

SOYBEAN VARIETIES' DISEASE RATINGS–2014

Dr. Tom Allen, Extension Plant Pathologist at DREC-Stoneville, has posted Frogeye Leaf Spot (FLS), Cercospora Blight (CB), and Septoria Brown Spot (SBS) ratings for MG IV and MG V soybean varieties that were in the 2014 Mississippi Soybean Variety Trials.

Varieties were rated for FLS, CB, and SBS at locations indicated in the below tables. Ratings were based on a scale of 0 to 9, where 0 = no disease present and 9 = severe disease symptoms.

Ratings are based on each variety's reaction to natural infestations of each disease at each location; i.e., plants were not inoculated with disease pathogens. Thus, the ratings do not presume to indicate a variety's response to a known yield-reducing level of the pathogen. Rather, the ratings are to be used as an indicator of each variety's reaction to the level of the pathogen present at each location in 2014.

According to Dr. Allen, consider the reaction of a particular variety across several locations when assessing that variety's susceptibility to the rated diseases.

Statistics

LSD (least significant difference). These values are used as a statistical tool to determine significant differences among variety ratings. The average ratings of any two varieties being compared must differ by more than the LSD value to be considered different in a particular test.

Put another way, the LSD is the smallest difference between ratings of two varieties that can be attributed to an actual difference in the varieties' disease susceptibility in a particular trial. Thus, a difference in the ratings of two varieties that exceeds the LSD is attributable to a difference in the disease susceptibility of the two varieties. Even though the average ratings of two varieties may be numerically different, the two disease ratings are not considered significantly different if that difference does not exceed the test LSD.

Probability level (*p* value). A disease rating difference between two varieties that exceeds the LSD value will be expected to do so 9 times out of 10 at the 10% (.10) level of probability, 19 times out of 20 at the 5% (.05) level, 99 times out of 100 at the 1% (.01) level, etc. The smaller the probability level, the more stringent the statistical test.

CV (coefficient of variation) and/or R² (coefficient of determination). These values are a measure of the relative precision of a given trial and can be used to compare the relative precision of different trials. The CV is generally considered to be an estimate of the amount of unexplained variation in a given trial or test, while the R² is a measure of the amount of variation that is explained or accounted for in a given test. A CV below 10% (10% unexplained variation in a trial) is desired, while an R² above 0.90 (90% of the variation in a trial has been accounted for) is desired.

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Maturity Group IV Conventional Cercospora leaf blight ratings

Entry #	Brand	Variety	Disease rating (0-9)		Average
			Brooksville	Longwood	
7	MPV	483C	7.0 a	6.0 a	6.5
3	Univ. Arkansas	<i>R05-3239</i>	5.7 bc	5.0 b	5.3
5	Univ. Arkansas	<i>R08-2797</i>	6.7 a	5.0 b	5.8
4	Univ. Arkansas	<i>R09-4571</i>	6.0 b	5.3 b	5.7
1	Univ. Missouri	<i>S09-6262</i>	6.0 b	5.3 b	5.7
2	Univ. Missouri	<i>S11-20356</i>	5.3 c	5.0 b	5.2
6	USG	Ellis	6.0 b	5.0 b	5.5
			<i>R</i> ²	0.8173	0.75
			<i>CV</i>	5.61	5.38
			<i>p</i> -value	0.0036	0.0075
			<i>LSD</i>	0.63	0.50
			<i>St. Dev.</i>	0.60	0.44

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group IV Conventional Frogeye leaf spot ratings

Entry #	Brand	Variety	Disease rating (0-9)		Avg.
			Brooksville	Longwood	
7	MPV	483C	4.0 b	2.0 c	3.0
3	Univ. Arkansas	<i>R05-3239</i>	2.5 c	1.3 de	1.9
5	Univ. Arkansas	<i>R08-2797</i>	5.0 ab	4.0 b	4.5
4	Univ. Arkansas	<i>R09-4571</i>	4.5 ab	5.0 a	4.8
1	Univ. Missouri	<i>S09-6262</i>	2.5 c	4.3 b	3.4
2	Univ. Missouri	<i>S11-20356</i>	1.0 d	1.0 e	1.0
6	USG	Ellis	0.0 e	1.7 cd	0.8
			R²	0.9866	0.9732
			CV	12.77	12.07
			p-value	<0.0001	<0.0001
			LSD	0.77	0.59
			St. Dev.	1.93	1.58

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms
Note: varieties listed in yellow and italics are experimental

Maturity Group IV LibertyLink Cercospora leaf blight ratings

Disease rating (0-9)

Entry #	Brand	Variety	Brooksville	Falkner	Longwood	Stoneville (clay)	Avg.
3	Delta Grow	DG 4767 LL/STS	6.3 abc	4.0 efgh	3.0 fg	4.0 gh	4.3
20	Delta Grow	DG 4867 LL	6.3 abc	6.0 bc	5.7 d	4.3 fg	5.6
1	Delta Grow	DG 4967 LL	5.7 cd	2.5 ijk	3.0 fg	3.5 h	3.7
21	Delta Grow	DG 4981 LL/STS	4.7 e	1.7 k	3.0 fg	4.0 gh	3.3
2	Delta Grow	DG 4990 LL	5.7 cd	4.0 efgh	3.3 ef	4.7 ef	4.4
8	Dyna-Gro	S49LL34	5.7 cd	3.0 hij	2.7 g	4.0 gh	3.8
27	Dyna-Gro	S49LS65	6.0 bcd	3.7 fghi	3.3 ef	4.3 fg	4.3
22	Go Soy	4713	5.7 cd	2.7 ijk	3.0 fg	4.0 gh	3.8
23	Go Soy	4914	5.5 d	4.0 efgh	3.0 fg	4.3 g	4.2
25	Halo	4:40	6.3 abc	5.0 cde	6.3 bc	5.3 cd	5.8
15	Halo	4:76	6.7 ab	5.0 ab	6.7 ab	6.0 b	6.1
16	Halo	4:94	6.0 bcd	6.0 cde	3.0 fg	4.7 ef	4.9
26	Halo	4:95	7.0 a	5.0 cde	6.0 cd	5.0 de	5.8
17	Halo	4:97	6.3 abc	2.0 jk	3.0 fg	4.7 ef	4.0
18	Halo	<i>X448</i>	7.0 a	4.7 def	6.5 abc	5.0 de	5.8
19	Halo	<i>X449</i>	5.3 d	3.3 ghi	3.3 ef	4.0 gh	4.0
28	Hornbeck	<i>BX 4748LL</i>		5.3 cd	6.0 cd	5.0 de	5.4
4	Hornbeck	HBK LL 4650	7.0 a	7.0 ab	7.0 a	7.0 a	7.0
5	Hornbeck	HBK LL 4850	6.7 ab	4.5 defg	6.3 bc	4.7 ef	5.5
6	Hornbeck	HBK LL 4950	5.7 cd	3.0 hij	3.3 ef	4.0 gh	4.0
7	Hornbeck	HBK LL 4953	5.7 cd	2.5 ijk	3.0 fg	4.0 gh	3.8
10	Progeny	P 4620 LLS	5.7 cd	4.0 efgh	3.0 fg	4.0 gh	4.2
11	Progeny	P 4819 LL	6.5 ab	5.0 cde	6.0 cd	5.0 de	5.6
12	Progeny	P 4928 LL	6.0 bcd	4.0 efgh	3.7 e	4.3 fg	4.5
13	Progeny	P 4930 LL	5.7 cd	3.0 ijk	3.0 fg	4.0 gh	3.9
9	Progeny	P4560 LL	6.7 ab	7.5 a	7.0 a	5.7 bc	6.7
24	REV®	49L29™	5.7 cd	4.7 def	3.7 e	5.0 de	4.8
14	USG	74G74 LL	6.0 bcd	2.5 hij	3.3 ef	4.3 fg	4.0
			R²	0.7515	0.8984	0.9612	0.8573
			CV	7.35	16.52	9.14	7.67
			p-value	<0.0001	<0.0001	<0.0001	<0.0001
			LSD	0.76	1.31	0.65	0.59
			St. Dev.	0.70	1.57	1.61	0.74

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group IV LibertyLink Frogeye leaf spot ratings

Disease rating (0-9)

Entry #	Brand	Variety	Disease rating (0-9)				Avg.
			Brooksville	Falkner	Longwood	Stoneville (clay)	
3	Delta Grow	DG 4767 LL/STS	4.5 ab	1.3 de	3.0 cd	2.7 c	2.9
20	Delta Grow	DG 4867 LL	4.0 bc	2.0 bc	5.0 a	5.3 a	4.1
1	Delta Grow	DG 4967 LL	0.0 g	0.3 gh	1.0 gh	1.0 de	0.6
21	Delta Grow	DG 4981 LL/STS	2.7 d	1.0 ef	1.7 efg	1.7 d	1.8
2	Delta Grow	DG 4990 LL	0.7 fg	0.7 fg	1.3 fg	1.3 de	1.0
8	Dyna-Gro	S49LL34	0.3 fg	0.0 h	0.5 h	1.0 de	0.5
27	Dyna-Gro	S49LS65	1.5 e	0.7 fg	1.0 gh	1.0 de	1.0
22	Go Soy	4713	3.0 d	0.7 fg	1.7 efg	3.0 c	2.1
23	Go Soy	4914	3.0 d	0.0 h	1.0 gh	1.3 de	1.3
25	Halo	4:40	.	0.0 h	1.7 efg	1.0 de	0.9
15	Halo	4:76	.	0.7 h	2.0 ef	1.0 de	1.2
16	Halo	4:94	1.0 ef	0.0 h	1.0 gh	1.0 de	0.8
26	Halo	4:95	1.0 ef	3.0 a	3.7 bc	5.7 a	3.3
17	Halo	4:97	1.5 e	1.0 ef	3.0 cd	4.0 b	2.4
18	Halo	<i>X448</i>	.	0.3 gh	4.0 b	3.0 c	2.4
19	Halo	<i>X449</i>	1.7 e	1.0 ef	1.0 gh	1.0 de	1.2
28	Hornbeck	<i>BX 4748LL</i>	.	0.0 h	2.0 ef	1.3 de	1.1
4	Hornbeck	HBK LL 4650	0.0 g	0.0 h	2.3 de	1.0 de	0.8
5	Hornbeck	HBK LL 4850	1.0 ef	2.5 ab	5.0 a	6.0 a	3.6
6	Hornbeck	HBK LL 4950	0.0 g	0.3 gh	1.0 gh	0.7 e	0.5
7	Hornbeck	HBK LL 4953	1.0 ef	0.0 h	1.0 gh	0.7 e	0.7
10	Progeny	P 4620 LLS	3.3 cd	1.3 de	2.3 de	3.3 bc	2.6
11	Progeny	P 4819 LL	1.0 ef	3.0 a	5.3 a	5.7 a	3.8
12	Progeny	P 4928 LL	0.7 fg	0.0 h	1.0 gh	1.0 de	0.7
13	Progeny	P 4930 LL	0.0 g	0.0 gh	1.0 gh	0.7 e	0.4
9	Progeny	P4560 LL	.	0.0 h	1.3 fg	1.0 de	0.8
24	REV®	49L29™	0.0 g	0.0 h	1.0 gh	1.0 de	0.5
14	USG	74G74 LL	5.0 a	1.3 cd	2.3 de	3.3 bc	3.0
			R²	0.9691	0.9174	0.9239	0.9656
			CV	23.15	50.08	23.46	18.98
			p-value	<0.0001	<0.0001	<0.0001	<0.0001
			LSD	0.75	0.56	0.79	0.69
			St. Dev.	1.51	0.88	1.35	1.76

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group IV LibertyLink Septoria brown spot ratings

Entry #	Brand	Variety	Disease rating (0-9)	
			Falkner	
3	Delta Grow	DG 4767 LL/STS	3.0	ef
20	Delta Grow	DG 4867 LL	6.5	c
1	Delta Grow	DG 4967 LL	2.7	f
21	Delta Grow	DG 4981 LL/STS	2.7	f
2	Delta Grow	DG 4990 LL	4.0	d
8	Dyna-Gro	S49LL34	3.0	ef
27	Dyna-Gro	S49LS65	3.0	ef
22	Go Soy	4713	3.3	def
23	Go Soy	4914	3.3	def
25	Halo	4:40	8.0	a
15	Halo	4:76	5.0	a
16	Halo	4:94	4.7	ef
26	Halo	4:95	7.0	bc
17	Halo	4:97	4.0	d
18	Halo	<i>X448</i>	7.5	ab
19	Halo	<i>X449</i>	3.3	def
28	Hornbeck	<i>BX 4748LL</i>	4.0	d
4	Hornbeck	HBK LL 4650	8.3	a
5	Hornbeck	HBK LL 4850	6.5	c
6	Hornbeck	HBK LL 4950	3.3	def
7	Hornbeck	HBK LL 4953	3.0	ef
10	Progeny	P 4620 LLS	4.0	d
11	Progeny	P 4819 LL	4.0	d
12	Progeny	P 4928 LL	3.7	de
13	Progeny	P 4930 LL	2.7	f
9	Progeny	P4560 LL	8.0	a
24	REV®	49L29™	3.3	def
14	USG	74G74 LL	3.3	ef
			R²	0.9633
			CV	11.12
			p-value	<0.0001
			LSD	0.87
			St. Dev.	1.99

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms
Note: varieties listed in yellow and italics are experimental

Maturity Group V Conventional Cercospora leaf blight ratings

Entry #	Brand	Variety	Disease rating (0-9)		Avg.
			Brooksville	Longwood	
9	Stratton Seeds	Leland	6.0 .	6.3 a	6.2
3	Univ. Arkansas	Ozark	6.0 .	6.0 a	6.0
4	Univ. Arkansas	Osage	6.0 .	6.0 a	6.0
7	Univ. Arkansas	<i>R05-374</i>	6.0 .	6.0 a	6.0
8	Univ. Arkansas	<i>R09-430</i>	6.0 .	6.0 a	6.0
5	Univ. Arkansas	UA 5612	6.0 .	6.0 a	6.0
6	Univ. Arkansas	UA 5213C	6.0 .	6.0 a	6.0
2	Univ. Missouri	<i>S11-20124</i>	6.0 .	5.3 b	5.7
1	USDA-ARS	<i>JTN-5110</i>	6.0 .	6.0 a	6.0
			<i>R</i>²	0.6529	
			CV	4.39	
			<i>p</i>-value	0.0332	
			LSD	0.47	
			St. Dev.	0	0.34

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group V Conventional Frogeye leaf spot ratings

Entry #	Brand	Variety	Disease rating (0-9)		Avg.
			Brooksville	Longwood	
9	Stratton Seed	Leland	1.0 d	1.3 e	1.2
4	Univ. Arkansas	Osage	1.7 c	4.3 b	3.0
3	Univ. Arkansas	Ozark	1.0 d	1.0 e	1.0
7	Univ. Arkansas	<i>R05-374</i>	5.0 a	5.0 a	5.0
8	Univ. Arkansas	<i>R09-430</i>	1.3 cd	4.0 b	2.7
6	Univ. Arkansas	UA 5213C	2.3 b	4.3 b	3.3
5	Univ. Arkansas	UA 5612	1.7 c	2.0 d	1.8
2	Univ. Missouri	<i>S11-20124</i>	1.0 d	1.0 e	1.0
1	USDA-ARS	<i>JTN-5110</i>	1.0 d	3.3 c	2.2
			<i>R</i>²	0.9399	0.9629
			CV	21.61	13.15
			<i>p</i>-value	<0.0001	<0.0001
			LSD	0.64	0.67
			St. Dev.	1.13	1.57

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group V LibertyLink Cercospora ratings

Entry #	Brand	Variety	Disease rating (0-9)				Avg.
			Brooksville	Falkner	Longwood	Stoneville (clay)	
2	Delta Grow	DG 5267 LL	5.0 c	5.0 c	5.0 c	5.5 de	5.1
3	Delta Grow	DG 5367 LL	5.7 b	6.0 a	6.0 a	7.0 a	6.2
1	Delta Grow	DG 5461 LL	5.0 c	6.0 a	6.0 a	6.3 bc	5.8
13	Delta Grow	DG 5481 LL	5.0 c	5.0 c	5.0 c	6.3 bc	5.3
14	Go Soy	5214	5.0 c	5.0 c	5.0 c	6.0 cd	5.3
10	Halo	5:01	6.0 a	5.0 c	5.0 c	6.0 cd	5.5
11	Halo	5:25	6.0 a	6.0 a	6.0 a	6.3 bc	6.1
12	Halo	5:26	6.0 a	6.0 a	6.0 a	6.7 ab	6.2
15	Halo	5:45	6.0 a	6.0 a	6.0 a	6.0 cd	6.0
17	Halo	<i>X451</i>	5.0 c	5.0 c	5.0 c	6.7 ab	5.4
16	Halo	<i>X452</i>	5.0 c	6.0 a	5.0 c	6.3 bc	5.6
9	Hornbeck	5242 LL	5.0 c	5.3 b	5.0 c	5.3 e	5.2
8	Hornbeck	<i>BX 5150 LL</i>	5.0 c	6.0 a	5.0 c	6.3 bc	5.6
4	Progeny	P 5160 LL	6.0 a	6.0 a	6.0 a	6.0 cd	6.0
5	Progeny	P 5220 LLS	5.0 c	5.0 c	5.0 c	6.5 abc	5.4
6	Progeny	P 5460 LL	5.0 c	5.0 c	5.0 c	6.0 cd	5.3
7	Progeny	P 5960 LL	6.0 a	6.0 a	6.0 a	6.0 cd	6.0
18	REV®	55L95™	6.0 a	6.0 c	5.5 b	6.3 bc	6.0
<i>R²</i>			0.9472	0.9483	0.9608	0.7687	
<i>CV</i>			2.71	2.65	2.32	5.29	
<i>p-value</i>			<0.0001	<0.0001	<0.0001	<0.0001	
<i>LSD</i>			0.26	0.26	0.22	0.58	
<i>St. Dev.</i>			0.50	0.50	0.49	0.53	

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group V LibertyLink Frogeye leaf spot ratings

Entry #	Brand	Variety	Disease rating (0-9)				Avg.
			Brooksville	Falkner	Longwood	Stoneville (clay)	
2	Delta Grow	DG 5267 LL	0.0 c	0.0 d	1.0 de	2.7 cd	0.9
3	Delta Grow	DG 5367 LL	3.0 a	1.0 b	4.0 a	6.0 a	3.5
1	Delta Grow	DG 5461 LL	1.3 b	0.3 cd	2.0 c	5.0 b	2.2
13	Delta Grow	DG 5481 LL	0.0 c	0.0 d	1.0 de	2.0 d	0.8
14	Go Soy	5214	0.0 c	0.3 cd	1.3 d	2.3 cd	1.0
10	Halo	5:01	0.0	0.3 cd	1.3 d	2.0 d	0.9
11	Halo	5:25	1.0 b	0.3 cd	2.0 c	2.5 cd	1.5
12	Halo	5:26	1.0 b	0.5 b	1.0 de	2.7 cd	1.3
15	Halo	5:45	0.0 c	0.7 bc	1.0 de	2.7 cd	1.1
17	Halo	<i>X451</i>	0.3 c	0.0 d	1.0 de	2.0 d	0.8
16	Halo	<i>X452</i>	0.0 c	0.0 d	1.0 de	2.0 d	0.8
9	Hornbeck	5242 LL	0.0 c	0.0 d	0.7 e	2.7 cd	0.8
8	Hornbeck	<i>BX 5150 LL</i>	0.0 c	1.0 b	1.0 de	2.7 cd	1.2
4	Progeny	P 5160 LL	0.3 c	0.3 cd	1.0 de	3.0 c	1.2
5	Progeny	P 5220 LLS	1.0 b	3.0 a	3.0 b	4.5 b	2.9
6	Progeny	P 5460 LL	0.3 c	0.7 bc	0.7 e	3.0 c	1.2
7	Progeny	P 5960 LL	0.0 c	0.0 d	0.7 e	2.3 cd	0.8
18	REV®	55L95™	0.3 c	0.7 bc	1.0 de	2.7 cd	1.2
R²			0.9118	0.8323	0.9268	0.8929	
CV			66.48	77.67	22.31	15.91	
p-value			<0.0001	<0.0001	<0.0001	<0.0001	
LSD			0.47	0.63	0.51	0.80	
St. Dev.			0.73	0.70	0.84	1.09	

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms

Note: varieties listed in yellow and italics are experimental

Maturity Group V LibertyLink Septoria brown spot ratings

Entry #	Brand	Variety	Disease rating (0-9)	
			Falkner	
2	Delta Grow	DG 5267 LL	6.0 bc	
3	Delta Grow	DG 5367 LL	6.0 bc	
1	Delta Grow	DG 5461 LL	5.7 c	
13	Delta Grow	DG 5481 LL	6.3 c	
14	Go Soy	5214	5.3 c	
10	Halo	5:01	5.3 c	
11	Halo	5:25	6.7 a	
12	Halo	5:26	7.0 a	
15	Halo	5:45	6.0 c	
17	Halo	<i>X451</i>	6.0 bc	
16	Halo	<i>X452</i>	6.0 ab	
9	Hornbeck	5242 LL	6.3 c	
8	Hornbeck	<i>BX 5150 LL</i>	6.3 ab	
4	Progeny	P 5160 LL	7.0 a	
5	Progeny	P 5220 LLS	5.7 c	
6	Progeny	P 5460 LL	5.3 c	
7	Progeny	P 5960 LL	6.0 bc	
18	REV®	55L95™	6.7 a	
			R²	0.7444
			CV	6.85
			p-value	<0.0001
			LSD	0.71
			St. Dev.	0.65

Ratings were conducted on a scale of 0-9 where 0=no disease and 9=severe disease symptoms
Note: varieties listed in yellow and italics are experimental