

Table 17-a. Mean[†] yield, agronomic traits, and quality of 30 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at nine REC locations in Tennessee during 2023. Analysis included variety performance over a 1 yr, 2 yr, and 3 yr 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
Dyna-Gro S47XF23S	XFS	78 A	67 A-C		12.1 C-I	12.2 E		41 E-J	39 DE		1.3 G-J	1.2 E	
Revere 4795XS****	R2XS	77 AB	69 AB	69 A	11.8 KL	12.0 E	12.2 C	42 D-G	39 CD	38 B	1.3 F-J	1.2 B-E	1.2 BC
Revere 4826XF*	XF	77 AB	69 A		11.9 E-K	12.2 E		40 H-L	38 E-G		1.3 G-J	1.2 DE	
USG 7461XFS**	XFS	77 AB	68 A-C	68 A	11.9 G-K	12.1 E	12.4 BC	44 BC	42 B	40 A	1.4 E-J	1.3 B-E	1.3 AB
Asgrow AG48XF3	XF	76 A-C			12.1 B-G			44 AB			1.3 E-J		
Asgrow AG49XF3	XF	76 A-D			11.9 E-K			46 A			1.3 F-J		
Revere 4727XF	XF	76 A-D	66 C-F		11.5 L	11.7 F		40 J-N	38 E-G		1.3 F-J	1.2 C-E	
USG 7496XTS**	R2XS	74 A-E	67 A-D	69 A	12.3 A-C	12.9 A	13.0 A	45 AB	43 A	41 A	1.4 E-J	1.3 A-E	1.3 AB
USG 7474XFS	XFS	74 A-E			11.9 E-K			41 E-J			1.3 F-J		
Progeny 4604XFS**	XFS	74 A-E	67 A-E	68 A	11.8 H-K	12.3 C-E	12.5 B	45 AB	42 AB	41 A	1.5 D-I	1.3 A-C	1.3 A
Progeny 4691XFS*	XFS	74 A-F	66 B-F		12.4 AB	12.5 BC		44 AB	42 AB		1.5 D-J	1.3 A-E	
Don Mario DM48F53	XF	73 A-F			12.0 E-K			37 OP			1.4 D-J		
Dyna-Gro S48EN73	E3	73 B-G	64 E-G		12.0 E-K	12.2 E		40 H-L	37 G		1.5 D-G	1.4 A	
USG 7463XF	XF	72 C-G	65 C-F		12.1 B-H	12.2 DE		42 C-E	40 C		1.2 IJ	1.2 DE	
Revere 4934XF	XF	71 D-G			12.1 B-H			38 L-O			1.6 D-F		
Dyna-Gro S49XF43S	XFS	71 D-G	65 C-F		12.1 B-H	12.8 AB		38 M-O	36 H		1.5 D-J	1.3 A-D	
Progeny 4798XF	XF	71 E-H	63 FG		11.8 J-L	12.0 E		40 H-K	38 D-F		1.4 D-J	1.4 AB	
Innictis A4862XF	XF	71 E-H	64 D-G		12.0 D-J	12.1 E		42 D-H	39 DE		1.4 D-J	1.3 A-E	
Xitavo 4894E	E3	70 E-H			12.1 B-H			43 B-D			1.4 E-J		
Asgrow AG47XF2	XF	70 E-H	64 FG		12.3 A-D	12.5 CD		40 H-L	38 FG		1.2 H-J	1.2 B-E	
USG 7494ETS	E3S	70 E-H			12.2 A-F			42 D-F			1.3 F-J		
Progeny 4775E3S	E3S	69 F-H	62 GH		12.4 A	12.6 BC		44 AB	42 AB		1.5 D-H	1.3 A-D	
Xitavo 4653E	E3	69 GH			11.9 F-K			40 F-K			1.2 J		
Progeny 4806XFS	XFS	67 HI	60 H	62 B	11.8 I-L	12.2 DE	12.5 B	42 D-I	39 DE	37 B	1.3 F-J	1.2 E	1.1 C
Innictis B4903E	E3	67 HI			11.8 H-K			40 G-K			1.7 D		
Revere 4731XF	XF	66 HI			12.5 A			39 K-N			2.2 BC		
Innictis B4603E	E3	64 I			11.7 KL			40 I-M			2.1 C		
MO S18-17644	Conv	55 J			12.4 A			38 N-P			2.8 A		
Perdue Agribusiness P4†Conv	Conv	54 J			12.2 A-E			36 P			2.4 B		
TN Exp TN18-4110b	Conv.	47 K			11.8 J-L			29 Q			1.6 DE		
Average		70	66	67	12.0	12.3	12.5	41	39	39	1.5	1.3	1.2
Standard Error		5	8	5	0.7	0.4	0.3	1	3	3	0.2	0.2	0.1
L.S.D._{.05}		5	3	2	0.3	0.3	0.2	2	1	1	0.3	0.2	0.1
C.V.		12	11	10	4	6	5	8	7	7	-	-	-
Site-Years		8	16	24	8	16	24	8	16	24	8	16	24

† Varieties that have any MS letter in common are not significantly different at the 5% level of probability. Values highlighted in light orange are above average for a given trait, MS letters highlighted in dark orange are in the "A group", indicating no statistical difference from the top-performing variety, for a given trait.

C.V. is only reported for variables evaluated on a ratio scale.

L.S.D. values are given for ANOVA that were significant at P<0.05. Variables in which minimal variation was observed were not subjected to ANOVA and are reported as N.E.

‡ For a full description of abbreviated biotech traits, see table 29.

* Asterisks after a name indicate the number of preceding consecutive years in the top-performing "A" group.

§ All yields are adjusted to 13% moisture.

|| Lodging was evaluated on a scale of 1 (no lodging) to 5 (complete lodging).

T Indicate data that were log transformed to meet assumptions of normality, raw means are reported and mean separation letters are given. L.S.D values are not reported as these would be relative to transformed mean values.

Table 17-b. Mean[†] yield, agronomic traits, and quality of 37 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at nine REC locations in Tennessee during 2023. Analysis included variety performance over a 1 yr, 2 yr, and 3 yr 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
Dyna-Gro S47XF23S	XFS	78 A	67 A-C		144 J-O	141 F		32.8 H-J	32.8 F		24.2 A-E	23.9 BC	
Revere 4795XS****	R2XS	77 AB	69 AB	69 A	147 C-E	143 CD	142 BC	34.6 A-E	34.2 BC	34.2 B	23.6 D-J	23.5 D-F	23.6 AB
Revere 4826XF*	XF	77 AB	69 A		144 J-O	141 F		33.5 E-I	33.7 CD		23.8 D-J	23.7 CD	
USG 7461XFS**	XFS	77 AB	68 A-C	68 A	145 F-L	142 DE	142 C	33.6 C-I	33.5 DE	33.6 BC	23.7 D-J	23.6 C-F	23.5 B
Asgrow AG48XF3	XF	76 A-C			146 C-F			33.6 D-I			24.7 A-C		
Asgrow AG49XF3	XF	76 A-D			148 BC			33.8 C-H			23.2 IJ		
Revere 4727XF	XF	76 A-D	66 C-F		143 L-P	141 EF		33.7 C-H	33.5 DE		24.1 B-G	23.9 BC	
USG 7496XTS**	R2XS	74 A-E	67 A-D	69 A	147 CD	145 A	144 A	34.2 A-G	34.8 AB	35.1 A	23.5 E-J	23.0 G	23.1 C
USG 7474XFS	XFS	74 A-E			145 E-J			34.2 A-G			24.0 B-H		
Progeny 4604XFS**	XFS	74 A-E	67 A-E	68 A	145 F-K	142 DE	141 C	32.6 I-K	33.0 EF	33.1 CD	23.8 C-J	23.6 C-E	23.7 AB
Progeny 4691XFS*	XFS	74 A-F	66 B-F		142 OP	140 G		34.5 A-F	34.3 BC		23.4 F-J	23.2 E-G	
Don Mario DM48F53	XF	73 A-F			144 I-N			31.5 K			25.0 A		
Dyna-Gro S48EN73	E3	73 B-G	64 E-G		144 H-M	142 DE		34.8 A-C	34.7 AB		23.3 F-J	23.2 E-G	
USG 7463XF	XF	72 C-G	65 C-F		141 P	139 G		35.0 AB	34.7 AB		23.2 G-J	23.2 FG	
Revere 4934XF	XF	71 D-G			147 C-E			32.1 JK			24.8 AB		
Dyna-Gro S49XF43S	XFS	71 D-G	65 C-F		146 C-G	144 B		34.5 A-E	33.9 CD		24.4 A-D	24.5 A	
Progeny 4798XF	XF	71 E-H	63 FG		147 CD	144 BC		32.6 I-K	32.5 F		24.0 B-I	23.9 BC	
Innvictis A4862XF	XF	71 E-H	64 D-G		146 C-H	143 CD		33.4 F-I	33.9 CD		24.1 B-F	23.8 CD	
Xitavo 4894E	E3	70 E-H			144 H-M			35.1 A			23.6 D-J		
Asgrow AG47XF2	XF	70 E-H	64 FG		144 J-O	140 FG		33.9 B-H	33.8 CD		23.9 B-I	23.9 BC	
USG 7494ETS	E3S	70 E-H			146 D-H			34.3 A-G			23.8 D-J		
Progeny 4775E3S	E3S	69 F-H	62 GH		143 K-P	141 FG		35.1 A	35.2 A		23.2 H-J	22.9 G	
Xitavo 4653E	E3	69 GH			143 M-P			33.8 C-H			23.8 D-J		
Progeny 4806XFS	XFS	67 HI	60 H	62 B	146 D-I	143 CD	142 B	32.0 JK	32.5 F	33.0 D	24.7 A-C	24.2 AB	24.0 A
Innvictis B4903E	E3	67 HI			145 G-L			35.2 A			23.0 J		
Revere 4731XF	XF	66 HI			143 N-P			34.3 A-G			23.5 E-J		
Innvictis B4603E	E3	64 I			143 K-P			34.6 A-D			23.7 D-J		
MO S18-17644	Conv	55 J			147 C-E			33.1 G-J			23.2 F-J		
Perdue Agribusiness P4	Conv	54 J			149 AB			35.0 AB			21.1 K		
TN Exp TN18-4110b	Conv.	47 K			150 A			34.0 B-G			20.2 K		
Average		70	65	67	145	142	142	33.9	34	34	23.6	24	24
Standard Error		5	8	5	2	3	2	0.4	0.2	0.3	0.3	0.2	0.2
L.S.D._{.05}		5	3	2	2	1	1	1.1	0.7	0.6	0.8	0.4	0.4
C.V.		12	11	10	2	2	2	2	2	2	2	2	2
Site-Years		8	16	24	8	16	24	1	2	3	1	2	3

† Varieties that have any MS letter in common are not significantly different at the 5% level of probability. Values highlighted in light orange are above average for a given trait, MS letters highlighted in dark orange are in the "A group", indicating no statistical difference from the top-performing variety, for a given trait.

C.V. is only reported for variables evaluated on a ratio scale.

L.S.D. values are given for ANOVA that were significant at P<0.05. Variables in which minimal variation was observed were not subjected to ANOVA and are reported as N.E.

* Asterisks after a name indicate the number of preceding consecutive years in the top-performing "A" group.

‡ For a full description of abbreviated biotech traits, see table 29.

§ All yields are adjusted to 13% moisture.

¶ Protein and oil were measured post-harvest using NIRS and are reported on a dry weight basis.

Table 17-c. Mean[†] yield, agronomic traits, and quality of 30 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at eight REC locations in Tennessee during 2023 Sudden death syndrome (SDS) and frogeye disease ratings were taken in mid-September. Leaf holding was taken at harvest. Seed quality and purple stain ratings were taken post-harvest.

Variety	Herbicide Pkg [†]	Avg. Yield [§]	SDS DI ^{††, †}	SDS DS ^{††, †}	SDS DX ^{††, †}	Frogeye ^{‡‡}	Seed Quality ^{§§}	Purple Stain ^{¶¶, †}	Leaf Holding
		(bu/ac)	(%)	(1-9)	(DI x DS/9)	(1-9)	(1-5)	(1-5)	(1-5)
		1 yr	1 yr	1 yr	1 yr	1 yr	1 yr	1 yr	1 yr
Dyna-Gro S47XF23S	XFS	78 A	1 H	1.1 JK	0 G	2.7 D-F	1.0 E	1.2 BC	1.1 B
Revere 4795XS****	R2XS	77 AB	5 A-E	1.7 B-H	2 A-D	2.9 D-F	1.3 C-E	1.0 C	1.2 B
Revere 4826XF*	XF	77 AB	2 GH	1.3 H-K	1 FG	3.1 C-E	1.3 C-E	1.2 BC	1.1 B
USG 7461XF5**	XFS	77 AB	7 A-D	1.7 C-I	2 A-C	2.2 F-H	1.3 C-E	1.5 A	1.4 B
Asgrow AG48XF3	XF	76 A-C	8 A-D	1.7 C-I	2 A-C	3.2 A-D	1.2 DE	1.3 AB	1.2 B
Asgrow AG49XF3	XF	76 A-D	3 GH	1.1 JK	1 FG	3.9 A	1.3 C-E	1.3 AB	1.2 B
Revere 4727XF	XF	76 A-D	8 A-E	1.7 C-I	2 A-C	2.3 F-H	1.5 CD	1.5 A	1.4 B
USG 7496XTS**	R2XS	74 A-E	7 C-G	1.9 A-E	3 B-E	2.3 FG	1.3 C-E	1.5 A	1.3 B
USG 7474XFS	XFS	74 A-E	4 C-G	1.3 F-K	1 B-F	2.6 D-F	1.3 C-E	1.2 BC	1.3 B
Progeny 4604XF5**	XFS	74 A-E	8 A-E	1.4 E-J	2 A-D	2.7 D-F	1.3 C-E	1.0 C	1.3 B
Progeny 4691XF5*	XFS	74 A-F	14 A-D	1.8 A-F	5 A-C	3.2 B-E	1.2 DE	1.5 A	1.2 B
Don Mario DM48F53	XF	73 A-G	12 A-D	2.1 A-D	6 A-C	1.3 I	1.0 E	1.2 BC	1.1 B
Dyna-Gro S48EN73	E3	73 B-G	3 E-H	1.3 I-K	0 D-G	2.7 D-F	1.7 BC	1.3 AB	1.3 B
USG 7463XF	XF	72 C-G	5 A-E	1.4 E-K	1 A-D	3.1 C-E	1.2 DE	1.0 C	1.1 B
Revere 4934XF	XF	71 D-G	12 A-E	2.0 A-E	6 A-D	1.1 I	1.2 DE	1.0 C	1.3 B
Dyna-Gro S49XF43S	XFS	71 D-G	16 AB	2.0 A-C	6 A	1.6 HI	1.3 C-E	1.5 A	1.2 B
Progeny 4798XF	XF	71 E-H	6 A-E	1.4 E-K	1 A-D	2.7 D-F	1.0 E	1.0 C	1.4 B
Innvictis A4862XF	XF	71 E-H	8 A-C	1.8 A-F	2 AB	1.5 I	1.2 DE	1.5 A	1.2 B
Xitavo 4894E	E3	70 E-H	2 F-H	1.0 K	0 E-G	3.2 A-D	1.7 BC	1.2 BC	1.3 B
Asgrow AG47XF2	XF	70 E-H	3 B-F	1.6 C-I	1 B-E	1.8 G-I	1.0 E	1.0 C	1.2 B
USG 7494ETS	E3S	70 E-H	5 GH	1.3 G-K	2 FG	3.8 AB	1.7 BC	1.3 AB	1.2 B
Progeny 4775E3S	E3S	69 F-H	6 D-H	1.3 F-K	1 C-G	3.2 B-E	1.5 CD	1.3 AB	1.2 B
Xitavo 4653E	E3	69 GH	5 C-G	1.5 E-J	1 B-F	2.5 EF	1.5 CD	1.0 C	1.2 B
Progeny 4806XFS	XFS	67 HI	24 A	2.5 A	13 A	3.8 A-C	1.5 CD	1.2 BC	1.2 B
Innvictis B4903E	E3	67 HI	15 A-D	2.3 A-C	9 A-C	2.8 D-F	2.3 A	1.3 AB	1.3 B
Revere 4731XF	XF	66 HI	24 A	2.4 AB	11 A	1.4 I	1.3 C-E	1.0 C	1.1 B
Innvictis B4603E	E3	64 I	9 A-D	1.9 A-G	4 A-C	1.7 G-I	2.2 AB	1.5 A	1.3 B
MO S18-17644	Conv	55 J	10 D-G	1.9 A-G	5 B-F	1.6 HI	1.0 E	1.0 C	1.8 A
Perdue Agribusiness P48MO21	Conv	54 J	5 A-E	1.5 D-J	1 A-D	1.5 I	1.0 E	1.2 BC	2.0 A
TN Exp TN18-4110b	Conv.	47 K	6 A-D	1.6 C-J	2 A-C	1.2 I	1.0 E	1.0 C	2.0 A
Average		70	8	1.6	3	2.4	1.3	1.2	1.3
Standard Error		5	4	0.3	2	0.4	0.2	0.1	0.2
L.S.D. _{.05}		5	3	0.2	2	0.7	0.3	Sig.	0.3
Site-Years		8	8	8	8	8	1	1	6

Table 17-c. Mean[†] yield, agronomic traits, and quality of 30 Maturity Group IV Late (4.5 - 4.9) soybean varieties evaluated in small plot replicated trials at eight REC locations in Tennessee during 2023 Sudden death syndrome (SDS) and frogeye disease ratings were taken in mid-September. Leaf holding was taken at harvest. Seed quality and purple stain ratings were taken post-harvest.

Variety	Herbicide Pkg [†]	Avg. Yield [§] (bu/ac) 1 yr	SDS DI ^{††, †} (%) 1 yr	SDS DS ^{††, †} (1-9) 1 yr	SDS DX ^{††, †} (DI x DS/9) 1 yr	Frogeye ^{‡‡} (1-9) 1 yr	Seed Quality ^{§§} (1-5) 1 yr	Purple Stain ^{¶¶, †} (1-5) 1 yr	Leaf Holding (1-5) 1 yr
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† Varieties that have any MS letter in common are not significantly different at the 5% level of probability. Values highlighted in light orange are above average for a given trait, MS letters highlighted in dark orange are in the "A group", indicating no statistical difference from the top-performing variety, for a given trait.

C.V. is only reported for variables evaluated on a ratio scale.

L.S.D. values are given for ANOVA that were significant at P<0.05. Variables in which minimal variation was observed were not subjected to ANOVA and are reported as N.E.

* Asterisks after a name indicate the number of preceding consecutive years in the top-performing "A" group.

‡ For a full description of abbreviated biotech traits, see table 29.

§ All yields are adjusted to 13% moisture.

† Indicate data that were log transformed to meet assumptions of normality, raw means are reported and mean separation letters are given. L.S.D values are not reported as these would be relative to transformed mean values.

†† SDS was evaluated as disease incidence (percentage), disease severity (1 to 9, with 1 indicating no disease), and disease index (DI x DS/9). Evaluated in mid-September at all locations.

‡‡ Frogeye was evaluated using a 1 to 9 scale, with 1 indicating no disease. Evaluated in mid-September at all locations.

¶¶ Leaf holding was evaluated visually at harvest using a 1 to 5 scale, with 1 indicating no leaves at maturity. Evaluated at all locations except Milan Irr and Milan Non-Irr.

§§ Seed quality was evaluated visually post-harvest using a 1 to 5 scale, with 1 indicating no shriveled or damaged seed. Evaluated at Knoxville location only.