

The 2012 Alabama Performance Comparison of Peanut Varieties



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The 2012 Alabama Performance Comparison of Peanut Varieties

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Introduction

The number of peanut varieties available to Alabama growers has increased in recent years, thus placing greater need for unbiased performance data regarding varietal selection for production.

Production and Discussion

The 2012 tests were conducted at the Wiregrass Research and Extension Center in Headland, AL. In the 2012 trial, 13 entries were evaluated under irrigation and dryland conditions. The data from the irrigated test appears to have been compromised, therefore, is not being reported.

The experimental design for each test was a randomized complete block consisting of two-row plots, 20 feet long, replicated four times. The dryland was planted May 2. The test was planted with a cone planter at a rate of six seed per foot of row. Recommended agronomic practices were followed regarding fertility, disease, insect, and weed control in all tests.

The dryland test entries with maturity near the same as Georgia Green were dug on September 27. These entries were AP-4, C1805-2-9, C1805-3-43, FloRun™ '107', Georgia-06G, Georgia-07W, Georgia-08V, Georgia-09B, Georgia Greener, and Tifguard. Entries moderately later than Georgia Green, which were, Georgia-11J and Florida 07 were dug on October 10. Entries later than Georgia Green were dug October 17. This entry was Georgia-10T.

The information presented here represents data from three years at one location. Yield and disease occurrence data have been subjected to an analysis of variance. This statistical evaluation determined the overall averages for all varieties, coefficient of variation (CV) and the least significant differences (LSD). The LSD values represent the difference required for the averages of two varieties to be considered statistically different. The (0.05) following the LSD value indicates that the LSD was calculated at the 95 percent level of confidence.

The CV, which is expressed as a percentage, is a relative measure of variation within a set of data. CV values of 8-12 percent are generally considered acceptable for yield data of agronomic crops. CV values in the disease data are considerably higher than this. However, this is expected due to random occurrence of disease in the field.

¹ Bostick is an adjunct professor of the Auburn University Department of Agronomy and Soils and Executive Vice President of Alabama Crop Improvement Association; Wells is Director and Gamble is Associate Director of the Wiregrass Research and Extension Center.

Size and Grade Data Terms

Data was collected and averaged on samples from replicates II, III, and IV for size and grade. The samples were graded following Federal-State Inspection Service procedures for grading farmer-stock peanuts.

Terms Used

SMKRS count/lb. (number per pound of sound mature kernels riding screen)—Number of sound whole mature kernels from 1 pound of the shelled sample riding a 15/64 x 1-inch slotted screen or a 16/64 x 3/4-inch slotted screen for Virginia or Runner varieties, respectively.

Pct. SMKRS (sound mature kernels riding screen)—Portion of shelled sample as described above.

Pct. SS (sound splits)—Portion of shelled sample split or broken but not damaged.

Pct. TSMK (total sound mature kernels)—Portion of the shelled sample comprised of sound mature kernels plus sound splits.

Pct. OK (other kernels)—Kernels that pass through a 15/64 x 1-inch slotted screen or 16/64 x 3/4-inch slotted screen for Virginia or Runner varieties, respectively.

Pct. DK (damaged kernels)—Kernels that are moldy, decayed, affected by insects or weather conditions resulting in seed coat or cotyledon discoloration or deterioration.

Pct. TK (total kernels)—All shelled sample kernels including TSMK, OK, and DK.

Pct. Hulls —All hulls from the shelled sample.

+21.0 (Generally considered as the Jumbo commercial grade)—Portion of SMKRS riding a 21/64 x 3/4-inch slotted screen.

-21.0 + 18.0 (Generally considered as the Medium commercial grade)—Portion of the SMKRS falling through a 21/64 x 3/4-inch slotted screen and riding a 18/64 x 3/4-inch slotted screen.

-18.0 + 16.0 (Generally considered as the No.1 commercial grade)—Portion of the SMKRS falling through a 18/64 x 3/4-inch slotted screen and riding a 16/64 x 3/4-inch slotted screen.

Acknowledgements

The authors express appreciation to Austin K. Hagan, Professor of Plant Pathology, for providing the disease evaluation data and to Glenn Wehtje, Professor of Agronomy and Soils, for the statistical analysis.

Table 1. Three-Year Yield of Dryland Peanut Varieties at the Wiregrass Research and Extension Center, Headland, Alabama 2010, 2011 & 2012

Variety or Line	2012 Avg. Yield lb/a	2 Year Avg. Yield lb/a	3 Year Avg. Yield lb/a
Georgia-07W	6262	6249	6174
Georgia-06G	6026	6239	6089
C1805-3-43	5862	---- ²	----
Florida 07	5826	5908	5929
Tifguard	5790	5899	5754
Georgia-10T	5754	5886	----
AP-4	5663	5450	5240
Georgia-11J	5627	----	----
C1895-2-9	5499	----	----
Georgia Greener	5463	5999	5639
Georgia-09B	5227	5527	5560
Georgia-08V	5064	5618	5566
FloRun™ '107'	4792	5300	----
Overall Average	5604	4784	4100
CV (%)	11.3	21.8	34.7
LSD (0.05).....	904	1043	1153

² Not tested

Table 2. Average Size and Grade of Dryland Peanut Varieties at the Wiregrass Research and Extension Center, Headland, Alabama 2012

Variety or Line	SMKRS <i>count/lb</i>	SMKRS <i>pct</i>	SS <i>pct</i>	TSMK <i>pct</i>	OK <i>pct</i>	DK <i>pct</i>	TK <i>pct</i>	Hulls <i>pct</i>
AP-4.....	662	69	2	71	3	1	75	25
C1805-2-9	633	68	2	70	3	2	75	25
C1805-3-43.....	633	70	2	72	3	1	76	24
FloRun™ ‘107’.....	721	69	3	72	3	2	77	23
Florida 07.....	625	65	4	69	3	1	73	27
Georgia-06G	668	71	2	73	3	3	79	21
Georgia-07W	712	74	2	76	2	1	79	21
Georgia-08V	587	67	4	71	1	2	74	26
Georgia-09B	740	70	4	74	2	2	78	22
Georgia-10T.....	681	71	7	78	2	1	81	19
Georgia-11J	466	71	1	72	1	2	75	25
Georgia Greener	713	69	4	73	3	3	79	21
Tifguard	700	71	1	72	3	1	76	24

Table 3. Two-Year Average Size and Grade of Dryland Peanut Varieties at the Wiregrass Research and Extension Center, Headland, Alabama 2011-2012

Variety or Line	SMKRS <i>count/lb</i>	SMKRS <i>pct</i>	SS <i>pct</i>	TSMK <i>pct</i>	OK <i>pct</i>	DK <i>pct</i>	TK <i>pct</i>	Hulls <i>pct</i>
AP-4	643	70	3	73	3	0	76	24
Flo-Run™ ‘107’	707	69	3	72	4	1	77	23
Florida 07	602	67	4	71	2	1	74	26
Georgia-06G	704	71	3	74	3	1	78	22
Georgia-07W	674	72	3	75	2	1	78	22
Georgia-08V	494	70	3	73	1	1	75	25
Georgia-09B	699	72	3	75	2	2	79	21
Georgia-10T.....	660	72	6	78	2	1	81	19
Georgia Greener.....	696	71	3	74	3	2	79	21
Tifguard	652	72	1	73	3	1	77	23

Table 4. Three-Year Average Size and Grade of Dryland Peanut Varieties at the Wiregrass Research and Extension Center, Headland, Alabama 2010 - 2012

Variety or Line	SMKRS <i>count/lb</i>	SMKRS <i>pct</i>	SS <i>pct</i>	TSMK <i>pct</i>	OK <i>pct</i>	DK <i>pct</i>	TK <i>pct</i>	Hulls <i>pct</i>
AP 4	661	68	3	71	3	1	75	25
Florida 07	621	65	5	70	2	1	73	27
Georgia-06G	695	70	3	73	3	2	78	22
Georgia-07W.....	726	71	3	74	2	1	77	23
Georgia-08V	501	68	3	71	2	2	75	25
Georgia-09B	718	71	4	75	2	1	78	22
Georgia Greener	700	70	3	73	3	2	78	22
Tifguard	664	70	1	71	4	1	76	24

Table 5. Average Shelled Seed Size Distribution of Dryland Peanut Varieties at the Wiregrass Research and Extension Center, Headland, Alabama 2010, 2011, & 2012

Variety or Line	SMKRS Size Distribution								
	+21.0 Jumbo <i>pct</i>			-21.0 +18.0 Medium <i>pct</i>			-18.0 +16.0 No. 1 <i>pct</i>		
	2012	2011	2010	2012	2011	2010	2012	2011	2010
AP-4	42.6	46.3	49.4	49.5	46.6	43.7	7.9	7.1	6.9
C1805-2-9	53.3	---- ³	----	41.2	----	----	5.5	----	----
C1805-3-43	55.2	----	----	39.3	----	----	5.5	----	----
Flo-Run™ ‘107’	38.4	33.1	----	53.0	59.1	----	8.6	7.6	----
Florida 07	64.4	55.2	63.3	31.3	40.2	32.1	4.3	4.5	4.6
Georgia-06G	51.6	57.1	59.3	42.3	38.3	35.2	6.1	4.5	5.5
Georgia-07W	40.4	38.3	46.7	53.1	56.6	46.3	6.5	5.1	7.0
Georgia-08V	70.4	82.5	75.5	24.7	12.6	21.2	4.9	4.9	3.4
Georgia-09B	47.0	57.8	56.1	47.0	38.8	38.8	6.0	3.4	5.1
Georgia-10T	57.2	59.8	----	38.6	37.6	----	4.2	3.3	----
Georgia-11J	82.2	----	----	14.0	----	----	3.8	----	----
Georgia Greener	48.2	43.4	49.8	45.2	52.2	43.0	6.6	4.4	7.2
Tifguard	47.0	59.3	63.2	45.6	36.3	29.7	7.4	4.5	7.1

³ Not tested

PLANTING RATE CHART⁴
36-inch rows

Seed per pound	Seed per foot	Lbs. per acre	Seed per foot	Lbs. per acre	Seed per foot	Lbs. per acre
600	5	121	6	145	7	178
625	5	116	6	140	7	171
650	5	112	6	134	7	164
675	5	108	6	129	7	158
700	5	104	6	124	7	152
725	5	100	6	120	7	147
750	5	97	6	116	7	142
775	5	94	6	112	7	138
800	5	91	6	109	7	133
825	5	88	6	106	7	129
850	5	85	6	102	7	125
875	5	83	6	100	7	122
900	5	81	6	97	7	118
925	5	78	6	94	7	115
950	5	76	6	92	7	112
975	5	74	6	89	7	109
1000	5	73	6	87	7	107
1025	5	71	6	85	7	104
1050	5	69	6	83	7	102
1075	5	68	6	81	7	99
1100	5	66	6	79	7	97

⁴Pounds of peanut seed at various seed count per pound required to plant 1 acre at five, six or seven seed per foot of row with single row width spacing. (For twin-rows at 36-inch centers, divide seed per foot for single row by two to determine seed per foot for each twin-row.)

To determine pounds per acre at 36-inch row spacing, use the following formula:

(A)
$$\frac{\text{Seed per foot} \times \text{linear feet in 1 acre}}{\text{Seed count per pound}} = \text{pounds per acre}$$

(B) To determine linear feet in one acre at 36-inch row spacing:

$$\frac{43,560 \text{ square feet per acre}}{3 \text{ square feet}} = 14,520 \text{ linear feet in 1 acre}$$

(C) Example:

$$\frac{6 \text{ seed per foot} \times 14,520 \text{ linear feet}}{800 \text{ seed per pound}} = 109 \text{ pounds per acre}$$

Tests Duration Daily Rainfall Data Recorded at the Wiregrass Research
and Extension Center, Headland, Alabama 2012

DATE	APR <i>in</i>	MAY <i>in</i>	JUNE <i>in</i>	JULY <i>in</i>	AUG <i>in</i>	SEPT <i>In</i>	OCT <i>in</i>
1	0.08				0.09		0.51
2			0.12	0.29			1.22
3		0.01			0.03		
4		0.14		0.01	0.68	1.91	
5				0.07	0.27	0.39	
6	0.65		0.13	0.16	0.40	0.61	0.09
7		0.60	0.44		2.12		
8					0.44		
9		0.98			0.47	0.15	
10		0.01	0.94		0.38		
11			0.47		1.41		
12			1.08	0.03	0.10		
13		0.77					
14		0.16					
15			0.04		0.05		
16							
17							
18	0.02			1.82	0.29	1.09	
19	0.69				0.02		0.18
20					0.06		
21					0.02		
22	0.47	0.02			0.05		
23							
24					0.05		
25			0.06				
26							
27				0.11			
28							
29		0.11					
30					0.23	0.18	
31				0.01	0.22		
TOTALS ⁵	1.91	2.80	3.28	2.50	7.38	4.33	2.00

⁵Total daily rainfall from April through October, 2012 = 24.2 in; 2011 = 16.97 in; 2010 = 22.65 in .

Tests Duration Daily Maximum Temperatures Recorded at the Wiregrass
 Research and Extension Center, Headland, Alabama 2012

DATE	APR °F	MAY °F	JUNE °F	JULY °F	AUG °F	SEPT °F	OCT °F
1	74	93	93	100	81	90	80
2	86	89	85	101	95	93	75
3	86	89	85	92	98	93	74
4	85	87	94	95	93	92	77
5	84	89	93	92	93	76	82
6	82	89	90	85	88	80	77
7	71	85	85	93	78	90	86
8	73	86	76	94	82	92	79
9	78	87	85	95	87	91	77
10	81	80	79	96	91	82	70
11	82	80	80	95	78	83	78
12	73	83	83	93	86	84	80
13	70	80	88	91	88	84	83
14	77	82	90	93	91	83	82
15	82	85	93	94	87	85	84
16	83	85	85	96	92	86	82
17	87	86	85	97	92	88	73
18	85	86	86	97	89	82	79
19	69	85	89	91	89	84	71
20	77	85	89	91	86	80	77
21	82	86	91	91	80	86	74
22	75	87	90	94	88	82	76
23	73	87	92	96	87	88	80
24	65	89	93	95	89	85	80
25	73	92	79	96	88	80	81
26	83	94	82	97	87	84	84
27	86	96	93	96	89	87	83
28	85	95	91	92	86	85	70
29	86	90	95	92	91	89	59
30	89	91	99	97	87	86	60
31		95		96	83		62

Tests Duration Daily Minimum Temperatures Recorded at the Wiregrass
 Research and Extension Center, Headland, Alabama 2012

DATE	APR °F	MAY °F	JUNE °F	JULY °F	AUG °F	SEPT °F	OCT °F
1	63	67	68	76	72	72	71
2	66	68	58	71	75	73	62
3	63	66	72	71	72	74	58
4	59	57	72	71	72	70	58
5	59	67	72	71	72	70	63
6	52	68	72	72	74	71	65
7	51	61	71	74	73	71	61
8	50	63	66	73	73	72	54
9	57	66	68	73	72	66	54
10	52	57	70	71	71	61	57
11	53	57	69	70	71	62	56
12	46	59	69	71	68	60	57
13	48	64	71	72	65	66	60
14	48	65	72	73	66	65	62
15	56	66	68	73	71	67	63
16	59	65	65	73	74	68	51
17	63	61	66	75	71	69	51
18	64	62	64	68	70	68	57
19	63	62	67	68	72	60	51
20	62	58	68	73	72	61	49
21	57	65	69	73	69	58	50
22	55	63	65	72	69	63	50
23	47	62	72	72	68	63	49
24	42	68	73	74	68	58	50
25	45	66	72	74	68	52	57
26	55	70	73	76	66	53	58
27	63	74	65	74	68	63	60
28	60	70	66	73	72	61	51
29	57	70	71	75	76	67	41
30	61	70	74	77	74	67	38
31		66		73	73		38

DESCRIPTIONS OF 2012 PEANUT VARIETY TEST ENTRIES

1. AP-4

Developed by Drs. Dan Gorbet and Barry Tillman, University of Florida Agricultural Experiment Station. Released in 2007 under the 1994 Amendment of the Plant Variety Protection Act. The oleic/linoleic fatty acid ratio is normal. The maturity range is medium with pod and seed size larger than Florunner. AP-4 carries good tomato spotted wilt virus resistance and tolerance to white mold. Not as resistant to white mold as AP-3. AP-4 has shown good grade characteristics.

2. C1805-2-9 and 3. C1805-3-43

Breeding lines submitted by Dr. Corley Holbrook, USDA-ARS, Tifton, Georgia. Both lines are resistant to root-knot nematode, high oleic, medium maturity and similar in size to Tifguard.

4. FloRun™ '107'

Developed by Dr. Barry Tillman, University of Florida Agricultural Experiment Station. Released in 2010 and protected under the 1994 Amendment of the Plant Variety Protection Act. Also carries a patent on the high-oleic trait prohibiting non-licensed parties from saving seed for replanting. It is a runner type variety with medium maturity and similar to Georgia Greener in seed size and produces a high percentage of medium size kernels. The variety has demonstrated good resistance to tomato spotted wilt virus and moderate resistance to white mold.

5. Florida 07

Developed by Drs. Dan Gorbet and Barry Tillman, University of Florida Agricultural Experiment Station. Released in 2006 under the 1994 amendment of the Plant Variety Protection Act. Also carries a patent on the high oleic trait prohibiting non-licensed parties from saving seed for replanting. Florida 07 is medium-late (140 – 145 days) in maturity, about 5 days later than Florunner with runner growth habit and pod and seed size larger than Florunner. Florida 07 carries resistance to tomato spotted wilt virus and white mold and tolerance to leafspot.

6. Georgia-06G

Developed by Dr. Bill Branch, University of Georgia Agricultural Experiment Station. Released in 2006 under the 1994 Amendment of the Plant Variety Protection Act. Medium maturity, normal oleic/linoleic fatty acid ratio, with larger pod and seed size than Georgia Green and resistant to tomato spotted wilt virus.

7. Georgia-07W

Developed by Drs. Bill Branch and Tim Brenneman, University of Georgia Agricultural Experiment Station. Released in 2007 under the 1994 Amendment of the Plant Variety Protection Act. Medium maturity with resistance to white mold and tomato spotted wilt virus. It is a large-seeded runner with normal oleic/linoleic oil chemistry.

8. Georgia-08V

Developed by Dr. Bill Branch, University of Georgia Agricultural Experiment Station. Released in 2008 and protected under the 1994 Amendment of the Plant Variety Protection Act. Also carries a patent on the high-oleic trait prohibiting non-licensed parties from saving seed for replanting. It is a Virginia-type variety that has large seed and is resistant to tomato spotted wilt virus.

9. Georgia-09B

Developed by Dr. Bill Branch, University of Georgia Agricultural Experiment Station. Released in 2009 and protected under the 1994 Amendment of the Plant Variety Protection Act. Also carries a patent on the high-oleic trait prohibiting non-licensed parties from saving seed for replanting. It is a Runner type that has medium seed size, medium maturity and is resistant to tomato spotted wilt virus.

10. Georgia 10T

Developed by Dr. Bill Branch, University of Georgia Agricultural Experiment Station. Released in 2010 and protected under the 1994 Amendment of the Plant Variety Protection Act. The variety has large seed size and late maturity. It has demonstrated excellent grades and tomato spotted wilt virus resistance.

11. Georgia 11J

A Virginia type developed by Dr. Bill Branch, University of Georgia. It was released in 2011 under the 1994 Amendment of the Plant Variety Protection Act. It is high oleic with good tomato spotted wilt virus resistance. It has larger pod and kernel size and later maturity than Georgia 08V

12. Georgia Greener

Developed by Dr. Bill Branch, University of Georgia Agricultural Experiment Station. Released in 2006 under the 1994 Amendment of the Plant Variety Protection Act. Medium maturity, normal oleic/linoleic fatty acid ratio, with larger pod and seed size than Georgia Green and resistant to tomato spotted wilt virus. Generally darker green foliage than Georgia Green.

13. Tifguard

Developed by Dr. Corley Holbrook, USDA- ARS, Tifton, Georgia and released in 2007. Has normal oil chemistry. Is mid-season in maturity and carries root-knot nematode and tomato spotted wilt virus resistance.

SOURCES OF SEED

Dr. W. D. Branch
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Georgia-06G
Georgia-07W
Georgia-08V
Georgia-09B
Georgia 10T
Georgia-11J
Georgia Greener

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C1805-2-9
C1805-3-43
Tifguard

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AP-4
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