

# Peanut Variety Tests

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- ARSOK-R1 was consistently in the higher yield group and in 2010 it continues to out grade all other runner varieties.
- Tamnut 06 and AT 98-99-14 were consistent performers in the Spanish trial. AT 98-99-14 has runner growth habit but is often graded as a Spanish.
- No consistent differences were observed between the Virginia varieties.

## Variety Tests

All variety tests were conducted under an extensive pest management program. The objective was to prevent as much outside influence from pest pressures (weed, disease and insect) on yield and grade as possible. Variety X location interaction was significant so the results were separated by county (Tables 1 - 3). Since the varieties and advanced lines response differed by location, growers may find the data for the county closest to their location to be the most useful in selecting a variety or varieties to grow. All test plots were planted using two 36-inch rows that were 20 feet long. Plots were seeded at a rate of five seeds per row foot (139,392 seeds/A). At planting, liquid inoculant formulation was applied with the seed. Tests were conducted using randomized, complete block design with five replications. The entire plot was dug and then thrashed three to four days later. Peanuts were placed in a drier until moisture reached 10 percent. Total sound mature kernels (TSMK) was determined on a 200 g sample from each plot.

## Overview of the 2009 Production Year

Weather conditions were variable in 2009. Above normal rainfall in May

delayed planting in some areas. In June, hot and dry weather developed in most of the peanut growing areas. Starting in late July through harvest, temperatures statewide were below normal (30-year average). Disease pressure was low early in the growing season. However, with cooler temperatures in late July and late August, leaf spot and Sclerotinia blight started to appear. Harvest was delayed in many areas due to wet field conditions and slow maturing peanuts. If disease control was adequate, yields were above average. Cool temperatures in the fall delayed peanut maturity resulting in below average grades in some areas.

## Interpreting data

Details of establishment and management of each test are listed in footnotes below the tables. Least significant differences (LSD) are listed at the bottom of all but the Performance Summary tables. Differences among varieties are significant only if they are equal to or greater than the LSD value. If a given variety out yields another variety by as much or more than the LSD value, then it is 95 percent sure the yield difference is real, with only a 5 percent probability the difference is due to chance alone. For example, if variety X is 500 lbs/A higher in yield than variety Y, then this difference

is statistically significant if the LSD is 500 or less. If the LSD is 500 or greater, then it is less likely that variety X really is higher yielding than variety Y under the conditions of the test.

The coefficient of variation (CV value) listed at the bottom of each table is used as a measure of the precision of the experiment. Lower CV values will generally relate to lower experimental error in the trial. Uncontrollable or immeasurable variations in soil fertility, soil drainage and other environmental factors contribute to greater experimental error and higher CV values.

Results reported here should be representative of what might occur throughout the state but would be most applicable under environmental and management conditions similar to those of the tests. The relative yields of all peanut varieties are affected by crop management and by environmental factors including soil type, summer conditions, soil moisture conditions, diseases and insects.

### **Beckham County**

Good growing conditions were observed at Erick throughout the growing season. Early season precipitation was above normal, which delayed planting in some cases. The trial was planted May 18. No significant foliar diseases were observed during the growing season. The only yield limiting disease that was observed in the plots was pod rot. Pod rot was most severe in the Virginia varieties.

Average yield for the runner test was 4,425 lbs/A with an average grade of 76 percent (Table 1). No significant differences were observed among the runner varieties. Grades of ARSOK-R1 and FlavorRunner 458 were significantly higher than grades from Tamrun OL02 and Tamrun OL07.

Average yield and grade for the Spanish test was 3,815 lbs/A and 73 percent TSMK, respectively. In the Spanish test ARSOK-S1, Tamnut OL06, and AT 98-99-14 were the top yield performers.

ARSOK-S1 is an experimental variety that has not been released at this time. Tamnut 06 was released from Texas A&M in the spring of 2007 and it is high oleic.

Average yield and grade in the Virginia test was 4,026 lbs/A and 72 percent TSMK, respectively. All three varieties have been consistent performers during the last three years.

### **Caddo County**

Overall, growing conditions were good during the season at Ft. Cobb. This location suffered the most from the below normal temperatures in October. This is evident from the below average grades of all varieties. Average yield for the runner test was 3,582 lbs/A with an average grade of 63 percent TSMK (Table 2). ARSOK-R1 was the top performing variety in both yield and grade.

Average yield and grade for the Spanish test was 3,140 lbs/A and 64 percent TSMK, respectively.

### **Additional information on the Web**

A copy of this publication, as well as a variety of information on peanut and soybean management can be found at:

**[www.peanut.okstate.edu/](http://www.peanut.okstate.edu/)**

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**Table 1. Peanut yields, pod rot observations and grades from Beckham County variety tests, 2009.**

Variety or line	Pod		
	Rot (%)	Yield (lbs/A)	Grade (% TSMK) <sup>2</sup>
----- 2009 -----			
<b>Runner<sup>1</sup></b>			
Tamrun OL02	<1	4,657	73.9
ARSOK-R1	0	4,461	78.2
FlavorRunner 458	0	4,352	76.3
Tamrun OL07	1	4,229	74.0
CV		6.3	1.8
LSD $P=0.05$	NS <sup>3</sup>	NS	1.5
<b>Spanish<sup>1</sup></b>			
AT 98-99-14	1	4,320	73.4
ARSOK-S1	0	4,138	71.9
Tamnut OL06	0	3,939	70.6
Spanco	0	3,684	74.3
Tamspan 90	0	3,576	72.2
OLin	0	3,530	72.1
Pronto	0	3,521	75.6
CV		10.0	4.1
LSD $P=0.05$	1	502	1.4
<b>Virginia<sup>1</sup></b>			
Brantley	2.5	4,068	74.2
Jupiter	3.8	4,034	70.8
Gregory	3.3	3,975	70.3
CV		9.0	6.3
LSD $P=0.05$	NS	NS	NS

<sup>1</sup>Market type.

<sup>2</sup>% TSMK = Percent total sound mature kernels.

<sup>3</sup>NS=treatment effect not significant at  $P=0.05$ .

Average yield and grade in the Virginia test was 3,457 lbs/ A and 64 percent TSMK, respectively.

#### Custer County

This was the second year for a test location in Hydro. Good growing conditions were observed throughout the growing season. Early season precipitation was above normal, which delayed planting in some cases. The trial was planted May 18 and dug Oct. 20. Yields were excellent

at this location. However, grades were low due to a cool September, which slowed maturity. Average yield for the runner test was 6,485 lbs/A with an average grade of 69 percent TSMK (Table 3). Tamrun OL07 performed very well at this location, but grade was lower than some other varieties. ARSOK-R1 had a significantly higher percent of TSMK compared to all other runner varieties.

Yields for the Spanish varieties were excellent, approaching yields for the runner varieties. Average yield and grade for the Spanish test was 6,464 lbs/A and 68 percent TSMK, respectively. The highest

**Table 2. Peanut yields and grades from Caddo County variety tests, 2009.**

Variety or line	Yield and Grade	
	Yield (lbs/A)	Grade (% TSMK) <sup>2</sup>
----- 2009 -----		
<b>Runner<sup>1</sup></b>		
ARSOK-R1	4,068	65.2
Tamrun OL02	3,717	60.7
Tamrun OL07	3,480	61.4
FlavorRunner 458	3,063	63.2
CV	15.8	5.3
LSD $P=0.05$	779	ns <sup>3</sup>
<b>Spanish<sup>1</sup></b>		
Spanco	3,467	64.7
ARSOK-S1	3,354	64.0
OLin	3,118	65.2
Pronto	3,093	59.6
AT 98-99-14	3,006	65.8
Tamspan 90	3,002	63.3
Tamnut OL06	2,937	63.8
CV	10.1	11.2
LSD $P=0.05$	414	NS
<b>Virginia<sup>1</sup></b>		
Gregory	3542	63.3
Jupiter	3536	63.2
Brantley	3292	64.1
CV	9.7	3.2
LSD $P=0.05$	NS	NS

<sup>1</sup>Market type.

<sup>2</sup>% TSMK = Percent total sound mature kernels.

<sup>3</sup>NS=treatment effect not significant at  $P=0.05$ .

yielding varieties at this location were AT 98-99-14 and ARSOK-S1. The variety AT 98-99-14 has a runner growth habit but is typically graded as a Spanish.

Average yield and grade in the Virginia test was 6,710 lbs/A and 67 percent TSMK, respectively. Brantley was the Virginia variety that performed best at this location.

**Table 3. Peanut yields, pod rot observations and grades, Custer County variety tests, 2009.**

Variety or line	Pod		
	Rot (%)	Yield (lbs/A)	Grade (% TSMK) <sup>2</sup>
----- 2009 -----			
<b>Runner<sup>1</sup></b>			
Tamrun OL07	3.8	6,716	68.2
Tamrun OL02	2.9	6,559	68.9
ARSOK-R1	5.4	6,530	72.4
FlavorRunner 458	9.2	6,135	66.0
CV		8.2	3.9
LSD $P=0.05$	NS <sup>3</sup>	735	3.8
<b>Spanish<sup>1</sup></b>			
AT 98-99-14	2.1	7,743	70.3
ARSOK-S1	0	7,106	68.4
Tamnut 06	0.4	6,312	67.5
OLin	1.7	6,248	69.9
Spanco	0.4	6,240	65.8
Pronto	0.4	6,047	68.5
Tamspan 90	0.4	5,550	68.0
CV		11.6	4.1
LSD $P=0.05$	1.4	976	NS <sup>3</sup>
<b>Virginia<sup>1</sup></b>			
Brantley	6.3	7,050	66.4
Jupiter	7.9	6,636	65.9
Gregory	10.4	6,443	67.5
CV		4.4	2.6
LSD $P=0.05$	NS	435	NS

<sup>1</sup>Market type.

<sup>2</sup>% TSMK = Percent total sound mature kernels.

<sup>3</sup>NS=treatment effect not significant at  $P=0.05$ .

## Long-term Averages

When making variety selection it is always important to consider more than one year of data. This is especially true for peanut varieties due to the year to year variability we observe in our climate. Tables 4, 5 and 6 contain multi years of data. Variety comparisons are easier when performed over multiple years.

### Beckham County

During the last four-year period Tamrun 96, Tamrun OL07 and ARSOK-R1 have performed the best out of the runner varieties tested. Tamrun 96 is no longer offered and ARSOK-R1 has not yet been released. Grades for ARSOK-R1 has consistently been the best compared to all other varieties.

The Spanish varieties that have performed the best during the past four years have been Tamnut 06, AT 98-99-14, ARSOK-S1 and Spanco. Grades among these top performers have been similar.

All Virginia varieties tested have performed similar.

### Caddo County

During the last four-year period in Caddo County, ARSOK-R1 has performed the best out of the runner varieties tested. ARSOK-R1 has not yet been released. Grades for ARSOK-R1 have consistently been better compared to all other varieties.

The Spanish varieties that have performed the best during the past four years have been Spanco, AT 98-99-14 and ARSOK-S1. Grades among these top performers have been similar.

All Virginia varieties tested have performed similar.

### Custer County

Over the last two-year period in Custer County, Tamrun OL07 has performed the best out of the runner varieties tested. Grades for ARSOK-R1 has consistently been better compared to all other varieties.

The Spanish varieties that have performed the best during the past four years have been AT 98-99-14 and ARSOK-S1. Grades among these top performers have been similar.

Among the Virginia varieties, Jupiter appears to have a slight yield advantage over the other Virginia varieties.

**Table 4. Peanut yields and grades, Beckham County variety tests, 2006 to 2009 and a 4-year-average.**

Variety or line	Yield (lbs/A)	Grade (%) TSMK <sup>2</sup>	Yield (lbs/A)	Grade (%) TSMK	Yield (lbs/A)	Grade (%) TSMK	Yield (lbs/A)	Grade (%) TSMK	Yield (lbs/A)	Grade (%) TSMK
	2006		2007		2008		2009		4-year Avg	
<b>Runner<sup>1</sup></b>										
Tamrun 96	5,250	71	5,041	74	6,331	76	NA <sup>3</sup>	NA <sup>3</sup>	5,541	74
Tamrun OL07	NA <sup>3</sup>	NA <sup>3</sup>	5,838	74	5,710	76	4,229	74.0	5,259	75
ARSOK-R1	5,273	75	5,229	77	5,928	79	4,461	78.2	5,223	77
SW Runner	4,238	69	4,473	74	5,899	74	NA <sup>3</sup>	NA <sup>3</sup>	4,870	72
Tamrun OL02	5,322	68	3,147	71	5,463	74	4,657	73.9	4,647	72
FlavorRunner 458	NA <sup>3</sup>	NA <sup>3</sup>	4,443	74	5,107	78	4,352	76.3	4,634	76
LSD <i>P</i> =0.05	417	4	1,825	2	781	3	NS <sup>4</sup>	1.5		
<b>Spanish<sup>1</sup></b>										
Tamnut 06	NA <sup>3</sup>	NA <sup>3</sup>	4,029	73	5,961	71	3,939	70.6	4,643	72
AT 98-99-14	3,843	71	4,000	75	6,141	73	4,320	73.4	4,576	73
ARSOK-S1	3,421	69	4,046	74	5,619	73	4,138	71.9	4,306	72
Spanco	3,930	72	3,740	76	5,616	69	3,684	74.3	4,243	73
GA 04S	3,639	65	3,766	71	5,147	65	NA <sup>3</sup>	NA <sup>3</sup>	4,184	67
Tamspan 90	3,526	70	3,323	74	5,140	72	3,576	72.2	3,891	72
OLin	3,612	69	2,998	74	4,828	71	3,530	72.1	3,742	71
Pronto	3,326	72	2,886	77	4,672	73	3,521	75.6	3,601	74
LSD <i>P</i> =0.05	416	NS <sup>4</sup>	577	2	502	2	502	1.4		
<b>Virginia<sup>1</sup></b>										
Perry	4,102	72	4,740	72	5,514	78	NA <sup>3</sup>	NA <sup>3</sup>	4,785	74
Gregory	NA <sup>3</sup>	NA <sup>3</sup>	4,866	69	5,173	70	3,975	70.3	4,671	70
Jupiter	4,147	73	4,409	73	5,470	69	4,034	70.8	4,515	72
Brantley	4,456	72	4,433	72	4,599	71	4,068	74.2	4,389	72
LSD <i>P</i> =0.05	NS <sup>4</sup>	NS <sup>4</sup>	NS <sup>4</sup>	1	NS <sup>4</sup>	NS <sup>4</sup>	NS <sup>4</sup>	NS <sup>4</sup>		

1 Market type.

2 % TSMK = Percent total sound mature kernels.

3 Data was not available because variety was not included in the trial.

4 NS=treatment effect not significant at *P*=0.05.

**Table 5. Peanut yields and grades, Caddo County variety tests, 2006 to 2009 and a 4-year-average.**

Variety or line	Yield (lbs/A)	Grade (% TSMK) <sup>2</sup>	Yield (lbs/A)	Grade (% TSMK)	Yield (lbs/A)	Grade (% TSMK)	Yield (lbs/A)	Grade (% TSMK)	Yield (lbs/A)	Grade (% TSMK)
	2006		2007		2008		2009		4-year Avg	
<b>Runner<sup>1</sup></b>										
ARSOK-R1	4,737	69	2,831	72	3,764	74	4,068	65.2	3,850	70
Tamrun 96	4,125	70	2,600	68	3,757	68	NA <sup>3</sup>	NA <sup>3</sup>	3,494	69
SW Runner	4,097	67	2,355	70	3,812	71	NA <sup>3</sup>	NA <sup>3</sup>	3,421	69
Tamrun OL02	4,283	67	2,323	68	3,311	68	3,717	60.7	3,409	66
Tamrun OL07	NA <sup>3</sup>	NA <sup>3</sup>	2,278	68	3,416	68	3,480	61.4	3,058	66
FlavorRunner 458	NA <sup>3</sup>	NA <sup>3</sup>	2,355	69	2,882	69	3,063	63.2	2,767	67
LSD P=0.05	406	3	374	2	352	3	779	NS <sup>4</sup>		
<b>Spanish<sup>1</sup></b>										
Spanco	3,979	67	2,314	70	3,539	67	3,467	64.7	3,325	67
AT 98-99-14	4,061	63	2,804	70	3,224	65	3,006	65.8	3,274	66
ARSOK-S1	3,771	66	2,350	68	3,420	69	3,354	64.0	3,224	67
Tamspan 90	3,889	66	1,938	65	3,278	67	3,002	63.3	3,027	65
OLin	3,802	66	1,593	68	3,325	70	3,118	65.2	2,959	67
Tamnut 06	NA <sup>3</sup>	NA <sup>3</sup>	2,246	64	3,608	69	2,937	63.8	2,930	66
Pronto	3,653	67	1,788	72	3,184	66	3,093	59.6	2,929	66
GA 04S	4,007	64	1,661	63	2,556	62	NA <sup>3</sup>	NA <sup>3</sup>	2,741	63
LSD P=0.05	NS <sup>4</sup>	2	521	4	477	3	414	NS <sup>4</sup>		
<b>Virginia<sup>1</sup></b>										
Perry	4,029	70	2,423	71	3,386	68	NA <sup>3</sup>	NA <sup>3</sup>	3,279	70
Jupiter	4,111	67	1,892	64	3,122	67	3,536	63.2	3,165	65
Brantley	4,057	68	1,974	68	2,820	66	3,292	64.1	3,036	67
Gregory	NA <sup>3</sup>	NA <sup>3</sup>	2,242	65	2,653	68	3,542	63.3	2,812	66
LSD P=0.05	NS <sup>4</sup>	1	455	3	NS <sup>4</sup>	NS <sup>4</sup>	NS <sup>4</sup>	NS <sup>4</sup>		

1 Market type.

2 % TSMK = Percent total sound mature kernels.

3 Data was not available because variety was not included in given year.

4 NS=treatment effect not significant at P=0.05.

**Table 6. Peanut yields and grades, Custer County variety tests, 2008 to 2009 and a 2-year-average.**

Variety or line	Yield (lbs/A)	Grade (% TSMK) <sup>2</sup>	Yield (lbs/A)	Grade (% TSMK)	Yield (lbs/A)	Grade (% TSMK)
	2008		2009		2-year Avg	
<b>Runner<sup>1</sup></b>						
Tamrun OL07	7,402	61	6,716	68.2	7,059	65
ARSOK-R1	6,309	65	6,530	72.4	6,420	69
FlavorRunner 458	6,360	66	6,135	66.0	6,248	66
Tamrun OL02	5,340	59	6,559	68.9	5,950	64
LSD P=0.05	1,456	4	735	3.8		
<b>Spanish<sup>1</sup></b>						
AT 98-99-14	5,833	68	7,743	70.3	6,788	69
ARSOK-S1	5,612	68	7,106	68.4	6,359	68
Tamnut 06	5,981	65	6,312	67.5	6,147	66
OLin	5,961	70	6,248	69.9	6,105	70
Spanco	4,879	70	6,240	65.8	5,560	68
Pronto	4,824	71	6,047	68.5	5,436	70
Tamspan 90	5,122	67	5,550	68.0	5,336	68
LSD P=0.05	907	2	976	NS <sup>3</sup>		
<b>Virginia<sup>1</sup></b>						
Jupiter	6,236	63	6,636	65.9	6,436	64
Brantley	5,242	66	7,050	66.4	6,146	66
Gregory	5,485	61	6,443	67.5	5,964	64
LSD P=0.05	NS <sup>3</sup>	NS <sup>3</sup>	435	NS <sup>3</sup>		

1 Market type.

2 % TSMK = Percent total sound mature kernels.

3 NS=treatment effect not significant at P=0.05.