 1 inch deep if moisture is available. On clay soils, plant 1 to 2 inches deep, depending on moisture conditions. Rolling the soil, especially clays, after planting will help obtain a stand by conserving moisture.

Table 1A. MG 3.8-4.4 Soybean OVT Yield Data.

Variety	Central Station	Dean Lee	Macon Ridge	Northeast 1 ¹	Northeast 2 ¹	Red River	Rice Station	2022 Average ²	2-Year Average	3-Year Average
Bayer AG38XF1	41.8	68.4	45.1	66.0	35.5	37.8	32.0	46.7	44.9	
Bayer AG40XF1	42.9	66.6	45.8	56.2	35.0	33.4		46.6	46.6	
Bayer AG42XF2	48.0	69.2	45.7	54.6	43.8	31.3	26.5	45.6		
Bayer AG43XF2	51.3	72.3	46.3	56.0	41.3	46.5	22.0	48.0	48.9	
Delta Grow 44XF41	49.7	68.9	41.2	58.7	35.3	37.4	28.0	45.6		
Dyna-Gro S43XS70	49.6	80.1	47.0	62.4	37.2	49.4	27.0	50.4	53.2	56.1
Pioneer P40A36E	58.9	74.7	46.7	66.0	49.5	39.1	24.8	51.4		
Pioneer P40A90X	47.2	72.1	45.6	65.7	39.9	38.3	24.3	47.6		
Pioneer P42A84E	52.5	80.5	43.8	59.9	41.2	39.9	31.7	49.9		
Pioneer P44A21X	62.3	80.5	45.9	64.0	41.5	44.3	28.7	52.4		
Progeny 4200RXS	57.4	85.6	37.6	54.7	45.3	39.3	26.7	49.5		
Progeny 4202XFS	52.0	81.3	44.9	58.6	39.5	37.1	29.8	49.0		
Progeny 4444RXS	50.0	71.8	44.7	62.0	50.1	53.4	29.0	51.6	54.6	56
Revere 4415XF	46.3	76.4	42.1	59.3	42.8	48.4	27.0	48.9	53.9	
Syngenta NK39-M8XF	51.1	72.7	45.4	53.3	37.7	28.7	27.5	45.2		
Syngenta NK42-T5XF	49.2	75.4	45.5	53.0	44.5	42.0	22.3	47.4		
Syngenta NK43-Y9XFS	45.2	76.4	40.9	59.2	39.3	39.1	26.3	46.6		
Syngenta NK44-J4XFS	40.9	73.1	45.1	57.7	34.0	35.0	21.0	43.8		
University of Missouri S19-3530RY	42.5	70.1	40.7	58.5	35.5	42.5	25.0	45.0		
Location Average	49.4	74.5	44.2	59.3	40.5	40.2	26.6			
Soil Type	silt loam	silt loam	silt loam	silt loam	Sharkey clay	sandy loam	silt loam			
LSD (P=.05)	11.9	5.6	4.7	11.6	12.8	13.6	8.9			
Standard Deviation	8.4	4.0	3.3	8.2	9.1	9.6	6.2			
CV	17.1	5.3	7.5	13.8	22.4	23.8	23.2			

The 2022 OVT Trial was planted at these LSU AgCenter research stations: Dean Lee, Alexandria; Macon Ridge, Winnsboro; Northeast, St. Joseph; Red River, Bossier; Rice Research, Crowley; Iberia, New Iberia; and Central Research, Baton Rouge. The MG 3.8-4.4 trial in Iberia was not harvested due to adverse growing conditions.

All yields expressed in bushels per acre and adjusted to 13% moisture.

Bold — Highest yielding (P=0.05) at this location in 2022.

¹Northeast locations had two different soil types.

²Variety average from six research stations and seven locations: Central, Dean Lee, Macon Ridge, Northeast¹ (silt loam), Northeast² (Sharkey clay), Red River and Rice Station.

Table 1B. MG 3.8-4.4 Agronomic Data.

Variety	Dean Lee Maturity ¹	Macon Ridge Maturity ²	Red River Maturity ²	Rice Maturity ²	Dean Lee Height ³	Macon Ridge Height ³	Northeast 1 Height ³	Northeast 2 Height ³	Red River Height ³	Rice Station Height ³	Dean Lee Lodging ⁴	Macon Ridge Lodging ⁴	Red River Lodging ⁴
Bayer AG38XF1	113	119	131	114	36	34	37	23	32	26	1.3	1.0	1.0
Bayer AG40XF1	113	125	133	115	37	33	39	27	32	31	1.5	1.0	1.0
Bayer AG42XF2	114	120	130	115	45	41	41	26	36	32	1.8	1.3	1.0
Bayer AG43XF2	120	126	132	114	36	32	36	25	31	29	1.5	1.0	1.5
Delta Grow 44XF41	119	124	131	114	40	33	37	23	33	29	1.8	1.0	1.0
Dyna-Gro S43XS70	121	126	131	115	39	39	37	25	34	30	1.5	1.2	1.3
Pioneer P40A36E	115	123	130	114	37	29	36	24	28	29	1.5	1.0	1.0
Pioneer P40A90X	113	125	131	115	38	33	38	25	32	28	1.3	1.0	1.0
Pioneer P42A84E	121	129	130	115	38	34	38	22	31	31	1.7	1.0	1.0
Pioneer P44A21X	119	126	133	115	39	32	39	24	31	31	1.5	1.0	1.0
Progeny 4200RXS	126	128	133	115	43	42	35	26	36	31	2.0	2.7	1.8
Progeny 4202XFS	129	129	133	114	40	39	37	26	35	30	1.3	1.2	1.3
Progeny 4444RXS	120	125	134	112	39	35	40	22	34	30	1.8	1.0	1.8
Revere 4415XF	128	127	133	112	35	30	39	23	29	30	1.7	1.7	1.3
Syngenta NK39-M8XF	115	120	129	114	37	35	39	20	30	28	1.3	1.0	1.0
Syngenta NK42-T5XF	122	124	133	114	36	33	36	23	33	30	1.3	1.0	1.0
Syngenta NK43-Y9XFS	116	120	131	114	39	34	38	24	33	28	1.7	1.2	1.0
Syngenta NK44-J4XFS	117	120	129	114	40	38	41	28	31	27	1.5	1.5	1.5
University of Missouri S19-3530RY	112	122	133	114	42	39	35	27	31	33	1.5	1.0	1.0

¹R7 Date (One pod with the mature color; prior to descication; days after planting).

²Maturity (R8 - 95% brown pods; days after planting).

³Plant height at R8 in inches.

⁴Lodging (1-5): 1=almost all plants erect; 5=all plants down.

Table 1C: MG 3.8-4.4 - Abiotic/Biotic Stress Tolerance (With and Without Fungicide).

Variety	Macon Ridge Salt ^{1d}	Macon Ridge TRD ²	Macon Ridge CLB ^{3d}	Central Station TS Fungicide ^{4d}	Central Station TS Untreated ^{4d}	Central Station FE Fungicide ⁵	Central Station FE Untreated ⁵	Dean Lee CLB Fungicide ^{3d}	Dean Lee CLB Untreated ^{3d}	Dean Lee TS Fungicide ⁴	Dean Lee TS Untreated ⁴	Dean Lee FE Fungicide ⁵	Dean Lee FE Untreated ⁵	Central Station Yield Fungicide	Central Station Yield Untreated	Dean Lee Yield Fungicide	Dean Lee Yield Untreated
Bayer AG38XF1	6.60	3.30	3.00	1.10	3.90	0.00	0.00	4.50	4.80	1.50	5.00	0.00	0.00	41.80	31.98	70.53	66.67
Bayer AG40XF1	1.90	2.50	2.70	0.10	3.90	0.00	0.00	2.20	5.50	1.00	3.00	1.50	0.00	42.90	35.80	68.63	65.58
Bayer AG42XF2	6.20	2.50	3.50	0.20	0.30	0.00	0.00	1.90	2.50	2.00	2.50	0.50	0.00	48.02	42.35	69.18	73.88
Bayer AG43XF2	8.00	2.30	3.20	0.10	2.00	1.30	3.30	1.50	1.00	1.50	3.00	0.00	1.00	51.33	44.18	72.33	68.54
Delta Grow 44XF41	0.80	3.00	2.00	0.10	0.30	0.00	0.00	0.40	1.20	1.50	1.50	0.00	0.00	49.68	43.60	68.88	73.01
Dyna-Gro S43XS70	1.00	3.30	3.00	1.70	4.20	0.00	0.00	0.40	0.00	1.50	5.50	0.00	0.00	49.55	43.75	80.05	79.60
Pioneer P40A36E	1.90	4.00	3.20	1.00	1.50	0.00	0.00	2.50	2.30	3.00	4.50	0.00	0.00	58.88	40.05	74.70	79.08
Pioneer P40A90X	1.30	3.30	3.00	1.50	1.00	0.00	0.00	3.50	5.00	2.50	1.00	3.00	0.00	47.15	41.30	72.13	70.58
Pioneer P42A84E	1.60	2.00	1.70	0.30	0.90	0.00	0.00	0.40	0.40	1.00	3.00	0.00	0.00	52.45	53.98	80.48	83.88
Pioneer P44A21X	0.30	3.30	2.70	0.60	0.90	0.00	0.00	0.00	0.40	1.50	2.00	0.00	0.00	62.30	50.30	80.53	85.68
Progeny 4200RXS	4.40	1.30	1.20	0.30	0.30	0.00	0.30	0.00	0.00	1.50	0.50	0.00	0.00	57.35	56.48	79.60	91.58
Progeny 4202XFS	5.20	2.80	1.50	0.30	0.60	0.00	0.50	0.00	0.00	0.50	1.00	0.00	0.50	52.00	50.60	81.25	85.15
Progeny 4444RXS	5.30	3.00	3.20	1.50	3.70	0.00	0.00	1.20	0.00	2.00	3.00	1.50	0.00	50.00	47.28	71.75	73.75
Revere 4415XF	4.60	1.80	1.90	0.70	0.90	0.00	0.00	0.00	0.00	1.50	3.00	0.00	0.00	46.25	45.78	76.35	81.38
Syngenta NK39-M8XF	7.60	3.80	3.50	0.60	3.80	0.00	1.50	2.50	3.80	2.50	3.50	0.00	0.00	51.13	34.45	72.68	68.33
Syngenta NK42-T5XF	6.00	2.80	4.50	0.60	2.60	1.00	1.50	0.40	1.50	2.00	3.50	0.00	3.50	49.20	40.03	75.43	74.55
Syngenta NK43-Y9XFS	6.60	3.30	4.00	0.10	0.10	1.80	4.50	2.50	1.00	2.50	2.50	0.00	3.50	45.18	43.15	76.43	76.28
Syngenta NK44-J4XFS	7.30	2.50	3.40	0.00	0.00	0.00	1.50	1.50	1.00	3.00	1.50	0.00	0.50	40.85	44.78	73.10	80.68
University of Missouri S19-3530RY	1.60	2.30	2.50	0.70	0.60	0.00	0.00	5.00	3.40	3.50	4.50	0.00	0.00	42.53	42.83	70.10	74.78
Location Average	4.12	2.79	2.83	0.61	1.66	0.22	0.69	1.60	1.78	1.89	2.84	0.34	0.47	49.40	43.82	74.43	76.47
LSD (P=.05)	1.11 - 2.62 ^s	2.0	0.79 - 1.15 ^s	0.78 - 1.27 ^s	0.73 - 2.17 ^s	0.6	1.4	2.61 - 3.46 ^s	2.13 - 3.22 ^s	1.5	2.7	1.1	1.0	11.9	11.8	5.4	5.7
Standard Deviation	0.30 ^t	1.4	0.19 ^t	2.70 ^t	2.58 ^t	0.4	1.0	0.44 ^t	0.37 ^t	0.7	1.3	0.5	0.5	8.4	8.3	3.8	4.0
CV	14.48 ^t	50.9	10.7 ^t	70.94 ^t	40.3 ^t	261.7	142.4	32.2 ^t	26.92 ^t	38.1	45.6	158.1	98.2	17.1	18.9	5.1	5.2

¹Chloride Toxicity (SaltRating) (0-9 scale): 0=no damage; 9=all plants are dead.

²Tap Root Decline (TRD) (0-9 scale): 0=no damage; 9=all plants are showing symptoms.

³Cercospora Leaf Blight (CLB) (0-9 scale): 0=no disease; 5=20-40% foliar symptoms/20% defoliation; 9=completely defoliated.

⁴Target Spot (TS) (0-9 scale): 0=no disease; 5=50% affected; 9=completely defoliated.

⁵Frogeye Leaf Spot (FE) (0-9): 0=no disease; 9=all plants showing symptoms.

^dMeans are reported in de-transformed data units.

^sLSD value is a range calculated after transforming data.

^tMean descriptions are reported in transformed data units and are not de-transformed.

Table 2A. MG 4.5-4.7 Soybean OVT Yield Data.

Variety	Central Station	Dean Lee	Iberia	Macon Ridge	Northeast 1 ¹	Northeast 2 ¹	Red River	Rice Station	2022 Average ²	2-Year Average	3-Year Average
Armor 44-D49	41.1	80.3	23.7	37.0	54.2	38.1	57.2	25.0	44.6		
Armor 45-F02	46.2	78.6	23.0	44.6	57.7	39.4	58.4	33.3	47.7		
Armor 46-F13	37.5	77.5	23.3	37.9	57.4	35.7	53.6	28.3	43.9	49.3	
Armor 46-F96	49.6	76.3	20.6	38.1	57.7	36.8	51.2	27.3	44.7		
Bayer AG47XF2	51.2	83.1	14.0	42.7	51.1	29.3	54.5	23.8	43.7		
Delta Grow 45E33	49.9	79.7	19.8	40.3	56.4	23.6	54.5	24.8	43.6		
Delta Grow 46E10	49.6	65.8	10.7	38.3	61.4	30.5	45.7	21.0	40.4		
Delta Grow 46X65	54.3	80.0	24.6	39.4	54.9	38.1	52.8	26.0	46.3	49.1	53.4
Delta Grow 46XF18	47.3	78.8	18.1	33.9	54.7	43.2	52.7	24.8	44.2		
Delta Grow 47E20	45.5	68.0	23.3	31.7	53.9	36.5	52.1	26.5	42.2	49.6	52.7
Delta Grow 47E35	46.9	80.4	22.1	31.3	52.9	36.8	55.5	27.3	44.1		
Dyna-Gro S45XF02	51.9	78.5	24.4	41.5	54.5	40.2	55.0	27.5	46.7		
Dyna-Gro S46XF31S	49.1	81.1	19.2	39.0	52.6	45.1	53.0	29.8	46.1	51.6	
Dyna-Gro S46XS60	49.8	83.7	20.9	44.0	61.0	52.3	52.4	28.8	49.1	53.2	55.8
Dyna-Gro S47XF23S	40.4	74.0	19.7	41.1	51.6	40.5	52.0	28.0	43.4		
Dyna-Gro S47XF52	48.4	72.0	23.1	29.2	56.7	31.6	48.5	27.8	42.2		
Great Heart Seed GT-4677XS	51.5	81.5	23.2	45.7	49.1	37.5	51.7	28.3	46.1	51.5	
Pioneer P45A79E	56.5	85.4	17.8	46.5	54.2	47.8	61.6	24.8	49.3		
Pioneer P46A20LX	46.5	78.1	17.0	39.2	51.0	36.4	48.0	25.0	42.6		
Pioneer P46A67E	51.8	79.1	19.5	41.1	54.6	39.9	60.7	31.5	47.3		
Pioneer P46A86X	52.2	76.2	21.9	34.2	54.5	33.8	47.8	26.0	43.3	49.3	54.2
Pioneer P47A64X	49.9	86.3	20.9	33.5	54.4	40.1	52.4	30.5	46.0	50.6	
Progeny 4505RXS	55.1	84.3	22.2	34.8	50.1	38.5	49.7	27.0	45.2	50.1	52
Progeny 4521XFS	50.9	80.9	19.7	40.1	56.1	35.9	42.9	27.5	44.2	48.9	
Progeny 4604XFS	49.2	79.5	22.4	41.4	51.1	42.8	51.4	29.0	45.8	50.5	
Progeny 4691XFS	41.1	79.0	23.7	40.7	53.5	34.4	45.1	26.3	43.0		
Progeny 4732XF	44.9	73.2	19.2	33.5	66.2	38.6	49.8	26.0	43.9		
Progeny 4775E3S	44.2	72.0	23.4	34.3	62.5	47.0	51.0	31.5	45.8		
Progeny 4798XF	53.8	82.4	25.8	38.3	57.1	50.3	35.8	28.3	46.5		
Revere 4526XFS	51.5	74.7	27.0	43.4	56.5	47.2	51.2	31.8	47.9		
Revere 4606XFS	53.8	76.8	23.7	37.3	54.0	33.6	53.4	27.5	45.0	49.6	
Revere 4727XFS	52.6	81.5	15.6	39.6	54.9	47.0	46.9	23.8	45.2		
Revere 4795XS	57.9	81.4	25.8	45.6	56.9	42.3	48.1	28.8	48.3	54.6	58.3
Syngenta NK45-P9XF	47.7	75.9	21.1	34.0	60.6	48.3	42.7	29.5	45.0	49.7	
Syngenta NK47-Z1XF	45.7	71.4	21.8	39.4	51.5	32.1	49.2	32.8	43.0		
University of Missouri S16-13165C	48.6	73.8	31.1	27.4	52.4	45.3	49.6	30.8	44.9		
University of Missouri S16-14730C	43.7	67.9	19.4	31.1	55.5	22.5	59.2	24.8	40.5		
University of Missouri S16-5540R	56.8	81.5	29.4	41.9	59.0	42.5	59.9	27.0	49.7	53.2	54.8
University of Missouri S17-2193C	52.8	77.3	19.4	35.5	60.4	41.8	47.1	30.3	45.6	49.6	
University of Missouri S17-2243C	39.1	71.0	25.0	30.1	52.5	31.0	54.5	28.3	41.4	46.3	
Location Average	48.9	77.7	21.7	38.0	55.4	38.9	51.5	27.7			
Soil Type	silt loam	silt loam	silty clay loam	silt loam	silt loam	Sharkey clay	sandy loam	silt loam			
LSD P=.05	10.35	6.46	8.15	6.18	9.09	15.69	10.93	3.27			
Standard Deviation	7.4	4.6	5.8	4.4	6.5	11.2	7.8	2.3			
CV	15.1	5.9	26.8	11.6	11.7	28.8	15.2	8.5			

The 2022 OVT Trial was planted at these LSU AgCenter research stations: Dean Lee, Alexandria; Macon Ridge, Winnsboro; Northeast, St. Joseph; Red River, Bossier; Rice Research, Crowley; Iberia, New Iberia; and Central Research, Baton Rouge.

All yields expressed in bushels per acre and adjusted to 13% moisture.

Bold — Highest yielding (p=0.05) at this location in 2022.

¹Northeast locations had two different soil types.

²Variety average from seven research stations and eight locations: Central, Dean Lee, Iberia, Macon Ridge, Northeast¹ (silt loam), Northeast² (Sharkey clay), Red River and Rice Station.

Table 2B. MG 4.5-4.7 Agronomic Data.

Variety	Dean Lee Maturity ¹	Macon Ridge Maturity ²	Red River Maturity ²	Rice Maturity ²	Iberia Maturity ²	Dean Lee Height ³	Macon Ridge Height ³	Northeast 1 Height ³	Northeast 2 Height ³	Red River Height ³	Rice Station Height ³	Iberia Height ³	Dean Lee Lodging ⁴	Macon Ridge Lodging ⁴	Red River Lodging ⁴
Armor 44-D49	125	131	135	113	149	46	42	40	24	33	30	24	2.0	1.7	1.3
Armor 45-F02	123	125	133	112	138	46	42	40	27	35	31	25	2.3	1.5	1.0
Armor 46-F13	126	131	136	110	142	48	46	38	25	38	30	26	2.0	1.0	1.3
Armor 46-F96	124	132	132	112	144	43	39	39	22	33	28	25	1.8	1.2	1.0
Bayer AG47XF2	126	130	135	112	144	40	38	40	22	34	24	20	1.7	1.0	1.0
Delta Grow 45E33	126	131	136	114	154	40	40	37	21	35	24	21	1.7	1.3	1.0
Delta Grow 46E10	119	125	133	112	141	40	34	39	23	32	27	23	1.8	1.0	1.3
Delta Grow 46X65	124	130	134	112	139	44	41	45	23	32	25	21	2.2	1.2	1.0
Delta Grow 46XF18	125	133	132	113	144	42	41	39	24	37	27	24	1.8	1.0	1.0
Delta Grow 47E20	126	130	135	112	141	47	43	38	22	37	30	25	1.7	1.2	1.3
Delta Grow 47E35	128	135	135	109	147	41	42	41	24	35	27	20	2.0	1.0	1.0
Dyna-Gro S45XF02	125	131	133	111	141	39	39	38	24	32	25	22	2.0	1.2	1.0
Dyna-Gro S46XF31S	126	131	134	111	146	46	42	39	27	39	31	27	1.8	1.0	1.3
Dyna-Gro S46XS60	125	131	134	113	146	44	39	40	27	32	27	23	2.0	1.0	1.0
Dyna-Gro S47XF23S	124	129	133	112	142	44	39	41	26	34	26	22	2.3	1.3	1.5
Dyna-Gro S47XF52	124	130	135	110	136	46	40	37	26	40	28	25	2.3	1.2	1.8
Great Heart Seed GT-4677XS	125	129	133	112	144	41	41	38	25	33	24	22	2.3	1.3	1.0
Pioneer P45A79E	124	130	133	112	146	40	34	40	21	33	24	22	1.8	1.3	1.0
Pioneer P46A20LX	121	130	134	113	150	42	38	41	24	30	26	23	1.8	1.3	1.0
Pioneer P46A67E	124	129	131	113	141	43	38	42	26	33	28	23	2.3	1.2	1.0
Pioneer P46A86X	122	133	130	114	147	48	42	42	23	40	29	25	2.0	1.0	1.0
Pioneer P47A64X	126	133	133	113	144	49	43	40	25	39	31	27	1.5	1.2	1.0
Progeny 4505RXS	126	129	132	112	150	46	44	40	28	36	29	26	1.8	2.3	1.3
Progeny 4521XFS	127	132	133	112	144	42	41	40	26	32	28	24	2.2	1.8	1.0
Progeny 4604XFS	126	129	135	111	140	47	45	45	25	36	32	26	3.0	2.0	1.0
Progeny 4691XFS	124	129	133	111	139	44	42	40	25	40	29	24	2.0	1.3	1.3
Progeny 4732XF	125	132	133	112	146	41	40	42	24	34	26	23	1.8	1.0	1.0
Progeny 4775E3S	124	129	133	113	139	50	44	38	26	41	31	26	2.3	1.0	1.3
Progeny 4798XF	129	131	135	111	144	42	41	42	26	34	27	25	2.5	1.8	1.0
Revere 4526XFS	124	123	131	112	138	45	46	39	25	33	32	26	1.5	1.0	1.0
Revere 4606XFS	124	131	135	111	143	45	44	39	26	39	31	27	2.7	1.7	1.0
Revere 4727XFS	127	131	134	113	147	40	37	41	24	31	26	23	1.7	1.0	1.0
Revere 4795XS	124	127	132	113	143	42	43	44	23	32	27	22	2.2	1.3	1.0
Syngenta NK45-P9XF	122	130	134	111	136	47	40	42	26	39	30	26	2.2	1.3	1.3
Syngenta NK47-Z1XF	127	131	133	112	146	43	40	41	26	35	28	24	1.7	1.0	1.0
University of Missouri S16-13165C	124	132	134	112	144	50	42	38	28	52	32	31	2.5	2.2	1.3
University of Missouri S16-14730C	123	128	134	113	141	44	34	37	19	35	28	25	1.7	1.0	1.0
University of Missouri S16-5540R	123	131	135	113	138	35	33	37	23	25	23	17	2.7	1.0	1.0
University of Missouri S17-2193C	126	130	136	111	146	50	42	40	28	42	34	27	2.5	1.7	1.5
University of Missouri S17-2243C	128	131	136	112	140	48	38	44	27	42	31	26	1.8	1.0	1.3

¹R7 Date (One pod with the mature color; prior to desiccation; days after planting).

²Maturity (R8 - 95% brown pods; days after planting).

³Plant height at R8 in inches.

⁴Lodging (1-5): 1=almost all plants erect; 5=all plants down.

Table 2C: MG 4.5-4.7 Abiotic/Biotic Stress Tolerance (With and Without Fungicide).

Variety	Macon Ridge Salt ^{1d}	Macon Ridge TRD ²	Macon Ridge CLB ³	Dean Lee CLB Fungicide ³	Dean Lee CLB Untreated ^{3d}	Dean Lee TS Fungicide ^{4d}	Dean Lee TS Untreated ^{4d}	Dean Lee FE Fungicide ⁵	Dean Lee FE Untreated ⁵	Central Station Yield Fungicide	Central Station Yield Untreated	Dean Lee Yield Fungicide	Dean Lee Yield Untreated
Armor 44-D49	2.00	4.30	1.50	0.00	0.00	1.00	1.00	0.00	0.00	41.10	37.53	80.25	79.65
Armor 45-F02	3.70	2.50	3.00	0.50	0.80	2.90	3.40	0.00	4.00	46.23	30.98	78.55	77.98
Armor 46-F13	3.10	1.80	4.00	0.50	0.00	0.80	1.00	0.00	0.00	37.48	42.85	77.50	76.88
Armor 46-F96	5.00	4.00	3.00	0.50	0.40	1.00	1.00	0.00	0.00	49.55	41.23	76.30	74.38
Bayer AG47XF2	4.60	2.00	3.80	0.50	0.40	1.50	4.50	0.00	0.00	51.20	38.58	83.10	75.55
Delta Grow 45E33	2.00	2.00	1.80	0.00	0.80	1.00	1.90	0.00	0.50	49.88	44.73	74.61	72.93
Delta Grow 46E10	0.60	2.50	2.30	4.50	4.00	1.00	1.90	0.00	0.00	49.63	34.85	67.98	66.65
Delta Grow 46X65	0.00	2.50	2.80	0.50	0.00	1.90	2.50	0.00	0.50	54.30	44.90	79.95	79.38
Delta Grow 46XF18	5.60	4.00	3.00	0.00	0.80	1.00	1.00	0.00	0.00	47.30	37.45	78.75	74.45
Delta Grow 47E20	0.40	3.30	2.00	0.00	0.00	1.00	0.40	0.00	0.50	45.53	40.08	70.20	75.08
Delta Grow 47E35	6.60	3.80	1.50	0.00	0.00	1.90	1.50	0.00	0.50	46.88	48.33	80.38	83.50
Dyna-Gro S45XF02	4.90	4.00	4.00	0.00	0.80	1.00	2.00	0.00	2.00	51.93	44.43	78.48	69.33
Dyna-Gro S46XF31S	6.30	3.00	3.30	0.00	0.40	2.50	1.90	0.00	0.00	49.08	39.40	81.08	79.98
Dyna-Gro S46XS60	0.10	4.50	2.00	0.00	0.80	2.50	2.90	0.00	0.00	49.75	41.45	83.65	80.23
Dyna-Gro S47XF23S	0.10	3.30	3.50	1.00	1.20	3.00	1.90	0.00	0.00	40.35	46.33	73.98	75.98
Dyna-Gro S47XF52	4.20	3.30	3.00	1.00	1.20	2.30	1.00	0.00	0.00	48.43	41.05	71.95	77.80
Great Heart Seed GT-4677XS	0.10	3.00	3.80	1.00	0.00	2.00	3.50	0.00	0.00	51.50	47.68	81.53	79.98
Pioneer P45A79E	0.40	3.30	3.50	1.00	0.40	1.00	1.00	0.00	0.00	56.50	46.95	85.38	79.65
Pioneer P46A20LX	0.10	4.80	2.00	1.50	4.00	1.50	1.50	0.00	0.00	46.50	50.38	78.10	74.20
Pioneer P46A67E	1.80	3.80	2.80	0.00	1.50	1.00	0.40	0.00	0.00	51.83	43.43	79.13	80.30
Pioneer P46A86X	1.30	3.80	2.00	0.50	2.00	1.90	1.90	0.00	0.00	52.15	44.63	76.15	78.15
Pioneer P47A64X	0.00	3.00	1.50	0.00	0.00	0.40	0.40	0.00	0.00	49.93	48.70	84.58	81.48
Progeny 4505RXS	5.60	3.50	2.50	0.50	0.00	1.50	2.00	0.00	0.00	55.05	50.23	84.33	80.88
Progeny 4521XFS	5.30	2.80	2.30	0.50	0.00	1.50	1.00	0.00	0.00	50.88	42.03	80.85	81.58
Progeny 4604XFS	3.70	3.30	3.50	0.00	0.40	1.90	1.90	0.00	1.00	49.15	38.65	79.45	78.03
Progeny 4691XFS	0.60	4.00	3.00	1.50	0.00	1.90	3.00	0.00	0.00	41.10	32.23	78.98	76.28
Progeny 4732XF	5.80	3.30	4.00	1.00	0.80	2.00	1.00	0.00	0.50	44.93	46.30	73.18	76.28
Progeny 4775E3S	0.90	2.80	2.00	1.00	0.00	1.50	1.50	0.00	0.00	44.23	43.28	72.03	77.10
Progeny 4798XF	0.40	3.00	1.80	1.00	0.40	1.00	1.00	0.00	0.00	53.80	47.55	82.43	78.43
Revere 4526XFS	1.90	3.80	3.50	1.00	2.00	3.00	3.50	0.00	3.50	51.45	41.88	74.68	73.55
Revere 4606XFS	5.30	3.50	4.30	0.00	0.00	2.90	1.90	0.00	0.00	53.75	44.03	76.78	72.33
Revere 4727XFS	5.00	2.80	3.00	0.00	0.80	1.00	0.40	0.00	0.00	52.58	49.53	81.50	68.10
Revere 4795XS	0.40	2.30	3.30	0.00	0.40	2.00	3.50	0.00	0.50	57.90	49.90	78.34	76.93
Syngenta NK45-P9XF	0.40	4.30	2.00	0.50	1.00	1.50	2.00	0.00	0.00	47.70	46.53	75.88	77.50
Syngenta NK47-Z1XF	0.40	3.00	2.30	0.00	0.40	1.50	2.00	0.00	0.00	45.68	43.60	71.43	74.90
University of Missouri S16-13165C	2.50	1.80	1.80	0.50	1.50	2.50	2.00	0.00	0.00	48.55	49.50	73.80	82.20
University of Missouri S16-14730C	5.30	2.00	4.00	2.00	0.00	2.50	1.00	0.00	0.00	43.70	34.83	67.93	73.33
University of Missouri S16-5540R	1.00	3.30	3.00	0.50	0.00	1.50	1.90	0.00	0.00	56.83	53.75	81.45	78.65
University of Missouri S17-2193C	0.40	2.80	1.30	0.00	0.00	1.50	2.00	0.00	0.00	52.80	40.25	77.30	74.48
University of Missouri S17-2243C	0.10	3.00	1.00	0.00	0.00	1.90	1.50	0.00	0.00	39.08	37.88	70.98	73.85
Location Average	2.45	3.20	2.72	0.58	0.68	1.68	1.79	0.00	0.34	48.90	43.20	77.57	76.70
LSD (P=.05)	1.21 - 3.47 ^s	1.72	1.29	1.66	1.79 - 2.44 ^s	1.45 - 1.83 ^s	1.40 - 2.19 ^s	.	1.12	10.35	11.59	5.83	7.40
Standard Deviation	2.88 ^t	1.23	0.92	0.82	0.34 ^t	0.29 ^t	0.28 ^t	0	0.55	7.39	8.28	4.16	5.29
CV	37.2 ^t	38.83	34.14	142.54	33.01 ^t	19.66 ^t	18.77 ^t	0	164.27	15.11	19.16	5.37	6.89

¹Chloride Toxicity (SaltRating) (0-9 scale): 0=no damage; 9=all plants are dead.

²Tap Root Decline (TRD) (0-9 scale): 0=no damage; 9=all plants are showing symptoms.

³Cercospora Leaf Blight (CLB) (0-9 scale): 0=no disease; 5=20-40% foliar symptoms/20% defoliation; 9=completely defoliated.

⁴Target Spot (TS) (0-9 scale): 0=no disease; 5=50% affected; 9=completely defoliated.

⁵Frogeye Leaf Spot (FE) (0-9): 0=no disease; 9=all plants showing symptoms.

^dMeans are reported in de-transformed data units.

^sLSD value is a range calculated after transforming data.

^tMean descriptions are reported in transformed data units and are not de-transformed.

Table 3A. MG 4.8-4.9 Soybean OVT Yield Data.

Variety	Central Station	Dean Lee	Iberia	Macon Ridge	Northeast ¹	Northeast ²	Red River	Rice Station	2022 Average ²	2-Year Average	3-Year Average
Armor 48-D25	53.5	74.9	18.2	44.6	54.4	41.7	62.0	27.3	47.1	52	53.6
Armor 48-F22	38.3	75.3	27.1	37.0	50.4	33.8	57.2	28.3	43.4	50.5	
Armor 49-F37	46.1	74.6	18.0	38.8	43.7	42.2	49.0	26.5	42.3		
Bayer AG48X9	55.6	73.7	29.7	35.9	45.8	36.4	58.8	25.0	45.1	51.2	53.1
Bayer AG48XF2	49.8	72.9	24.5	33.0	40.5	45.0	54.5	28.5	43.6		
Delta Grow 48E49	52.3	71.1	24.7	40.0	42.9	29.8	52.6	25.2	42.3	46.6	48
Delta Grow 48E59	50.6	77.0	15.9	41.3	43.6	36.0	61.6	28.3	44.3	50.8	
Delta Grow 48X45	46.7	74.6	17.3	40.4	48.7	35.2	44.7	18.5	40.7	46.3	49.2
Delta Grow 48XF33STS	57.2	72.5	27.3	36.5	43.1	34.6	57.3	23.8	44.0		
Delta Grow 49XF29STS	44.4	71.2	23.5	38.9	46.9	40.0	47.0	25.5	42.2		
Delta Grow DG48E60	53.1	76.3	17.1	41.2	41.1	44.6	66.2	28.8	46.1		
Dyna-Gro S48XT90	56.6	74.7	22.1	34.2	46.2	43.4	68.2	26.3	46.5	51.9	52.9
Dyna-Gro S49XF82S	46.4	68.9	18.5	41.2	46.9	42.7	50.3	28.3	42.9		
Dyna-Gro S49XT70	48.8	74.1	21.1	36.3	46.5	45.9	48.3	26.5	43.4	49.2	51.1
Great Heart Seed GT-4681XFS	46.4	74.7	19.7	36.3	53.1	49.4	53.9	23.3	44.6		
Great Heart Seed GT-4979X	49.4	76.1	22.2	27.5	44.0	43.7	52.4	26.8	42.8	48.9	51.6
Pioneer P48A14E	56.6	78.9	31.2	38.6	49.1	48.3	59.8	29.1	48.9		
Progeny 4806XFS	41.5	71.4	14.0	38.4	49.6	47.8	49.9	25.0	42.2	48.8	
Progeny 4821RX	59.8	77.3	29.7	36.2	41.5	42.7	52.0	28.0	45.9	50.2	52.5
Progeny 4844XFS	46.8	72.6	18.7	44.8	39.1	41.9	47.6	22.5	41.7		
Progeny 4932E3	46.9	77.4	16.4	46.2	39.8	31.2	52.8	22.0	41.6		
Progeny 4951XFS	48.6	74.3	14.2	44.1	49.0	40.9	48.0	25.0	43.0		
Revere 4806XS	54.6	70.9	24.9	40.9	43.3	39.2	56.3	27.0	44.6	52.1	54
Revere 4826XF	57.0	77.2	21.8	47.4	49.6	39.6	56.9	29.5	47.4		
Revere 4925XFS	51.0	75.0	23.5	30.3	48.4	41.9	53.2	29.0	44.0		
University of Missouri S16-5503R	56.8	71.8	36.4	43.8	49.2	40.2	60.5	20.8	47.5	52.1	
University of Missouri S16-7922C	56.5	76.4	29.8	40.8	49.9	48.8	62.7	28.2	49.1	54.8	
University of Missouri S17-2066C	49.4	69.6	27.8	35.7	54.4	48.8	56.6	29.0	46.4		
Location Average	50.7	74.1	22.7	38.9	46.4	41.3	55.0	26.1			
Soil Type	silt loam	silt loam	silty clay loam	silt loam	silt loam	Sharkey clay	sandy loam	silt loam			
LSD (P=.05)	9.52	4.29	9.88	4.55	15.65	12.46	9.04	2.81			
Standard Deviation	6.8	3.0	7.0	3.2	11.1	8.9	6.4	2.0			
CV	13.3	4.1	30.9	8.3	24.0	21.5	11.7	7.6			

The 2022 OVT Trial was planted at these LSU AgCenter research stations: Dean Lee, Alexandria; Macon Ridge, Winnsboro; Northeast, St. Joseph; Red River, Bossier; Rice Research, Crowley; Iberia, New Iberia; and Central Research, Baton Rouge.

All yields expressed in bushels per acre and adjusted to 13% moisture.

Bold — Highest yielding (p=0.05) at this location in 2022.

¹ Northeast locations had two different soil types.

²Variety average from seven research stations and eight locations: Central, Dean Lee, Iberia, Macon Ridge, Northeast¹ (silt loam), Northeast² (Sharkey clay), Red River and Rice Station.

Table 3B. MG 4.8-4.9 Agronomic Data.

Variety	Dean Lee Maturity ¹	Macon Ridge Maturity ²	Red River Maturity ²	Rice Maturity ²	Iberia Maturity ²	Dean Lee Height ³	Macon Ridge Height ³	Northeast 1 Height ³	Northeast 2 Height ³	Red River Height ³	Rice Station Height ³	Iberia Height ³	Dean Lee Lodging ⁴	Macon Ridge Lodging ⁴	Red River Lodging ⁴
Armor 48-D25	126	133	131	113	149	44	43	40	28	32	28	24	2.0	1.0	1.0
Armor 48-F22	125	134	132	112	144	47	44	42	26	38	30	25	2.2	1.0	1.3
Armor 49-F37	128	134	130	112	148	46	45	40	27	32	31	24	2.0	1.5	1.0
Bayer AG48X9	126	134	131	113	146	45	41	42	26	35	28	25	1.8	1.0	1.0
Bayer AG48XF2	125	130	130	112	139	38	37	42	27	31	28	23	2.3	2.5	1.0
Delta Grow 48E49	121	132	132	114	146	39	39	37	23	34	26	22	2.2	1.0	1.3
Delta Grow 48E59	126	135	130	112	153	38	32	34	23	31	27	22	1.7	1.2	1.0
Delta Grow 48E60	127	134	133	113	149	38	35	34	24	33	24	21	1.7	1.0	1.0
Delta Grow 48X45	130	137	132	114	151	41	36	41	24	30	24	22	1.7	1.0	1.0
Delta Grow 48XF33STS	129	135	131	112	145	44	45	37	25	35	27	25	2.0	1.0	1.0
Delta Grow49XF29STS	131	135	132	112	146	38	36	35	22	32	25	21	1.7	1.0	1.0
Dyna-Gro S48XT90	131	137	132	112	156	46	34	37	24	39	27	24	1.8	2.5	1.3
Dyna-Gro S49XF82S	129	134	132	112	148	42	41	37	25	35	27	22	2.0	1.0	1.0
Dyna-Gro S49XT70	129	134	131	112	150	49	47	38	28	36	29	25	1.8	1.2	1.0
Great Heart Seed GT-4681XFS	125	131	130	112	141	44	47	43	30	36	29	24	2.3	1.0	1.0
Great Heart Seed GT-4979X	130	137	132	112	149	46	40	36	30	31	31	25	1.8	1.0	1.3
Pioneer P48A14E	128	137	130	111	141	44	38	40	25	37	27	25	1.7	1.0	1.0
Progeny 4806XFS	126	134	131	113	149	43	40	38	23	31	29	23	1.7	1.0	1.0
Progeny 4821RX	125	136	130	111	141	42	32	35	27	31	28	24	2.0	1.0	1.0
Progeny 4844XFS	126	133	131	112	149	40	36	35	25	31	25	22	1.8	1.0	1.0
Progeny 4932E3	131	134	132	112	147	36	28	41	21	26	23	18	1.8	1.0	1.0
Progeny 4951XFS	130	135	131	111	146	42	40	38	24	29	25	22	1.8	1.0	1.0
Revere 4806XS	126	132	131	113	148	43	42	38	25	33	29	23	1.8	1.0	1.3
Revere 4826XF	126	132	132	113	147	44	42	37	24	31	26	22	2.2	1.5	1.0
Revere 4925XFS	130	134	133	113	148	46	50	40	28	36	30	24	2.0	1.2	1.0
University of Missouri S16-5503R	124	134	133	115	140	35	30	39	22	25	24	18	2.5	1.0	1.0
University of Missouri S16-7922C	126	134	134	114	142	35	33	36	25	29	25	22	2.8	1.0	1.0
University of Missouri S17-2066C	125	133	133	114	140	35	34	41	22	29	25	21	2.3	1.2	1.0

¹R7 Date (One pod with the mature color; prior to desiccation; days after planting).

²Maturity (R8 - 95% brown pods; days after planting).

³Plant height at R8 in inches.

⁴Lodging (1-5): 1=almost all plants erect; 5=all plants down.

Table 3C: MG 4.8-4.9 Abiotic/Biotic Stress Tolerance (With and Without Fungicide).

Variety	Macon Ridge Salt ¹	Macon Ridge TRD ²	Macon Ridge CLB ³	Central Station Yield Fungicide	Central Station Yield Untreated	Dean Lee Yield Fungicide	Dean Lee Yield Untreated
Armor 48-D25	0.70	2.80	3.80	53.53	44.38	74.93	73.53
Armor 48-F22	4.30	4.00	3.50	38.33	41.33	75.30	69.75
Armor 49-F37	5.70	4.00	4.50	46.05	42.75	74.60	74.38
Bayer AG48X9	1.00	4.50	3.00	55.60	47.45	73.73	74.48
Bayer AG48XF2	0.70	2.50	2.00	49.78	48.18	72.85	67.35
Delta Grow 48E49	1.70	2.30	3.00	51.30	40.58	71.10	67.28
Delta Grow 48E59	2.00	3.00	4.00	50.58	46.10	78.65	73.73
Delta Grow 48E60	6.30	2.00	4.50	53.13	47.25	78.38	71.73
Delta Grow 48X45	0.70	3.50	1.80	35.98	37.76	74.60	73.48
Delta Grow 48XF33STS	5.30	2.50	4.50	57.23	45.63	72.45	72.10
Delta Grow 49XF29STS	5.00	2.80	3.00	44.35	41.45	71.20	66.70
Dyna-Gro S48XT90	4.00	3.50	1.30	56.55	54.30	74.68	76.68
Dyna-Gro S49XF82S	3.30	3.30	2.30	46.43	41.90	68.93	70.23
Dyna-Gro S49XT70	0.70	3.50	1.80	48.78	48.18	74.13	73.88
Great Heart Seed GT-4681XFS	4.70	2.80	4.40	46.40	47.60	74.65	72.23
Great Heart Seed GT-4979X	5.00	2.50	2.00	49.40	44.60	76.13	69.70
Pioneer P48A14E	1.30	3.00	2.30	56.60	56.80	80.70	76.23
Progeny 4806XFS	5.70	3.00	4.80	41.45	42.25	71.38	72.00
Progeny 4821RX	0.30	3.30	1.50	59.80	48.53	77.25	72.03
Progeny 4844XFS	5.30	2.50	3.50	46.61	47.08	72.55	71.23
Progeny 4932E3	1.00	3.50	5.00	39.08	38.65	77.38	69.15
Progeny 4951XFS	4.30	1.80	3.30	50.01	41.58	74.28	71.43
Revere 4806XS	1.00	2.00	3.80	54.55	44.58	70.90	72.58
Revere 4826XF	0.00	2.80	2.30	56.98	50.00	77.20	70.85
Revere 4925XFS	4.30	3.80	3.80	50.98	37.60	74.95	69.50
University of Missouri S16-5503R	0.00	2.30	4.30	55.77	53.85	71.83	70.78
University of Missouri S16-7922C	0.70	2.80	2.00	56.45	58.83	76.40	78.08
University of Missouri S17-2066C	1.70	3.80	5.80	49.40	50.60	69.63	66.30
Location Average	2.74	3.00	3.28	50.04	46.06	74.31	71.69
LSD (P=.05)	1.64	1.88	1.12	10.14	6.40	4.53	6.54
Standard Deviation	1.00	1.34	0.80	7.20	4.54	3.22	4.65
CV	36.59	44.82	24.46	14.39	9.86	4.34	6.48

¹Chloride Toxicity (SaltRating) (0-9 scale): 0=no damage; 9=all plants are dead.

²Tap Root Decline (TRD) (0-9 scale): 0=no damage; 9=all plants are showing symptoms.

³Cercospora Leaf Blight (CLB) (0-9 scale): 0=no disease; 5=20-40% foliar symptoms/20% defoliation; 9=completely defoliated.

Table 4A. MG 5.0-5.3 Soybean OVT Yield Data.

Variety	Central Station	Dean Lee	Iberia	Macon Ridge	Northeast 1 ¹	Northeast 2 ^{1d}	Red River	Rice Station	2022 Average ²	2-Year Average	3-Year Average
Armor 51-F88	57.2	74.4	20.6	38.8	44.4	53.6	64.4	31.0	48.0		
Bayer AG53XF2	57.2	72.8	16.2	31.8	41.4	37.9	57.3	28.8	42.9	49.3	
Delta Grow 52E80	55.2	71.2	21.4	33.9	50.5	42.7	60.5	27.3	45.3	48.2	
Delta Grow 52XF221STS	53.9	76.8	20.9	37.4	52.3	41.5	71.8	27.8	47.8		
Delta Grow 53E30	44.8	67.5	22.4	36.2	43.1	48.2	67.1	25.8	44.4	47.6	
Dyna-Gro S52XT91	57.4	75.8	24.1	33.5	41.1	52.4	65.8	31.0	47.6	52.4	
Pioneer P52A14SE	53.3	81.3	26.2	43.0	42.4	50.5	53.7	28.5	47.3		
Progeny 5056XFS	57.1	77.2	19.4	37.0	49.8	51.7	62.9	28.5	47.9		
Progeny 5150XFS	59.5	76.6	16.7	44.5	39.7	39.9	58.6	27.3	45.3		
Progeny 5252RX	62.5	70.6	27.3	31.5	46.4	40.2	76.0	25.0	47.4	52.4	52.6
Revere 5029XF	57.8	76.6	21.2	39.2	35.3	43.0	67.0	29.3	46.2		
Revere 5386X	54.4	71.1	21.0	30.5	45.1	39.6	65.1	31.0	44.7	49.9	51.2
University of Missouri S16-11651C	55.2	78.2	23.9	32.4	49.3	47.9	65.5	27.8	47.5	53.5	55
University of Missouri S16-14801C	59.2	78.5	23.0	37.1	45.9	48.0	66.5	29.3	48.4	55.4	
University of Missouri S16-14869C	59.8	79.3	24.8	34.7	43.5	59.7	65.0	28.5	49.4		
University of Missouri S16-15170C	49.1	69.5	15.9	33.7	46.5	55.4	69.6	27.0	45.8		
University of Missouri S16-9478C	59.4	73.0	24.6	31.7	42.4	48.8	67.9	27.5	46.9	52.1	
University of Missouri S17-2509C	54.0	72.3	15.7	37.8	40.5	46.0	62.7	25.5	44.3		
University of Missouri S18-6097C	58.3	73.8	16.6	32.5	44.4	55.6	56.1	18.5	44.5		
University of Missouri S18-6328C	61.3	82.0	23.8	40.2	46.0	49.3	68.4	21.0	49.0		
Location Average	56.3	74.9	21.3	35.9	44.5	47.6	64.6	27.3			
Soil Type	silt loam	silt loam	silty clay loam	silt loam	silt loam	Sharkey clay	sandy loam	silt loam			
LSD (P=.05)	8.34	4.50	4.95	7.18	8.06	9.9774 - 12.4067S	7.49	3.80			
Standard Deviation	5.9	3.2	3.5	5.0	5.7	0.0700t	5.3	2.7			
CV	10.5	4.2	16.4	14.0	12.8	4.16t	8.2	9.8			

The 2022 OVT Trial was planted at these LSU AgCenter research stations: Dean Lee, Alexandria; Macon Ridge, Winnsboro; Northeast, St. Joseph; Red River, Bossier; Rice Research, Crowley; Iberia, New Iberia; and Central Research, Baton Rouge.

All yields expressed in bushels per acre and adjusted to 13% moisture.

Bold — Highest yielding (p=0.05) at this location in 2022.

¹Northeast locations had two different soil types.

²Variety average from seven research stations and eight locations: Central, Dean Lee, Iberia, Macon Ridge, Northeast¹ (silt loam), Northeast² (Sharkey clay), Red River and Rice Station.

⁴Means are reported in de-transformed data units.

⁵LSD value is a range calculated after transforming data.

⁶Mean descriptions are reported in transformed data units and are not de-transformed.

Table 4B. MG 5.0-5.3 Agronomic Data.

Variety	Dean Lee Maturity ¹	Macon Ridge Maturity ²	Red River Maturity ²	Rice Maturity ²	Iberia Maturity ²	Dean Lee Height ³	Macon Ridge Height ³	Northeast 1 Height ³	Northeast 2 Height ³	Red River Height ³	Rice Station Height ³	Iberia Height ³	Dean Lee Lodging ⁴	Macon Ridge Lodging ⁴	Red River Lodging ⁴
Armor 51-F88	125	135	136	113	141	47	42	35	27	36	32	25	1.8	1.2	1.3
Bayer AG53XF2	131	138	136	112	146	48	39	34	27	39	30	25	1.8	1.0	1.0
Delta Grow 52E80	131	137	137	113	141	43	34	43	23	34	27	24	1.7	1.0	1.0
Delta Grow 52XF221STS	125	134	137	113	137	45	39	35	27	39	32	26	2.2	1.0	2.0
Delta Grow 53E30	130	137	136	112	141	46	38	35	25	36	25	24	1.7	1.0	1.0
Dyna-Gro S52XT91	131	139	136	112	138	44	30	36	25	35	28	26	1.8	1.0	1.8
Pioneer P52A14SE	126	134	133	112	133	32	24	40	23	19	21	19	1.0	1.0	1.0
Progeny 5056XFS	128	135	137	112	146	47	45	36	26	34	30	26	1.8	1.3	1.0
Progeny 5150XFS	128	135	136	112	143	37	34	33	26	32	26	25	2.0	1.0	1.0
Progeny 5252RX	131	137	139	112	144	47	33	37	24	42	25	26	1.8	1.0	1.3
Revere 5029XF	130	137	138	112	145	46	42	40	25	39	30	27	2.0	1.0	1.5
Revere 5386X	131	139	138	114	145	44	39	35	26	42	31	27	1.7	1.0	1.0
University of Missouri S16-11651C	129	138	139	115	145	36	33	34	28	26	25	20	2.2	1.0	1.0
University of Missouri S16-14801C	127	134	136	114	139	33	30	43	24	27	20	18	2.2	1.0	1.0
University of Missouri S16-14869C	131	135	140	114	137	35	29	40	24	25	23	23	2.7	1.2	1.0
University of Missouri S16-15170C	127	136	138	114	149	45	35	33	26	40	27	27	1.8	1.0	1.3
University of Missouri S16-9478C	128	135	140	113	138	36	33	38	26	25	25	20	2.3	1.0	1.0
University of Missouri S17-2509C	124	136	138	115	144	38	31	36	24	23	24	22	2.5	1.0	1.0
University of Missouri S18-6097C	129	135	138	115	143	31	25	37	22	22	20	19	1.5	1.0	1.0
University of Missouri S18-6328C	131	134	136	114	136	34	26	34	23	25	19	19	2.3	1.0	1.0

¹R7 Date (One pod with the mature color; prior to desiccation; days after planting).

²Maturity (R8 - 95% brown pods; days after planting).

³Plant height at R8 in inches.

⁴Lodging (1-5): 1=almost all plants erect; 5=all plants down.

Table 4C: MG 5.0-5.3 Abiotic/Biotic Stress Tolerance (With and Without Fungicide).

Variety	Macon Ridge Salt ¹	Macon Ridge TRD ²	Macon Ridge CLB ³	Central Station Yield Fungicide	Central Station Yield Untreated	Dean Lee Yield Fungicide	Dean Lee Yield Untreated
Armor 51-F88	4.70	4.00	2.80	57.15	42.45	74.35	77.20
Bayer AG53XF2	6.00	3.00	1.50	57.15	41.48	72.75	78.48
Delta Grow 52E80	5.30	3.80	2.00	55.18	37.45	71.23	68.65
Delta Grow 52XF221STS	6.30	3.30	2.80	53.88	36.00	76.83	74.75
Delta Grow 53E30	2.70	2.80	1.80	44.79	40.13	67.50	66.70
Dyna-Gro S52XT91	4.30	4.30	2.10	57.35	30.23	75.78	70.88
Pioneer P52A14SE	0.30	4.00	2.00	53.25	47.58	81.25	73.98
Progeny 5056XFS	5.70	2.50	3.00	57.08	39.88	77.15	71.88
Progeny 5150XFS	5.00	4.00	2.30	59.45	40.60	76.58	73.40
Progeny 5252RX	4.00	3.30	3.50	62.50	55.68	70.58	72.33
Revere 5029XF	5.00	3.00	2.50	57.75	46.13	76.63	75.00
Revere 5386X	6.30	3.50	0.90	54.43	39.45	71.13	70.85
University of Missouri S16-11651C	0.00	2.50	1.50	55.23	48.90	78.23	79.65
University of Missouri S16-14801C	0.70	2.80	2.60	59.18	39.03	78.53	79.88
University of Missouri S16-14869C	0.00	3.00	2.50	59.83	45.10	79.25	78.83
University of Missouri S16-15170C	3.00	2.50	1.70	49.08	38.90	69.53	72.80
University of Missouri S16-9478C	1.00	4.00	3.10	59.40	41.95	72.95	77.08
University of Missouri S17-2509C	1.30	2.30	3.50	53.98	43.58	72.28	74.88
University of Missouri S18-6097C	0.00	2.80	4.30	58.28	39.53	73.75	76.10
University of Missouri S18-6328C	0.70	3.00	3.00	61.32	44.75	81.95	78.78
Location Average	3.12	3.22	2.47	56.31	41.94	74.91	74.61
LSD (P=.05)	1.84	1.32	1.27	8.34	9.74	4.50	4.64
Standard Deviation	1.11	0.93	0.90	5.88	6.88	3.18	3.27
CV	35.76	29.21	36.58	10.45	16.41	4.24	4.39

¹Chloride Toxicity (SaltRating) (0-9 scale): 0=no damage; 9=all plants are dead.

²Tap Root Decline (TRD) (0-9 scale): 0=no damage; 9=all plants are showing symptoms.

³Cercospora Leaf Blight (CLB) (0-9 scale): 0=no disease; 5=20-40% foliar symptoms/20% defoliation; 9=completely defoliated.

Table 5A. MG 5.4-5.6 Soybean OVT Yield Data.

Variety	Central Station	Dean Lee	Iberia	Macon Ridge	Northeast1	Northeast2	Red River	Rice Station	2022 Average ²	2-Year Average	3-Year Average
Bayer AG56XF2	63.1	79.1	20.9	43.7	26.9	52.4	66.0	25.0	47.1	49.8	
Delta Grow 54XF20	65.7	72.1	16.8	42.2	44.8	32.4	59.9	22.5	44.6	47.9	
Dyna-Gro S56XT99	65.5	80.3	24.7	40.2	34.7	45.7	63.4	29.5	48.0	51.2	51.1
Pioneer P54A36SX	65.7	83.2	26.4	46.4	41.7	44.4	68.5	34.0	51.3		
Pioneer P54A54X	73.4	80.4	29.2	47.1	50.4	53.2	70.8	26.5	53.9	52.6	55.1
Pioneer P56A71E	60.9	88.2	27.3	44.5	48.0	41.8	74.0	27.0	51.5		
Progeny 5521E3	57.0	66.6	25.0	26.6	44.6	44.7	52.2	34.5	43.9	46.9	
Progeny 5554RX	68.6	83.3	26.2	44.9	46.4	48.4	67.5	26.5	51.5	51.5	51.7
Revere 5588X	66.1	79.1	26.3	43.7	54.0	45.5	65.6	27.0	50.9		
Revere 5614XF	57.4	70.7	26.6	36.2	35.0	44.3	34.7	27.3	41.5		
Syngenta NK55-T2XF	49.7	73.2	22.5	32.5	43.1	38.5	52.2	26.5	42.3		
Location Average	63.0	77.8	24.7	40.7	42.7	44.7	61.3	27.8			
Soil Type	silt loam	silt loam	silty clay loam	silt loam	silt loam	Sharkey clay	sandy loam	silt loam			
LSD (P=.05)	8.75	3.67	3.88	4.87	15.73	17.56	7.81	3.63			
Standard Deviation	6.1	2.5	2.7	3.4	10.6	12.2	5.4	2.5			
CV	9.6	3.2	10.8	8.3	24.9	27.2	8.8	9.0			

The 2022 OVT Trial was planted at these LSU AgCenter research stations: Dean Lee, Alexandria; Macon Ridge, Winnsboro; Northeast, St. Joseph; Red River, Bossier; Rice Research, Crowley; Iberia, New Iberia; and Central Research, Baton Rouge. Data was lost at some locations due to seed shortage from replanting. All yields expressed in bushels per acre and adjusted to 13% moisture.

Bold – Highest yielding (p=0.05) at this location in 2022.

¹Northeast locations had two different soil types.

²Variety average from seven research stations and eight locations: Central, Dean Lee, Iberia, Macon Ridge, Northeast 1 (silt loam), Northeast 2 (Sharkey clay), Red River and Rice Station.

Table 5B. MG 5.4-6.0 Agronomic Data.

Variety	Dean Lee Maturity ¹	Macon Ridge Maturity ²	Red River Maturity ²	Rice Maturity ²	Iberia Maturity ²	Dean Lee Height ³	Macon Ridge Height ³	Northeast 1 Height ³	Northeast 2 Height ³	Red River Height ³	Rice Station Height ³	Iberia Height ³	Dean Lee Lodging ⁴	Macon Ridge Lodging ⁴	Red River Lodging ⁴
Bayer AG56XF2	130	136	143	115	137	33	25	39	25	25	23	18	1.3	1.0	1.0
Delta Grow 54XF20	130	136	143	115	135	30	24	35	23	23	19	19	1.3	1.0	1.0
Dyna-Gro S56XT99	129	136	144	115	135	30	28	34	26	26	25	24	1.5	1.0	1.0
Pioneer P54A36SX	130	136	143	114	137	32	34	33	24	27	22	17	1.5	1.0	1.0
Pioneer P54A54X	125	136	142	115	136	32	29	32	25	25	19	17	1.3	1.0	1.0
Pioneer P56A71E	131	136	143	115	135	31	28	35	19	26	21	19	1.3	1.0	1.0
Progeny 5521E3	135	143	147	115	147	54	38	31	27	54	34	44	3.2	3.5	4.0
Progeny 5554RX	131	136	144	115	135	30	27	37	24	26	19	25	1.7	1.0	1.0
Revere 5588X	130	137	143	115	136	29	26	34	25	24	23	26	1.8	1.0	1.0
Revere 5614XF	133	136	141	115	135	26	26	39	24	22	19	21	1.2	1.0	1.0
Syngenta NK55-T2XF	133	137	145	115	134	22	24	31	23	19	20	14	1.0	1.0	1.0

¹R7 Date (One pod with the mature color; prior to desiccation; days after planting).

²Maturity (R8 - 95% brown pods; days after planting).

³Plant height at R8 in inches.

⁴Lodging (1-5): 1=almost all plants erect; 5=all plants down.

Table 5C: MG 5.4-6.0 Abiotic/Biotic Stress Tolerance (With and Without Fungicide).

Variety	Macon Ridge Salt ^{1d}	Macon Ridge TRD ²	Macon Ridge CLB ³	Central Station Yield Fungicide	Central Station Yield Untreated	Dean Lee Yield Fungicide	Dean Lee Yield Untreated
Bayer AG56XF2	0.90	3.00	4.50	63.05	44.83	79.16	76.98
Delta Grow 54XF20	0.30	4.00	5.30	65.68	46.98	72.13	68.98
Dyna-Gro S56XT99	1.00	2.50	3.50	65.45	52.95	80.25	79.00
Pioneer P54A36SX	0.30	4.00	3.80	65.68	44.60	83.20	78.00
Pioneer P54A54X	0.30	4.00	4.50	73.35	48.70	80.40	81.73
Pioneer P56A71E	1.30	1.80	2.30	60.93	50.48	88.45	76.25
Progeny 5521E3	5.30	2.50	2.00	56.98	48.00	66.58	67.80
Progeny 5554RX	0.30	2.30	4.00	68.63	59.63	83.27	75.23
Revere 5588X	0.30	3.00	4.00	66.13	60.00	79.10	76.50
Revere 5614XF	5.30	2.30	5.80	57.43	43.35	70.64	65.05
Syngenta NK55-T2XF	3.90	2.00	6.00	49.73	47.75	73.17	52.53
Location Average	1.75	2.85	4.15	63.00	49.75	77.85	72.55
LSD (P=.05)	0.96 - 1.92 ⁵	1.07	1.13	8.75	15.69	3.59	5.14
Standard Deviation	0.26 ⁴	0.74	0.78	6.05	10.85	2.47	3.52
CV	18.77 ⁴	26.19	18.87	9.61	21.81	3.17	4.86

¹Chloride Toxicity (SaltRating) (0-9 scale): 0=no damage; 9=all plants are dead.

²Tap Root Decline (TRD) (0-9 scale): 0=no damage; 9=all plants are showing symptoms.

³Cercospora Leaf Blight (CLB) (0-9 scale): 0=no disease; 5=20-40% foliar symptoms/20% defoliation; 9=completely defoliated.

⁴Means are reported in de-transformed data units.

⁵LSD value is a range calculated after transforming data.

⁶Mean descriptions are reported in transformed data units and are not de-transformed.

Table 6A. Summary of 2022 On-farm MG 3.7-4.4 Soybean Core Block Demonstrations at Seven Locations.

Variety	Acadia	Assumption	East Baton Rouge	Franklina	Rapides	St. James	Tensas
Bayer AG40XF1		45	32	24	32	56	39
Bayer AG43XF2		46	37	27	35	54	47
Dyna-Gro S43XS70	31	51	39	24	61	49	43
Pioneer P40A90LX	29	48	42	31	60	49	43
Pioneer P44A21X	38		59	29	65		55
Progeny 4200RXS	34	50	54	17	64	59	52
Progeny P4444RXS	32	44	49	16	66	35	50
Syngenta NK42-T5XF	30	43	39	12	58	39	58
Syngenta NK44-J4XFS	29	46	52	10	51	57	47
Location Average	32	47	45	21	55	50	48
Soil Type	silt loam	sand	sand	silt loam	silt loam	sand	silt loam
Planting Date	4/22/22	4/29/22	5/17/22	4/29/22	5/17/22	4/21/22	4/27/22

Yields are in bushels per acre adjusted to 13% moisture.

^aSalt damage scores are available online in the Franklin Parish core block data sheet.

Table 6B. Summary of 2022 On-farm MG 4.5-4.9 Soybean Core Block Demonstrations at 16 Locations.

Variety	Acadia	Aoyelles	Beauregard	Caddo	East Carroll	East Baton Rouge	Franklin 1	Franklin 2 ^a	Madison	Pointe Coupee	Rapides	Richland	St. Landry	Tensas	West Carroll	West Feliciana
Armor 44-D49	29	35			64	54	51	35		60	61	34	84	45	70	
Armor 48-D25	35	35	25	56	57	45	69	43		62	53	39	71	43	67	43
Bayer AG47XF2	31	40		56	54	45	63	6	75	54	35	41	78		75	44
Bayer AG48XF2	31	30	31	59	58	58	65	34	64	60	45	44	73	48	63	44
Delta Grow 48X45	30	30		47	58	42	66	42	81	58	55	34	67	58	79	52
Delta Grow 48XF33STS	25	39	31	67	53	41	59	19	68	61	59	32	77	54	64	53
Dyna-Gro S46XF31S	28	45	25	52	57	52	63	18	74	58	54	30	69	55	65	47
Pioneer P46A86X	27	40		64	59	46	69	42	68	60	51	32	71	52	57	60
Pioneer P47A64X	28	43	29	56	62	62	57	40	75	63	55	46	74	55	75	60
Progeny 4604XFS	36	45		57	53	51	61	13	71	55	60	41	72		64	38
Progeny 4821RX	39	32	29	47	61	47	61	39	71	57	59	34	70	56	74	48
Syngenta NK45-P9XF	33			60	59	51	56	37	58	61	66	36	76	56	58	31
Syngenta NKS49-F5X	31	36	28	56	64	54	59	33	68	59	62	35	77	53	76	39
University of Missouri S14-15146R		46						12		52	26a		56			53
University of Missouri S16-5540R		50	23 ^a							67			66			40
Location Average	31	39	28	56	59	50	61	29	70	59	53	37	72	52	68	46
Soil Type	silt loam	silty clay loam	silt loam	clay	clay loam	silt loam	silt loam	silt loam	silt loam	silt loam	silt loam	silt loam	clay loam	silt loam	silty clay loam	silt loam
Planting Date	4/22/22	4/29/22	5/10/22	4/24/22	4/30/22	5/17/22	4/22/22	4/29/22	4/30/22	4/28/22	5/17/22	4/30/22	5/9/22	4/27/22	4/29/22	5/11/22

^aYields are in bushels per acre adjusted to 13% moisture.

^bPlots had damage from dicamba.

^cSalt damage scores are available online in the Franklin Parish core block data sheet.

Table 6C. Summary of 2022 On-farm MG 5.0-5.6 Soybean Core Block Demonstrations at 11 Locations.

Variety	Acadia	Avoelles	Beuregard	Caddo	East Baton Rouge	Franklin ^a	Rapides 1	Rapides 2	Tensas	West Baton Rouge	West Feliciana
Bayer AG53XF2	34	59	27	34	50	28	41	87	55	68	28
Bayer AG56XF2	29	65		52	55	31	35	83	59	65	48
Delta Grow 52XF22 STS	28	59		31	42	28	36	61	44	58	24
Delta Grow 54XF20	26	48	25	41	53	1	36	83	52	61	43
Pioneer P54A36SX			27	49	63	43	48	88	47	69	43
Pioneer P54A54X	30	65		44	59	26	34	86	59	69	50
Progeny P5554RX	34	54	26	52	54	8	45	85	52	66	39
Location Average	30	58	26	43	54	24	39	82	53	65	39
Soil Type	silt loam	clay	silt loam	clay	silt loam	silt loam	silt loam	silt loam	silt loam	silty clay	silt loam
Planting Date	4/22/22	4/28/22	5/10/22	4/30/22	5/17/22	4/29/22	5/17/22	4/22/22	4/27/22	5/10/22	5/11/22

Yields are in bushels per acre adjusted to 13% moisture.

^a*Salt damage scores are available online in the Franklin Parish core block data sheet.*

Table 7. Summary of 2022 Conventional Soybean On-farm Demonstration.

Variety	MG	Tensas	Derider	Acadia Yield
University of Missouri S13-3851C	4.4	54	18	32
University of Missouri S13-10592C	4.5	72	19	21
MG 4.6 Commercial Check	4.6	63	24	.
University of Missouri S16-14730C	4.7	70	22	28
University of Missouri S16-7922C	4.9	71	25	30
University of Missouri S16-1644C	4.9	68	18	24
University of Missouri S16-11651C	5.3	61	27	35
University of Missouri S16-15170C	5.3	70	18	31
Jake	5.5	56	25	25

Yields are in bushels per acre adjusted to 13% moisture.

Table 8. Summary of 2022 Soybean Nematode Resistance Demonstration in Tensas Parish.

Variety	Root-Knot ¹	Assay at Planting ²	Assay at Mid-Season ²	Nematode Eggs Produced ³	Yield
Bayer AG53XF2	Resistant	160	3,720	54,540	33.52
Bayer AG56XF2	Resistant	0	5,440	54,391	56.68
Delta Grow 46X65	Resistant	0	1,280	27,892	32.70
Delta Grow 54XF20	Resistant	2,240	5,480	72,584	51.88
Dyna-Gro 48XT40	Resistant	0	940	15,981	37.18
Pioneer P54A54X	Resistant	0	1,200	23,480	40.54
Progeny P5554RX	Resistant	0	1,240	11,291	38.33
Syngenta NK45-P9XF	Resistant	0	3,680	83,931	33.92
Syngenta NKS49-F5X	Susceptible	800	2,680	49,931	44.07
University of Missouri MO4901GT	Resistant	640	3,220	42,930	28.10
University of Missouri S16-5540R	Resistant	160	1,280	23,922	56.33

Yields are in bushels per acre adjusted to 13% moisture.

¹*Resistant/Susceptible (As labeled for the screening).*

²*#/500 cm³ soil.*

³*#/plant.*

Table 9. Southern Root-knot Nematode (*Meloidogyne incognita*) Reproduction on Core Block Soybean Varieties.

Company	Variety	Nematode Eggs Produced (#/plant) ¹
Armor	48-D25	16,345
Armor	44-D49	24,038
Bayer	AG40XF1	882
Bayer	AG47XF2	9,765
Bayer	AG53XF2	10,822
Bayer	AG48XF2	14,854
Bayer	AG43FX2	31,682
Bayer	AG56XF2	34,447
Delta Grow	54XF20	12,180
Delta Grow	48XF33STS	17,941
Delta Grow	52XF22STS	24,752
Delta Grow	48X45RR2X	27,537
Dyna-Gro	S46XF31S	17,857
Dyna-Gro	S43XS70	16,646
Pioneer	P54A36SX	7,070
Pioneer	P54A54X	7,469
Pioneer	P47A64X	8,866
Pioneer	P44A21X	11,991
Pioneer	P46A86X	22,617
Pioneer	P40A90LX	27,230
Progeny	P4444RXS	3,605
Progeny	4200RX5	8,015
Progeny	P55554RX	11,095
Progeny	P4821RX	23,758
Progeny	P4604XFS	26,999
Syngenta	NK44-J4XFS	12,915
Syngenta	NK45-P9XF	15,386
Syngenta	S49-F5X	18,193
Syngenta	NK42-T5XF	47,831
University of Missouri	S14-15138GT	5,775
University of Missouri	S16-5540R	17,297

The southern root-knot nematode screening trial was conducted in a greenhouse at the Plant Material Center in Baton Rouge by Tristan Watson.

The Texas population of southern root-knot nematode was used.

Bold — reduced nematode population density below initial inoculum level (i.e., highly resistant).

¹Each soybean variety was inoculated with 1,000 *M. incognita* eggs and grown in a greenhouse for 56 days prior to analysis of nematode egg production (n=3).

Table 10. Reproduction of Five Southern Root-knot Nematode Populations on Soybean Varieties.

Variety	West Feliciana ¹	Tensas ¹	Concordia ¹	Franklin ¹	Richland ¹
Amor 48-D03	1,701	1,470	18	2,686	2,111
Armor 46-D09	15,536	8,085	4,375	2,368	12,001
Armor 48-D25	5,113	700	3,605	1,762	3,717
Armor 54-D33	1,238	315	0	1,014	5,471
Armor 55-D57	3,780	2,205	2,520	2,552	3,329
Bayer AG56XF2	8,925	756	2,100	6,378	945
Delta Grow 46E10	2,935	1,890	5,072	6,773	4,095
Delta Grow 46X65	6,924	520	3,801	2,543	4,883
Delta Grow 54XF20	6,589	2,126	315	5,119	1,905
Dyna-Gro 48XT40	3,633	745	280	98	2,321
Dyna-Gro S48XT40	2,295	244	0	7,009	1,680
Pioneer P54A36SX	4,699	720	983	2,299	4,253
Pioneer P54A54X	3,071	953	2,205	945	2,966
Progeny P4444RXS	2,433	140	613	970	2,089
Progeny P5554RX	7,350	0	6,081	0	1,575
Revere 5009X5	14,424	1,120	3,728	588	1,964
Syngenta NK45-P9XF	6,206	1,465	0	1,181	14,018
Syngenta S49-F5X	6,668	512	4,410	6,615	14,700
University of Missouri MO4901GT	15,776	3,575	630	1,988	3,938
University of Missouri S16-11651C	2,214	1,606	1,053	1,098	4,811
University of Missouri S16-5540R	12,474	473	6,615	3,244	3,833

The southern root-knot nematode population screening trial was conducted in a greenhouse at the Plant Material Center in Baton Rouge by Tristan Watson. **Bold** – reduced nematode population density below initial inoculum level (i.e., highly resistant).

¹Nematode eggs produced (# eggs/plant). Each soybean variety was inoculated with 1,000 *M. incognita* eggs and grown in a greenhouse for 42 days prior to analysis of nematode egg production (n=4).

Table 11A. Root-knot Nematode Population Development and Egg Production on Soybean Varieties Planted in Concordia Parish.

Variety	At Plant ¹	Mid-Season ¹	Nematode Eggs Produced (#/plant) ²
Delta Grow 46X65R	0	12,160	1,044
Dyna-Gro 48XT40	0	18,560	56,448
Syngenta NK45P8XF	0	26,240	3,024
Syngenta NK49-F5X	80	35,840	71,610

This nematode resistant variety trial was conducted at a commercial field in Concordia Parish by Tristan Watson.

¹Nematode Population Density (#/500 cm³ soil).

²Nematode egg production quantification occurred during the mid-season sampling date.

Table 11B. Root-knot Nematode Population Development and Egg Production on Soybean Varieties Planted in Avoyelles Parish.

Variety	At Plant ¹	Mid-Season ¹	Nematode Eggs Produced (#/plant) ²
Bayer AG56XF2	0	5,280	277,200
Delta Grow 54XF20	0	9,120	157,584
Pioneer P54A36XS	160	1,600	101,388
Pioneer P54A54X	0	4,000	643,188
Progeny P5554RX	80	8,800	97,020

This nematode resistant variety trial was conducted at a commercial field in Avoyelles Parish by Tristan Watson.

¹Nematode Population Density (#/500 cm³ soil).

²Nematode egg production quantification occurred during the mid-season sampling date.

Table 11C. Root-knot Nematode Population Development and Egg Production on Soybean Varieties Planted in Point Coupee Parish.

Variety	At Plant ¹	Mid-Season ¹	Nematode Eggs Produced (#/plant) ²
Delta Grow 46E10	400	13,600	323,400
Delta Grow 46X65	1,760	2,560	123,480
Progeny P4431E3	1,440	23,520	374,535
Progeny P4444RXS	640	11,680	914,004
Syngenta NK42-BX-9	1,280	7,840	269,451
Syngenta NK42T5XF	3,680	18,560	109,200
Syngenta NK44-J4FS	4,960	12,480	266,490
Syngenta NK45P9XF	3,520	10,880	53,592
University of Missouri S16-5540R	3,520	8,640	524,160

This nematode resistant variety trial was conducted at a commercial field in Point Coupee Parish by Tristan Watson.

¹Nematode Population Density (#/500 cm³ soil).

²Nematode egg production quantification occurred during the mid-season sampling date.

Table 11D. Root-knot Nematode Population Development and Egg Production on Soybean Varieties Planted in Tensas Parish.

Variety	At Plant ¹	Mid-Season ¹	Nematode Eggs Produced (#/plant) ²
Bayer AG53XF2	160	3,720	54,540
Bayer AG56XF2	0	5,440	54,391
Delta Grow 46E10	640	3,290	47,890
Delta Grow 46X65	0	1,280	27,892
Delta Grow 54XF20	2,240	5,480	72,584
Dyna-Gro 48XT40	0	940	15,981
Pioneer P54A54X	0	1,200	23,480
Progeny P5554RX	0	1,240	11,291
Syngenta NK45P9CF	0	3,680	83,931
Syngenta NK549F5X	800	2,680	49,931
University of Missouri MO4901GT	640	3,220	42,930
University of Missouri S16-5540R	160	1,280	23,922

This nematode resistant variety trial was conducted at the Northeast Research Station in Tensas Parish by Tristan Watson.

¹Nematode Population Density (#/500 cm³ soil).

²Nematode egg production quantification occurred during the mid-season sampling date.

Table 12A. Reniform Nematode Population Development and Yield of Soybean Varieties Planted in Tensas Parish.

Variety	At Plant ¹	Mid-Season ¹	Yield (Bu/A)
Armor 46-D09	2,048	16,064	57.8
Armor 48-D03	2,612	17,498	59.8
Bayer AG48XF2	3,018	19,712	59.5
Dyna-Gro S48XT40	4,842	21,474	60.1
P5353RX	2,912	20,320	55.9
Pioneer P46A86X	3,392	19,512	63.2
Progeny P4444RXS	4,008	13,424	56.6
University of Missouri S11-20195R	3,516	3,072	62.4
University of Missouri S16-16641R	3,167	2,160	55.9
University of Missouri S16-16814R	2,784	1,904	59.9
University of Missouri S16-5503GT	4,080	3,792	66.8
University of Missouri S16-5540R	3,383	2,576	58.4

This reniform nematode susceptibility trial was conducted at the Northeast Research Station in St. Joseph by Tristan Watson.

¹Reniform Nematode Population Density (#/500cm³ soil).

Bold — Reduced nematode population density below high damage threshold (<10,000 nematodes per 500 cm³ soil).

Table 12B. Reniform Nematode Population Development and Yield of Soybean Varieties Planted in Franklin Parish.

Variety	At Plant ¹	Mid-Season ¹	Yield (Bu/A)
Armor 46-D09	19,100	10,608	41.5
Armor 48-D03	21,256	18,352	43.7
Bayer AG48XF2	28,688	14,920	36.7
Dyna-Gro S48XT40	20,192	12,712	42.1
P5353RX	30,156	15,360	37.1
Pioneer P46A86X	17,624	17,032	34.5
Progeny P4444RXS	22,454	9,712	35.6
University of Missouri S11-20195R	26,587	11,040	47
University of Missouri S16-16641R	31,557	9,136	48.7
University of Missouri S16-16814R	25,606	8,648	40.7
University of Missouri S16-5503GT	41,457	11,240	47.2
University of Missouri S16-5540R	23,635	9,544	38.5

This reniform nematode susceptibility trial was conducted at the Macon Ridge Research Station in Winnsboro by Tristan Watson.

¹Reniform Nematode Population Density (#/500cm³ soil).

Bold — Reduced nematode population density below high damage threshold (<10,000 nematodes per 500 cm³ soil).

Table 13. Greenhouse Screening of 2022 Core Block Varieties for Resistance to Aerial Blight.

Variety	Disease Severity Estimate ²	Statistical group	Comments ⁴
DP3589³	66.21297	a	Resistant check
Armor 48-D25	75.62126	ab	Moderately resistant
AG53XF2	99.7248	abc	Less susceptible
AG56XF2	101.1786	abc	Less susceptible
S16-5540R	101.3783	abc	Less susceptible
Delta Grow 48X451	102.3169	abc	Less susceptible
P54A54X	104.2247	abc	Less susceptible
DeltaGrow 52XF22STS	125.5053	abc	Less susceptible
AG40XF1	135.2806	abc	Less susceptible
Dyna-Gro S46XF31S	135.6144	abc	Less susceptible
AG48XF2	138.5907	abc	Less susceptible
Dyna-Gro S43XS70	152.1018	abcd	Susceptible
MISSO S14-15138GT	168.6158	abcd	Susceptible
Armor 44-D49	173.4106	abcd	Susceptible
Progeny P4604XFS	201.5186	abcde	Susceptible
S46XF21S³	218.4584	abcde	Not part of 2022 core block
NK45P9XF	219.6026	abcd	Susceptible
P46A86X	226.3244	abcde	Susceptible
S49-F5X	230.9454	abcde	Susceptible
Pioneer P54A36SX	230.9606	abcde	Susceptible
AG53X9³	243.8353	abcd	Susceptible check
P47A64X	267.5595	abcde	Susceptible
AG43XF2	294.8207	abcde	Susceptible
Delta Grow 48XF33STS	327.1182	abcde	Susceptible
Delta Grow 48X45RR2X^{1,3}	336.0047	abcde	Not part of 2022 core block
Delta Grow 54XF20	349.1982	abcde	Susceptible
Progeny 4200RXS	368.7449	abcde	Susceptible
Pioneer P44A21X	380.9573	abcde	Susceptible
Progeny P4444RXS	394.4199	abcde	Susceptible
Progeny P4821RX	402.8597	abcde	Susceptible
Pioneer P40A90LX	421.3382	bcde	Susceptible
Progeny P5554RX	458.1664	bcde	Susceptible
AG47XF2	496.4141	cde	Highly susceptible
Northrup King NK44-J4XFS	541.1492	de	Highly susceptible
Northrup King NK42-T5XF	589.6094	e	Highly susceptible

Trials conducted by Kensy Rodriguez-Herrera and Sara Thomas-Sharma.

¹Varieties are the same except that seeds used for study were from two different years.

²Disease severity estimates were calculated by determining the percent symptomatic leaves every 2-3 days (starting ~ 1 week after artificial inoculation) and combined over the entire trial period (of 20-21 days).

³Varieties in bold were not part of the 2022 core block. They were from the 2021 OVT trials (S46XF21S, DELTA GROW 48X45RR2X) or served as resistant (DP3589) and susceptible (AG 53x9) checks.

⁴2022 core block varieties were screened for resistance to aerial blight in two greenhouse trials. Trials have been combined and shown for easy interpretation, but varieties showed some variability in their disease severity between trials.

⁴Varieties followed by the same letter were statistically comparable to each other and have been conservatively labelled for aerial blight susceptibility in the last column.

Note: It is currently unknown whether resistance in greenhouse translates well into field disease resistance.

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