

2017 SOYBEAN VARIETY TRIAL REPORT
ROUNDUP READY AND CONVENTIONAL SOYBEAN VARIETY TRIALS

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ABSTRACT: Ninety-three Roundup Ready and thirty-one Conventional/Liberty-Link soybean varieties were evaluated on a Marietta loam soil at Verona, MS in 2017. The Roundup Ready varieties were evaluated in separate maturity group (MG) studies (MG early IV, MG late IV, MG early V, and MG late V). The Conventional/Liberty-Link varieties were evaluated as MG IV and MG V studies. Rainfall was 74%, 98%, 127%, 56%, 131%, and 85% of normal for April, May, June, July, August, and September, respectively. Only slight lodging and little (less than 2%) or no shattering in most studies was observed at harvest in all studies. The tables also include 2014 - 2017 yield results where applicable. The overall mean yield for Roundup Ready MG early IV, MG late IV, MG early V, and MG late V studies were 65.3, 62.1, 62.6, and 69.6 bu/acre, respectively. The overall mean yield for the Conventional/Liberty-Link Variety MG IV and MG V trials were 54.3 and 61.6 bu/acre, respectively. The greatest Conventional/Liberty-Link MG IV and MG V trial yield were 65.2 and 77.2 bu/acre, respectively. The greatest yield for Roundup Ready varieties across all maturity groups ranged from 68.8 to 81.7 bu/acre. The early MG IV varieties' yield ranged from 57.3 to 76.1 bu/acre. The late MG IV yield ranged from 42.8 to 79.0 bu/acre. The early MG V yield ranged from 47.5 to 81.7 bu/acre. The late MG V yield ranged from 62.8 to 72.7 bu/acre. The lowest yield producing Roundup Ready varieties across all studies ranged from 42.8 to 62.8 bu/acre. The Conventional/Liberty-Link MG IV trial yield ranged from 42.2 to 65.2 bu/acre. The Conventional/Liberty-Link MG V trial yield ranged from 46.0 to 77.2 bu/acre. When compared to the lowest yield producing varieties in each study, selecting the most productive variety has the potential to increase yield from 9.9 to 36.2 bu/acre given similar environmental conditions in a given year.

MATERIALS AND METHODS: Six field studies were conducted in 2017 on a Marietta loam soil, at the North Mississippi Research and Extension Center in Verona, MS. Glyphosate-tolerant soybean varieties of MG early IV, MG late IV, MG early V, and MG late V varieties were evaluated in separate studies. In addition, Conventional/Liberty-Link soybean MG IV and MG V varieties were also evaluated separately. All experiments were conducted as randomized complete block designs with four replications. Each plot consisted of two 8-inch twin rows on 38-inch beds × 20 feet in length.

Fertilizer (0-23-46, N-P-K) at 350 lb/acre was applied on 26 October 2016. A burndown application of Roundup Power Maxx (glyphosate) + FirstShot (thifensulfuron + tribenuron) + Hero (bifenthrin) at 32 + 0.8 + 3 oz/acre was applied to all studies on 22 March. The Conventional/Liberty-Link MG IV and MG V were planted on 3 May. The Roundup Ready early and late MG IV varieties were planted 2 and 3 May, respectively. The Roundup Ready early and late MG V varieties were planted on 2 and 3 May, respectively.

The whole variety study area received a pre-emergence application of Dual II Magnum (metolachlor) + Roundup Power Maxx + Sonic (sulfentrazone + cloransulam) at 20 + 32 + 4 oz/acre on 3 May. The entire variety study area also received a post-emergence application of Select (clethodim) + Agridex (crop oil) at 16 + 32 oz/acre on 2 June. A second post-emergence application of Reflex (fomesafen) + FirstRate (cloransulam) + surfactant at 16 + 0.4 + 6.2 oz/acre was made on 12 June.

Variety maturity dates, plant height, lodging, shattering and green stem ratings at harvest were recorded for one replication. Lodging was rated on a scale of 1 to 5: 1 = most plants erect; 2 = all plants leaning slightly or only a few plants down; 3 = all plants leaning moderately or 25 to 50% of plants down; 4 = all plants

leaning considerably with 50 to 80% of plants down; and 5 = all plants down. Green stem was rated on a visual scale of 1 to 5: 1 = complete absence of measure to 5 = maximum value. The maturity date was recorded when all pods were dry. Plant height of 10 consecutive plants, selected at a random spot from one of the center 2 rows, was measured from the soil surface to the upper most extremity in the first replication of each study. All four replications were observed for the presence of the foliar diseases that naturally occurred during the season and were visually assessed between R6 and R6.5 for the presence of *Cercospora* leaf blight (CLB) and frogeye leaf spot (FLS) on a scale of 0 to 9: 0 = no observable disease present and 9 = severe disease characterized by the majority of the leaf surface area covered with lesions. In addition, *Septoria* brown spot and target spot were observed throughout the trials and were rated using a 0 to 9 scale similar as the one outlined above; however, whereby 0 = no disease, 5 = disease in the middle of the canopy and 9 = disease in the upper canopy with severe defoliation. In situations where pre-mature defoliation occurred, plots were evaluated based on the percentage of lower canopy defoliation was observed throughout the entire plot using a 0-100% scale.

Each study was harvested when all varieties had matured. The Roundup Ready early MG IV and late MG IV variety trial studies were harvested on 28 September. The early MG V variety trial was harvested 19 October and the late MG V variety trial 12 October. The Conventional/Liberty-Link MG IV and V studies were harvested 28 September and 12 October, respectively. The plot harvest combine was equipped with an on-board electronic weight, test weight and seed moisture recording system. Yield was calculated for the harvested area (6.33 ft × 20 ft) and adjusted to 13% seed moisture. Variety mean yield and disease ratings in each study were separated using Fisher's Protected Least Significant Difference (LSD) at the 10% and 5% significance level, respectively.

RESULTS AND DISCUSSION: Rainfall during the growing season was 3.86, 4.74, 5.79, 1.99, 4.98, and 3.47 inches for April, May, June, July, August, and September, respectively (Table 1). The rainfall totals during the season ranged from 56% to 131% of normal for July and August, respectively.

Twenty-six varieties in the Roundup Ready MG early IV trial were evaluated (Table 2). The yield ranged from 57.3 to 76.1 bu/acre with an overall mean of 65.3 bu/acre. Maturity dates ranged from 11 September to 25 September, a two week period. Plant height at maturity ranged from 34 to 46 inches. The greatest yield producing variety was Pioneer P45T74X with 76.1 bu/acre. Varieties which were not different in yield from P45T74X were Progeny P4516RXS, Credenz CZ 4590 RY, Asgrow AG46X7, Dyna-Gro S43RY95, Asgrow AG46X8, Great Heart GT-4540XS and Asgrow AG46X6.

Thirty-seven varieties in Roundup Ready MG late IV trial were evaluated (Table 4). Maturity dates ranged from 15 September to 29 September. Plant height at maturity ranged from 33 to 48 inches. Yield ranged from 42.8 to 79.0 bu/acre. The greatest yield producing variety was Asgrow AG48X8 with 79.0 bu/acre. Varieties that were not different from AG 48X8 were Go Soy 49G16, Delta Grow DG4845 RR2X and Petrus Seed 4916 GT.

Twenty-five varieties were evaluated in the Roundup Ready MG early V trial (Table 6). Maturity dates ranged from 25 September to 7 October. Plant height at maturity ranged from 25 to 50 inches. The yield ranged from 47.5 to 81.7 bu/acre with an overall mean of 62.6 bu/acre. The greatest yield producing variety was Pioneer P54A54X with 81.7 bu/acre yield. Pioneer P55A49X and P54A54X yield were not different.

Five varieties were evaluated in the Roundup Ready MG late V trial (Table 8). Maturity dates ranged from 2 October to 9 October. Plant height at maturity ranged from 30 to 33 inches. The yield ranged from 62.8 to 72.7 bu/acre with an overall mean of 69.6 bu/acre. Progeny P5752RY was the greatest yield producing variety with 72.7 bu/acre. Varieties which had yield equal to P5752RY were USG 75B75R, Asgrow AG59X7 and Progeny P5688RX.

Seventeen varieties were evaluated in the Conventional/Liberty-Link Maturity Group IV trial (Table 10). The yield ranged from 42.2 to 65.2 bu/acre with an overall mean of 54.3 bu/acre. Maturity dates ranged from 9 September to 25 September. Plant height at maturity ranged from 29 to 50 inches. The greatest yield producing variety was Irene with 65.2 bu/acre. Varieties not different in yield from Irene were Credenz CZ 4818 LL, Credenz CZ 3841 LL and Dyna-Gro S49LL34.

Fourteen varieties were evaluated in the Conventional/Liberty-Link Maturity Group V trial (Table 12). The yield ranged from 46.0 to 77.2 bu/acre with an overall mean of 61.6 bu/acre. Maturity dates ranged from 28 September to 9 October. Plant height ranged from 25 to 54 inches. USDA ARS variety JTN-5110 was the greatest yield producing variety with 77.2 bu/acre. Varieties that were not different from JTN-5110 were University of Arkansas UA 5014C and Credenz CZ 5147 LL.

All varieties were rated for the presence of Cercospora leaf blight, Septoria brown spot and target spot. Frogeye leaf spot and stem canker were less visible this season than in the previous seasons at this particular location. For more specific information regarding the response of varieties to stem canker see the information contained in the Mississippi Crop Situation Blog (www.mississippi-crops.com) in additional posts on OVT stem canker ratings. For example, frogeye leaf spot was only observed in the MG IV early (Table 3) and late (Table 5) trials and when observed was at levels far below those that would be of economical concern (< 2 on a scale of 0-9). Cercospora blight was consistent regardless of maturity group or relative maturity and ranged from a low of 5.3 (present on leaves and petioles) to a high of 7.8 (present on leaves, petioles, stems, and pods) (Table 3, 5, 7, 9, 11, and 13). Significant differences in response to Cercospora blight were observed in the MG IV late (Table 5), MG V early (Table 7) and MG IV Conventional/Liberty-Link (Table 11). Depending on MG, Septoria brown spot and target spot were observed throughout the plant canopy; however, observations tended to be in the mid-to-upper canopy (rating of 4-5) for the most part, but in some cases both Septoria brown spot and target spot were observed in the upper canopy (7). Ratings greater than 7 may suggest significant susceptibility to the two diseases or could have been the result of an observation made at a more advanced plant growth stage. Significant differences between varieties were observed for Septoria brown spot in the MG IV and V early entries (Table 3 and 7) and the MG IV and V Conventional/Liberty-Link (Table 11 and 13). Significant differences between varieties were observed for target spot in the MG IV early and late (Table 3 and 5), MG V early (Table 7) and the MG IV and V Conventional/Liberty-Link (Table 11 and 13). Defoliation was judged to be the result of severe target spot in those varieties where defoliation was observed. However, defoliation was not assessed in all MGs simply due to the time of evaluation in some cases. Significant differences between entries with regards to defoliation were observed in the MG IV early and late entries (Table 3 and 5), MG V late (Table 9) and MG V Conventional/Liberty-Link entries (Table 13). However, assessing defoliation cannot be done across the different trials as evaluations were made on different dates. A lack of documented resistance in commercially available varieties for Septoria brown spot and target spot presents challenges for soybean farmers throughout MS.

These results indicate soybean growers have a good selection of productive varieties to choose from that range in maturity from September to early October. The varieties judged to be the most productive produced yield between 65.2 and 81.7 bu/acre. The least productive varieties produced yield ranging from 42.2 to 62.8 bu/acre. Selection of varieties with the greatest yield potential and appropriate disease resistance is essential for soybean profitability.

Table 1. 2017 Rainfall for Verona, MS.

Month	----- Days of Month -----			Total	% Normal ¹
	1-10	11-20	21-30		
	----- Rainfall (inches) -----				
April	2.23	0.24	1.39	3.86	74
May	0.40	1.25	3.09	4.74	98
June	2.31	1.62	1.86	5.79	127
July	0.44	1.28	0.27	1.99	56
August	1.66	2.79	0.53	4.98	131
<u>September</u>	<u>2.00</u>	<u>1.47</u>	<u>0.00</u>	<u>3.47</u>	85
Total	9.04	8.65	7.14	24.83	
% Total	36	35	29		

¹Based on the historical (1974-2015) monthly average rainfall.

Table 2. Roundup Ready Early Maturity Group IV Soybean Variety Trial planted May 2, 2017 on a Marietta loam soil, Verona, MS.

Brand	Variety	Yield (bu/acre)				Maturity Date	2017	
		2017	2016	2015	2014		Plant ht. (inches)	Green Stem
Pioneer	P45T74X	76.1	----	----	----	9/18	41	1
Progeny	P4516RXS	74.4	----	----	----	9/25	40	1
Credenz	CZ 4590 RY	72.5	59.6	59.5	----	9/25	43	3
Asgrow	AG46X7	71.4	----	----	----	9/18	41	1
Dyna-Gro	S43RY95	70.2	68.8	64.8	70.5	9/13	36	1
Asgrow	AG46X8	70.1	----	----	----	9/20	43	1
Great Heart	GT-4540XS	70.0	----	----	----	9/18	41	1
Asgrow	AG46X6	69.8	71.1	----	----	9/25	40	2
Credenz	CZ 4181 RY	68.6	63.2	----	----	9/11	46	1
Asgrow	AG43X7	66.5	----	----	----	9/15	43	1
Pioneer	P40T26X	65.2	----	----	----	9/11	43	1
Progeny	P4444RXS	65.1	----	----	----	9/18	36	1
Dyna-Gro	S45XS66	64.5	----	----	----	9/18	40	1
Delta Grow	DG4670 RR2	64.4	70.4	67.7	74.7	9/18	40	1
Dyna-Gro	31RY45	63.8	68.2	71.7	71.7	9/18	38	1
AgriGold	G4440RX	63.4	----	----	----	9/14	42	1
Armor	44-D40	62.0	----	----	----	9/14	40	1
AgriGold	G4380RX	61.8	----	----	----	9/11	40	1
Terral	REV 49R94	61.8	----	----	----	9/25	38	1
Progeny	P4255RX	60.7	----	----	----	9/13	42	1
Delta Grow	DG4680 RR2	60.6	66.6	----	----	9/25	40	1
Dyna-Gro	S44XS57	60.3	----	----	----	9/18	34	1
Dyna-Gro	S45XS37	59.5	----	----	----	9/25	36	2
Progeny	P4620RXS	59.1	----	----	----	9/25	40	2
Go Soy	45R216	57.6	----	----	----	9/13	38	1
Asgrow	AG45X8	57.3	----	----	----	9/18	36	1
LSD $P=0.10$		6.9						
Standard Deviation		5.8						
CV		9.0						
Grand Mean		65.3						

Shaded values are not different from the greatest value at the 10% probability level.

Table 3. Roundup Ready Early Maturity Group IV Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	----- Rating (0-9 scale) -----				Defoliation (0-100%) ^{2,3}
		Cercospora blight ^{1,2}	Frogeye leaf spot ^{1,2}	Septoria brown spot ^{1,2}	Target spot ^{1,2}	
Pioneer	P45T74X	6.0	0.5 bcd ²	6.0 a-d	6.0 abc	26.3 b-e
Progeny	P4516RXS	5.3	0.0 d	5.5 cde	5.5 a-d	22.5 b-e
Credenz	CZ 4590 RY	5.5	1.8 a	5.3 de	4.8 de	17.5 de
Asgrow	AG46X7	5.8	0.3 cd	6.5 ab	6.5 a	27.5 b-e
Dyna-Gro	S43RY95	6.0	0.0 d	5.7 b-e	5.0 cde	30.0 abc
Asgrow	AG46X8	6.0	0.8 bcd	5.8 b-e	5.3 bcd	30.0 abc
Great Heart	GT-4540XS	5.5	0.0 d	5.8 b-e	5.8 a-d	28.8 a-d
Asgrow	AG46X6	5.5	0.8 bcd	6.0 a-d	5.0 cde	20.0 cde
Credenz	CZ 4181 RY	6.0	0.3 cd	5.8 b-e	5.3 bcd	22.5 b-e
Asgrow	AG43X7	5.5	0.3 cd	6.3 abc	5.8 a-d	32.5 ab
Pioneer	P40T26X	6.0	0.8 bcd	6.3 abc	6.3 ab	40.0 a
Progeny	P4444RXS	5.8	0.3 cd	6.3 abc	5.3 bcd	26.3 b-e
Dyna-Gro	S45XS66	5.3	0.0 d	5.8 b-e	5.8 a-d	26.3 b-e
Delta Grow	DG4670 RR2	5.8	0.5 bcd	6.3 abc	5.3 bcd	28.8 a-d
Dyna-Gro	31RY45	6.0	0.3 cd	6.8 a	6.3 ab	30.0 abc
AgriGold	G4440RX	6.0	1.3 ab	6.0 a-d	5.5 a-d	20.0 cde
Armor	44-D40	6.0	0.0 d	5.8 b-e	5.0 cde	18.8 cde
AgriGold	G4380RX	6.0	0.8 bcd	6.3 abc	5.8 a-d	23.8 b-e
Terral	REV 49R94	5.5	0.0 d	5.8 b-e	5.0 cde	18.8 cde
Progeny	P4255RX	5.5	1.0 abc	5.8 b-e	5.8 a-d	22.5 b-e
Delta Grow	DG4680 RR2	5.5	0.3 cd	6.3 abc	5.8 a-d	23.8 b-e
Dyna-Gro	S44XS57	5.8	0.3 cd	6.3 abc	6.0 abc	23.8 b-e
Dyna-Gro	S45XS37	6.0	0.0 d	5.0 e	4.0 e	17.5 de
Progeny	P4620RXS	6.0	0.0 d	5.0 e	5.0 cde	16.3 e
Go Soy	45R216	5.8	0.3 cd	6.0 a-d	5.3 bcd	22.5 b-e
Asgrow	AG45X8	5.8	0.0 d	6.8 a	5.8 a-d	22.5 b-e
	LSD $P=0.05$	0.6	0.8	0.9	1.1	11.4
	Standard Deviation	0.5	0.7	0.7	0.9	9.1
	CV	7.7	152.9	11.0	13.8	32.9
	Grand Mean	5.7	0.4	5.9	5.5	24.5

¹Severity of Cercospora blight was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of frogeye leafspot was rated on a scale of 0 = no disease to 9 =severe disease. Severity of Septoria brown spot and target spot was based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

³Observations of defoliation were assessed based on the entire plot and considering the amount of defoliation from the bottom of the canopy up the plant based on a 0-100% of the plant stand.

Table 4. Roundup Ready Late Maturity Group IV Soybean Variety Trial planted May 3, 2017 on a Marietta loam soil, Verona, MS.

Brand	Variety	Yield				2017			
		(bu/acre)				Maturity Date	Plant ht. (inches)	Lodging	Green Stem
		2017	2016	2015	2014				
Asgrow	AG48X8	79.0	----	----	----	9/25	38	1	2
Go Soy	49G16	74.2	57.6	----	----	9/29	34	1	4
Delta Grow	DG4845 RR2X	72.8	----	----	----	9/28	35	1	2
Petrus Seed	4916 GT	72.7	----	----	----	9/25	39	1	5
Progeny	P4816RX	71.1	----	----	----	9/29	33	1	5
Asgrow	AG47X6	70.0	65.8	----	----	9/20	44	1	1
Delta Grow	DG4995 RR	68.6	55.5	47.9	----	9/29	34	1	5
Great Heart	GT-4721X	66.6	----	----	----	9/25	41	2	2
USG	74K95RS	66.3	65.4	68.4	----	9/25	41	1	1
Terral	REV 48A26	66.1	----	----	----	9/25	34	1	2
Terral	REV 47R34	65.8	60.5	62.6	68.9	9/18	39	1	1
Terral	REV 48A76	64.8	----	----	----	9/25	37	1	2
Progeny	P4757RY	64.4	67.3	66.5	----	9/25	39	1	1
Dyna-Gro	S48XT56	64.1	66.4	----	----	9/28	35	1	2
Progeny	P4851RX	63.3	----	----	----	9/28	41	2	2
Go Soy	48R216	62.7	67.2	----	----	9/25	33	2	1
Progeny	P4929RXS	61.5	----	----	----	9/25	38	1	1
Dyna-Gro	7487XTS	61.5	----	----	----	9/25	37	1	1
Progeny	P4799RXS	61.1	----	----	----	9/25	40	1	1
Delta Grow	DG4790 RR2	60.9	71.0	64.5	----	9/25	40	1	1
Dyna-Gro	7496XTS	60.9	----	----	----	9/28	39	1	2
AgriGold	G4835RX	60.9	----	----	----	9/25	37	1	1
Great Heart	GT-477CR2	59.2	----	----	----	9/20	40	1	1
Delta Grow	DG4825 RR2/STS	59.2	64.2	53.1	57.4	9/28	39	1	1
AgriGold	G4990RX	59.1	----	----	----	9/25	43	1	1
Great Heart	GT-4817XS	58.4	----	----	----	9/20	42	1	1
Croplan	R2C4775	58.1	68.7	----	----	9/25	42	1	1
Pioneer	P48T27X	57.7	----	----	----	9/25	39	1	1
AgriGold	G4685RX	57.7	----	----	----	9/25	40	1	1
Delta Grow	DG4835 RR2X	57.1	----	----	----	9/25	40	1	1
Delta Grow	DG4970 RR	56.9	58.3	65.4	66.2	9/25	41	2	2
Armor	46-D08	56.8	----	----	----	9/25	40	1	2
Dyna-Gro	S49XS88	56.7	----	----	----	9/25	46	1	1
Great Heart	GT-5022XS	55.9	----	----	----	9/28	42	2	1
USG	7497XT	51.9	----	----	----	9/20	48	3	1
Delta Grow	DG4880 RR	50.1	59.8	59.3	61.3	9/25	36	1	2
Petrus Seed	4796GTS	42.8	----	----	----	9/15	42	1	1
	LSD $P=0.10$	7.4							
	Standard Deviation	6.3							
	CV	10.2							
	Grand Mean	62.1							

Shaded values are not different from the greatest value at the 10% probability level.

Table 5. Roundup Ready Late Maturity Group IV Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	Rating (0-9 scale)					
		Cercospora blight ^{1,2}	Frogeye leaf spot ^{1,2}	Septoria brown spot ^{1,2}	Target spot ^{1,2}	Stem Canker ^{2,3}	Defoliation (0-100%) ^{2,4}
Asgrow	AG48X8	6.0 bc ²	0.3 bc	5.3	5.8 bcd	0.0 e	38.8 cde
Go Soy	49G16	6.0 bc	0.0 c	5.5	6.0 abc	0.5 cd	40.0 bcd
Delta Grow	DG4845 RR2X	6.0 bc	0.3 bc	5.5	4.8 d-g	0.0 e	27.5 f-k
Petrus Seed	4916GT	6.0 bc	0.0 c	5.0	4.5 efg	0.3 de	28.8 f-k
Progeny	P4816RX	6.0 bc	0.0 c	5.0	5.5 b-e	1.0 ab	40.0 bcd
Asgrow	AG47X6	5.8 cd	0.3 bc	5.5	5.0 c-f	0.0 e	35.0 d-g
Delta Grow	DG4995 RR	6.0 bc	0.0 c	4.8	4.5 efg	0.0 e	20.0 k-n
Great Heart	GT-4721X	6.0 bc	0.0 c	3.5	3.8 g	0.0 e	17.5 lmn
USG	74K95RS	5.8 cd	0.0 c	5.5	6.3 ab	0.8 bc	46.3 abc
Terral	REV 48A26	6.0 bc	0.0 c	5.3	5.8 bcd	1.3 a	38.8 cde
Terral	REV 47R34	6.3 ab	0.0 c	5.3	4.8 d-g	0.0 e	28.8 f-k
Terral	REV 48A76	5.8 cd	0.3 bc	4.8	4.8 d-g	0.0 e	30.0 e-j
Progeny	P4757RY	5.5 d	0.3 bc	4.3	4.3 fg	0.0 e	13.8 n
Dyna-Gro	S48XT56	6.0 bc	0.0 c	5.3	4.8 d-g	0.0 e	31.3 d-i
Progeny	P4851RX	6.5 a	0.0 c	5.5	5.0 c-f	0.0 e	31.3 d-i
Go Soy	48R216	5.8 cd	0.0 c	4.8	4.3 fg	0.0 e	23.8 i-m
Progeny	P4929RXS	6.5 a	0.0 c	5.5	4.3 fg	0.0 e	25.0 h-m
Dyna-Gro	7487XTS	6.0 bc	0.5 b	5.0	4.5 efg	0.0 e	21.3 j-n
Progeny	P4799RXS	6.0 bc	0.0 c	4.3	4.3 fg	0.0 e	21.3 j-n
Delta Grow	DG4790 RR2	6.0 bc	0.0 c	4.8	4.5 efg	0.0 e	26.3 g-k
Dyna-Gro	7496XTS	6.0 bc	0.0 c	4.3	4.5 efg	0.3 de	27.5 f-k
AgriGold	G4835RX	6.0 bc	0.0 c	5.0	5.8 bcd	0.5 cd	38.8 cde
Great Heart	GT477CR2	6.0 bc	0.0 c	4.8	4.8 d-g	0.3 de	28.8 f-k
Delta Grow	DG4825 RR2/STS	6.0 bc	1.5 a	5.5	5.0 c-f	0.0 e	36.3 def
AgriGold	G4990RX	6.0 bc	0.0 c	5.8	5.0 c-f	1.3 a	28.8 f-k
Great Heart	GT-4817XS	6.0 bc	0.3 bc	5.0	4.5 efg	0.0 e	35.0 d-g
Croplan	R2C4775	5.5 d	0.0 c	5.0	4.5 efg	0.0 e	25.0 h-m
Pioneer	P48T27X	6.0 bc	0.0 c	4.5	4.0 fg	0.0 e	23.8 i-m
AgriGold	G4685RX	6.0 bc	0.3 bc	5.8	5.5 b-e	0.3 de	40.0 bcd
Delta Grow	DG4835 RR2Y	6.0 bc	0.0 c	5.3	5.5 b-e	1.0 ab	48.8 ab
Delta Grow	DG4970 RR	6.0 bc	0.0 c	4.8	4.0 fg	0.3 de	25.0 h-m
Armor	46-D08	6.0 bc	0.0 c	5.0	4.8 d-g	0.0 e	30.0 e-j
Dyna-Gro	S49XS88	6.0 bc	0.0 c	4.5	4.3 fg	0.5 cd	16.3 mn
Great Heart	GT-5022XS	6.3 ab	0.0 c	5.0	4.3 fg	0.0 e	33.8 d-h
USG	7497XT	5.8 cd	0.0 c	5.3	7.0 a	1.3 a	53.8 a
Delta Grow	DG4880 RR	6.0 bc	0.0 c	5.3	4.8 d-g	0.0 e	35.0 d-g
Petrus Seed	4796GTS	6.0 bc	0.0 c	5.8	5.8 bcd	0.0 e	32.5 d-i
LSD $P=0.05$		0.4	0.5 b	1.2	1.2	0.8	9.5
Standard Deviation		0.3	0.4	0.9	1.1	0.5	12.0
CV		4.8	330.4	16.6	18.0	0.5	9.5
Grand Mean		6.0	0.1	5.0	4.9	0.5	30.9

¹Severity of Cercospora blight was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of frogeye leaf spot was rated on a scale of 0 = no disease to 9 =severe disease. Severity of Septoria brown spot and target spot was based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

³Stem canker was assessed on the entire plot using a 0-9 scale whereby ratings were based on the presence of the disease producing a lesion that did not expand up the stem =1. Dead plants with lesions that extended up most of the stem=9.

⁴Observations of defoliation were assessed based on the entire plot and considering the amount of defoliation from the bottom of the canopy up the plant based on a 0-100% of the plant stand.

Table 6. Roundup Ready Early Maturity Group V Soybean Variety Trial planted on May 2, 2017 on Marietta loam soil, Verona, MS.

Brand	Variety	Yield				Maturity Date	2017			
		(bu/acre)					Plant ht. (inches)	Lodging	Green Stem	
		2017	2016	2015	2014					
Pioneer	P54A54X	81.7	----	----	----	10/02	32	1	2	
Pioneer	P55A49X	81.5	----	----	----	10/07	29	1	2	
Progeny	P5417RX	74.6	----	----	----	9/28	33	1	1	
Asgrow	AG55X8	71.0	----	----	----	10/02	50	2	1	
Terral	REV 51A56	66.8	63.2	----	----	9/25	36	1	2	
USG	7568XT	65.2	----	----	----	10/07	33	1	2	
Dyna-Gro	S56XT98	64.2	----	----	----	10/02	36	1	3	
Pioneer	P50T92X	64.2	----	----	----	9/25	40	1	1	
Asgrow	AG51X8	63.3	----	----	----	9/25	49	1	1	
Terral	REV 56R63	63.0	56.8	63.6	71.0	10/02	41	1	3	
Dyna-Gro	S56RY84	62.3	61.6	62.5	73.6	10/02	40	1	2	
U of Ark	UA 5414RR	60.4	48.9	45.2	----	10/07	35	1	1	
AgriGold	G5000RX	60.3	----	----	----	10/02	42	1	1	
USG	7547XT	59.9	----	----	----	9/28	35	1	1	
Delta Grow	DG5170 RR2/STS	59.8	60.5	60.9	----	9/28	46	2	1	
Asgrow	AG55X7	59.1	----	----	----	10/02	33	1	1	
Progeny	P5376RX	58.9	----	----	----	9/25	25	1	1	
Progeny	P5157RXS	58.7	----	----	----	10/02	36	1	2	
Go Soy	54G16	58.6	----	----	----	10/02	35	1	3	
Great Heart	GT-5324X	58.3	----	----	----	9/25	33	1	1	
Delta Grow	DG5580 RR2	57.8	76.7	----	----	10/02	38	2	1	
Armor	53-D04	56.6	----	----	----	10/02	29	1	2	
Delta Grow	DG5555 RR	56.2	63.7	----	----	10/02	37	2	1	
Progeny	P5016RXS	56.0	----	----	----	9/28	37	1	1	
Credenz	CZ 5375 RY	47.5	65.8	----	----	10/02	33	2	2	
LSD $P=0.10$		6.4								
Standard Deviation		5.4								
CV		8.7								
Grand Mean		62.6								

Shaded values are not different from the greatest value at the 10% probability level.

Table 7. Roundup Ready Early Maturity Group V Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	----- Rating (0-9 scale) -----		
		Cercospora blight ^{1,2}	Septoria brown spot ^{1,2}	Target spot ^{1,2}
Pioneer	P54A54X	6.0 f ²	6.8 abc	5.5 b-e
Pioneer	P55A49X	6.0 f	7.0 ab	6.0 abc
Progeny	P5417RX	6.0 f	6.5 a-d	5.3 cde
Asgrow	AG55X8	6.0 f	6.0 cde	5.3 cde
Terral	REV 51A56	7.0 bc	5.7 de	5.7 b-e
USG	7568XT	6.0 f	6.8 abc	6.0 abc
Dyna-Gro	S56XT98	6.0 f	7.3 a	5.3 cde
Pioneer	P50T92X	6.5 de	5.8 de	6.8 a
Asgrow	AG51X8	7.8 a	5.8 de	5.3 cde
Terral	REV 56R63	6.0 f	6.5 a-d	5.8 bcd
Dyna-Gro	S56RY84	6.0 f	6.3 b-e	5.0 de
U of Ark	UA 5414RR	6.0 f	6.3 b-e	5.5 b-e
AgriGold	G5000RX	7.0 bc	6.3 b-e	5.8 bcd
USG	7547XT	6.3 ef	6.3 b-e	5.3 cde
Delta Grow	DG5170 RR2/STS	6.3 ef	6.0 cde	4.8 e
Asgrow	AG55X7	6.0 f	6.5 a-d	6.3 ab
Progeny	P5376RX	6.8 cd	6.3 b-e	5.8 bcd
Progeny	P5157RXS	6.3 ef	5.5 e	5.0 de
Go Soy	54G16	6.0 f	5.8 de	5.3 cde
Great Heart	GT-5324X	6.3 ef	6.0 cde	5.3 cde
Delta Grow	DG5580 RR2	6.0 f	6.5 a-d	5.8 bcd
Armor	53-D04	6.3 ef	6.0 cde	5.3 cde
Delta Grow	DG5555 RR	6.0 f	6.0 cde	5.5 b-e
Progeny	P5016RXS	7.3 b	5.5 e	5.0 de
Credenz	CZ 5375 RY	6.0 f	5.8 de	4.8 e
LSD $P=0.05$		0.5	0.9	1.0
Standard Deviation		0.6	0.7	0.8
CV		5.4	10.2	12.8
Grand Mean		6.3	6.2	5.5

¹ Severity of CLB (Cercospora blight) was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of Septoria brown spot and target spot were based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

Table 8. Roundup Ready Late Maturity Group V Soybean Variety Trial planted on May 3, 2017 on a Marietta loam soil, Verona, MS.

Brand	Variety	Yield (bu/acre)			2017	
		2017	2016	2015	Maturity Date	Plant ht. (inches)
Progeny	P5752RY	72.7	66.5	---	10/02	33
USG	75B75R	72.5	67.1	62.0	10/02	32
Asgrow	AG59X7	71.0	---	---	10/09	31
Progeny	P5688RX	68.8	---	---	10/09	32
U of Ark	UA 5715GT	62.8	---	---	10/02	30
LSD $P=0.10$		5.5				
Standard Deviation		4.4				
CV		6.3				
Grand Mean		69.6				

Shaded values are not different from the greatest value at the 10% probability level.

Table 9. Roundup Ready Late Maturity Group V Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	Rating (0-9 scale)			
		Cercospora blight ¹	Septoria brown spot ¹	Target spot ¹	Defoliation (0-100%) ^{2,3}
Asgrow	AG59X7	6.0	6.5	4.5	51.3 bc ²
Progeny	P5688RX	6.0	7.0	5.3	60.0 a
Progeny	P5752RY	6.0	6.8	5.3	40.0 d
U of Ark	UA 5715GT	6.0	6.8	5.3	48.8 c
USG	75B75R	6.0	6.5	5.3	57.5 ab
LSD $P=0.05$		0.0	0.8	1.1	7.9
Standard Deviation		0.0	0.5	0.7	8.6
CV		.	7.3	14.1	9.9
Grand Mean		6.0	6.7	5.1	51.5

¹Severity of Cercospora blight was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of Septoria brown spot and target spot was based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

³Observations of defoliation were assessed based on the entire plot and considering the amount of defoliation from the bottom of the canopy up the plant based on a 0-100% of the plant stand.

Table 10. Conventional/Liberty-Link Group IV Soybean Variety Trial planted on May 3, 2017 on a Marietta loam soil, Verona, MS.

Brand	Variety	Yield				Maturity Date	Plant ht. (inches)	2017		
		(bu/acre)						Lodging	Green Stem	Shattering (percent)
		2017	2016	2015	2014					
Go Soy	Irene	65.2	----	----	----	9/20	31	1	5	0
Credenz	CZ 4818 LL	64.9	53.3	60.2	----	9/25	50	2	1	0
Credenz	CZ 3841 LL	59.5	----	----	----	9/11	29	1	1	5
Dyna-Gro	S49LL34	58.9	----	----	----	9/20	48	2	1	0
Delta Grow	DG458 LL/STS	58.5	54.3	----	----	9/09	41	1	1	2
Credenz	CZ 4820 LL	57.3	----	----	----	9/09	40	1	1	0
Credenz	CZ 4222 LL	57.2	31.1	----	----	9/13	35	1	1	0
Credenz	HBK LL4953	54.6	57.3	63.8	66.9	9/25	48	1	1	0
Delta Grow	DG4967 LL	54.5	60.2	61.5	67.2	9/25	45	1	1	0
Credenz	CZ 4748 LL	54.3	57.7	62.3	----	9/11	39	2	1	0
Terral	REV 48L63	53.6	----	----	----	9/13	49	2	1	0
Delta Grow	DG4977 LL/STS	52.8	56.3	50.4	----	9/20	47	2	1	0
Credenz	CZ 4540 LL	51.6	47.0	----	----	9/25	42	1	1	0
Go Soy	GS 4714 LL	49.1	61.8	62.8	----	9/09	41	1	1	0
Credenz	CZ 3945 LL	46.4	----	----	----	9/09	31	1	1	2
Delta Grow	DG 4781 LL	43.3	62.1	61.0	----	9/12	40	1	1	0
Credenz	CZ 4044 LL	42.2	36.4	----	----	9/09	29	1	1	0
LSD $P=0.10$		6.4								
Standard Deviation		5.4								
CV		9.9								
Grand Mean		54.3								

Shaded values are not different from the greatest value at the 10% probability level.

Table 11. Conventional/Liberty-Link Group IV Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	----- Rating (0-9 scale) -----			
		Cercospora blight ^{1,2}	Septoria brown spot ^{1,2}	Target spot ^{1,2}	Stem canker ³
Go Soy	Irene	6.0 cd ²	5.3 g	4.8 e	0.0 b
Credenz	CZ 4818 LL	6.0 cd	6.3 c-f	5.8 cd	0.0 b
Credenz	CZ 3841 LL	6.5 ab	7.5 ab	7.0 ab	0.0 b
Dyna-Gro	S49LL34	5.8 de	5.8 efg	5.8 cd	2.3 a
Delta Grow	DG4587 LL/STS	6.0 cd	6.5 cde	5.5 de	0.5 b
Credenz	CZ 4820 LL	6.3 bc	6.8 bcd	6.0 cd	0.3 b
Credenz	CZ 4222 LL	6.8 a	7.0 abc	6.0 cd	0.3 b
Credenz	HBK LL4953	5.5 e	5.5 fg	5.3 de	0.5 b
Delta Grow	DG4967 LL	5.8 de	6.0 d-g	5.8 cd	2.5 a
Credenz	CZ 4748 LL	6.0 cd	6.5 cde	6.5 bc	0.3 b
Terral	REV 48L63	6.3 bc	6.5 cde	5.5 de	0.3 b
Delta Grow	DG4977 LL/STS	5.8 de	6.0 d-g	5.8 cd	3.0 a
Credenz	CZ 4540 LL	6.0 cd	7.0 abc	5.5 de	0.0 b
Go Soy	4714LL	6.0 cd	6.0 d-g	5.5 de	0.8 b
Credenz	CZ 3945 LL	6.0 cd	7.0 abc	6.5 bc	0.0 b
Delta Grow	DG4781 LL	6.3 bc	6.3 c-f	6.0 cd	0.3 b
Credenz	CZ 4044 LL	6.0 cd	7.7 a	7.7 a	0.0 b
	LSD $P=0.05$	0.5	0.8	0.8	1.0
	Standard Deviation	0.4	0.9	0.9	1.1
	CV	5.7	9.0	10.0	111.8
	Grand Mean	6.0	6.4	5.9	0.6

¹Severity of Cercospora blight was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of frogeye leaf spot was rated on a scale of 0 = no disease to 9 =severe disease. Severity of Septoria brown spot and target spot was based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

³Stem canker was assessed on the entire plot using a 0-9 scale whereby ratings were based on the presence of the disease producing a lesion that did not expand up the stem =1. Dead plants with lesions that extended up most of the stem=9.

Table 12. Conventional/Liberty-Link Group V Soybean Variety Trial planted on May 3, 2017 on a Marietta loam soil, Verona, MS.

Brand	Variety	Yield			2017			
		(bu/acre)			Maturity	Plant ht.	Lodging	Green
		2017	2016	2015	Date	(inches)		Stem
USDA ARS	JTN-5110	77.2	----	----	10/09	32	1	2
U of Ark	UA 5014C	74.6	40.0	----	10/02	29	1	1
Credenz	CZ 5147 LL	72.8	65.8	55.3	10/02	29	1	1
Go Soy	56C16	66.6	----	----	10/09	35	2	2
Credenz	CZ 5515 LL	65.0	65.8	55.3	10/06	54	4	1
Credenz	CZ 5727 LL	62.0	----	----	10/09	40	3	1
U of Ark	UA R09-430	60.3	71.6	----	10/02	25	1	1
U of Ark	Osage	59.2	66.9	----	9/29	28	2	1
U of Ark	UA 5814HP	59.0	57.9	----	10/07	37	2	1
Go Soy	5115 LL	58.5	66.7	66.2	9/28	46	4	1
Credenz	CZ 5150 LL	56.8	66.7	64.8	9/28	46	4	1
Go Soy	5515 LL	56.0	65.8	62.7	10/02	36	1	1
Go Soy	5215 LL	48.8	60.0	52.8	9/29	47	4	1
Credenz	CZ 5242 LL	46.0	55.9	53.8	9/28	48	5	1
LSD $P=0.10$		6.6						
Standard Deviation		5.6						
CV		9.1						
Grand Mean		61.6						

Shaded values are not different from the greatest value at the 10% probability level.

Table 13. Conventional/Liberty-Link Group V Soybean Variety Trial reaction to disease, Verona, MS.

Brand	Variety	----- Rating (0-9 scale) -----			Defoliation ³ (0-100%)
		Cercospora blight ^{1,2}	Septoria brown spot ^{1,2}	Target spot ¹	
USDA ARS	JTN-5110	6.0	7.0 a ²	6.0 a	56.3 abc
U of Ark	UA 5014C	6.0	6.8 ab	6.0 a	55.0 abc
Credenz	CZ 5147 LL	6.0	6.0 bcd	4.5 d	45.0 cd
Go Soy	56C16	6.0	6.8 ab	5.8 ab	50.0 bcd
Credenz	CZ 5515 LL	6.0	5.5 cde	5.0 bcd	50.0 bcd
Credenz	CZ 5727 LL	6.0	5.8 cde	5.5 abc	61.3 ab
U of Ark	UA R09-430	6.0	6.0 bcd	5.0 bcd	38.8 d
U of Ark	Osage	6.0	6.3 abc	4.8 cd	56.3 abc
U of Ark	UA 5814HP	6.0	5.8 cde	5.5 abc	47.5 cd
Go Soy	5115 LL	6.0	5.8 cde	5.0 bcd	56.3 abc
Credenz	CZ 5150 LL	6.0	6.0 bcd	4.8 cd	52.5 bc
Go Soy	5515 LL	6.0	5.8 cde	4.8 cd	56.3 abc
Go Soy	5215 LL	6.0	5.3 de	4.3 d	50.0 bcd
Credenz	CZ 5242 LL	6.0	5.0 e	5.0 bcd	66.3 a
	LSD $P=0.05$	0.0	1.0	0.9	12.0
	Standard Deviation	0.0	0.9	0.8	11.4
	CV	.	11.2	12.0	15.9
	Grand Mean	6.0	6.0	5.1	52.9

¹Severity of Cercospora blight was rated progressively based on the presence of disease on leaves (0-5), petioles (6), and pods and stems (7-9) based on disease intensity as assessed by coloration of plant material (leaves with distinct purple coloration and petioles, pods and main stems with purple to near black coloration). Severity of Septoria brown spot and target spot was based on the presence of the disease in the lower canopy (0-3), the middle canopy (4-6), and the upper canopy (7-9), evaluated as a whole plot.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's protected LSD ($P=0.05$)

³Observations of defoliation were assessed based on the entire plot and considering the amount of defoliation from the bottom of the canopy up the plant based on a 0-100% of the plant stand.