

# Peanut Variety Test and Uniform Peanut Performance Test Results for Oklahoma

C.B. Godsey, B.E. Greenhagen, and J.K. Nickels  
Department of Plant and Soil Sciences

## 2006 progress made possible through OPC and NPB support

- Runner variety ARSOK-R1 (advance breeding line) was in the top group for yield at all three locations and 2-year yield and grades have also been at or near the top.
- Spanish variety AT 98-99-14 was at or near the top in regards to yield at all locations.
- No consistent yield or grade differences were observed in the Virginia test.

### 1. Oklahoma Variety Tests

Numerous peanut lines and varieties were evaluated in performance tests during 2006. Varieties that did not perform well in previous years or were not high oleic varieties were eliminated from the 2006 trials. As in 2005, advanced peanut lines were included in the tests so Oklahoma producers can compare the new breeding lines with familiar commercial varieties. Yields and grades for 2006 are presented in Tables 1-3 and the 2-year averages for yield and grade are presented in Tables 4-5. Results from the Uniform Peanut Performance Test are given in Table 6. The Uniform Peanut Performance Test is a trial set up to screen advanced breeding lines in several growing environments.

### 2006 Peanut Crop Overview

The 2006 peanut production season in Oklahoma was characterized as extremely hot and dry. For many areas in Oklahoma this past growing season will go down among the driest in recorded history. Planted acreage of this year's peanut crop was measured at 23,000 acres and an estimated 22,000 acres were harvested. Average yield at the time of this report was estimated at 3,000 lbs per acre. Although poor growing conditions were encountered across much of Oklahoma, a few locations received timely rain and cooler temperatures during peak flowering to help save their peanut crops. Summer temperatures in excess of 100°F for an extended period of time resulted in a large number of flowers to abort and pod set in general was late compared to an "average" year. Delayed pod set resulted in maturity problems for some of the runners, we simply

ran out of daylight to fully mature some fields of peanuts. As a result, grades have been a little lower than normal.

### **Pest problems**

For the most part no major widespread pest problems were observed during the 2006-growing season. Plant disease pressure was lower than normal during the 2006 growing season, mainly due to the dry growing conditions that most of the state observed.

### **Methods**

Test locations were located in Major, Beckham, and Caddo counties. Test plots were planted using two 36-inch rows that were 21 feet long. The exception to this was at Major County where rows were 30 inches. Plots were seeded at a rate of four to five seeds per row foot. Tests were conducted using randomized complete block design with four replications. All locations were irrigated. The locations in Major and Beckham counties were strip-tilled prior to planting, while the Caddo County location was conventionally tilled. All variety tests were conducted under an extensive pest management program. The objective was to prevent as much outside influence from pest (weed, disease, and insect) pressures on yield and grade as possible.

### **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 between 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 we are 95% sure that the yield difference is real, with only a 5% probability that the difference is due to chance alone. For example, if variety X is 500 lbs/acre 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 we are less confident that variety X really is higher yielding than variety Y under the conditions of the test.

The CV value or coefficient of variation, 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.

## **2. Uniform Peanut Performance Test**

The Uniform Peanut Performance Test is composed of runner and Virginia-type advanced lines with the potential to become variety releases from plant breeders in the United States. Commercial check varieties are included for comparison purposes (Table 6).

Appreciation is expressed for the cooperation and tremendous assistance from:

OSU

Rocky Walker

Ken Jackson

Caddo Research Station

Bobby Weidenmaier, Agriculturalist

Mike Brantes, Field Forman

Kyle Scaggs, Field Assistant

Mark DeLeon, Beckham County

Reimer Family, Major County

Table 1. Peanut variety and advanced lines test results – Beckham County, 2006.

Variety or line	Yield (lb/A) <sup>2</sup>	Grade (% TSMK) <sup>2,3</sup>
<b>Runner<sup>1</sup></b>		
Tamrun OL 02	5322	68
Tamrun OL 01	5286	71
ARSOK-R1	5273	75
Tamrun 96	5250	71
Okrun	4910	71
GA Hi OL	4687	72
Georgia Green	4379	73
SW Runner	4238	69
GA 03L	4179	69
GA 04S	3639	65
GA 02C	3584	71
LSD 0.05	417	4
<b>Spanish<sup>1</sup></b>		
Spanco	3930	72
AT 98-99-14	3843	71
OLin	3612	69
Tamspan 90	3526	70
ARSOK-S1	3421	69
Pronto	3326	72
LSD 0.05	416	ns
<b>Virginia<sup>1,4</sup></b>		
Brantley	4456	72
Jupiter	4147	73
Perry	4102	72
LSD 0.05	ns	ns

<sup>1</sup> Market type.

<sup>2</sup> Runner average – 4613 lb/A, 70% TSMK; Spanish average – 3610 lb/A, 70% TSMK; Virginia average – 4235 lb/A, 72% TSMK.

<sup>3</sup> % TSMK = Percent total sound mature kernels.

<sup>4</sup> % Virginia pods: Brantley – 98%, Jupiter – 86%, Perry – 93%; LSD 0.05 – 4%; average – 92%.

Table 2. Peanut variety and advanced lines test results – Caddo County, 2006.

Variety or line	Yield (lb/A) <sup>2</sup>	Grade (% TSMK) <sup>2,3</sup>
<b>Runner<sup>1</sup></b>		
GA HI OL	4764	73
ARSOK-R1	4737	69
Tamrun OL 01	4333	70
Georgia Green	4324	72
GA 03L	4292	69
Tamrun OL 02	4283	67
Tamrun 96	4125	70
SW Runner	4097	67
GA 04S	4007	64
GA 02C	3957	70
Okrun	3766	68
LSD 0.05	406	3
<b>Spanish<sup>1</sup></b>		
AT 98-99-14	4061	63
Spanco	3979	67
Tamspan 90	3889	66
OLin	3802	66
ARSOK-S1	3771	66
Pronto	3653	67
LSD 0.05	ns	2
<b>Virginia<sup>1,4</sup></b>		
Jupiter	4111	67
Brantley	4057	68
Perry	4029	70
LSD 0.05	ns	1

<sup>1</sup> Market type.

<sup>2</sup> Runner average – 4244 lb/A, 69% TSMK; Spanish average – 3859 lb/A, 66% TSMK; Virginia average – 4066 lb/A, 68% TSMK.

<sup>3</sup> % TSMK = Percent total sound mature kernels.

<sup>4</sup> % Virginia pods: Brantley – 95%, Jupiter – 89%, Perry – 91%; LSD 0.05 – ns; average – 92%.

Table 3. Peanut variety and advanced lines test results – Major County, 2006.

Variety or line	Yield (lb/A) <sup>2</sup>	Grade (% TSMK) <sup>2,3</sup>
<b>Runner<sup>1</sup></b>		
Tamrun 96	5490	74
Georgia Green	5400	74
Tamrun OL 02	5372	72
Tamrun OL 01	5064	76
GA 03L	4987	72
GA 02C	4773	74
GA 04S	4773	70
GA HI OL	4760	75
ARSOK-R1	4728	78
Okrun	4669	73
SW Runner	4193	73
LSD 0.05	ns	2
<b>Spanish<sup>1</sup></b>		
Tamspan 90	5177	68
AT 98-99-14	5173	68
ARSOK-S1	5073	69
OLin	5028	70
Spanco	4773	71
Pronto	4420	74
LSD 0.05	ns	3
<b>Virginia<sup>1,4</sup></b>		
Brantley	5457	72
Perry	4822	72
Jupiter	4102	73
LSD 0.05	ns	ns

<sup>1</sup> Market type.

<sup>2</sup> Runner average – 4928 lb/A, 74% TSMK; Spanish average – 4941 lb/A, 70% TSMK; Virginia average – 4794 lb/A, 72% TSMK.

<sup>3</sup> % TSMK = Percent total sound mature kernels.

<sup>4</sup> % Virginia pods: Brantley – 99%, Jupiter – 95%, Perry – 98%; LSD 0.05 – 2%; average – 97%.

Table 4. Peanut variety and advanced lines test results – Beckham County, 2005-2006.

Variety or line	Yield (lb/A) <sup>2</sup>	Grade (% TSMK) <sup>2,3</sup>
<b>Runner<sup>1</sup></b>		
ARSOK-R1	4456	74
Tamrun OL 02	4218	70
Tamrun 96	4190	72
Tamrun OL 01	4072	72
Okrun	4011	70
GA Hi OL	3723	73
Georgia Green	3582	73
GA 03L	3183	67
GA 04S	3049	65
SW Runner	3008	69
GA 02C	2795	72
LSD 0.05	1155	2
<b>Spanish<sup>1</sup></b>		
AT 98-99-14	2902	72
Spanco	2854	73
OLin	2754	71
Tamspan 90	2666	72
ARSOK-S1	2654	71
Pronto	2534	73
LSD 0.05	ns	ns
<b>Virginia<sup>1,4</sup></b>		
Brantley	3907	71
Perry	3421	71
Jupiter	3403	71
LSD 0.05	ns	ns

<sup>1</sup> Market type.

<sup>2</sup> Runner average – 3663 lb/A, 71% TSMK; Spanish average – 2727 lb/A, 72% TSMK; Virginia average – 3577 lb/A, 71% TSMK.

<sup>3</sup> % TSMK = Percent total sound mature kernels.

<sup>4</sup> % Virginia pods: Brantley – 96%, Jupiter – 85%, Perry – 94%; LSD 0.05 – 3%; average – 92%.

Table 5. Peanut variety and advanced lines test results – Caddo County, 2005-2006.

Variety or line	Yield (lb/A) <sup>2</sup>	Grade (% TSMK) <sup>2,3</sup>
<b>Runner<sup>1</sup></b>		
ARSOK-R1	3952	70
Tamrun OL 02	3930	68
GA 02C	3830	73
Tamrun 96	3700	71
GA Hi OL	3675	73
Okrun	3675	69
GA 03L	3621	70
Tamrun OL 01	3619	70
SW Runner	3596	67
GA 04S	3351	68
Georgia Green	3337	72
LSD 0.05	ns	3
<b>Spanish<sup>1</sup></b>		
AT 98-99-14	3224	67
Tamspan 90	3192	69
ARSOK-S1	3147	69
Spanco	3061	69
OLin	2999	67
Pronto	2761	69
LSD 0.05	ns	ns
<b>Virginia<sup>1,4</sup></b>		
Perry	3766	72
Jupiter	3648	70
Brantley	3508	70
LSD 0.05	ns	ns

<sup>1</sup> Market type.

<sup>2</sup> Runner average – 3662 lb/A, 70% TSMK; Spanish average – 3064 lb/A, 68% TSMK; Virginia average – 3641 lb/A, 71% TSMK.

<sup>3</sup> % TSMK = Percent total sound mature kernels.

<sup>4</sup> % Virginia pods: Brantley – 94%, Jupiter – 82%, Perry – 89%; LSD 0.05 – 7%; average – 88%.



Table 6. Uniform Peanut Performance Test results – Ft. Cobb Research Station, 2006.

Variety or line	Market Type <sup>1</sup>	Yield (lb/A)	Grade (% TSMK)	Seed Weight (g/100 seeds)	Percent Virginia Pods
ARSOK-R1	Ru.	5058	72.1	62.0	56.9
UF 06304	Lg. Ru.	5003	68.3	69.5	80.8
GA 012535	Va.	4798	71.6	87.5	94.1
UF 05309	Lg. Ru.	4398	71.5	65.1	82.4
Florunner <sup>2</sup>	Ru.	4271	68.6	54.9	33.9
N01013T	Va.	4096	70.8	85.0	90.0
CRSP925	Lg. Ru.	4066	70.1	65.2	78.6
N03091T	Va.	4029	70.7	89.0	89.1
VT 976133	Va.	4023	71.9	88.6	89.9
GA 012519	Va.	3975	75.7	67.2	71.3
UF 03514	Lg. Ru.	3963	72.9	65.2	71.3
NC 7 <sup>3</sup>	Va.	3908	71.9	79.8	88.4
N03089T	Va.	3860	73.6	89.1	90.5
GA 012517	Ru.	3805	76.3	56.2	47.7
CRSP648	Lg. Ru.	3606	69.3	66.2	89.1
LSD 0.05		533	2.0	8.4	6.7

<sup>1</sup> Market type as proposed by participating breeder. Va. = Virginia, Ru. = Runner, Lg. Ru. = Large Runner.

<sup>2</sup> Check for Runner lines.

<sup>3</sup> Check for Virginia lines.