Soybean Variety Tests in Tennessee

2019

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SOYBEAN VARIETY TESTS IN TENNESSEE

2019

Experimental Procedures

AgResearch & Education Center Tests: All soybean variety trials were conducted in each of the physiographic regions of the state. Tests were conducted at the Agricenter International Research Center (Memphis), Highland Rim (Springfield), East Tennessee (Knoxville), Milan (Milan), and West Tennessee (Jackson) AgResearch & Education Centers **(REC)**. Entries were divided into the following tests based on relative maturity: **MG-3** (relative maturity 3.0-3.9), **MG-4E** (relative maturity 4.0– 4.5), **MG-4L** (relative maturity: 4.6-4.9), and **MG-5** (relative maturity: 5.0-5.9). Each test was treated using conventional herbicides rather than splitting tests by herbicide tolerance. Tests of MG-3 were not grown at the Memphis location. Duplicate plantings of all tests were made at the **Milan and Highland Rim REC** for performance testing **with and without irrigation**.

The plot size at all REC locations was two, 30-ft. rows with 30-inch row spacing. All varieties were planted at approximately 6 seeds per foot of row (i.e., approximately 140,000 seed per acre in the REC tests). Plots were replicated three times at each location in a randomized complete block design.

Genetics plus Seed Treatments: Seed of all varieties included in the REC tests were treated with one or more fungicides plus an insecticide. Research has shown that seed treatments can influence yield, therefore **the yields of varieties reported herein are the combined result of the genetic potential of the varieties plus the seed treatment "packages".** The seed treatments that were included on each variety were determined by the company or organization and are listed in Table 29. Many soybean varieties are now being marketed with combinations of fungicide and insecticides on the seed, similar to corn. A decision was made to test the varieties in the UT soybean performance tests with the seed treatments so the results would be comparable to what producers could expect from seed they purchase.

County Standard Tests: The County Standard Soybean Tests were conducted in 24 counties in Tennessee, and one in Western Kentucky. The number of county locations depended on the test (Table 2). The County Standard Tests were divided by herbicide tolerance into Roundup Ready/Dicamba (R2X) and Liberty Link (LL) and then further divided by relative maturity. Tests included **R2X-3** (relative maturity 3.6-3.9), **R2X-4E** (relative maturity 4.0-4.5), **R2X-4L** (relative maturity 4.6-4.9), **R2X- 5E** (relative maturity 5.0-5.5), **LL-4E** (relative maturity 4.0-4.5, **LL-4L** (relative maturity 4.6-5.2). Each variety was evaluated in a large strip-plot at each location, thus each county test was considered as one replication of the test in calculating the overall average yield and in conducting the statistical analysis to determine significant differences. At each location, plots were planted, sprayed, fertilized, and harvested with the equipment used in the cooperating producer's farming operation. The width and length of strip-plots were different in each county; however, within a location in a county, the strips were trimmed on the ends so that the lengths were the same for each variety, or if the lengths were different then the harvested length was measured for each variety and appropriate harvested area adjustments were made to determine the yield per acre.

Interpretation of Data

The tables on the following pages have been prepared with the entries listed in order of yield performance, the highest-yielding entry being listed first. Mean separation was performed using the **LSD (Least Significant Difference) test**. The mean trait value of any two entries being compared must differ by at least the LSD amount shown to be considered different at the 5% level of probability of significance. For example, given that the LSD for a test is 7 bu/a and the mean yield of Variety A was 55 bu/a and the mean yield of Variety B was 49 bu/a, then the two hybrids are not statistically different in yield because the difference of 6 bu/a is less than the minimum of 7 bu/a required for them to be significant. Similarly, if the average yield of Variety C was 63 bu/a, then it is significantly higher yielding than both Variety B (63 - 49 = 14 bu/a > LSD of 7 bu/a) and Variety A (63 - 55 = 8 bu/a > LSD of 7 bu/ac). Tests with an LSD value of N.S. indicate there were no significant differences in entry performance within that test.

To simplify interpretation, **Mean Separation Letters** have been listed next to each entry for the test of average yield across all locations. Varieties that have any letter in common are not significantly different in yield at the 5% level of probability based on the LSD test. Varieties with performance not significantly different from the top performing hybrid will have an "A" included in the list of mean separation letters next to that entry.

The **coefficient of variation (C.V.)** values are also shown at the bottom of each table. This value is a measure of the error variability found within each experiment. It is calculated as the ratio of the square root of error variance to the mean yield. For example, a C.V. of 10% indicates that the size of the error variation is about 10% of the size of the test mean. Similarly, a C.V. of 30% indicates that the size of the error variation is nearly one-third as large as the test mean. A goal in conducting each yield test is to keep the C.V. as low as possible, preferably below 20 percent. The C.V. is not reported for traits, such as lodging, which are not on a ratio scale and/or have a mean value near zero.

Results

Yield and Agronomic Traits. One hundred twenty-six soybean varieties were evaluated in the 2019 **Research & Education Center (REC)** tests in Tennessee. There were 13 varieties in the MG-3, 37 in the MG-4E, 60 in the MG-4L, and 15 in the MG-5 tests. In terms of herbicide tolerance, entries were either conventional, Roundup Ready (RR, glyphosate tolerance), Roundup Ready 2 Yield (RR2, glyphosate tolerance), Roundup Ready 2 Xtend (R2X, glyphosate and dicamba tolerance), Liberty Link (glufosinate tolerance), or stacks of these tolerances with sulfonylurea (STS) tolerance. A breakdown of herbicide tolerance by test is given in Table 1. Eighty-six varieties were evaluated in the **County Standard tests (CST)**, including the following number of varieties and counties within each test: R2X-3 test - 10 varieties at nine locations, R2X-4E test - 19 varieties at 11 locations, LL-4E test – nine varieties at five locations, R2X-4L test - 25 varieties at 12 locations, LL-4L test – 12 varieties at six locations, R2X-5E test - 11 varieties at eight locations. In addition to 24 Tennessee counties, the County Standard Tests involved Fulton county in Western Kentucky.

Table 1. Total number of soybean variety entries within each herbicide tolerance trait class and maturity group in the 2019 UT REC soybean variety trials.

	MG3	MG4E	MG4L	MG5E	Total
RR	1				1
RR/STS		1			1
RR2				1	1
RR2/STS					-
R2X	6	19	35	11	71
R2X/STS	1	8	10	2	21
GT/LL	2	3	1		6
LL	1	1	2		4
LL/STS					-
Enlist E3	2	2	9		13
STS			2	1	3
Conv.		3	2		5
Total	13	37	60	15	126

Irrigated vs. Non-irrigated Yields. Duplicate tests were conducted at the Milan and Highland Rim Research and Education Centers with and without irrigation. Across both locations, average yield was higher in irrigated tests (60 bu/ac) compared with non-irrigated tests (55 bu/a). Yield differences were larger at the Highland Rim location (-4 to +15 bu/a) with irrigated tests exhibiting a yield advantage in the MG-4E (+ 2 bu/a), MG-4L (+ 15 bu/a), and MG-5 (+ 11 bu/a) tests. However, the MG-3 test at Highland Rim exhibited a yield advantage of 4 bu/a in the non-irrigated test. At the Milan location, yield differences were smaller (0 – 7 bu/a) but irrigated outperformed or equaled non-irrigated average yield within all tests (MG-3: + 3 bu/a, MG4E: + 3 bu/a, MG4L: 0 bu/a, MG5: + 7 bu/a).

Growing Season: Soybean official variety trials were planted from the beginning of May through early June at all REC locations. Weather conditions during planting season were mostly favorable. However, there were occasional spotty showers early in the planting season and at the end of May and early June hot and dry conditions dominated. Statewide soybean planting remained on par with the five-year average, with 49% of soybeans in Tennessee planted by late-May and 94% planted by late-June. Hot and dry weather prevailed over most of the state during the growing season. Severe drought affected soybean maturity and sped up harvest. By late September, 84% of the crop rated good to excellent. By the end of October, 72% of soybeans had been harvested, well ahead of the five-year average of 64%. According to the National Agricultural Statistics Service, Tennessee producers planted 1.4 million acres of soybean this year, a decrease of 300,000 acres from 2018. Acreage harvested for grain in Tennessee is projected to be 1.38 million acres, a decrease of 300,000 acres from last season. Soybean production for 2019 is projected to be 64.86 million bushels, a decrease of 22% from the previous year. The state soybean yield average is projected to be 50 bu/a, which is 0.5 bu/a less than the 2018 yield and 3.1 bu/a greater than national average.

Table 2. Location information from AgResearch and Education Centers where soybean variety tests were conducted in Tennessee in 2019.

Maturity Group III

Location	AgResearch and Education Center	Irrigation	Planting Date	Harvest Date	Seeding Rate	Soil Type
Springfield	Highland Rim	Irrigated	May 10, 2019	September 24, 2019	140000	Dickson Silt Loam
Springfield	Highland Rim	Non-irrigated	May 10, 2019	September 24, 2019	140000	Dickson Silt Loam
Knoxville	East Tennessee	Irrigated	May 9, 2019	September 23, 2019	140000	Shady Loam
Milan	Milan	Irrigated	May 21, 2019	September 19, 2019	140000	Loring
Milan	Milan	Non-irrigated	May 17, 2019	September 19, 2019	140000	Grenada Silt Loam
Jackson	West Tennessee	Non-irrigated	June 3, 2019	September 24, 2019	140000	Vicksburg Silt Loam/Collins Silt Loam

Maturity Group Early IV (4.0 - 4.5)

Location	AgResearch and Education Center	Irrigation	Planting Date	Harvest Date	Seeding Rate	Soil Type
Memphis	Agricenter International	Irrigated	May 23, 2019	November 20, 2019	140000	Falaya Silt Loam
Springfield	Highland Rim	Irrigated	May 10, 2019	September 24, 2019	140000	Dickson Silt Loam
Springfield	Highland Rim	Non-irrigated	May 10, 2019	October 3, 2019	140000	Dickson Silt Loam
Knoxville	East Tennessee	Irrigated	May 9, 2019	September 27, 2019	140000	Shady Loam
Milan	Milan	Irrigated	May 21, 2019	October 2, 2019	140000	Loring
Milan	Milan	Non-irrigated	May 17, 2019	September 30, 2019	140000	Grenada Silt Loam
Jackson	West Tennessee	Non-irrigated	June 3, 2019	September 30, 2019	140000	Vicksburg Silt Loam/Collins Silt Loam

Maturity Group Late IV (4.6 - 4.9)

Location	AgResearch and Education Center	Irrigation	Planting Date	Harvest Date	Seeding Rate	Soil Type
Memphis	Agricenter International	Irrigated	May 23, 2019	November 20, 2019	140000	Falaya Silt Loam
Springfield	Highland Rim	Irrigated	May 10, 2019	September 25, 2019	140000	Dickson Silt Loam
Springfield	Highland Rim	Non-irrigated	May 10, 2019	September 30, 2019	140000	Dickson Silt Loam
Knoxville	East Tennessee	Irrigated	May 9, 2019	October 2, 2019	140000	Shady Loam
Milan	Milan	Irrigated	May 21, 2019	November 4, 2019	140000	Loring
Milan	Milan	Non-irrigated	May 17, 2019	October 3, 2019	140000	Grenada Silt Loam
Jackson	West Tennessee	Non-irrigated	June 3, 2019	October 5, 2019	140000	Vicksburg Silt Loam/Collins Silt Loam

Maturity Group Early V (5.0 - 5.5)

Location	AgResearch and Education Center	Irrigation	Planting Date	Harvest Date	Seeding Rate	Soil Type
Memphis	Agricenter International	Irrigated	May 23, 2019	November 20, 2019	140000	Falaya Silt Loam
Springfield	Highland Rim	Irrigated	May 10, 2019	September 25, 2019	140000	Dickson Silt Loam
Springfield	Highland Rim	Non-irrigated	May 10, 2019	October 3, 2019	140000	Dickson Silt Loam
Knoxville	East Tennessee	Irrigated	May 9, 2019	October 11, 2019	140000	Shady Loam
Milan	Milan	Irrigated	May 21, 2019	November 4, 2019	140000	Loring
Milan	Milan	Non-irrigated	May 17, 2019	October 23, 2019	140000	Grenada Silt Loam
Jackson	West Tennessee	Non-irrigated	June 3, 2019	October 5, 2019	140000	Vicksburg Silt Loam/Collins Silt Loam

Table 3. Location information from counties where the soybean variety tests were conducted in 2019.

Roundup Ready/Dicamba tolerant Group III

County	Cooperator	Agent	Planting Date
Fulton, KY	Joe Forrest & Nathan Campbell	Ben Rudy	May 28, 2019
Gibson	Denton Parkins	Philip Shelby	May 22, 2019
Henry	Wilson Farms	Ranson Goodman	May 1, 2019
Hickman	Claude Callicott	Troy Dugger	May 22, 2019
Jefferson	Jay Moser	Steve Huff	May 24, 2019
Lake	Jon Dickey	Greg Allen	June 3, 2019
Madison	Jared King	Jake Mallard	May 31, 2019
Perry	Craig & Tim Byrd	Amanda Mathenia	May 31, 2019
Weakley	Jay Yeargin	Jeff Lannom	May 28, 2019

Roundup Ready/Dicamba Tolerat Early IV (4.0 - 4.5)

County	Cooperator	Agent	Planting Date
Calloway	Marty Carraway	Tim Lax	June 28, 2019
Cannon	Justin Fann	Steve Harris	June 12, 2019
Carroll	Jeremy Morris	Kenny Herndon	May 23, 2019
Gibson	Denton Parkins	Philip Shelby	May 22, 2019
Hardeman	Andy Shelton	Josh German	May 23, 2019
Haywood	Bubba Pitts	Lindsay Stephenson	May 24, 2019
Henry	Wilson Farms	Ranson Goodman	May 1, 2019
Madison	Jared King	Jake Mallard	May 24, 2019
Perry	Craig & Tim Byrd	Amanda Mathenia	May 25, 2019
Warren	Mt. View Farms-Bouldin	Heath Nokes	June 1, 2019
Weakley	Jay Yeargin	Jeff Lannom	May 11, 2019

Roundup Ready/Dicamba Tolerant Late IV (4.6 - 4.9)

County	Cooperator	Agent	Planting Date
Carroll	Jeremy Morris	Kenny Herndon	May 23, 2019
Coffee	Jason Franklin	Steve Harris	June 5, 2019
Dyer	YF&R	Mitch Pigue	July 1, 2019
Gibson	Denton Parkins	Philip Shelby	May 22, 2019
Giles	Richard Sulcer	Kevin Rose	May 21, 2019
Hardeman	Gem Mitchell	Josh German	May 28, 2019
Haywood	Richard Jameson	Lindsay Stephenson	May 22, 2019
Henry	Wilson Farms	Ranson Goodman	July 1, 2019
Madison	Griggs Farms	Jake Mallard	June 12, 2019
Marion	Randy Gilliam	Matthew Deist	May 21, 2019
Obion	Bill Sellers	Bob Shumake	June 10, 2019
Trousdale	Terry Martin	Jason Evitts	May 17, 2019

Roundup Ready/Dicamba Tolerant Early V (5.0 - 5.5)

County	Cooperator	Agent	Planting Date
Carroll	Jeremy Morris	Kenny Herndon	May 23, 2019
Dyer	YF&R	Mitch Pigue	July 1, 2019
Gibson	Denton Parkins	Phillip Shelby	May 22, 2019
Hardeman	Rob Pinner	Josh German	June 28, 2019
Haywood	Allen King	Lindsay Stephenson	May 24, 2019
Lake	Jon Dickey	Gregg Allen	June 3, 2019
Madison	Jared King	Jake Mallard	May 31, 2019
Tipton	Johnson Farms	Becky Muller	June 24, 2019

Liberty Link Early IV (4.0 - 4.5)

County	Cooperator	Agent	Planting Date
Fayette	Ames Plantation	Jeff Via	May 21, 2019
Gibson	Denton Parkins	Philip Shelby	May 21, 2019
Henry	Brannon Farms	Ranson Goodman	June 27, 2019
Lauderdale	Barry Jones	JC Dupree	July 10, 2019
Madison	Ward's Grove Farms	Jake Mallard	May 8, 2019

Liberty Link Late IV (4.6 - 4.9)

County	Cooperator	Agent	Planting Date
Fayette	Ames Plantation	Jeff Via	May 21, 2019
Gibson	Denton Parkins	Philip Shelby	May 21, 2019
Henry	Brannon Farms	Ranson Goodman	June 27, 2019
Madison	Ward's Grove Farms	Jake Mallard	May 8, 2019
Maury	MTREC	Joe David Plunk	May 22, 2019
Warren	Phillip & Nick Pelham	John Ferrell	May 15, 2019

Table 4. Average yields of varieties that were in the "A group" (not statistically different from the highest performing variety) in REC, CST, or both tests in 2019. Varieties are sorted by maturity group, herbicide pkg, then name.

Variety	Herbicide Pkg[†]	Mat. Group	REC Yield[§]	CST Yield[§]	Avg. Yield[§]
Dyna-Gro S39EN19	Enlist E3	3	62		62
AgriGold G3722RX	R2X	3		67	67
Asgrow 37X9	R2X	3		71.5	72
Croplan 3950	R2X	3		69.2	69
Local Seed Co. LS3976X	R2X	3	64	70	67
NK S39-G2X	R2X	3		67.8	68
Credenz 3929GTLL	GT/LL	4E		62.2	62
Credenz 4539GTLL	GT/LL	4E		57.5	58
Credenz CZ 4222 LL	LL	4E	60		60
GoSoy 393E19	LL	4E		63.4	63
GoSoy 423E19	LL	4E		65.2	65
GoSoy 44GL18	LL	4E		59.9	60
Local Seed ZS4596GLS	LL	4E		59.1	59
Stine 41EA12	LL	4E		64	64
Warren Seed 4420	LL	4E		61	61
AgriGold G4190RX	R2X,STS	4E	63		63
AgriGold G4579RX	R2X,STS	4E	61	59	60
Armor 42-D27	R2X	4E	63	59	61
Armor 44D-92	R2X	4E		56.4	56
Asgrow 43X8	R2X	4E		57.3	57
Asgrow 45X8	R2X	4E		59.1	59
Croplan 4117	R2X	4E		57.7	58
Croplan RX4516S	R2X	4E	62		62
Dyna-Gro S41XS98	R2X/STS	4E	61	61	61
Dyna-Gro S43XS27	R2X	4E		57.7	58
Dyna-Gro S45XS37	R2X,STS	4E	61	59	60
LG Seeds LGS4227RX	R2X	4E	62	60	61
Local Seed Co. LS4299XS	R2X	4E	60	57	59
Local Seed Co. LS4487XS	R2X	4E	60		60
Local Seed Co. LS4565XS	R2X	4E	60		60
NK Seeds S44-C7X	R2X	4E	60	59	59
Progeny 4255RX	R2X	4E		58.7	59
Progeny 4444RXS	R2X	4E		57.7	58
Terral REV 4310X	R2X	4E	61	57	59
Warren Seed BG 4210 RR2X	R2X	4E	62	59	60
Warren Seed BG 4510 RR2X	R2X	4E	63		63
Local Seed Co. ZS4694E3S	Enlist E3	4L	64	65.8	65
Credenz 4918 LL	LL	4L		62.2	62
Credenz CZ 4820 LL	LL	4L	62	62.6	62
GoSoy 462E18	LL	4L		60.4	60
Stine 49LH02	LL	4L		62.1	62
AgriGold G4995RX	R2X	4L		62.6	63
Armor X48D25	R2X	4L	61	62	61
Asgrow 46X6	R2X	4L		60.3	60
Asgrow 48X9	R2X	4L		61.4	61
Asgrow AG46X0	R2X	4L	62		62
Credenz 4979 X	R2X	4L		60.4	60
Croplan 4810	R2X	4L		59.3	59
Dyna-Gro S46XS60	R2X/STS	4L	61		61
Dyna-Gro S48XT56	R2X	4L	60	64	62
Dyna-Gro S49XS76	R2X/STS	4L	62	61	61
LG Seeds C4845RX	R2X	4L	61	64	63

Table 4. Cont.

Variety	Herbicide Pkg†	Mat. Group	REC Yield§	CST Yield§	Avg. Yield§
Local Seed 4798X	R2X	4L		59.4	59
Local Seed Co. LS4999X	R2X	4L	62	62	62
Local Seed Co. LS4677X	R2X	4L	61		61
Progeny 4816RXS	R2X	4L		59.7	60
Progeny P4821RX	R2X	4L	61		61
Progeny P4999RX	R2X,STS	4L	60		60
Terral REV 4679X	R2X	4L	60		60
Terral REV 4927X	R2X	4L	61	60	61
USG 7470XT	R2X	4L	60		60
USG 7489XT	R2X,STS	4L	61	62	62
USG 7496XTS	R2X,STS	4L	64	61	62
Warren Seed BG 4710 RR2X	R2X	4L	61	60	61
Warren Seed BG4922RR2X	R2X	4L		62.5	63
AgriGold G5000RX	R2X,STS	5E	59	61	60
Asgrow 55X0	R2X	5E		56.6	57
Asgrow 55X7	R2X	5E		56.8	57
Asgrow AG52X9	R2X	5E	58	59	58
Asgrow AG53X0	R2X	5E	59	64	62
Asgrow AG53X9	R2X	5E	61	62	62
GoSoy 52X19	R2X	5E		55.5	56
Local Seed Co. LS5386X	R2X	5E	59	62	61
Local Seed Co. LS5087X	R2X	5E	58	60	59
Progeny P5170RX	R2X	5E	58		58

‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.

Table 5-a. Mean yield, agronomic traits, and quality of 13 Maturity Group III (3.0 - 3.9) soybean varieties evaluated in small plot replicated trials at six REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Moisture at Harvest (%)			Plant Height (in.)			Lodging‖ (1-5)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Local Seed Co. LS3976X	R2X	64 A			12.4 B			36 B-E			2.1 AB		
Dyna-Gro S39EN19	Enlist E3	62 AB			12.3 B			34 E-G			1.6 CDE		
Asgrow AG39X7	R2X	60 BC	57 B	59 A	12.0 B	12.5 A	12.3 B	38 A	38 A	38 A	1.2 E	1.3 C	1-4 B
Asgrow AG37X9	R2X	60 BC	59 A		12.0 B	12.6 A		36 A-D	37 A		1.4 DE	1.5 BC	
AgriGold G3722RX	R2X,STS	60 BC			12.3 B			38 AB			1.4 DE		
NK Seeds S39-G2X	R2X	60 BC			13.6 A			36 B-E			1.7 BCD		
Dyna-Gro S37EN39	Enlist E3	60 B			11.9 B			33 G			1.4 DE		
Credenz CZ 3841 LL	LL	57 CD	56 BC	57 AB	12.2 B	12.9 A	12.8 A	37 A-C	37 A	37 A	2.2 A	2.1 A	2-1 A
Credenz 3929 GTLL	GT,LL	57 CD			13.6 A			38 A			1.9 ABC		
Asgrow AG36X6	R2X	56 DE	55 BC	55 BC	12.2 B	12.8 A	12.5 AB	34 FG	33 C	33 C	1.4 DE	1.4 C	1-5 B
Caverndale Farms CF 387 HT-GLYn	RR	55 D-F	54 C	53 C	12.4 B	12.9 A	12.7 A	36 C-E	35 B	35 B	1.6 CDE	1.8 AB	1-9 A
Credenz CZ 3660 GTLL	GT,LL	54 EF			10.2 C			35 D-F			1.7 BCD		
Warren Seed BG 3701 RR2X	R2X	52 F			10.3 C			37 A-D			1.5 CDE		
Average		**58**	**56**	**56**	**12.1**	**12.8**	**12.6**	**36**	**36**	**36**	**1.6**	**1.6**	**1.7**
Standard Error		**4**	**4**	**3**	**0.6**	**0.6**	**0.5**	**3**	**3**	**3**	**0.3**	**0.2**	**0.3**
L.S.D.$_{.05}$		**3**	**3**	**2**	**0.9**	**N.S.**	**0.3**	**2**	**1**	**1**	**0.4**	**0.3**	**0.3**
C.V.		**8**	**10**	**11**	**12**	**6**	**6**	**8**	**7**	**7**	**-**	**-**	**-**
Plots per entry (reps x locs x years.)		**18**	**36**	**54**	**18**	**36**	**45**	**18**	**36**	**45**	**18**	**36**	**45**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 5-b. Mean yield, agronomic traits, and quality of 11 Maturity Group III (3.0 - 3.9) soybean varieties evaluated in small plot replicated trials at six REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Maturity (DAP)			Protein¶ (%)			Oil¶ (%)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Local Seed Co. LS3976X	R2X	64 A			121 BC			37.0 CD			24.6 A		
Dyna-Gro S39EN19	Enlist E3	62 AB			120 C-E			38.0 BC			23.6 B		
Asgrow AG39X7	R2X	60 BC	57 B	59 A	120 C-E	119 BC	120 B	38.0 B-D	39.0 A	39.0 A	22.7 E	22.3 C	22.0 C
Asgrow AG37X9	R2X	60 BC	59 A		119 E	119 AB		38.0 B-D	39.2 A		22.8 DE	22.3 C	
AgriGold G3722RX	R2X,STS	60 BC			121 B-D			40.3 A			22.9 C-E		
NK Seeds S39-G2X	R2X	60 BC			121 AB			38.2 B			23.4 BC		
Dyna-Gro S37EN39	Enlist E3	60 B			119 DE			36.9 D			24.4 A		
Credenz CZ 3841 LL	LL	57 CD	56 BC	57 AB	120 C-E	120 A	121 A	38.1 BC	39.6 A	39.5 A	23.6 B	23.3 B	23.0 B
Credenz 3929 GTLL	GT,LL	57 CD			122 A			37.8 B-D			24.2 A		
Asgrow AG36X6	R2X	56 DE	55 BC	55 BC	119 DE	119 AB	120 BC	37.7 B-D	39.2 A	39.2 A	23.3 B-D	23.0 B	22.8 B
Caverndale Farms CF 387 HT-GLYn	RR	55 D-F	54 C	53 C	117 F	118 C	119 C	37.8 B-D	39.3 A	39.0 A	24.4 A	23.8 A	23.5 A
Credenz CZ 3660 GTLL	GT,LL	54 EF			118 F			38.7 B			23.6 B		
Warren Seed BG 3701 RR2X	R2X	52 F			118 F			38.1 BC			23.4 BC		
Average		**58**	**56**	**56**	**120**	**119**	**120**	**38.0**	**39.3**	**39.2**	**23.6**	**22.9**	**22.8**
Standard Error		**4**	**4**	**3**	**4**	**4**	**3**	**0.4**	**1.4**	**0.8**	**0.2**	**0.4**	**0.4**
L.S.D.$_{.05}$		**3**	**3**	**2**	**1**	**1**	**1**	**1.1**	**N.S.**	**N.S.**	**0.6**	**0.3**	**0.3**
C.V.		**8**	**10**	**11**	**1**	**1**	**1**	**2**	**1**	**1**	**1**	**1**	**1**
Plots per entry (reps x locs x years.)		**18**	**36**	**54**	**18**	**36**	**45**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 6. Mean yields across and by location of 13 Maturity Group III (3.0 - 3.9) soybean varieties evaluated in replicated small plot trials at six REC locations in Tennessee during 2019 Analysis included variety performance across a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Knoxville Irr. (bu/ac)			Springfield Irr. (bu/ac)			Springfield Non-Irr. (bu/ac)			Milan Irr. (bu/ac)			Milan Non-Irr. (bu/ac)			Jackson Non-Irr. (bu/ac)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Local Seed Co. LS3976X	R2X	64 A			68			56			61			72			75			52		
Dyna-Gro S39EN19	Enlist E3	62 AB			66			55			55			74			68			53		
Asgrow AG39X7	R2X	60 BC	57 B	59 A	71	67	68	48	51	59	49	41	43	72	65	66	70	63	64	49	54	55
Asgrow AG37X9	R2X	60 BC	59 A		65	68		46	52		51	41		75	70		70	67		51	59	
AgriGold G3722RX	R2X,STS	60 BC			66			49			56			67			67			53		
NK Seeds S39-G2X	R2X	60 BC			67			46			55			71			71			49		
Dyna-Gro S37EN39	Enlist E3	60 B			68			50			58			68			67			52		
Credenz CZ 3841 LL	LL	57 CD	56 BC	57 AB	58	60	64	52	54	55	51	42	43	68	64	63	63	60	61	52	55	57
Credenz 3929 GTLL	GT,LL	57 CD			64			51			59			65			60			45		
Asgrow AG36X6	R2X	56 DE	55 BC	55 BC	59	56	59	41	48	50	51	38	39	68	65	63	64	62	62	50	58	56
Caverndale Farms CF 387 HT-GLYn	RR	55 D-F	54 C	53 C	60	59	61	52	59	56	54	42	44	63	57	56	56	52	51	46	53	51
Credenz CZ 3660 GTLL	GT,LL	54 EF			64			47			45			61			57			51		
Warren Seed BG 3701 RR2X	R2X	52 F			63			44			47			58			60			42		
Average		**58**	**56**	**56**	**65**	**62**	**63**	**49**	**53**	**55**	**53**	**41**	**42**	**68**	**64**	**62**	**65**	**61**	**59**	**50**	**56**	**55**
Standard Error		**4**	**4**	**3**	**2**	**2**	**3**	**3**	**5**	**4**	**3**	**11**	**6**	**3**	**5**	**3**	**3**	**4**	**3**	**1**	**7**	**4**
L.S.D.$_{.05}$		**3**	**3**	**2**	**5**	**6**	**4**	**6**	**4**	**N.S.**	**6**	**N.S.**	**N.S.**	**7**	**5**	**4**	**8**	**6**	**4**	**4**	**N.S.**	**N.S.**
C.V.		**8**	**10**	**11**	**5**	**7**	**7**	**7**	**7**	**16**	**7**	**12**	**13**	**6**	**6**	**7**	**7**	**8**	**7**	**4**	**8**	**10**
Plots per entry (reps x locs. x years)		**18**	**36**	**54**	**3**	**6**	**-**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.

Table 7. Yields of 10 Late Maturity Group III (3.6 - 3.9) Roundup Ready / Dicamba tolerant soybean varieties in 9 County Standard Tests in Tennessee and Kentucky during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Fult 5/28	Gibs 5/22	Henr 5/1	Hick 5/22	Jeff 5/24	Lake 6/3	Madi 5/31	Perr 5/31	Weak 5/28
A	Asgrow 37X9***	72	13.4	89	**87**	59	**92**	60	**53**	**76**	79	**62**	76
AB	Local Seed 3976	70	13.9	89	83	**61**	**92**	65	55	74	66	59	72
ABC	Croplan 3950	69	12.3	78	83	55	90	58	48	75	77	60	73
ABCD	NK S39-G2X	68	11.7	78	80	54	85	62	46	74	72	61	72
ABCD	AgriGold G3722RX**	67	11.7	56	83	50	81	**67**	46	69	84	54	73
BCDE	Asgrow 39X7	65	11.9	56	80	54	88	55	46	70	77	56	61
CDE	AgriGold G3850RX	65	13.5	33	78	49	79	60	48	63	**86**	58	65
DE	Asgrow 36X6	65	10.9	56	80	55	80	61	44	55	**86**	55	**77**
DE	Asgrow 38X8	64	12.9	22	78	47	86	60	46	71	73	47	62
E	Warren Seed BG 3701 RR2X	62	12.5	33	72	42	77	65	50	67	84	44	49
	Average	**67**	**12.5**		**80**	**53**	**85**	**61**	**48**	**69**	**79**	**56**	**68**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (**) or three (***) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Fulton, Gibson, Henry, Hickman, Jefferson, Lake, Madison, Perry, Weakley

Table 8. Overall average yields, moistures, and test weights of 8 Maturity Group III (3.0 - 3.9) soybean varieties evaluated in both the County Standard Tests and Research and Education Center Tests in Tennessee during 2019.

		Avg. of CST and REC Tests		CST Tests		REC Tests	
Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)
Local Seed Co. LS3976X*	R2X	67	13.2	70	13.9	64	12.4
Asgrow AG37X9	R2X	66	12.7	72	13.4	60	12.0
NK Seeds S39-G2X	R2X	64	12.7	68	11.7	60	13.6
AgriGold G3722RX	R2X,STS	64	12.0	67	11.7	60	12.3
Asgrow AG39X7	R2X	63	12.0	65	11.9	60	12.0
Asgrow AG36X6	R2X	60	11.6	65	10.9	56	12.2
Credenz 3929 GTLL	GT,LL	60	13.5	62	13.5	57	13.6
Warren Seed BG 3701 RR2X	R2X	57	11.4	62	12.5	52	10.3
Average		**62**	**12**	**66**	**12**	**59**	**12**

‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
* Varieties marked with an asterisk were in the top performing "A" group in both the REC and CST tests for one (*), two (*), or three (**) years within the previous three year evaluation period.

Table 9. Yields and disease ratings of 10 Maturity Group III Roundup Ready soybean varieties in 9 County Standard Tests and in small plot trials at one Research and Education Center and one on-farm location in Tennessee during 2019.

Summary from County Tests			Summary from Small Plot Research							
			Research and Education Center at Milan (RECM)				On-farm Location in Jackson (JAX)			
		Avg. Yield	RECM - YLD		Frogeye	Target	Other	JAX - YLD		Frogeye	Target
MS	Variety	(bu/ac)	*Treated	Non-treated	leaf spot	Spot	Diseases	*Treated	Non-treated	leaf spot	Spot
A	Asgrow 37X9***	71.5	56.9	54.8	MOD	LOW		53.5	45.7	MOD	LOW
AB	Local Seed 3976	69.8	50.9	49.9	HIGH	LOW	SDS	59.1	55.8	HIGH	LOW
ABC	Croplan 3950	69.2	53.2	47.6	HIGH	LOW	SDS	54.2	48.3	HIGH	LOW
ABCD	NK S39-G2X	67.8	53.9	51.5	MOD	HIGH		52.3	44.2	MOD	MOD
ABCD	AgriGold G3722RX**	67.2	51.1	49.2	LOW	MOD		55.9	45.7	LOW	MOD
BCDE	Asgrow 39X7	65.4	52.9	50.2	MOD	HIGH		51.9	42.4	MOD	HIGH
CDE	AgriGold G3850RX	64.5	49.4	52.1	LOW	MOD		51.8	48.4	MOD	MOD
DE	Asgrow 36X6	64.5	50.6	49.1	MOD	HIGH		53.4	46.3	HIGH	HIGH
DE	Asgrow 38X8	63.8	57.6	51.0	LOW	HIGH		53.1	43.3	LOW	MOD
E	Warren Seed BG 3701 RR2X	61.6	43.4	47.4	LOW	MOD		53.1	45.9	LOW	MOD
	Average	**66.5**	**52.0**	**50.3**				**53.8**	**46.6**		

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 28, sprayed Aug 8, and harvested Oct 2.
JAX varieteis planted May 21, sprayed July 24, and harvested Sept. 24.
LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted: SDS=Sudden Death Syndrome;
' - ' indicate variety was not tested at that location
Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 15% with an average of 6%; Target spot ranged from 0 - 21% with an average of 8%.
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 4% with an average of 2%; Target spot ranged from 0 - 14% with an average of 4%;

Table 10-a. Mean yield, agronomic traits, and quality of 37 Maturity Group IV Early (4.0 - 4.4) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Moisture at Harvest (%)			Plant Height (in.)			Lodging‖ (1-5)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Warren Seed BG 4510 RR2X***	R2X	63 AB	62 A	63 A	12.2 H-K	12.2 E	12.5 B	42 B-D	43 A-C	43 A	1.7 E-I	1.6 C-E	1-5 C
AgriGold G4190RX	R2X,STS	63 A	60 A		12.9 A-D	12.9 BC		39 K-N	39 E-G		1.3 I-K	1.5 C-E	
Armor 42-D27	R2X	63 AB	61 A		12.5 B-J	12.8 BC		40 F-L	40 EF		1.6 E-J	1.6 CD	
Croplan RX4516S**	R2X	62 A-D			12.2 I-K			42 B-D			1.9 C-G		
Warren Seed BG 4210 RR2X***	R2X	62 A-C	61 A	64 A	12.6 B-I	12.8 B-D	12.9 A	40 F-I	40 E	40 CD	1.5 F-K	1.4 DE	1-4 C
LG Seeds LGS4227RX	R2X	62 A-E			12.6 B-I			40 F-J			1.6 F-K		
Dyna-Gro S41XS98***	R2X/STS	61 A-F	61 A	64 A	13.0 AB	13.0 AB	13.1 A	38 M-P	39 F-H	40 D	1.9 C-G	1.7 B-D	1-7 BC
Dyna-Gro S45XS37***	R2X,STS	61 A-F	60 A-C	62 A	12.4 D-J	12.8 B-D	12.9 A	42 B-D	43 A-C	43 A	2.3 A-C	2.2 A	2-2 A
AgriGold G4579RX	R2X,STS	61 A-E	59 A-C		13.2 A	13.3 A		43 AB	44 A		1.5 G-K	1.6 C-E	
Terral REV 4310X	R2X	61 A-E			12.4 E-J			44 A			1.9 C-G		
Credenz CZ 4222 LL	LL	60 A-G	57 B-D	58 B	12.5 C-J	12.6 B-D	12.9 A	37 QR	37 I	38 E	1.6 E-J	1.6 CD	1-6 BC
Local Seed Co. LS4487XS	R2X	60 A-G	54 EF		12.2 I-K	12.5 C-E		43 BC	43 AB		1.8 D-H	2.2 A	
Local Seed Co. LS4565XS	R2X	60 A-G	60 A-C		12.3 F-K	12.6 B-D		42 B-D	42 BC		2.4 AB	2.2 A	
Local Seed Co. LS4299XS	R2X	60 A-G			12.5 B-J			39 L-O			1.4 H-K		
NK Seeds S44-C7X	R2X	60 A-G			12.5 B-J			37 R			1.3 H-K		
Asgrow AG45X8	R2X	59 B-I	60 AB	62 A	13.2 A	12.9 BC	13.1 A	39 G-M	40 E	41 C	1.8 D-G	1.8 BC	1-8 B
Local Seed Co. LS4583X	R2X	59 C-J	58 B-D		12.2 I-K	12.6 C-E		40 F-K	41 D		1.9 B-F	2.0 AB	
Dyna-Gro S44XS68	R2X/STS	59 C-J	61 A		12.1 JK	12.4 DE		42 C-E	43 A-C		1.1 K	1.3 E	
LG Seeds LGS4420RX	R2X	59 B-H			11.9 K			43 A-C			1.4 G-K		
Asgrow AG44X0	R2X	59 C-J			12.6 B-I			41 D-F			1.1 K		
Asgrow AG43X8	R2X	58 E-K	57 C-E		12.5 C-J	12.7 B-D		42 B-D	42 BC		1.3 I-K	1.4 DE	
AgriGold G4255RX	R2X,STS	58 D-J			12.7 A-H			39 J-N			1.4 G-K		
Local Seed Co. LS4407X	R2X	58 E-K			12.6 B-I			39 K-N			2.7 A		
Croplan RX4117S	R2X	58 C-J			12.8 A-F			38 M-O			1.6 E-J		
Progeny P4265RXS	R2X,STS	57 G-L			12.7 A-H			39 I-N			1.4 G-K		
Go Soy 423E19	Enlist E3	57 F-L			12.8 A-G			37 QR			1.6 F-K		
MO S13-3851C	CONV	56 H-M	55 D-F	57 B	12.6 B-I	12.8 B-D	12.9 A	37 O-R	38 G-I	38 E	2.2 B-D	2.3 A	2-1 A
Armor 44-D92	R2X	56 H-M			12.8 A-E			39 H-N			1.4 H-K		
Go Soy 40GL18	LL GT27	56 G-M			12.3 G-K			40 F-I			1.8 D-H		
LG Seeds LGS4393RX	R2X	56 H-M			12.7 B-I			38 M-O			1.3 H-K		
Dyna-Gro S42EN89	Enlist E3	56 I-N			12.4 E-J			37 P-R			1.6 F-K		
Dyna-Gro S43XS70	R2X/STS	56 G-M			12.9 A-C			38 N-Q			1.3 H-K		
MO S13-2743C	CONV	55 J-N	56 D-F	56 B	12.9 A-C	12.9 BC	13.0 A	42 B-D	42 CD	42 B	1.7 E-I	1.5 C-E	1-7 BC
MO S16-14730C	CONV	54 L-N			12.8 A-G			39 I-N			1.1 K		
Credenz CZ 4539 GTLL	GT,LL	54 K-N			12.4 F-K			41 E-H			1.7 E-I		
Local Seed Co. ZS4596GLS	GT,LL	53 MN			12.8 A-F			41 E-G			2.1 B-E		
Caverndale Farms CF 427 HT-GLY/STSn	RR,STS	52 N	54 F	56 B	12.4 D-J	12.7 B-D	12.9 A	37 O-R	38 HI	38 E	1.2 JK	1.4 C-E	1-6 BC
Average		**58**	**59**	**60**	**12.6**	**12.7**	**12.9**	**40**	**41**	**40**	**1.6**	**1.7**	**1.7**
Standard Error		**4**	**4**	**4**	**0.7**	**0.4**	**0.4**	**4**	**4**	**3**	**0.3**	**0.3**	**0.2**
L.S.D.$_{.05}$		**4**	**3**	**2**	**0.5**	**0.4**	**0.3**	**1**	**1**	**1**	**0.5**	**0.3**	**0.3**
C.V.		**11**	**12**	**11**	**6**	**7**	**7**	**5**	**5**	**6**	**-**	**-**	**-**
Plots per entry (reps x locs x years.)		**21**	**42**	**45**	**21**	**42**	**45**	**18**	**36**	**45**	**18**	**36**	**45**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 10-b. Mean yield, agronomic traits, and quality of 37 Maturity Group IV Early (4.0 - 4.4) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Maturity (DAP)			Protein¶ (%)			Oil¶ (%)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Warren Seed BG 4510 RR2X***	R2X	63 AB	62 A	63 A	126 I-L	127 E	127 C	38.8 B-J	39.1 CD	39.3 BC	22.7 L-P	22.4 E-G	21.9 C
AgriGold G4190RX	R2X,STS	63 A	60 A		124 N-P	124 H		37.9 J-M	39.3 B-D		23.5 G-I	22.9 B-D	
Armor 42-D27	R2X	63 AB	61 A		124 OP	124 H		38.0 I-L	39.6 B-D		23.6 G-I	22.8 CD	
Croplan RX4516S**	R2X	62 A-D			128 A-E			38.7 C-J			22.3 P		
Warren Seed BG 4210 RR2X***	R2X	62 A-C	61 A	64 A	124 N-P	124 H	124 F	38.5 D-K	39.8 A-D	39.9 AB	23.5 G-I	22.7 DE	22.3 B
LG Seeds LGS4227RX	R2X	62 A-E			124 P			38.5 D-K			23.5 G-I		
Dyna-Gro S41XS98***	R2X/STS	61 A-F	61 A	64 A	124 M-P	124 H	124 F	38.5 D-K	39.5 B-D	39.6 A-C	23.4 H-J	22.8 CD	22.4 B
Dyna-Gro S45XS37***	R2X,STS	61 A-F	60 A-C	62 A	129 A	130 AB	131 A	38.2 E-L	39.3 B-D	39.2 C	22.6 M-P	22.1 G	21.8 C
AgriGold G4579RX	R2X,STS	61 A-E	59 A-C		128 A-D	130 AB		38.1 G-L	39.0 D		24.0 B-F	23.5 A	
Terral REV 4310X	R2X	61 A-E			127 F-J			38.3 E-K			22.9 K-M		
Credenz CZ 4222 LL	LL	60 A-G	57 B-D	58 B	123 P	124 H	125 EF	37.0 M-O	38.0 E	37.7 D	23.9 C-G	23.1 BC	22.8 A
Local Seed Co. LS4487XS	R2X	60 A-G	54 EF		125 K-M	127 E		39.7 A-C	39.8 A-D		22.6 M-P	22.6 D-F	
Local Seed Co. LS4565XS	R2X	60 A-G	60 A-C		129 AB	130 A		39.0 B-I	39.5 B-D		22.5 N-P	22.1 G	
Local Seed Co. LS4299XS	R2X	60 A-G			127 C-G			38.9 B-J			23.2 I-K		
NK Seeds S44-C7X	R2X	60 A-G			127 F-J			36.2 O			24.6 A		
Asgrow AG45X8	R2X	59 B-I	60 AB	62 A	127 B-F	128 CD	129 B	38.9 B-J	39.3 B-D	39.2 C	22.4 OP	22.1 G	21.7 C
Local Seed Co. LS4583X	R2X	59 C-J	58 B-D		128 A-C	129 BC		39.7 AB	39.9 A-D		22.4 OP	22.2 G	
Dyna-Gro S44XS68	R2X/STS	59 C-J	61 A		125 L-N	126 EF		38.6 D-J	39.7 A-D		22.8 L-O	22.3 FG	
LG Seeds LGS4420RX	R2X	59 B-H			126 H-L			39.3 A-E			22.7 L-P		
Asgrow AG44X0	R2X	59 C-J			126 H-L			37.3 L-N			23.9 C-G		
Asgrow AG43X8	R2X	58 E-K	57 C-E		126 H-L	127 DE		40.1 A	40.6 A		22.9 K-N	22.4 E-G	
AgriGold G4255RX	R2X,STS	58 D-J			127 F-I			38.3 F-L			23.7 E-H		
Local Seed Co. LS4407X	R2X	58 E-K			127 C-F			38.2 G-L			23.8 C-G		
Croplan RX4117S	R2X	58 C-J			124 OP			38.5 D-K			23.5 G-I		
Progeny P4265RXS	R2X,STS	57 G-L			126 G-K			38.3 E-K			23.5 G-I		
Go Soy 423E19	Enlist E3	57 F-L			123 P			38.8 B-J			23.6 G-I		
MO S13-3851C	CONV	56 H-M	55 D-F	57 B	126 F-J	127 DE	128 BC	37.5 K-M	39.2 B-D	39.1 C	24.1 B-D	23.2 AB	22.8 A
Armor 44-D92	R2X	56 H-M			127 F-I			39.0 B-I			23.5 G-I		
Go Soy 40GL18	LL GT27	56 G-M			126 KL			38.1 H-L			24.4 AB		
LG Seeds LGS4393RX	R2X	56 H-M			127 E-H			38.2 G-L			23.6 G-I		
Dyna-Gro S42EN89	Enlist E3	56 I-N			124 P			38.1 G-L			23.7 D-H		
Dyna-Gro S43XS70	R2X/STS	56 G-M			127 D-G			38.3 F-L			23.7 F-H		
MO S13-2743C	CONV	55 J-N	56 D-F	56 B	124 N-P	125 GH	125 DE	39.4 A-D	40.1 AB	40.1 A	23.7 E-H	23.2 A-C	22.7 A
MO S16-14730C	CONV	54 L-N			128 A-E			39.1 A-H			22.6 M-P		
Credenz CZ 4539 GTLL	GT,LL	54 K-N			127 F-J			39.3 A-F			23.1 J-L		
Local Seed Co. ZS4596GLS	GT,LL	53 MN			126 J-L			36.5 NO			24.2 A-C		
Caverndale Farms CF 427 HT-GLY/STSn	RR,STS	52 N	54 F	56 B	125 L-O	126 FG	126 D	39.1 A-G	39.9 A-C	40.1 A	24.1 B-E	23.5 A	22.9 A
Average		**58**	**59**	**60**	**126**	**127**	**127**	**38.5**	**39.5**	**39.4**	**23.4**	**22.7**	**22.4**
Standard Error		**4**	**4**	**4**	**3**	**3**	**2**	**0.4**	**0.9**	**0.6**	**0.1**	**0.5**	**0.6**
L.S.D.$_{.05}$		**4**	**3**	**2**	**1**	**1**	**1**	**1.0**	**0.9**	**0.6**	**0.4**	**0.4**	**0.3**
C.V.		**11**	**12**	**11**	**1**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**
Plots per entry (reps x locs x years.)		**21**	**42**	**45**	**18**	**36**	**45**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 11. Mean yields across and by location of 37 Maturity Group IV Early (4.0 - 4.4) soybean varieties evaluated in replicated small plot trials at seven REC locations in Tennessee during 2019. Analysis included variety performance across a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Knoxville Irr. (bu/ac)			Springfield Irr. (bu/ac)			Springfield Non-Irr. (bu/ac)			Milan Irr. (bu/ac)			Milan Non-Irr. (bu/ac)			Jackson Non-Irr. (bu/ac)			Memphis Irr. (bu/ac)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Warren Seed BG 4510 RR2X***	R2X	63 AB	62 A	63 A	83	81	76	51	61	67	58	48	48	74	68	69	66	56	60	48	52	53	59	66	67
AgriGold G4190RX	R2X,STS	63 A	60 A		82	78		58	60		50	40		70	64		72	59		57	60		55	62	
Armor 42-D27	R2X	63 AB	61 A		78	75		52	57		55	44		75	70		74	60		56	59		47	58	
Croplan RX4516S**	R2X	62 A-D			79			51			54			77			71			49			54		
Warren Seed BG 4210 RR2X***	R2X	62 A-C	61 A	64 A	73	76	79	56	60	69	49	40	44	81	71	70	73	63	65	54	58	59	51	60	62
LG Seeds LGS4227RX	R2X	62 A-E			78			46			55			76			71			57			48		
Dyna-Gro S41XS98***	R2X/STS	61 A-F	61 A	64 A	74	73	73	48	55	64	53	44	48	77	75	74	73	64	66	53	62	62	46	57	61
Dyna-Gro S45XS37***	R2X,STS	61 A-F	60 A-C	62 A	68	72	72	55	62	68	50	38	42	75	67	68	72	60	64	51	52	54	50	65	66
AgriGold G4579RX	R2X,STS	61 A-E	59 A-C		71	71		56	61		52	42		82	73		73	61		49	49		45	59	
Terral REV 4310X	R2X	61 A-E			72			53			55			76			68			47			57		
Credenz CZ 4222 LL	LL	60 A-G	57 B-D	58 B	75	75	71	44	48	53	36	28	34	76	69	68	73	63	63	55	59	58	61	60	61
Local Seed Co. LS4487XS	R2X	60 A-G	54 EF		76	63		57	59		55	42		74	64		70	55		51	51		38	45	
Local Seed Co. LS4565XS	R2X	60 A-G	60 A-C		80	76		50	61		48	39		74	69		74	65		48	50		45	58	
Local Seed Co. LS4299XS	R2X	60 A-G			75			51			42			70			74			50			58		
NK Seeds S44-C7X	R2X	60 A-G			78			55			52			70			71			52			39		
Asgrow AG45X8	R2X	59 B-I	60 AB	62 A	70	70	70	49	60	66	41	35	40	77	69	66	73	63	67	56	60	60	51	63	66
Local Seed Co. LS4583X	R2X	59 C-J	58 B-D		71	68		46	55		43	39		74	69		72	58		48	49		56	66	
Dyna-Gro S44XS68	R2X/STS	59 C-J	61 A		70	76		53	62		56	45		70	67		66	61		51	55		45	58	
LG Seeds LGS4420RX	R2X	59 B-H			72			53			50			70			66			49			56		
Asgrow AG44X0	R2X	59 C-J			67			51			48			79			68			51			45		
Asgrow AG43X8	R2X	58 E-K	57 C-E		65	64		55	59		49	42		71	65		71	57		52	54		44	56	
AgriGold G4255RX	R2X,STS	58 D-J			71			49			43			69			68			52			56		
Local Seed Co. LS4407X	R2X	58 E-K			66			54			50			72			58			47			59		
Croplan RX4117S	R2X	58 C-J			73			47			49			69			69			51			50		
Progeny P4265RXS	R2X,STS	57 G-L			74			47			41			73			67			51			44		
Go Soy 423E19	Enlist E3	57 F-L			61			50			49			66			67			50			55		
MO S13-3851C	CONV	56 H-M	55 D-F	57 B	65	63	65	48	52	55	43	36	38	73	63	65	64	56	56	51	55	54	45	61	63
Armor 44-D92	R2X	56 H-M			73			51			40			69			66			50			40		
Go Soy 40GL18	LL GT27	56 G-M			67			50			54			61			59			46			59		
LG Seeds LGS4393RX	R2X	56 H-M			74			45			44			69			65			49			45		
Dyna-Gro S42EN89	Enlist E3	56 I-N			70			46			48			69			61			51			45		
Dyna-Gro S43XS70	R2X/STS	56 G-M			71			44			44			69			67			52			49		
MO S13-2743C	CONV	55 J-N	56 D-F	56 B	68	66	65	49	56	59	44	37	40	62	63	60	62	56	58	48	52	53	55	62	59
MO S16-14730C	CONV	54 L-N			71			44			41			57			57			47			59		
Credenz CZ 4539 GTLL	GT,LL	54 K-N			70			48			41			66			64			45			46		
Local Seed Co. ZS4596GLS	GT,LL	53 MN			72			53			51			60			58			40			36		
Caverndale Farms CF 427 HT-GLY/STSn	RR,STS	52 N	54 F	56 B	68	66	67	44	58	66	40	33	38	56	58	57	62	55	55	49	49	50	43	55	58
Average		**58**	**59**	**60**	**72**	**71**	**71**	**50**	**58**	**63**	**48**	**40**	**42**	**71**	**67**	**66**	**68**	**60**	**62**	**50**	**55**	**56**	**50**	**59**	**63**
Standard Error		**4**	**4**	**4**	**4**	**3**	**2**	**5**	**7**	**8**	**4**	**9**	**6**	**3**	**6**	**3**	**3**	**11**	**6**	**2**	**3**	**3**	**5**	**10**	**6**
L.S.D.$_{.05}$		**4**	**3**	**2**	**10**	**8**	**6**	**8**	**7**	**6**	**11**	**7**	**6**	**7**	**7**	**6**	**7**	**N.S.**	**6**	**4**	**5**	**4**	**11**	**8**	**N.S.**
C.V.		**11**	**12**	**11**	**8**	**9**	**9**	**10**	**10**	**11**	**14**	**14**	**14**	**6**	**9**	**9**	**6**	**12**	**11**	**5**	**8**	**8**	**13**	**12**	**12**
Plots per entry (reps x locs. x years)		**21**	**42**	**45**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.

Table 12. Yields of 19 Maturity Group IV Early (4.0-4.5) Roundup Ready / Dicamba tolerant soybean varieties in 11 County Standard Tests in Tennessee and Kentucky during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Call 6/28	Cann 7/12	Carr 5/23	Gibs 5/22	Hard 5/23	Hayw 5/24	Henr 5/1	Madi 5/31	Perr 5/31	Warr 7/1	Weak 5/28
A	Dyna-Gro S41XS98	61	12.7	82	37	**44**	51	53	**94**	41	89	80	62	41	72
AB	LG Seeds 4227RX	60	12.6	82	45	40	47	54	72	45	91	**88**	58	44	70
AB	AgriGold G4579RX**	59	13.3	82	31	28	55	50	82	54	91	82	60	45	**75**
AB	Asgrow 45X8**	59	13.2	64	31	43	46	51	87	55	**94**	73	63	39	67
AB	Progeny 4255RX	59	12.8	55	40	36	42	48	77	55	**94**	**88**	58	43	63
AB	Dyna-Gro S45XS37**	59	13.0	73	39	39	45	49	75	57	**94**	81	60	38	70
AB	NK S44-C7X	59	12.7	55	40	39	**59**	47	79	49	90	69	52	**49**	72
AB	Warren Seed BG 4210RR2X**	59	12.7	55	**46**	43	47	50	88	44	86	79	59	34	66
AB	Armor 42D-27**	59	13.2	55	44	38	49	**56**	80	43	81	87	59	39	67
ABC	Croplan 4117	58	12.9	55	37	40	43	51	85	41	86	81	63	38	71
ABC	Dyna-Gro S43XS27**	58	12.7	45	43	37	49	53	89	35	88	76	64	42	60
ABC	Progeny 4444RXS**	58	12.6	45	34	35	55	50	77	49	87	84	59	38	67
ABC	Asgrow 43X8**	57	12.6	36	33	36	39	55	79	49	92	79	57	39	73
ABC	Terral REV 4310X	57	12.6	45	36	42	44	49	74	41	83	83	**69**	36	73
ABC	Local Seed LS4299XS	57	12.8	45	36	40	46	50	74	44	86	85	61	42	62
ABC	Armor 44D-92	56	12.6	36	40	40	43	47	83	46	85	79	53	36	69
BC	Local Seed 4565X	56	12.6	36	36	41	40	44	82	**58**	74	72	56	42	68
C	LG Seeds S4420RX	54	12.3	9	38	38	44	38	89	43	83	79	44	38	58
C	Warren Seed BG 4510RR2X	54	12.3	36	38	40	56	40	67	52	85	80	48	24	61
	Average	**58**	**12.7**		**38**	**39**	**47**	**49**	**81**	**47**	**87**	**80**	**58**	**39**	**68**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (*) or three (**) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Calloway KY, Cannon, Carroll, Gibson, Hardeman, Haywood, Henry, Madison, Perry, Warren, Weakley

Table 13. Yields of 9 Maturity Group IV Early (4.0-4.5) Liberty Link soybean varieties in 5 County Standard Tests in Tennessee during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Faye 5/21	Gibs 5/21	Henr 6/27	Laud 7/10	Madi 5/8
A	GoSoy 423E19	65	13.2	60	61	**84**	**60**	47	75
A	Stine 41EA12	64	13.6	100	**68**	80	57	49	66
A	GoSoy 393E19	63	13.7	80	65	79	55	40	**78**
AB	Credenz 3929GTLL	62	13.5	60	**68**	72	53	52	67
AB	Warren Seed 4420	61	14.2	100	63	.	.	.	.
AB	GoSoy 44GL18	60	13.6	40	57	76	52	**58**	56
AB	Local Seed ZS4596GLS	59	13.4	20	60	71	53	54	57
AB	Credenz 4539GTLL	58	13.0	40	65	70	48	52	52
B	Credenz 3519GTLL	54	13.0	40	59	61	54	33	65
	Average	**61**	**13.5**		**63**	**74**	**54**	**48**	**64**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (*) or three (**) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Fayette, Gibson, Henry, Lauderdale, Madison

Table 14. Overall average yields, moistures, and test weights of 21 Maturity Group IV Early (4.0 - 4.4) soybean varieties evaluated in both the County Standard Tests and Research and Education Center Tests in Tennessee during 2018.

		Avg. of CST and REC Tests		CST Tests		REC Tests	
Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)
Go Soy 423E19	Enlist E3	61	13.0	65	13.2	57	12.8
Armor 42-D27*	R2X	61	12.9	59	13.2	63	12.5
Dyna-Gro S41XS98*	R2X/STS	61	12.8	61	12.7	61	13.0
LG Seeds LGS4227RX*	R2X	61	12.6	60	12.6	62	12.6
Warren Seed BG 4210 RR2X**	R2X	60	12.6	59	12.7	62	12.6
AgriGold G4579RX*	R2X,STS	60	13.2	59	13.3	61	13.2
Dyna-Gro S45XS37**	R2X,STS	60	12.7	59	13.0	61	12.4
NK Seeds S44-C7X*	R2X	59	12.6	59	12.7	60	12.5
Asgrow AG45X8	R2X	59	13.2	59	13.2	59	13.2
Terral REV 4310X*	R2X	59	12.5	57	12.6	61	12.4
Local Seed Co. LS4299XS*	R2X	59	12.6	57	12.8	60	12.5
Warren Seed BG 4510 RR2X	R2X	58	12.2	54	12.3	63	12.2
Croplan RX4117S	R2X	58	12.9	58	12.9	58	12.8
Local Seed Co. LS4565XS	R2X	58	12.5	56	12.6	60	12.3
Asgrow AG43X8	R2X	58	12.5	57	12.6	58	12.5
Armor 44-D92	R2X	56	12.7	56	12.6	56	12.8
Local Seed Co. ZS4596GLS	GT,LL	56	13.1	59	13.4	53	12.8
Credenz CZ 4539 GTLL	GT,LL	56	12.7	58	13.0	54	12.4
Average		**59**	**12.7**	**58**	**12.9**	**59**	**12.6**

‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
* Varieties marked with an asterisk were in the top performing "A" group in both the REC and CST tests for one (*), two (*), or three (**) years within the previous three year evaluation period.

Table 15. Yields and disease ratings of 20 Maturity Group IV Early (4.0-4.5) Roundup Ready soybean varieties in 11 County Standard Tests and in small plot trials at one Research and Education Center and one on-farm location in Tennessee during 2019.

Summary from County Tests			Summary from Small Plot Research							
			Research & Education Center at Milan (RECM)				On-farm Location in Jackson (JAX)			
			RECM - YLD		Frogeye	Target	JAX - YLD		Frogeye	Target	Other
MS	Variety	Avg. Yield (bu/ac)	*Treated	Non-treated	leaf spot	Spot	*Treated	Non-treated	leaf spot	Spot	Diseases
A	Dyna-Gro S41XS98	60.5	41.7	47.9	MOD	LOW	52.8	48.9	MOD	LOW	
AB	LG Seeds 4227RX	59.5	51.0	49.9	HIGH	LOW	57.0	51.2	MOD	LOW	SDS
AB	AgriGold G4579RX**	59.4	45.4	43.2	LOW	LOW	54.2	47.5	LOW	MOD	
AB	Asgrow 45X8*	59.1	40.9	44.7	LOW	LOW	56.6	47.7	MOD	LOW	SDS
AB	NK S44-C7X	58.7	48.9	44.8	LOW	LOW	55.8	48.9	LOW	MOD	SDS
AB	Dyna-Gro S45XS37**	58.7	47.7	47.9	LOW	LOW	55.3	52.0	LOW	LOW	SDS
AB	Progeny 4255RX	58.7	21.8	25.9	MOD	LOW	39.1	35.1	MOD	LOW	
AB	Warren Seed BG 4210RR2X**	58.6	47.5	49.2	MOD	LOW	55.7	48.1	MOD	LOW	
AB	Armor 42D-27**	58.6	52.3	49.2	HIGH	LOW	58.7	50.1	HIGH	LOW	
ABC	Croplan 4117	57.7	42.5	43.5	MOD	LOW	55.9	48.0	MOD	LOW	
ABC	Dyna-Gro S43XS27**	57.7	33.9	37.9	LOW	LOW	47.9	44.6	MOD	LOW	
ABC	Progeny 4444RXS**	57.7	38.2	40.9	LOW	LOW	51.4	41.5	LOW	LOW	
ABC	Asgrow 43X8**	57.3	42.5	45.7	LOW	LOW	49.3	49.6	MOD	LOW	
ABC	Terral REV 4310X	57.1	44.8	53.9	LOW	LOW	55.0	50.8	LOW	HIGH	
ABC	Local Seed LS4299XS	57.0	45.0	49.2	LOW	LOW	51.4	43.6	LOW	HIGH	
ABC	Armor 44D-92	56.4	46.5	45.0	LOW	LOW	49.9	44.9	MOD	HIGH	
BC	Local Seed 4565X	55.7	51.3	52.9	LOW	LOW	54.8	48.3	LOW	LOW	SDS
C	LG Seeds S4420RX	53.8	47.6	50.5	LOW	MOD	53.0	46.3	LOW	MOD	
C	Warren Seed BG 4510RR2X	53.8	44.5	40.9	LOW	LOW	50.5	46.4	LOW	MOD	
	Terral REV 4679X	-	44.6	46.6	LOW	LOW	57.4	49.3	LOW	LOW	
	Average	**57.7**	**43.9**	**45.5**			**53.1**	**47.1**			

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 28, sprayed Aug 8, and harvested Oct 2.
JAX varieties planted May 21, sprayed July 31, and harvested Sept 24.
LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted:, SDS=Sudden Death Syndrome; ' - ' indicate variety was not tested at that location

Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 11% with an average of 2%; Target spot ranged from 0 - 3% with an average of 0.5%
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 10% with an average of 3%; and Target spot ranged from 0 - 15% with an average of 3%.

Disease ratings & yield data compiled by Dr. Heather Kelly from replicated plots at the Research and Education Center at Milan and on-farm location in Jackson.
County data provided by Ryan Blair, Ext. Area Specialist, and the extension agents.

Table 16. Yields and disease ratings of 9 Maturity Group IV Early (4.0-4.5) Liberty Link soybean varieties in 5 County Standard Tests and in small plot trials at one Research and Education Center and one on-farm location in Tennessee during 2019.

Summary from County Tests			Summary from Small Plot Research								
			Research & Education Center at Milan (RECM)				On-farm Location in Jackson (JAX)				
		Avg. Yield	RECM - YLD		Frogeye	Target	JAX - YLD		Frogeye	Target	Other
MS	Variety	(bu/ac)	*Treated	Non-treated	leaf spot	Spot	*Treated	Non-treated	leaf spot	Spot	Diseases
A	GoSoy 423E19	65.2	43.9	37.5	LOW	LOW	47.8	50.6	LOW	LOW	SDS
A	Stine 41EA12	64.0	41.2	36.8	LOW	LOW	48.1	44.4	LOW	LOW	SDS
A	GoSoy 393E19	63.4	43.9	40.5	LOW	LOW	53.6	52.2	LOW	LOW	
AB	Credenz 3929GTLL	62.2	39.4	31.8	LOW	LOW	48.5	45.3	LOW	LOW	
AB	Warren Seed 4420	61.0	-	-	-	-	50.3	46.4	LOW	LOW	SDS
AB	GoSoy 44GL18	59.9	40.7	34.9	LOW	LOW	49.9	46.7	HIGH	LOW	SDS
AB	Local Seed ZS4596GLS	59.1	40.4	29.6	LOW	LOW	44.5	46.6	LOW	LOW	SDS
AB	Credenz 4539GTLL	57.5	46.9	38.9	LOW	LOW	48.3	45.4	LOW	MOD	
B	Credenz 3519GTLL	54.2	32.3	27.3	LOW	LOW	52.4	47.3	MOD	LOW	
	Average	**60.7**	**41.1**	**34.7**			**49.3**	**47.2**			

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 28, sprayed Aug 19, and harvested Oct 9.
JAX varieties planted May 21, sprayed July 31, and harvested Sept 24.

LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted: SDS=Sudden Death Syndrome; ' - ' indicate variety was not tested at that location

Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 2% with an average of 0.6% and Target spot ranged from 0 - 0.5% with an average of 0.1%.
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 16% with an average of 3% and Target spot ranged from 0 - 1% with an average of 0.1%.

Disease ratings & yield data compiled by Dr. Heather Kelly from replicated plots at the Research and Education Center at Milan and on-farm location in Jackson.
County data provided by Ryan Blair, Ext. Area Specialist, and the extension agents.

Table 17-a. Mean yield, agronomic traits, and quality of 61 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/ac)			Moisture at Harvest (%)			Plant Height (in.)			Lodging[‖] (1-5)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
USG 7496XTS***	R2X,STS	64 A	64 A	65 A	13.2 AB	13.9 A	13.2 A	42 G-K	44 BC	45 BC	1.7 E-L	1.8 CD	1.7 C
Local Seed Co. ZS4694E3S	Enlist E3	64 A			12.3 C-O			40 M-T			1.4 J-R		
Dyna-Gro S49XS76***	R2X/STS	62 A-C	62 A-C	63 AB	12.5 C-L	13.5 A-E	13.0 AB	43 D-H	44 C	44 C	1.8 D-I	1.8 CD	1.7 C
Credenz CZ 4820 LL	LL	62 AB	58 DE		12.3 C-P	13.1 E-H		41 J-P	42 DE		1.5 H-Q	1.7 CD	
Asgrow AG46X0	R2X	62 A-C			11.8 N-Q			41 I-N			1.4 H-R		
Local Seed Co. LS4999X	R2X	62 A-C			12.0 L-Q			42 F-J			1.4 J-R		
LG Seeds C4845RX	R2X	61 A-G	60 B-D	61 BC	12.6 B-H	13.5 A-D	12.7 BC	38 U-AA	40 G	40 E	1.1 QR	1.2 G	1.2 E
Terral REV 4927X	R2X	61 A-D	59 C-E	59 C	12.2 C-Q	13.0 F-H	12.2 DE	44 B-E	45 AB	46 AB	2.7 AB	2.9 A	2.7 A
USG 7489XT**	R2X,STS	61 A-D	62 AB		12.5 C-L	13.4 B-F		40 M-U	41 FG		1.3 N-R	1.3 G	
Local Seed Co. LS4677X	R2X	61 A-F	58 DE		12.4 C-O	13.0 G-I		41 J-O	42 EF		1.7 E-L	2.0 BC	
Progeny P4821RX	R2X	61 A-E			12.1 G-Q			40 L-R			1.6 F-O		
Armor X48D25	R2X	61 A-F			11.8 M-Q			41 I-O			1.4 K-R		
Warren Seed BG 4710 RR2X	R2X	61 A-H			12.8 A-C			43 E-I			1.6 G-O		
Dyna-Gro S46XS60	R2X/STS	61 A-H			11.7 PQ			38 V-AA			1.4 K-R		
Dyna-Gro S48XT56***	R2X	60 A-L	62 A-C	63 AB	12.6 C-J	13.6 A-C	13.2 A	39 P-X	40 G	40 E	1.3 M-R	1.3 FG	1.2 E
Terral REV 4679X	R2X	60 A-K	59 DE		12.1 H-Q	12.8 HI		39 R-X	40 G		1.6 F-O	1.9 B-D	
Progeny P4999RX	R2X,STS	60 A-I			12.8 A-D			41 I-O			1.9 D-H		
USG 7470XT	R2X	60 A-I			12.5 C-L			43 C-G			1.7 E-L		
Asgrow AG47X0	R2X	60 B-M			12.1 G-Q			44 B-D			1.9 D-G		
Local Seed Co. LS4795XS	R2X	60 A-J			12.1 H-Q			39 S-Y			1.6 G-P		
Progeny P4816RX	R2X	59 B-M	60 B-E	61 BC	12.7 A-E	13.8 AB	13.3 A	39 T-Z	40 G	40 E	1.3 N-R	1.4 E-G	1.2 E
Asgrow AG46X6	R2X	59 B-M	58 DE	60 C	12.3 C-P	13.2 C-H	12.5 C-E	40 K-Q	42 EF	42 D	1.6 G-P	1.9 B-D	1.6 CD
Croplan RX4825	R2X	59 B-M	61 B-D	61 BC	12.5 C-L	13.6 A-C	13.0 AB	38 X-AA	40 G	40 E	1.1 P-R	1.4 E-G	1.2 E
Credenz CZ 4918 LL	LL	59 B-M	59 B-E		12.6 C-K	13.2 C-H		38 W-AA	40 G		1.7 E-M	1.7 DE	
Asgrow AG48X9	R2X	59 B-M	60 B-D		12.4 C-N	13.1 D-H		42 F-J	43 CD		1.6 G-P	1.7 D-F	
Armor X46D09	R2X	59 B-M			12.3 C-P			38 U-AA			1.4 I-R		
AgriGold G4815RX	R2X,STS	59 B-M			12.7 B-G			44 B-F			1.4 H-R		
AGS GS49X19	R2X	59 B-M			12.7 A-E			42 E-I			2.4 BC		
USG 7480XT	R2X	59 B-M			12.7 B-G			39 Q-X			2.1 C-E		
Dyna-Gro S49XT70	R2X	59 B-M			11.8 O-Q			42 E-I			1.4 I-R		
USG 7478XTS	R2X,STS	58 C-N			11.9 M-Q			41 I-N			1.8 E-K		
Local Seed Co. LS4889XS	R2X	58 D-O	58 DE		12.3 C-O	13.4 B-G		45 BC	46 A		2.9 A	2.7 A	
AgriGold G4605RX	R2X,STS	58 C-N			12.0 K-Q			47 A			2.2 CD		
USG 7480ET	Enlist E3	58 B-M			12.1 G-Q			43 E-I			1.4 I-R		
Credenz CZ 4869 X	R2X	58 D-O			12.7 A-E			41 G-M			2.1 C-E		
Dyna-Gro S46XT80	R2X	58 B-M			12.2 E-Q			37 AA-BB			1.2 O-R		
Progeny 4799RXS	R2X,STS	57 G-R	58 DE	60 C	12.6 C-J	13.2 C-H	12.6 B-D	45 B	46 A	46 A	1.3 M-R	1.4 E-G	1.3 DE

Table 17-a. Cont.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Moisture at Harvest (%)			Plant Height (in.)			Lodging‖ (1-5)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Warren Seed BG 4922 RR2X	R2X	57 H-R	56 EF		12.2 C-Q	13.4 B-F		39 O-W	40 G		1.3 L-R	1.4 E-G	
Asgrow AG49X9	R2X	57 G-R	58 DE		12.6 B-I	13.4 B-G		39 P-X	40 G		1.7 F-N	1.9 B-D	
GoSoy 462E18	Enlist E3	57 I-S			12.0 L-Q			38 X-AA			1.2 O-R		
LG Seeds LGS4899RX	R2X	57 F-Q			12.3 C-O			40 N-V			1.3 L-R		
Terral REV 4940X	R2X	57 E-P			12.0 I-Q			40 L-S			1.6 G-P		
Progeny P4620RXS	R2X,STS	56 K-T	58 DE	59 C	11.7 Q	12.5 I	12.1 E	41 I-N	42 DE	43 D	2.2 CD	2.2 B	2.0 B
USG 7479ET	Enlist E3	56 J-T			12.2 E-Q			37 Z-BB			2.7 AB		
Local Seed Co. ZS4797E3	Enlist E3	56 L-T			12.0 J-Q			38 W-AA			1.6 F-O		
Local Seed Co. LS4894X	R2X	56 I-S			12.5 C-L			40 L-S			2.2 CD		
NK Seeds S49-F5X	R2X	56 M-U			12.1 G-Q			38 W-AA			1.6 F-O		
Dyna-Gro S49EN79	Enlist E3	56 M-U			12.7 A-F			39 P-X			1.9 D-G		
USG 7460ET	Enlist E3	56 K-T			12.0 J-Q			39 S-Y			1.5 G-Q		
MO S14-15138R	RR,STS	55 N-U	54 F		12.0 I-Q	13.4 B-G		40 N-V	40 G		1.7 F-N	1.7 D-F	
Credenz CZ 4979 X	R2X	55 O-V			12.5 C-L			42 G-L			2.1 C-F		
Local Seed Co. LS4798X	R2X	54 P-V			12.2 D-Q			45 B			2.9 A		
GoSoy 46GL18	LL GT27	53 Q-V			12.1 H-Q			41 J-P			1.5 H-Q		
Asgrow AG49X0	R2X	53 S-V			13.3 A			40 L-R			1.8 D-J		
Warren Seed 4855 RR2X	R2X	53 R-V			12.0 I-Q			38 U-AA			2.1 C-E		
Dyna-Gro S46EN29	Enlist E3	53 S-V			12.1 F-Q			37 Y-BB			1.2 N-R		
MO S16-14379C	CONV	52 UV			12.1 G-Q			41 H-M			1.6 G-O		
VA V15-1407	CONV	52 T-V			12.4 C-M			28 EE			1.6 G-P		
GoSoy 482E18	Enlist E3	51 V			11.8 N-Q			36 BB			2.5 A-C		
VA V15-2287ST	STS	51 V			12.6 B-H			31 DD			1.0 R		
VA V15-2259ST	STS	51 V			12.4 C-O			34 CC			1.0 R		
Average		**58**	**59**	**61**	**12.3**	**13.3**	**12.8**	**40**	**42**	**43**	**1.7**	**1.8**	**1.6**
Standard Error		**4**	**4**	**5**	**0.8**	**1.0**	**0.8**	**4**	**4**	**4**	**0.3**	**0.3**	**0.2**
L.S.D.$_{.05}$		**4**	**3**	**3**	**0.6**	**0.4**	**0.5**	**2**	**1**	**1**	**0.4**	**0.3**	**0.3**
C.V.		**11**	**12**	**12**	**8**	**8**	**9**	**6**	**6**	**6**	**40**	**41**	**41**
Plots per entry (reps x locs x years.)		**21**	**42**	**54**	**21**	**42**	**54**	**21**	**42**	**54**	**21**	**42**	**54**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 17-b. Mean yield, agronomic traits, and quality of 61 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019. Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/ac)			Maturity (DAP)			Protein[¶] (%)			Oil[¶] (%)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
USG 7496XTS***	R2X,STS	64 A	64 A	65 A	133 A	136 A	135 A	39.4 D-M	39.7 AB		22.5 U-Z	22.3 EF	
Local Seed Co. ZS4694E3S	Enlist E3	64 A			129 Z-CC			38.3 N-Y			23.3 I-P		
Dyna-Gro S49XS76***	R2X/STS	62 A-C	62 A-C	63 AB	133 AB	136 A	135 A	38.5 L-X	39.4 BC		22.6 T-Z	22.4 D-F	
Credenz CZ 4820 LL	LL	62 AB	58 DE		130 U-AA	131 GH		38.7 H-U	38.5 E		23.9 B-G	23.5 AB	
Asgrow AG46X0	R2X	62 A-C			129 W-BB			36.8 AA-CC			24.1 A-E		
Local Seed Co. LS4999X	R2X	62 A-C			131 H-T			38.2 P-Y			23.3 H-O		
LG Seeds C4845RX	R2X	61 A-G	60 B-D	61 BC	131 E-N	134 B-D	133 B	39.2 E-Q	39.9 AB		22.9 N-W	22.4 D-F	
Terral REV 4927X	R2X	61 A-D	59 C-E	59 C	131 J-W	132 F	132 C	38.2 Q-Y	38.5 DE		23.2 J-Q	23.1 BC	
USG 7489XT**	R2X,STS	61 A-D	62 AB		132 D-K	134 B		39.8 B-H	40.3 A		22.8 Q-Y	22.3 EF	
Local Seed Co. LS4677X	R2X	61 A-F	58 DE		130 P-AA	131 GH		37.8 U-BB	38.3 E		23.8 C-H	23.5 AB	
Progeny P4821RX	R2X	61 A-E			132 C-H			39.4 D-M			23.5 G-M		
Armor X48D25	R2X	61 A-F			131 H-S			37.9 T-AA			24.2 A-D		
Warren Seed BG 4710 RR2X	R2X	61 A-H			133 AB			38.2 M-Y			22.7 P-Z		
Dyna-Gro S46XS60	R2X/STS	61 A-H			130 Q-AA			37.0 Z-CC			24.1 A-D		
Dyna-Gro S48XT56***	R2X	60 A-L	62 A-C	63 AB	131 H-T	133 C-E	133 B	39.1 F-S	39.8 AB		23.1 L-T	22.5 D-F	
Terral REV 4679X	R2X	60 A-K	59 DE		128 CC	130 H		38.3 O-Y	38.7 C-E		23.9 B-G	23.4 AB	
Progeny P4999RX	R2X,STS	60 A-I			131 F-Q			39.3 D-N			23.1 L-S		
USG 7470XT	R2X	60 A-I			130 K-X			39.8 B-H			22.5 V-Z		
Asgrow AG47X0	R2X	60 B-M			131 F-P			38.7 H-U			23.7 D-K		
Local Seed Co. LS4795XS	R2X	60 A-J			130 S-A			38.1 R-Y			23.9 B-G		
Progeny P4816RX	R2X	59 B-M	60 B-E	61 BC	132 C-I	134 B	134 B	39.6 C-K	40.0 AB		22.7 R-Y	22.3 EF	
Asgrow AG46X6	R2X	59 B-M	58 DE	60 C	131 H-U	133 DE	133 B	38.6 J-V	39.2 B-D		23.9 B-G	23.2 AB	
Croplan RX4825	R2X	59 B-M	61 B-D	61 BC	131 E-L	134 B	134 B	39.2 E-Q	39.9 AB		23.0 M-V	22.5 DE	
Credenz CZ 4918 LL	LL	59 B-M	59 B-E		128 BB-CC	130 H		38.2 P-Y	39.5 B		23.9 A-G	23.1 BC	
Asgrow AG48X9	R2X	59 B-M	60 B-D		130 L-X	132 FG		38.0 S-Z	38.5 E		24.0 A-F	23.5 AB	
Armor X46D09	R2X	59 B-M			129 X-C			38.1 R-Y			24.0 A-F		
AgriGold G4815RX	R2X,STS	59 B-M			130 M-Y			40.1 A-F			22.4 W-Z		
AGS GS49X19	R2X	59 B-M			132 D-K			38.0 T-Z			23.0 M-V		
USG 7480XT	R2X	59 B-M			131 F-Q			39.8 A-G			23.1 L-S		
Dyna-Gro S49XT70	R2X	59 B-M			131 H-U			38.2 Q-Y			23.6 E-L		
USG 7478XTS	R2X,STS	58 C-N			131 E-M			40.4 A-D			22.4 X-Z		
Local Seed Co. LS4889XS	R2X	58 D-O	58 DE		133 AB	134 BC		37.6 V-CC	38.2 E		23.7 C-J	23.5 AB	
AgriGold G4605RX	R2X,STS	58 C-N			129 AA-CC			37.5 W-CC			24.4 AB		
USG 7480ET	Enlist E3	58 B-M			132 A-E			38.9 G-T			23.4 G-N		
Credenz CZ 4869 X	R2X	58 D-O			129 Z-CC			36.8 BB-CC			24.4 A		
Dyna-Gro S46XT80	R2X	58 B-M			128 CC			38.7 H-U			23.7 C-J		
Progeny 4799RXS	R2X,STS	57 G-R	58 DE	60 C	129 Y-CC	132 F	131 C	39.4 D-L	40.2 A		22.1 Z	21.8 G	

Table 17-b. Cont.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Maturity (DAP)			Protein¶ (%)			Oil¶ (%)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Warren Seed BG 4922 RR2X	R2X	57 H-R	56 EF		132 C-J	134 B		39.4 D-M	39.9 AB		22.9 O-X	22.5 DE	
Asgrow AG49X9	R2X	57 G-R	58 DE		131 D-L	133 DE		36.7 CC	37.5 F		24.2 A-C	23.6 A	
GoSoy 462E18	Enlist E3	57 I-S			130 V-BB			40.7 AB			22.6 S-Z		
LG Seeds LGS4899RX	R2X	57 F-Q			130 U-AA			38.8 H-U			23.9 B-G		
Terral REV 4940X	R2X	57 E-P			130 O-Z			36.6 CC			23.9 B-G		
Progeny P4620RXS	R2X,STS	56 K-T	58 DE	59 C	130 R-AA	132 FG	131 C	38.9 G-T	39.3 BC		22.4 W-Z	22.1 FG	
USG 7479ET	Enlist E3	56 J-T			131 G-R			40.8 A			23.9 A-G		
Local Seed Co. ZS4797E3	Enlist E3	56 L-T			130 O-Z			39.6 C-L			22.5 V-Z		
Local Seed Co. LS4894X	R2X	56 I-S			131 E-N			39.3 E-O			23.5 F-L		
NK Seeds S49-F5X	R2X	56 M-U			131 H-U			38.6 K-W			23.8 C-I		
Dyna-Gro S49EN79	Enlist E3	56 M-U			132 A-F			40.3 A-E			22.9 O-X		
USG 7460ET	Enlist E3	56 K-T			130 T-AA			39.1 F-S			23.0 M-V		
MO S14-15138R	RR,STS	55 N-U	54 F		131 G-R	132 EF		39.1 F-R	39.8 AB		23.1 L-S	22.8 CD	
Credenz CZ 4979 X	R2X	55 O-V			132 B-G			37.5 X-CC			23.1 L-T		
Local Seed Co. LS4798X	R2X	54 P-V			133 A-C			39.8 A-I			23.1 K-U		
GoSoy 46GL18	LL GT27	53 Q-V			128 BB-CC			38.3 O-Y			23.7 D-K		
Asgrow AG49X0	R2X	53 S-V			133 AB			37.9 T-AA			23.9 A-G		
Warren Seed 4855 RR2X	R2X	53 R-V			131 G-R			38.6 I-V			23.5 F-L		
Dyna-Gro S46EN29	Enlist E3	53 S-V			130 N-Y			39.3 E-P			23.2 L-R		
MO S16-14379C	CONV	52 UV			131 F-O			37.5 Y-CC			23.7 C-J		
VA V15-1407	CONV	52 T-V			132 C-J			39.4 D-L			22.8 Q-Y		
GoSoy 482E18	Enlist E3	51 V			130 M-Y			39.6 C-J			24.2 A-C		
VA V15-2287ST	STS	51 V			131 I-V			38.8 H-U			22.3 YZ		
VA V15-2259ST	STS	51 V			133 A-D			40.6 A-C			21.4 AA		
Average		**58**	**59**	**61**	**131**	**133**	**133**	**38.7**	**39**	**-**	**23.3**	**23**	**-**
Standard Error		**4**	**4**	**5**	**4**	**4**	**3**	**0.4**	**0.6**	**-**	**0.2**	**0.4**	**-**
L.S.D.$_{.05}$		**4**	**3**	**3**	**1**	**1**	**1**	**1.1**	**0.7**	**-**	**0.5**	**0.4**	**-**
C.V.		**11**	**12**	**12**	**1**	**2**	**2**	**2**	**2**	**-**	**1**	**2**	**-**
Plots per entry (reps x locs x years.)		**21**	**42**	**54**	**18**	**36**	**45**	**3**	**6**	**-**	**3**	**6**	**-**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
ǁ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 18. Mean yields across and by location of 61 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in replicated small plot trials at seven REC locations in Tennessee during 2019. Analysis included variety performance across a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/ac)			Knoxville Irr. (bu/ac)			Springfield Irr. (bu/ac)			Springfield Non-Irr. (bu/ac)			Milan Irr. (bu/ac)			Milan Non-Irr. (bu/ac)			Jackson Non-Irr. (bu/ac)			Memphis Irr. (bu/ac)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
USG 7496XTS***	R2X,STS	64 A	64 A	65 A	79	83		57	65	70	42	38	48	76	77	77	77	67	70	53	62	59	62	58	64
Local Seed Co. ZS4694E3S	Enlist E3	64 A			73			63			46			71			76			53			64		
Dyna-Gro S49XS76***	R2X/STS	62 A-C	62 A-C	63 AB	79	84		57	63	70	42	43	50	72	68	70	75	60	64	48	56	55	59	61	67
Credenz CZ 4820 LL	LL	62 AB	58 DE		71	66		64	62		49	46		73	70		67	58		53	52		58	55	
Asgrow AG46X0	R2X	62 A-C			76			53			44			75			74			50			61		
Local Seed Co. LS4999X	R2X	62 A-C			80			57			46			67			66			51			66		
LG Seeds C4845RX	R2X	61 A-G	60 B-D	61 BC	70	73		56	60	63	41	38	43	73	71	71	69	58	62	52	59	59	66	64	69
Terral REV 4927X	R2X	61 A-D	59 C-E	59 C	77	77		59	62	64	49	46	52	65	62	65	65	55	59	48	52	56	68	58	60
USG 7489XT**	R2X,STS	61 A-D	62 AB		71	74		55	66		43	40		76	72		70	62		55	61		60	61	
Local Seed Co. LS4677X	R2X	61 A-F	58 DE		72	71		55	55		52	43		74	70		71	56		49	54		56	55	
Progeny P4821RX	R2X	61 A-E			70			57			41			66			71			54			70		
Armor X48D25	R2X	61 A-F			74			57			39			76			71			55			56		
Warren Seed BG 4710 RR2X	R2X	61 A-H			79			60			37			72			70			50			59		
Dyna-Gro S46XS60	R2X/STS	61 A-H			75			54			33			77			71			52			63		
Dyna-Gro S48XT56***	R2X	60 A-L	62 A-C	63 AB	65	69		55	67	66	47	41	47	75	70	72	69	62	64	54	62	60	54	63	70
Terral REV 4679X	R2X	60 A-K	59 DE		77	74		58	60		45	42		61	59		70	56		49	53		58	66	
Progeny P4999RX	R2X,STS	60 A-I			68			57			45			72			71			51			60		
USG 7470XT	R2X	60 A-I			79			58			40			72			72			49			52		
Asgrow AG47X0	R2X	60 B-M			81			55			36			69			67			44			63		
Local Seed Co. LS4795XS	R2X	60 A-J			71			58			31			72			76			52			60		
Progeny P4816RX	R2X	59 B-M	60 B-E	61 BC	67	70		52	60	64	40	37	44	75	70	70	71	62	64	52	57	59	56	60	66
Asgrow AG46X6	R2X	59 B-M	58 DE	60 C	68	71		53	56	63	43	40	48	69	66	68	72	59	62	52	56	54	59	56	63
Croplan RX4825	R2X	59 B-M	61 B-D	61 BC	66	72		56	65	68	39	38	42	70	69	70	68	61	63	54	59	57	61	62	67
Credenz CZ 4918 LL	LL	59 B-M	59 B-E		67	73		59	63		44	41		65	64		66	60		52	55		59	59	
Asgrow AG48X9	R2X	59 B-M	60 B-D		77	76		55	63		39	40		73	67		70	62		52	58		49	57	
Armor X46D09	R2X	59 B-M			71			52			35			69			65			52			66		
AgriGold G4815RX	R2X,STS	59 B-M			75			51			46			64			74			49			56		
AGS GS49X19	R2X	59 B-M			64			57			38			71			64			52			64		
USG 7480XT	R2X	59 B-M			82			57			40			62			61			49			60		
Dyna-Gro S49XT70	R2X	59 B-M			72			62			42			64			69			47			57		
USG 7478XTS	R2X,STS	58 C-N			76			52			50			53			64			51			59		
Local Seed Co. LS4889XS	R2X	58 D-O	58 DE		82	82		60	63		43	44		60	64		69	58		43	48		46	45	
AgriGold G4605RX	R2X,STS	58 C-N			69			59			41			74			68			48			45		
USG 7480ET	Enlist E3	58 B-M			75			49			34			76			60			48			65		
Credenz CZ 4869 X	R2X	58 D-O			67			52			39			74			69			47			55		
Dyna-Gro S46XT80	R2X	58 B-M			67			59			44			59			68			56			58		
Progeny 4799RXS	R2X,STS	57 G-R	58 DE	60 C	73	77		47	63	69	35	34	47	71	66	67	71	57	62	49	53	55	54	54	58
Warren Seed BG 4922 RR2X	R2X	57 H-R	56 EF		65	69		46	56		38	38		72	67		69	58		49	57		59	51	
Asgrow AG49X9	R2X	57 G-R	58 DE		75	78		52	62		39	38		65	63		65	57		50	59		54	50	
GoSoy 462E18	Enlist E3	57 I-S			67			57			42			54			65			49			61		
LG Seeds LGS4899RX	R2X	57 F-Q			70			56			37			69			68			52			49		
Terral REV 4940X	R2X	57 E-P			69			61			39			66			70			50			47		
Progeny P4620RXS	R2X,STS	56 K-T	58 DE	59 C	77	77		52	61	69	33	32	41	64	63	66	69	58	64	47	53	54	51	60	60
USG 7479ET	Enlist E3	56 J-T			70			60			46			57			59			44			56		
Local Seed Co. ZS4797E3	Enlist E3	56 L-T			73			58			41			49			63			46			61		
Local Seed Co. LS4894X	R2X	56 I-S			69			63			45			60			58			47			54		
NK Seeds S49-F5X	R2X	56 M-U			69			56			39			57			65			48			56		

Table 18. Cont.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Knoxville Irr. (bu/ac)			Springfield Irr. (bu/ac)			Springfield Non-Irr. (bu/ac)			Milan Irr. (bu/ac)			Milan Non-Irr. (bu/ac)			Jackson Non-Irr. (bu/ac)			Memphis Irr. (bu/ac)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Dyna-Gro S49EN79	Enlist E3	56 M-U			70			58			41			56			57			48			59		
USG 7460ET	Enlist E3	56 K-T			71			58			48			56			60			48			51		
MO S14-15138R	RR,STS	55 N-U	54 F		73	74		52	59		43	39		65	61		65	50		42	46		47	49	
Credenz CZ 4979 X	R2X	55 O-V			69			48			38			69			65			45			49		
Local Seed Co. LS4798X	R2X	54 P-V			77			50			46			58			53			42			56		
GoSoy 46GL18	LL GT27	53 Q-V			63			54			41			57			60			47			53		
Asgrow AG49X0	R2X	53 S-V			87			42			24			61			61			44			50		
Warren Seed 4855 RR2X	R2X	53 R-V			69			57			38			55			52			46			57		
Dyna-Gro S46EN29	Enlist E3	53 S-V			71			50			37			59			57			46			52		
MO S16-14379C	CONV	52 UV			66			50			34			56			58			44			54		
VA V15-1407	CONV	52 T-V			65			52			36			58			59			47			50		
GoSoy 482E18	Enlist E3	51 V			70			53			41			51			53			41			47		
VA V15-2287ST	STS	51 V			67			42			36			58			54			44			56		
VA V15-2259ST	STS	51 V			69			45			28			62			51			45			57		
Average		**58**	**59**	**61**	**72**	**74**		**55**	**62**	**67**	**40**	**40**	**46**	**66**	**67**	**70**	**66**	**59**	**63**	**49**	**56**	**57**	**57**	**57**	**65**
Standard Error		**4**	**4**	**5**	**3**	**3**		**5**	**7**	**7**	**3**	**3**	**8**	**4**	**4**	**3**	**3**	**11**	**7**	**2**	**6**	**4**	**3**	**3**	**6**
L.S.D.$_{.05}$		**4**	**3**	**3**	**8**	**7**		**10**	**N.S.**	**N.S.**	**9**	**6**	**6**	**11**	**8**	**6**	**8**	**N.S.**	**N.S.**	**5**	**7**	**N.S.**	**9**	**10**	**8**
C.V.		**11**	**12**	**12**	**7**	**8**		**12**	**15**	**13**	**14**	**13**	**13**	**11**	**10**	**9**	**7**	**11**	**10**	**7**	**11**	**10**	**10**	**15**	**13**
Plots per entry (reps x locs. x years)		**21**	**36**	**45**	**3**	**6**	**-**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.

Table 19. Yields of 25 Maturity Group IV Late (4.6-4.9) Roundup Ready / Dicamba tolerant soybean varieties in 12 County Standard Tests in Tennessee and Kentucky during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Carr 5/23	Coff 6/5	Dyer 7/1	Gibs 5/22	Gile 5/21	Hard 5/28	Hayw 5/22	Henr 7/1	Madi 6/12	Mari 5/21	Obio 6/10	Trou 5/17
A	LG Seeds 4845**	64	13.1	92	64	**63**	62	68	40	61	78	62	62	62	**94**	51
A	Dyna-Gro S48XS56**	64	13.5	75	67	47	65	**75**	36	61	**85**	63	61	60	94	54
AB	AgriGold G4995RX	63	12.9	83	62	57	64	52	36	67	82	61	67	58	90	56
AB	Warren Seed BG4922RR2X**	63	13.0	50	**68**	50	**69**	72	36	60	79	63	61	63	83	46
AB	USG 7489XT	62	13.0	67	60	48	65	71	37	48	81	61	61	**64**	81	72
AB	Local Seed LS4999X	62	12.6	58	54	54	60	64	**58**	55	75	63	55	62	84	60
AB	Armor X48-D25	62	12.8	67	61	54	56	69	33	66	77	**70**	57	63	85	49
AB	Asgrow 48X9	61	12.8	75	62	54	57	64	34	63	75	67	62	63	93	42
AB	USG 7496XTS**	61	12.9	67	56	50	63	70	32	60	75	63	63	49	87	62
ABC	Dyna-Gro S49XS76**	61	13.0	67	53	50	62	65	38	61	73	63	60	60	81	60
ABC	Credenz 4979 X	60	13.1	67	66	53	62	59	30	70	71	61	64	53	83	53
ABC	Asgrow 46X6**	60	13.0	50	56	47	62	65	29	49	80	60	64	62	83	**65**
ABC	Warren Seed BG4710RR2X	60	13.0	42	52	46	68	62	34	**76**	66	63	**68**	58	84	46
ABC	Terral REV 4927X**	60	12.7	50	66	57	60	57	32	59	65	60	65	55	92	52
ABC	Progeny 4816RXS	60	13.0	42	60	47	50	**75**	42	45	83	60	59	**64**	84	47
ABCD	Local Seed 4798X	59	13.0	67	65	44	62	63	54	60	52	56	66	58	86	47
ABCD	Croplan 4810	59	12.9	67	65	54	64	54	32	64	60	62	62	53	90	53
BCD	Terral REV 4679X	59	13.1	67	49	46	64	58	39	37	73	61	**68**	**64**	92	55
BCD	NK S47-Y9X	59	13.0	42	52	50	66	61	40	54	78	68	66	51	69	51
BCD	Progeny 4620RXS	59	12.6	58	65	55	64	59	40	49	60	58	66	59	87	42
BCD	NK S49-F5X	59	12.9	42	58	57	53	53	43	48	70	64	54	55	95	52
BCD	Asgrow 49X9	58	12.9	50	52	48	52	71	33	45	75	60	66	58	86	53
BCD	Terral REV 4940X	58	12.8	33	65	50	54	62	30	46	79	56	67	60	83	41
CD	GoSoy GS49X19	55	13.0	17	**68**	53	56	57	30	47	68	54	56	51	72	48
D	Credenz 4869 X	54	12.8	8	53	47	54	51	40	48	69	57	59	55	77	43
	Average	**60**	**12.9**		**60**	**51**	**61**	**63**	**37**	**56**	**73**	**61**	**62**	**58**	**85**	**52**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (**) or three (***) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Carroll, Coffee, Dyer, Gibson, Giles, Hardeman, Haywood, Henry, Madison, Marion, Obion, Trousdale

Table 20. Yields of 12 Maturity Group IV Late (4.6-5.2) Liberty Link soybean varieties in 6 County Standard Tests in Tennessee during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Faye 5/21	Gibs 5/21	Henr 6/27	Madi 5/8	Maur 5/22	Warr 5/15
A	Local Seed ZS4694E3S	65.8	12.10	83	**66**	76	57	**76**	**52**	67
AB	Credenz 4820 LL***	62.6	12.53	83	63	79	**61**	55	49	**69**
AB	Credenz 4918 LL**	62.2	11.97	83	57	80	54	72	49	61
AB	Stine 49LH02	62.1	12.10	67	55	81	58	73	45	60
ABC	GoSoy 462E18	60.4	12.42	50	55	**85**	53	70	40	60
BCD	GoSoy 512E18	59.0	12.28	33	56	81	50	67	41	59
BCD	GoSoy 46GL18	58.5	12.38	67	61	68	50	64	45	64
BCD	Local Seed ZS4797E3	58.0	12.90	50	60	73	53	62	43	60
BCD	GoSoy 482E18	57.0	11.87	50	45	80	55	68	41	53
BCD	GoSoy 463E19	56.9	12.20	50	61	77	54	63	41	67
CD	GoSoy 491E19S	54.1	12.37	0	57	76	48	55	36	54
D	GoSoy 471E19S	52.8	12.30	0	53	77	45	60	34	48
	Average	**59**	**12.3**		**57**	**78**	**53**	**65**	**43**	**60**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (*) or three (**) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Fayette, Gibson, Henry, Madison, Maury, Warren

Table 21. Overall average yields, moistures, and test weights of 28 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in both the County Standard Tests and Research and Education Center Tests in Tennessee during 2019.

		Avg. of CST and REC Tests		CST Tests		REC Tests	
Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)
Local Seed Co. ZS4694E3S*	Enlist E3	65	12.2	66	12.1	64	12.3
LG Seeds C4845RX*	R2X	63	12.9	64	13.1	61	12.6
USG 7496XTS**	R2X,STS	62	13.1	61	12.9	64	13.2
Credenz CZ 4820 LL*	LL	62	12.4	63	12.5	62	12.3
Dyna-Gro S48XT56**	R2X	62	13.0	64	13.5	60	12.6
Local Seed Co. LS4999X*	R2X	62	12.3	62	12.6	62	12.0
USG 7489XT*	R2X,STS	62	12.7	62	13.0	61	12.5
Armor X48D25*	R2X	61	12.3	62	12.8	61	11.8
Dyna-Gro S49XS76**	R2X/STS	61	12.7	61	13.0	62	12.5
Credenz CZ 4918 LL	LL	61	12.3	62	12.0	59	12.6
Warren Seed BG 4710 RR2X*	R2X	61	12.9	60	13.0	61	12.8
Terral REV 4927X*	R2X	61	12.4	60	12.7	61	12.2
Asgrow AG48X9	R2X	60	12.6	61	12.8	59	12.4
Warren Seed BG 4922 RR2X	R2X	60	12.6	63	13.0	57	12.2
Asgrow AG46X6	R2X	60	12.6	60	13.0	59	12.3
Terral REV 4679X	R2X	59	12.6	59	13.1	60	12.1
Progeny P4816RX	R2X	59	12.9	60	13.0	59	12.7
GoSoy 462E18	Enlist E3	59	12.2	60	12.4	57	12.0
Credenz CZ 4979 X	R2X	58	12.8	60	13.1	55	12.5
Asgrow AG49X9	R2X	58	12.8	58	12.9	57	12.6
Progeny P4620RXS	R2X,STS	57	12.2	59	12.6	56	11.7
NK Seeds S49-F5X	R2X	57	12.5	59	12.9	56	12.1
Terral REV 4940X	R2X	57	12.4	58	12.8	57	12.0
Local Seed Co. ZS4797E3	Enlist E3	57	12.5	58	12.9	56	12.0
Local Seed Co. LS4798X	R2X	57	12.6	59	13.0	54	12.2
Credenz CZ 4869 X	R2X	56	12.8	54	12.8	58	12.7
GoSoy 46GL18	LL GT27	56	12.2	59	12.4	53	12.1
GoSoy 482E18	Enlist E3	54	11.8	57	11.9	51	11.8
Average		**60**	**12.5**	**60**	**12.8**	**59**	**12.3**

‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
* Varieties marked with an asterisk were in the top performing "A" group in both the REC and CST tests for one (*), two (*), or three (**) years within the previous three year evaluation period.

Table 22. Yields and disease ratings of 25 Maturity Group IV Late (4.6-4.9) Roundup Ready soybean varieties in 12 County Standard Tests and in small plot trials at two Research and Education Centers and one on-farm location in Tennessee during 2019.

Summary from County Tests			Summary from Small Plot Research										
			Research & Education Center at Milan (RECM)				West TN Research and Education Center		On-farm Location in Jackson (JAX)				
		Avg. Yield	RECM - YLD		Frogeye	Target	WTREC - YLD		JAX - YLD		Frogeye	Target	Other
MS	Variety	(bu/ac)	*Treated	Non-treated	leaf spot	Spot	*Treated	Non-treated	*Treated	Non-treated	leaf spot	Spot	Diseases
A	Dyna-Gro S48XS56**	64.0	41.5	42.4	LOW	LOW	18.4	24.5	51.0	46.7	LOW	LOW	
A	LG Seeds 4845**	64.0	42.0	44.8	LOW	LOW	23.9	21.4	47.4	40.8	LOW	LOW	
AB	AgriGold G4995RX	62.6	44.0	43.8	LOW	LOW	22.2	18.5	48.7	45.3	LOW	LOW	
AB	Warren Seed BG4922RR2X**	62.5	45.7	45.8	LOW	LOW	19.9	22.7	47.4	41.1	LOW	LOW	
AB	USG 7489XT	62.3	46.2	37.2	LOW	LOW	22.3	20.6	42.0	43.7	LOW	LOW	
AB	Local Seed LS4999X	61.8	40.3	43.5	LOW	LOW	-	-	47.5	42.3	LOW	LOW	
AB	Armor X48-D25	61.6	47.1	43.4	MOD	LOW	21.2	19.1	47.3	42.9	MOD	LOW	
AB	Asgrow 48X9	61.4	47.3	49.8	LOW	LOW	24.4	19.6	48.9	40.8	LOW	LOW	
AB	USG 7496XTS**	60.9	42.0	43.0	MOD	LOW	16.8	20.3	52.5	46.9	HIGH	LOW	
ABC	Dyna-Gro S49XS76**	60.5	42.5	42.6	MOD	LOW	21.8	26.3	48.7	44.6	MOD	LOW	
ABC	Credenz 4979 X	60.4	41.8	41.1	MOD	LOW	21.1	18.1	44.0	46.9	HIGH	LOW	CLB
ABC	Asgrow 46X6**	60.3	47.8	44.8	LOW	LOW	21.2	18.6	41.8	41.6	LOW	LOW	
ABC	Warren Seed BG4710RR2X	60.2	43.9	39.3	LOW	LOW	18.2	16.2	51.9	47.5	HIGH	LOW	
ABC	Terral REV 4927X**	60.0	43.8	47.5	LOW	LOW	18.7	25.0	47.8	46.5	LOW	LOW	SDS
ABC	Progeny 4816RXS	59.7	42.4	41.0	LOW	LOW	19.9	21.7	45.6	40.3	LOW	LOW	
ABCD	Local Seed 4798X	59.4	45.6	45.2	LOW	LOW	21.0	21.5	45.6	42.6	LOW	LOW	
ABCD	Croplan 4810	59.3	42.5	43.0	LOW	MOD	24.6	20.7	35.9	33.5	LOW	HIGH	SC
BCD	NK S47-Y9X	58.8	43.0	44.4	LOW	LOW	24.4	22.7	47.7	37.9	MOD	LOW	
BCD	Progeny 4620RXS	58.8	43.2	41.3	LOW	LOW	21.4	18.5	49.4	47.8	LOW	LOW	
BCD	Terral REV 4679X	58.8	47.2	46.4	LOW	LOW	22.5	21.7	52.4	43.7	LOW	LOW	SDS
BCD	NK S49-F5X	58.7	44.0	37.4	MOD	LOW	21.4	20.9	46.9	41.6	MOD	LOW	
BCD	Asgrow 49X9	58.3	44.4	49.6	LOW	LOW	19.6	17.9	46.7	44.3	LOW	LOW	
BCD	Terral REV 4940X	57.7	43.5	46.7	LOW	LOW	19.5	17.2	52.3	44.3	LOW	LOW	
CD	GoSoy GS49X19	55.3	47.0	42.0	MOD	LOW	19.7	23.3	46.6	42.6	HIGH	LOW	SDS
D	Credenz 4869 X	54.4	41.1	43.8	LOW	LOW	25.9	18.8	47.1	38.2	LOW	LOW	
	FLS Susceptible check	-	46.1	43.0	HIGH	LOW	-	-	-	-	-	-	
	Average	**59.9**	**44.1**	**43.6**			**21.4**	**20.5**	**47.2**	**42.8**			

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 28, sprayed Aug 19, and harvested Oct 23.
JAX planted May 21, sprayed Aug 8, and harvested Oct 3.
WTREC varieties planted after wheat June 17, sprayed Aug 28, and harvested Nov 6.

LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted: SC=Stem Canker, CLB=Cercospora Leaf Blight, SDS=Sudden Death Syndrome; ' - ' indicate variety was not tested at that location
Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 36% with an average of 4%; Target spot was reported on Croplan4810
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 13% with an average of 4%; Target spot ranged from 0 - 14% with an average of 1%.
Disease ratings at WTREC: Disease pressure was too low (<5%) at this location to take ratings, some yield data were affected by sandy soils and the majority of those data points were discarded.

Disease ratings & yield data compiled by Dr. Heather Kelly from replicated plots at the Research and Education Center at Milan, the West Tennessee Research and Education Center, and on-farm location in Jackson.

Table 23. Yields and disease ratings of 12 Maturity Group IV Late (4.6-4.9) Liberty Link soybean varieties in 6 County Standard Tests and in small plot trials at two Research and Education Center and one on-farm location in Tennessee during 2019

Summary from County Tests			Summary from Small Plot Research									
		Avg.	Research & Education Center at Milan (RECM)				Center (WTREC)		On-farm Location in Jackson (JAX)			
		Yield	RECM - YLD		Frogeye	Target	WTREC - YLD		JAX - YLD		Frogeye	
MS	Variety	(bu/ac)	*Treated	Non-treated	leaf spot	Spot	*Treated	Non-treated	*Treated	Non-treated	leaf spot	SDS
A	Local Seed ZS4694E3S	65.8	40.3	42.0	MOD	LOW	20.2	19.1	54.8	44.2	MOD	LOW
AB	Credenz 4820 LL***	62.6	37.8	44.8	LOW	HIGH	21.2	20.5	47.4	39.5	LOW	
AB	Credenz 4918 LL**	62.2	39.8	39.8	LOW	LOW	23.6	18.6	49.7	46.1	LOW	
AB	Stine 49LH02	62.1	41.7	35.7	LOW	LOW	19.3	19.6	47.0	45.7	LOW	
ABC	GoSoy 462E18	60.4	41.4	37.5	LOW	LOW	17.5	21.4	47.0	42.6	MOD	MOD
BCD	GoSoy 512E18	59.0	39.5	45.9	LOW	LOW	23.0	19.9	40.0	37.0	LOW	HIGH
BCD	GoSoy 46GL18	58.5	43.6	38.8	LOW	LOW	19.0	8.5	43.1	42.2	LOW	HIGH
BCD	Local Seed ZS4797E3	58.0	45.0	38.6	LOW	LOW	23.0	19.8	41.7	37.1	LOW	HIGH
BCD	GoSoy 482E18	57.0	43.1	41.8	MOD	LOW	17.4	17.9	41.6	41.7	MOD	MOD
BCD	GoSoy 463E19	56.9	40.7	38.8	HIGH	LOW	20.1	21.3	45.2	36.1	HIGH	HIGH
CD	GoSoy 491E19S	54.1	40.0	40.7	MOD	LOW	20.8	22.8	40.7	38.2	MOD	HIGH
D	GoSoy 471E19S	52.8	44.5	44.2	LOW	LOW	22.2	15.6	36.5	34.4	LOW	HIGH
	Average	**59.1**	**41.5**	**40.7**			**20.6**	**18.7**	**44.6**	**40.4**		

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 28, sprayed Aug 19, and harvested Oct 23.
JAX varieties planted May 21, sprayed Aug 8, and harvested Oct 3.
WTREC varieties planted after wheat June 17, sprayed Aug 28, and harvested Nov 6.
LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted: SDS=Sudden Death Syndrome; ' - ' indicate variety was not tested at that location

Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 28% with an average of 4%; Target spot ranged from 0 - 20% with an average of 2%.
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 16% with an average of 2%; Sudden Death Syndrome disease index ranged from 0 - 21 with an average of 6 disease index.
Disease ratings at WTREC: Disease pressure was too low (<5%) at this location to take ratings, some yield data were affected by sandy soils and the majority of those data points were discarded.

Disease ratings & yield data compiled by Dr. Heather Kelly from replicated plots at the Research and Education Center at Milan, the West Tennessee Research and Education Center, and on-farm location in Jackson.

Table 24-a. Mean yield, agronomic traits, and quality of 15 Maturity Group V (5.0 - 5.9) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019 Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Moisture at Harvest (%)			Plant Height (in.)			Lodging‖ (1-5)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Asgrow AG53X9**	R2X	61 A	64 A		12.3 A-C	13.2 A		41 D	41 B		1.7 CD	1.6 B	
AgriGold G5000RX***	R2X,STS	59 A-C	61 A-C	64 A	12.2 A-C	13.2 A	13.2 AB	43 CD	44 A	44 A	1.6 DE	1.7 B	1.7 A
Asgrow AG53X0	R2X	59 AB			12.2 A-C			45 AB			1.7 CD		
Local Seed Co. LS5386X	R2X	59 A-C			12.4 AB			43 BC			1.5 D-F		
Local Seed Co. LS5087X	R2X	58 A-D	58 C		12.1 BC	12.8 A		43 B-D	45 A		2.1 A-C	2.3 A	
Asgrow AG52X9**	R2X	58 A-C	62 AB		12.2 A-C	13.0 A		44 BC	44 A		1.4 D-F	1.4 B	
Progeny P5170RX	R2X	58 A-C			11.8 CD			46 A			2.1 A-C		
Asgrow AG55X7	R2X	57 B-E	57 C	60 B	12.1 BC	12.9 A	12.9 C	36 E	32 D	33 C	1.1 F	1.0 C	1.2 B
Progeny P5016RXS	R2X,STS	55 C-F	59 BC	63 A	12.1 A-C	13.1 A	13.3 A	43 CD	44 A	44 A	1.5 DE	1.7 B	1.7 A
VA V15-2261ST	STS	55 D-F			12.1 A-C			37 E			1.4 D-F		
MO S16-3747RY	R2Y	54 E-G			12.5 AB			37 E			1.8 B-D		
Local Seed Co. LS5588X	R2X	53 FG			12.6 A			37 E			1.2 EF		
USG 7568XT	R2X	52 FG	53 D	57 B	12.0 BC	13.0 A	12.9 BC	38 E	35 C	36 B	1.8 B-D	1.7 B	1.8 A
Credenz CZ 5299 X	R2X	51 GH			11.6 D			43 B-D			2.2 AB		
Progeny P5252RX	R2X	47 H	47 E		12.0 B-D	13.2 A		41 CD	41 B		2.4 A	2.4 A	
Average		**56**	**58**	**61**	**12.2**	**13.1**	**13.1**	**41**	**41**	**39**	**1.7**	**1.7**	**1.6**
Standard Error		**4**	**4**	**4**	**0.6**	**1.0**	**0.6**	**3**	**3**	**3**	**0.3**	**0.3**	**0.2**
L.S.D.$_{.05}$		**4**	**3**	**3**	**0.5**	**N.S.**	**0.3**	**2**	**2**	**1**	**0.4**	**0.3**	**0.2**
C.V.		**11**	**14**	**13**	**7**	**7**	**7**	**9**	**10**	**10**	**37**	**39**	**37**
Plots per entry (reps x locs.)		**21**	**42**	**63**	**21**	**42**	**63**	**18**	**36**	**54**	**18**	**36**	**54**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 24-b. Mean yield, agronomic traits, and quality of 15 Maturity Group V (5.0 - 5.9) soybean varieties evaluated in small plot replicated trials at seven REC locations in Tennessee during 2019 Analysis included variety performance over a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Maturity (DAP)			Protein¶ (%)			Oil¶ (%)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Asgrow AG53X9**	R2X	61 A	64 A		135 D-F	138 B-D		39.2 BC	40.3 B		22.1 GH	21.8 E	
AgriGold G5000RX***	R2X,STS	59 A-C	61 A-C	64 A	134 F-H	138 CD	138 C	38.7 CD	39.6 C	39.8 A	22.4 FG	22.2 D	21.8 B
Asgrow AG53X0	R2X	59 AB			134 E-G			38.9 CD			22.1 GH		
Local Seed Co. LS5386X	R2X	59 A-C			136 B-D			37.1 F			23.7 A		
Local Seed Co. LS5087X	R2X	58 A-D	58 C		133 HI	137 DE		38.1 C-F	39.1 CD		23.1 C-E	22.6 B	
Asgrow AG52X9**	R2X	58 A-C	62 AB		133 G-I	136 E		38.3 C-E	39.1 CD		23.6 AB	23.2 A	
Progeny P5170RX	R2X	58 A-C			133 I			38.1 C-F			23.2 A-C		
Asgrow AG55X7	R2X	57 B-E	57 C	60 B	136 B-D	139 BC	139 B	38.1 D-F	39.2 CD	39.3 BC	23.2 B-D	22.5 BC	22.3 A
Progeny P5016RXS	R2X,STS	55 C-F	59 BC	63 A	134 E-G	138 CD	138 C	38.2 C-E	39.4 CD	39.7 AB	22.6 EF	22.2 D	21.7 B
VA V15-2261ST	STS	55 D-F			136 CD			39.9 AB			22.8 D-F		
MO S16-3747RY	R2Y	54 E-G			136 A-C			37.2 EF			22.8 C-F		
Local Seed Co. LS5588X	R2X	53 FG			137 A			38.4 CD			22.1 GH		
USG 7568XT	R2X	52 FG	53 D	57 B	137 AB	142 A	143 A	37.8 D-F	38.8 D	39.0 C	22.5 FG	22.1 DE	21.7 B
Credenz CZ 5299 X	R2X	51 GH			134 E-H			40.1 AB			21.9 H		
Progeny P5252RX	R2X	47 H	47 E		135 DE	139 B		40.8 A	41.4 A		22.4 FG	22.2 CD	
Average		**56**	**58**	**61**	**135**	**138**	**140**	**38.6**	**39.6**	**39.5**	**22.7**	**22.3**	**21.9**
Standard Error		**4**	**4**	**4**	**4**	**5**	**3**	**0.4**	**1.0**	**0.7**	**0.2**	**0.4**	**0.4**
L.S.D.$_{.05}$		**4**	**3**	**3**	**1**	**1**	**1**	**1.1**	**0.6**	**0.5**	**0.5**	**0.3**	**0.3**
C.V.		**11**	**14**	**13**	**1**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**
Plots per entry (reps x locs.)		**21**	**42**	**63**	**18**	**36**	**54**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
‖ Lodging was evaluated on a a scale of 1 (no lodging) to 5 (complete lodging). C.V. is not reported for lodging since it was not measured using a ratio scale.
¶ Protein and oil on a dry weight basis.

Table 25. Mean yields across and by location of 15 Maturity Group V (5.0 - 5.9) soybean varieties evaluated in replicated small plot trials at seven REC locations in Tennessee during 2019. Analysis included hybrid performance across a 1 yr (2019), 2 yr (2018-2019), and 3 yr (2017-2019) period.

Variety	Herbicide Pkg†	Avg. Yield§ (bu/ac)			Knoxville Irr. (bu/ac)			Springfield Irr. (bu/ac)			Springfield Non-Irr. (bu/ac)			Milan Irr. (bu/ac)			Milan Non-Irr. (bu/ac)			Jackson Non-Irr. (bu/ac)			Memphis Irr. (bu/ac)		
		1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr	1 yr	2 yr	3 yr
Asgrow AG53X9**	R2X	61 A	64 A		72	71		56	67		50	47		78	76		71	66		48	56		51	62	
AgriGold G5000RX***	R2X,STS	59 A-C	61 A-C	64 A	82	77	75	55	63	70	41	42	51	66	67	71	63	61	66	48	57	56	54	58	61
Asgrow AG53X0	R2X	59 AB			78			56			47			75			68			47			45		
Local Seed Co. LS5386X	R2X	59 A-C			70			55			48			77			68			48			47		
Local Seed Co. LS5087X	R2X	58 A-D	58 C		81	70		57	68		38	42		70	67		63	56		49	51		45	50	
Asgrow AG52X9**	R2X	58 A-C	62 AB		74	78		50	63		44	44		77	73		69	63		42	54		52	57	
Progeny P5170RX	R2X	58 A-C			72			57			45			70			67			46			51		
Asgrow AG55X7	R2X	57 B-E	57 C	60 B	65	66	65	47	52	55	41	41	45	74	70	75	68	57	60	52	55	56	50	59	61
Progeny P5016RXS	R2X,STS	55 C-F	59 BC	63 A	72	74	72	52	63	69	32	42	51	73	71	74	68	66	69	42	51	52	46	49	54
VA V15-2261ST	STS	55 D-F			70			49			36			66			57			50			54		
MO S16-3747RY	R2Y	54 E-G			64			51			36			71			59			45			48		
Local Seed Co. LS5588X	R2X	53 FG			66			44			39			68			60			47			48		
USG 7568XT	R2X	52 FG	53 D	57 B	67	69	68	51	48	57	48	46	52	57	57	60	58	49	54	44	53	54	42	48	50
Credenz CZ 5299 X	R2X	51 GH			66			48			36			61			41			50			51		
Progeny P5252RX	R2X	47 H	47 E		54	54		45	45		36	40		54	54		45	41		49	48		46	49	
Average		**56**	**58**	**61**	**70**	**70**	**70**	**52**	**59**	**63**	**41**	**43**	**50**	**69**	**67**	**70**	**62**	**57**	**62**	**47**	**53**	**54**	**49**	**54**	**56**
Standard Error		**4**	**4**	**4**	**2**	**4**	**3**	**2**	**8**	**7**	**4**	**3**	**8**	**2**	**3**	**4**	**3**	**6**	**6**	**3**	**7**	**4**	**3**	**7**	**5**
L.S.D.$_{.05}$		**4**	**3**	**3**	**7**	**10**	**N.S.**	**6**	**10**	**8**	**10**	**N.S.**	**N.S.**	**7**	**5**	**4**	**8**	**8**	**7**	**N.S.**	**N.S.**	**N.S.**	**N.S.**	**9**	**N.S.**
C.V.		**11**	**14**	**13**	**6**	**13**	**12**	**7**	**14**	**13**	**15**	**17**	**15**	**6**	**7**	**6**	**8**	**12**	**11**	**8**	**12**	**9**	**11**	**14**	**13**
Plots per entry (reps x locs.)		**21**	**42**	**63**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**	**3**	**6**	**9**

† Hybrids that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Hybrids marked with an asterisk were in the top performing "A" group for two (**) or three (***) years within the previous three year evaluation period.
‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.

Table 26. Yields of 11 Maturity Group V Early (5.0-5.5) Roundup Ready / Dicamba tolerant soybean varieties in 8 County Standard Tests in Tennessee during 2019‡.

MS† Avg. Yield	Variety	Avg. Yield§ (bu/*acre*)	Avg. Moisture (%)	Percent of locs. with yield above loc. avg.	Carr 5/23	Dyer 7/1	Gibs 5/22	Hard 6/28	Hayw 5/24	Lake 6/3	Madi 5/31	Tipt 6/24
A	Asgrow 53X0	64	12.8	88	**72**	62	55	41	66	70	73	**72**
AB	Asgrow 53X9**	62	13.3	88	65	64	62	47	55	71	**75**	61
AB	Local Seed 5386X	62	12.8	75	68	**68**	56	**55**	57	**73**	50	69
AB	AgriGold G5000RX	61	12.8	88	67	53	60	47	71	69	65	61
AB	Local Seed 5087X**	60	12.7	63	58	58	49	46	68	70	**75**	61
AB	Asgrow 52X9	59	13.0	75	68	63	**72**	43	58	68	61	58
ABC	Asgrow 55X7	57	12.1	50	54	56	61	39	66	70	50	58
ABC	Asgrow 55X0	57	12.5	38	57	62	52	36	**76**	56	71	43
ABC	GoSoy 52X19	56	12.7	38	70	60	46	40	67	66	48	55
BC	Progeny 5016RXS	55	12.8	25	66	56	59	35	51	64	60	55
C	Credenz CZ5299X	50	12.2	0	62	50	35	34	53	58	57	50
	Average	**58**	**12.7**		**64**	**59**	**55**	**42**	**63**	**67**	**62**	**58**

‡ Data Provided by Ryan Blair, Ext. Area Specialist, Grain and Cotton Variety Testing, and Extension agents in counties shown above.
† Varieties that have any MS letter in common are not significantly different in yield at the 5% level of probability.
* Varieties marked with an asterisk were in the top performing "A" group for two (*) or three (**) consecutive years within the previous three year evaluation period.
§ All yields are adjusted to 13% moisture.
County Locations include: Carroll, Dyer, Gibson, Hardeman, Haywood, Lake, Madison, Tipton

Table 27. Overall average yields, moistures, and test weights of 9 Maturity Group V Early (5.0 - 5.4) soybean varieties evaluated in both the County Standard Tests and Research and Education Center Tests in Tennessee during 2019.

		Avg. of CST and REC Tests		CST Tests		REC Tests	
Variety	Herbicide Pkg[†]	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)	Avg. Yield[§] (bu/*acre*)	Avg. Moisture (%)
Asgrow AG53X9**	R2X	62	12.8	62	13.3	61	12.3
Asgrow AG53X0*	R2X	62	12.5	64	12.8	59	12.2
Local Seed Co. LS5386X*	R2X	61	12.6	62	12.8	59	12.4
AgriGold G5000RX*	R2X,STS	60	12.5	61	12.8	59	12.2
Local Seed Co. LS5087X*	R2X	59	12.4	60	12.7	58	12.1
Asgrow AG52X9*	R2X	58	12.6	59	13.0	58	12.2
Asgrow AG55X7	R2X	57	12.1	57	12.1	57	12.1
Progeny P5016RXS	R2X,STS	55	12.5	55	12.8	55	12.1
Credenz CZ 5299 X	R2X	50	11.9	50	12.2	51	11.6
Average		**58**	**12.4**	**59**	**12.7**	**57**	**12.1**

‡ For a full description of abbreviated biotech traits, see table 31.
§ All yields are adjusted to 13% moisture.
* Varieties marked with an asterisk were in the top performing "A" group in both the REC and CST tests for one (*), two (*), or three (**) years within the previous three year evaluation period.

Table 28. Yields and disease ratings of 11 Maturity Group V Early (5.0-5.5) Roundup Ready soybean varieties in 8 County Standard Tests and in small plot trials at one Research and Education Center and one on-farm location in Tennessee during 2019.

Summary from County Tests			Summary from Small Plot Research								
			Research & Education Center at Milan (RECM)				On-farm Location in Jackson (JAX)				
		Avg. Yield	RECM - YLD		Frogeye	Target	JAX - YLD		Frogeye	Target	
MS	Variety	(bu/ac)	*Treated	Non-treated	leaf spot	Spot	*Treated	Non-treated	leaf spot	Spot	SDS
A	Asgrow 53X0	64.0	38.5	41.4	MOD	HIGH	48.3	46.2	HIGH	HIGH	
AB	Asgrow 53X9**	62.4	38.2	44.0	LOW	LOW	47.3	47.8	LOW	LOW	
AB	Local Seed 5386X	62.0	39.5	41.1	LOW	LOW	48.7	44.4	MOD	LOW	LOW
AB	AgriGold G5000RX	61.0	39.1	44.3	MOD	LOW	51.9	47.1	HIGH	LOW	
AB	Local Seed 5087X**	60.4	37.1	35.6	MOD	LOW	44.1	44.0	MOD	LOW	LOW
AB	Asgrow 52X9	58.7	38.8	43.6	MOD	LOW	53.3	46.4	HIGH	LOW	
ABC	Asgrow 55X7	56.8	43.5	44.4	MOD	LOW	44.8	39.3	LOW	LOW	LOW
ABC	Asgrow 55X0	56.6	40.9	40.9	HIGH	LOW	36.7	33.7	HIGH	LOW	
ABC	GoSoy 52X19	55.5	43.3	40.4	LOW	LOW	36.4	34.5	LOW	LOW	HIGH
BC	Progeny 5016RXS	55.2	42.1	45.6	MOD	LOW	48.5	46.4	HIGH	LOW	
C	Credenz CZ5299X	49.6	-	-	-	-	41.1	41.7	MOD	LOW	
	Average	**58.4**	**40.1**	**42.1**			**45.6**	**42.9**			

YLD= Avg. Yield @ 13% moisture
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (**) or (***) etc. were in the top performing group for consecutive years.

*Treated plots sprayed with Quadris TOP SBX @ 7 oz./Acre + 0.25% Induce @ R3 growth stage.
RECM varieties planted May 21, sprayed Aug 19, and harvested Oct 23.
JAX varieties planted May 28, sprayed Aug 13, and harvested Oct 3.

LOW, MOD, and HIGH is a relative ranking of disease severity at each location. Other diseases noted: SC=Stem Canker, CLB=Cercospora Leaf Blight, SDS=Sudden Death Syndrome; ' - ' indicate variety was not tested at that location
Disease ratings at RECM: Frogeye leaf spot ranged from 0 - 19% with an average of 8% and Target spot was only reported on Asgrow 53X0.
Disease ratings at JAX: Frogeye leaf spot ranged from 0 - 17% with an average of 6% and Target spot was only observed on Asgrow 53X0 and SDS disease index ranged from 0 - 20, with an average of 2 disease index.

Disease ratings & yield data compiled by Dr. Heather Kelly from replicated plots at the Research and Education Center at Milan and on-farm location in Jackson.

Table 29. Characteristics of soybean varieties evaluated in Tennessee during 2019, as provided by the seed company.

Variety	Rel. Mat.	Herb. Tol.[†]	SCN[‡]	Stem Canker[‡]	SDS[‡]	Frogeye[‡]	Flower Color[§]	Pub. Color[‖]	Seed Treatment
AgriGold G3722RX	3.7	R2X,STS	R-3, MR-14	R	R	S	W	T	AgriShield F, I
AgriGold G4190RX	4.1	R2X,STS	R-3, MR-14	R	R	S	P	G	AgriShield F, I
AgriGold G4255RX	4.2	R2X,STS	R-3, MR-14	S	S	S	P	T	AgriShield F, I
AgriGold G4579RX	4.5	R2X,STS	R-3, MR-14	R	S	R	P	G	AgriShield F, I
AgriGold G4605RX	4.6	R2X,STS	R-3, MR-14	R	R	R	P	T	AgriShield F, I
AgriGold G4815RX	4.8	R2X,STS	R-3, MR-14	R	S	S	P	G	AgriShield F, I
AgriGold G5000RX	5.0	R2X,STS	R-3, MR-14	R	S	S	P	T	AgriShield F, I
AGS GS49X19	4.9	R2X							CMV
Armor 42-D27	4.2	R2X	R-3, MR-14	MR	MR	S	P	LT	Defend Xtra
Armor 44-D92	4.4	R2X	R-3, MR-14	R	MR	MR	P	LT	Defend Xtra
Armor X46D09	4.6	R2X	R-3, MR-14	R	MR	MR	P	LT	Defend Xtra
Armor X48D25	4.8	R2X	R-3, MR-14	R	MR	MR	P	LT	Defend Xtra
Asgrow AG36X6	3.6	R2X	3	R	R	MS	P	G	ACC
Asgrow AG37X9	3.7	R2X	3	R	R	MS	P	G	ACC
Asgrow AG39X7	3.9	R2X	3	R	R	MS	P	LT	ACC
Asgrow AG43X8	4.3	R2X	3	R	R	R	W	LT	ACC
Asgrow AG44X0	4.4	R2X	3	R	R	R	P	G	ACC
Asgrow AG45X8	4.5	R2X	3	R	MS	R	P	LT	ACC
Asgrow AG46X0	4.6	R2X	3	R	R	R	P	LT	ACC
Asgrow AG46X6	4.6	R2X	3	R	MS	R	P	T	ACC
Asgrow AG47X0	4.7	R2X	3	R	R	R	P	G	ACC
Asgrow AG48X9	4.8	R2X	3	R	R	MS	P	LT	ACC
Asgrow AG49X0	4.9	R2X	3	R	R	R	P	LT	ACC
Asgrow AG49X9	4.9	R2X	3	R	R	R	P	LT	ACC
Asgrow AG52X9	5.2	R2X	3	R	R	MS	P	LT	ACC
Asgrow AG53X0	5.3	R2X	3	R	R	MS	P	G	ACC
Asgrow AG53X9	5.3	R2X	3	R	R	R	P	LT	ACC
Asgrow AG55X7	5.5	R2X	S	MS	MS	MS	W	T	ACC
Caverndale Farms CF 387 HT-GLYn	3.8	RR	3, 14	MR	MR	MR	W	LT	TEN
Caverndale Farms CF 427 HT-GLY/STSn	4.2	RR,STS	3, 14	MR	MR	MR	P	LT	TEN
Credenz 3929 GTLL	3.9	GTLL							PVI
Credenz CZ 3660 GTLL	3.6	GTLL							PVI
Credenz CZ 3841 LL	3.8	LL							PVI
Credenz CZ 4222 LL	4.2	LL							PVI
Credenz CZ 4539 GTLL	4.5	GTLL							PVI
Credenz CZ 4820 LL	4.8	LL							PVI
Credenz CZ 4869 X	4.8	R2X							PVI
Credenz CZ 4918 LL	4.9	LL							PVI
Credenz CZ 4979 X	4.9	R2X							PVI
Credenz CZ 5299 X	5.2	R2X							PVI
Croplan RX4117S	4.1	R2X	PI88.788	R	R	R	P	G	Warden CX
Croplan RX4516S	4.5	R2X	PI88.788	R	S	R	P	G	Warden CX
Croplan RX4825	4.8	R2X	PI88.788	R	R	R	P	T	Warden CX
Dyna-Gro S37EN39	3.7	Enlist E3	R-3, MR-14	MR	MS	MR	P	G	Equity VIP
Dyna-Gro S39EN19	3.9	Enlist E3	R-3, MR-14	R	MR	MR	W	G	Equity VIP
Dyna-Gro S41XS98	4.1	R2X,STS	R-3, MR-14	MR	MR	MS	P	G	Equity VIP
Dyna-Gro S42EN89	4.2	Enlist E3	R-3, MR-14	R	MR	MR	W	G	Equity VIP
Dyna-Gro S43XS70	4.3	R2X,STS	R-3, MR-14	R	MR	MR	P	LT	Equity VIP
Dyna-Gro S44XS68	4.4	R2X,STS	R-3, MR-14	R	MR	MR	P	LT	Equity VIP
Dyna-Gro S45XS37	4.5	R2X,STS	R-3, MR-14	R	MR	R	W	T	Equity VIP
Dyna-Gro S46EN29	4.6	Enlist E3	MR-3	MR	MS	MR	P	G	Equity VIP
Dyna-Gro S46XS60	4.6	R2X,STS	R-3, MR-14	R	MR	MR	P	LT	Equity VIP
Dyna-Gro S46XT80	4.6	R2X	R-3, MR-14	R	MR	MR	W	LT	Equity VIP
Dyna-Gro S48XT56	4.8	R2X	R-3, MR-14	R	MR	MR	P	LT	Equity VIP
Dyna-Gro S49EN79	4.9	Enlist E3	R-3, MR-14	R	MS	MR	W	G	Equity VIP
Dyna-Gro S49XS76	4.9	R2X,STS	R-3, MR-14	R	MR	MS	P	LT	Equity VIP
Dyna-Gro S49XT70	4.9	R2X	R-3, MR-14	R	MR	MR	W	LT	Equity VIP
Go Soy 40GL18	4.0	LL GT27							CMV
Go Soy 423E19	4.2	Enlist E3							CMV
Go Soy 462E18	4.6	Enlist E3							CMV
Go Soy 46GL18	4.6	LL GT27							CMV
Go Soy 482E18	4.8	Enlist E3							CMV
LG Seeds LGS4227RX	4.2	RRX					P	G	AgriShield F, I, Ilevo
LG Seeds LGS4393RX	4.3	RRX	R-3, MR-14	R	MR	MR	P	LT	AgriShield F, I, Ilevo
LG Seeds LGS4420RX	4.4	RRX	R-3, MR-14	R	MR	R	P	LT	AgriShield F, I, Ilevo
LG Seeds C4845RX	4.8	RRX	R-3, MR-14	R	MR	MR	P	LT	AgriShield F, I, Ilevo
LG Seeds LGS4899RX	4.8	RRX	R-3, MR-14	R	MR	MR	P	LT	AgriShield F, I, Ilevo
Local Seed Co. LS3976X	3.9	R2X	R-3, MR-14	R	MS	R	P	LT	RSP, I
Local Seed Co. LS4299XS	4.2	R2X	R-3, MR-14	R	MR	MR	P	LT	RSP, I
Local Seed Co. LS4487XS	4.4	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
Local Seed Co. LS4565XS	4.5	R2X	R-3, MR-14	R	R	R	W	T	RSP, I
Local Seed Co. LS4583X	4.5	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
Local Seed Co. LS4407X	4.5	R2X		R	MS	R	P	LT	RSP, I
Local Seed Co. ZS4596GLS	4.5	GT,LL	R-3, MR-14	R		MR	P	LT	RSP, I
Local Seed Co. LS4677X	4.6	R2X	R-3, MR-14	R	R	R	W	T	RSP, I

Table 29. Cont.

Variety	Rel. Mat.	Herb. Tol.†	SCN‡	Stem Canker‡	SDS‡	Frogeye‡	Flower Color§	Pub. Color‖	Seed Treatment
Local Seed Co. LS4798X	4.7	R2X	R-3, MR-14	R	MS	MR	W	LT	RSP, I
Local Seed Co. LS4889XS	4.8	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
Local Seed Co. LS4999X	4.9	R2X	R-3, MR-14	R	MR	R	W	LT	RSP, I
Local Seed Co. LS4795XS	4.6	R2X	R-3, MR-14	R	R	MR	P	LT	RSP, I
Local Seed Co. LS4894X	4.8	R2X		R	MR	MR	P	LT	RSP, I
Local Seed Co. ZS4694E3S	4.6	Enlist E3	R-3, MR-14	R		R	W	T	RSP, I
Local Seed Co. ZS4797E3	4.7	Enlist E3	R-3, MR-14	R		MR	W	LT	RSP, I
Local Seed Co. LS5087X	5.0	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
Local Seed Co. LS5386X	5.3	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
Local Seed Co. LS5588X	5.5	R2X	R-3, MR-14	R	R	R	P	T	RSP, I
MO S13-2743C	4.1	CONV	3,14	R	S	S	W	G	Inovate
MO S13-3851C	4.4	CONV		R	R	S	P	LT	Inovate
MO S16-14730C	4.5	CONV					P	T	Inovate
MO S14-15138R	4.8	RR,STS	3,14	R	R	R	W	T	Inovate
MO S16-14379C	4.7	CONV					P	LT	Inovate
MO S16-3747RY	5.4	RR2					W	LT	Inovate
NK Seeds S39-G2X	3.9	R2X	3,14	R	R		P	T	Cruiser EX
NK Seeds S44-C7X	4.4	R2X	3,14	R	R		P	T	Cruiser EX
NK Seeds S49-F5X	4.9	R2X	3,14	R	R		P	T	Cruiser EX
Progeny P4265RXS	4.2	R2X,STS							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P4620RXS	4.6	R2X,STS							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P4799RXS	4.7	R2X,STS							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P4816RX	4.8	R2X							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P4821RX	4.8	R2X							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P4999RX	4.9	R2X,STS							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P5016RXS	5.0	R2X,STS							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P5170RX	5.1	R2X							Poncho 600, Votivo, Trilex 2000, iLevo
Progeny P5252RX	5.2	R2X							Poncho 600, Votivo, Trilex 2000, iLevo
Terral REV 4310X	4.3	R2X	8-3, 8-14	R		M	W	LT	EverGol, Energy SB, LUMISENA
Terral REV 4679X	4.6	R2X	9-3, 8-14	R	M	R	P	T	EverGol, Energy SB, LUMISENA
Terral REV 4927X	4.9	R2X	9-3, 6-14	R	M	M	P	LT	EverGol, Energy SB, LUMISENA
Terral REV 4940X	4.9	R2X	9-3, 8-14	R	M	M	P	LT	EverGol, Energy SB, LUMISENA
USG 7460ET	4.6	Enlist E3	R-3, MR-14	R		MR	W	LT	Ipconazole, Metalaxyl, Imidicloprid
USG 7470XT	4.7	R2X	R-3, MR-14	R	MR	MR	P	G	Ipconazole, Metalaxyl, Imidicloprid
USG 7478XTS	4.8	R2X,STS	R-3, MR-14	MS	MR	R	P	G	Ipconazole, Metalaxyl, Imidicloprid
USG 7479ET	4.7	Enlist E3	R-3, MR-14	S	S	MR	W	G	Ipconazole, Metalaxyl, Imidicloprid
USG 7480ET	4.8	Enlist E3		R	MR	MR	W	G	Ipconazole, Metalaxyl, Imidicloprid
USG 7480XT	4.8	R2X		R	MR	MR	P	LT	Ipconazole, Metalaxyl, Imidicloprid
USG 7489XT	4.8	R2X	R-3, MR-14	R	MR	MR	P	LT	Ipconazole, Metalaxyl, Imidicloprid
USG 7496XTS	4.9	R2X,STS	R-3, MR-14	R	MR	MS	P	LT	Ipconazole, Metalaxyl, Imidicloprid
USG 7568XT	5.6	R2X	R-1,R-3	S	MR	R	W	T	Ipconazole, Metalaxyl, Imidicloprid
VA V15-1407	4.9						P	G	Rancona, Summitt
VA V15-2259ST	4.9	STS					P	T	Rancona, Summitt
VA V15-2287ST	4.7	STS					W	T	Rancona, Summitt
VA V15-2261ST	5.3	STS					P	G	Rancona, Summitt
Warren Seed BG 3701 RR2X	3.7	R2X	R-3, MR-14	R	R	R	W	LT	Gaucho, EverGol Energy
Warren Seed BG 4210 RR2X	4.2	R2X	3,14	MR	R	R	P	G	Gaucho, EverGol Energy
Warren Seed BG 4510 RR2X	4.5	R2X	3,14	R	R	R	P	LT	Gaucho, EverGol Energy
Warren Seed BG 4710 RR2X	4.7	R2X	R-3, MR-14	R	R	R	P	LT	Gaucho, EverGol Energy
Warren Seed BG 4855 RR2X	4.8	R2X	R-3, MR-14	R	R	R	P	LT	Gaucho, EverGol Energy

Table 29. Cont.

Variety	Rel. Mat.	Herb. Tol.†	SCN‡	Stem Canker‡	SDS‡	Frogeye‡	Flower Color§	Pub. Color‖	Seed Treatment
Warren Seed BG 4922 RR2X	4.9	R2X	3,14	R	R	R	P	LT	Gaucho, EverGol Energy

† For a full description of abbreviated biotech traits, see table 31.
‡ R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible.
§ Flower colors: P = purple, W = white, S = segregating,
‖ Pubescence colors: T = tawny, LT = light tawny, B = brown, G = gray, S=segregating

Table 30. Contact information for soybean seed companies evaluated in yield tests in Tennessee during 2019.

Company	Contact	Phone	Email	Web site
AgriGold Hybrids	Justin Warren	800-262-7333	justin.warren@agrigold.com	www.agrigold.com
Armor Seed	Jay Middleton	270-832-2133	jaymiddleton@armorseed.com	www.armorseed.com
Bayer Company	Larry Ganann (Lakeland, TN)	901-326-7140	larry.ganann@bayer.com	www.bayer.com
Caverndale Farms	Barry Welty	859-236-2150	bwelty@kywimax.com	www.caverndalefarms.com
Credenz (BASF)	Lucas Owen	731-793-3530	lucas.owen@basf.com	www.cropscience.bayer.us/products/seeds/credenz
Croplan (WinField United)	Caleb Robertson	731-614-5234	clrobertson@landolakes.com	http://www.winfield.com/farmer/croplan/
Dyna-Gro Seed / Nutrien Ag Solutions	Stacey Bruff	731-885-1212	stacey.bruff@nutrien.com	www.dynagroseed.com
LG Seeds	Dan Mitchell	812-457-3132	dan.mitchell@lgseeds.com	www.lgseeds.com
Local Seed Company	Bradley Taylor	662-402-1502	bradley.taylor@localseed.com	www.localseed.com
NK Brand (Syngenta)	Chuck Leonard	270-519-9600	chuck.leonard@syngenta.com	www.nk-us.com
Progeny Ag	John D. Rocconi	979-587-9968	JohnR@progenyag.com	www.progenyag.com
Stratton Seed Company (AgSouth Genetics & Go Soy)	Heath North	800-264-4433	hnorth@strattonseed.com	www.strattonseed.com
Terral Seed Inc	Marty Hale	318-341-8814	mhale@terralseed.com	www.terralseed.com
UniSouth Genetics, Inc. (USG)	Fandrich Supply Co. (Belvidere, TN)	931-967-3377		www.usgseed.com
	Huffstetler & Sons Seed Inc. (Greenfield, TN)	731-235-2167		
	Hurt Seed Co. Inc. (Halls, TN)	731-836-7574		
	Sellers Seed (Obion, TN)	731-538-2990		
	Stacy Burwick	931-996-4164	sburwick@usgseed.com	
University of Missouri	Pengyin Chen	573-379-5431	chenpe@missouri.edu	www.missouri.edu
Virginia Tech	Bo Zhang	540-750-0169	bozhang@vt.edu	cropgenetics.cses.vt.edu/soybean-breeding.html
Warren Seed	Lanny Warren	731-885-6285	lanny.warren@charter.net	lanny.warren@charter.net

Table 31. Abbreviations used to identify biotech traits of soybean varieties evaluated in Tennessee during 2019.

Abbreviation	Name	Characteristic
Enlist E3	Corteva Enlist E3	2,4-D choline, Glyphosate, and Glufosinate tolerance
LL	Bayer CropScience LibertyLink®	Glufosinate tolerance.
LL GTG7		Glufosinate and Glyphosate tolerance
RR	Monsanto Roundup Ready®	Glyphosate tolerance.
RR2	Monsanto Roundup Ready 2®	Glyphosate tolerance.
R2X	Monsanto Roundup Ready 2 eXtend®	Glyphosate and Dicamba tolerance
GT		Glyphosate tolerance.
STS		Sulfonylurea tolerance