

217
757
2009

Peanut Production and Crop Management Systems

Todd A. Baughman, State Peanut Specialist, Texas AgriLife Extension Service
Jason Woodward, Extension Plant Pathologist, Texas AgriLife Extension Service
W. James Grichar, Research Scientist, Texas AgriLife Research
Peter Dotray, Extension Weed Scientist, Texas Tech University
Calvin Trostle, Extension Agronomist, Texas AgriLife Extension Service

Introduction

Growers are faced with numerous production issues each year. New varieties, herbicides, and other products must be continually evaluated to determine their contribution to overall profitability. The Extension Agronomy Peanut Team continues to try to address many of these issues and provide answers to grower's questions. In addition, educational efforts were conducted throughout the state at several events. Several new varieties were tested again this past year to determine their overall feasibility and adaptability in Texas.

Discussion

Sixteen variety trials (10 – runner, 4 – Virginia, 2 Valencia) were conducted this past year to assess new and existing commercial cultivars. Variety trials were conducted in Bailey, Collingsworth, Frio, Gaines, Terry, Wilbarger, and Yoakum Counties. This included evaluation of runner (12), Virginia (12), and Valencia (12) varieties. Two of the runner trials and one Virginia trial were conducted in fields with heavy Verticillium wilt pressure.

Two experimental lines TX055307 and TX055308 were ranked first and second in yield when average over all 10 experiments. In addition, they were also the highest grading varieties. The average grade was 74.4 for all varieties while TX055307 averaged 77.0 across all trials. TXL061821 was highest yielding variety in two of the 10 trials conducted. An experimental variety from Florida was only included in two trials (arrival of seed after planting of most trials) however, it was the leading variety in one of those trials.

AT07V and VC2 were the highest yielding Virginia varieties when averaged over all locations. AT07V was the top variety in two of the trials while an experimental variety from Virginia was the top variety in one trial. The two experimental varieties from Virginia also performed well in regards to extra large kernels and jumbo pods.

GENTEX 118 and TXL054529-27 were the only Valencia varieties that averaged over 3,000 lb/A when combined across trials. They were each were the top ranked variety in one of two trials. All Valencia varieties yielded less than Tamnut OL06.

Texas AgriLife Extension Service

2009 Runner Peanut Variety Trials

Variety	Yield										
	CC	FR	GC	TC	WC	YC	Avg				
	------(lb/A)-----										
TX055307	4429	3964	4395	4678	4498	5279	6992	4941	4073	3216	4647
TX055308	4299	3580	3861	6130	4316	5255	6680	4801	4072	3209	4620
Flavorrunner 458	4080		3088	5205	4429	3940	6550	4728	3981	3695	4411
Tamrun OL 02	4193	3872	4426	5082	3808	5013	5858	5336	3145	3271	4400
Tamrun OL 07	4592	3411	3348	4917	3798	5170	6710	5058	3610	3017	4363
TXL061821	4454	3319	4677	6164	3845	3854	5156	4488	3924	3149	4303
TXL061816	4567	2612	3775	4741	3541	4775	4801	4645	3948	3380	4079
Mcloud		4010		3996				4572			
UF07305	4957								3774		
Tamrun OL 01		4118									
Florida 07		4056									
TX055306		3365									
LSD (10%)	NS	523	750	1070	482	944	1286	NS	NS	NS	NS
CV (%)	11	10	16	14	10	16	17	18	18	24	24
Average	4449	3594	3863	5373	3962	4668	5959	4804	3779	3287	4363

CC - Collingsworth County, FR - Frio County, GC - Gaines County, TC - Terry County,
 WC - Wilbarger County, YC - Yoakum County.
 LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

2009 Runner Peanut Variety Trials

Variety	CC	FR	GC	TC	WC	YC	Avg			
Grade										
------(%)-----										
TX055308	76.8	75.5	75.3	78.7	79.2	79.5	75.5	75.1	77.1	77.0
TX055307	72.4	74.0	75.1	79.2	76.4	78.1	76.2	71.8	75.1	75.4
Flavorrunner 458	72.2		75.4	75.0	77.0	77.9	76.0	71.0	76.5	75.1
Tamrun OL 07	73.8	72.0	73.3	74.5	76.7	77.6	72.7	67.2	75.1	73.7
Tamrun OL 02	70.4	71.3	74.2	75.4	74.3	77.3	73.2	67.5	76.0	73.3
TXL061821	71.5	71.8	71.1	75.7	75.9	72.9	72.8	69.8	77.9	73.3
TXL061816	70.4	72.8	71.1	75.4	74.7	75.0	72.6	66.8	76.4	72.8
Mcloud		72.5					71.7			
UF07305	72.9								71.9	
Tamrun OL 01		72.5								
Florida 07		71.3								
TX055306		75.7								
LSD (10%)	3.1	2.4	1.8	3.1	NS	2.2	NS	3.2	NS	NS
CV (%)	3	2	1.7	2.8	3.9	2.0	4.0	3.8	2.1	2.1
Average	72.6	61.2	73.6	76.3	76.3	76.9	73.8	70.1	76.3	74.4

CC - Collingsworth County, FR - Frio County, GC - Gaines County, TC - Terry County,

WC - Wilbarger County, YC - Yoakum County.

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

2009 Virginia Peanut Variety Trials

Varieties	Yield				Grade			
	GC	TC	WC	Avg	GC	TC	WC	Avg
	------(lb/A)-----				------(%)-----			
AT07V	5496	4180	5689	4650	68.7	64.2	66.9	66.6
VC2	6265	3813	4806	4540	67.8	68.3	66.0	67.4
Gregory	6169	3599	4709	4420	68.9	66.1	66.1	67.0
Gregory Hi OL	5861	3790	4549	4403	71.8	69.4	62.8	68.0
VT2	6503	3680		4286	71.9		68.8	70.4
Georgia 05E	5752	3706	4133	4219	76.7	69.9	70.5	72.4
VT1	5094	3683		4012	77.1		71.2	74.2
Perry				3430			68.1	
Phillips				3207			67.5	
Florida Fancy				3145			67.9	
NC12C				3031			69.8	
Bailey				2877			70.6	
LSD (10%)	NS	NS	774	NS	2.5	3.5	3.8	
CV (%)	20.2	21.2	12.9	12.5	2.4	3.4	4.0	
Average	5877	3779	4938	4361	71.8	67.0	68.0	69.4

GC - Gaines County, TC - Terry County, WC - Wilbarger County,

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

2009 Virginia Peanut Variety Trials

Varieties	ELK					Jumbo						
	GC	TC	WC	Avg	GC	TC	WC	Avg	GC	TC	WC	Avg
	------(%)-----											
Gregory	45.2	34.6	35.9	38.6	35.0	21.0	27.7	27.9				
Gregory Hi OL	59.1	41.5	41.6	47.4	58.0	32.0	50.3	46.8				
AT07V	54.4	34.7	46.8	45.3	39.0	27.3	24.7	30.3				
VC2	40.5	25.2	32.4	32.7	19.3	14.0	26.7	20.0				
Georgia 05E	67.3	48.5	48.6	54.8	52.0	39.3	18.0	36.4				
VT1	63.2		51.0	57.1	50.3		60.3	55.3				
VT2	60.0		51.3	55.7	66.7		69.3	68.0				
NC12C			56.5				52.7					
Perry			51.6				43.7					
Phillips			53.5				31.3					
Bailey			50.0				43.0					
Florida Fancy			48.5				48.7					
LSD (10%)	4.1	4.9	6.5		9.1	6.8	8.4					
CV (%)	5.1	8.7	9.8		13.6	16.8	14.5					
Average	55.7	36.9	47.3	47.4	45.8	26.7	41.4	40.7				

GC - Gaines County, TC - Terry County, WC - Wilbarger County,

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

2009 Valencia Peanut Variety Trials

Varieties	Yield			Grade		
	BC	TC	Avg	BC	TC	Avg
	-----((lb/A))-----			-----((%))-----		
GENTEX 118	2522	3678	3100	63.0	70.3	66.7
TxL054529-27	2287	3804	3045	62.7	71.7	67.2
TxL054529-33	2255	3645	2950	59.6	74.2	66.9
GENTEX 101	2082	3426	2754	67.2	71.9	69.6
GENTEX 136	2246	3167	2706	68.0	71.1	69.5
GENTEX 122	2086	3144	2615	65.5	72.5	69.0
GENTEX 119	1732	3462	2597	68.6	70.9	69.7
GENTEX 112	2210	2879	2545	68.7	70.0	69.4
Valencia C	1833	3057	2445	67.8	71.3	69.6
Kennedy	1758	3005	2381	66.6	71.1	68.9
Tamnut OL06	2823	4693	3758	62.6	71.0	66.8
LSD (10%)	322	364		2.3	1.9	
CV (%)	18	16		6	2	
Average	2167	3451	2809	65.5	71.5	68.5

TC - Terry County, BC - Bailey County,

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

Runner Seeding Rate Trial

Treatment	Stand Count	Yield	Grade
	#/row foot	lb/A	%
6 seed/ft	3.4	4056	71.6
5 seed/ft	3.1	4069	68.0
4 seed/ft	2.7	3844	69.8
3 seed/ft	2.5	3938	68.3
2 seed/ft	1.8	3930	68.5
1 seed/ft	1.2	4000	69.8
LSD (10%)		NS	2.1
CV (%)		493	1.7
Average		12	2.4

Planted at Ag-Cares Farm, Lamesa, TX April 30, 2009, Tamrun OL 02

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

Seed Source/Size Trial

Variety	Yield			Grade			ELK			Jumbo		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
	----- (lb/A) ----- (%) -----											
All Seed	6282	4737	3372	68.1	71.3	62.8	58.1	62.8	53.3	78.0	77.8	65.8
ELK only	6149	4625	3033	67.4	71.1	61.0	58.6	61.0	53.0	83.5	81.3	69.8
minus ELK	6131	4869	3251	67.0	69.4	60.8	56.8	60.8	51.0	76.8	81.0	69.8
LSD (10%)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
CV (%)	3	10	11	3	2	5	5	5	8	8	8	14
Average	6187	4744	3219	67.5	70.6	61.5	58	62	52	79	80	68

Planted at Ag-Cares Farm, Lamesa, TX April 30, 2009

Original seed source was Foundation Gregory planted in 2006

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

Virginia Digger Timing Trial

Variety	Yield			Grade			ELK			Jumbo		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
	-----((lb/A))-----											
140 DAP	2941	4380	2450	67.7	64.5	59.9	39.3	35.2	36.5	53.7	73.0	54.8
147 DAP	3350	5103	2806	69.7	66.5	62.5	48.0	37.9	41.0	53.7	72.3	63.8
154 DAP	3036	4033	3461	71.0	68.8	60.3	48.3	48.9	42.1	54.0	73.4	56.5
161 DAP	4262	5105	2440	70.7	65.4	61.2	55.7	33.8	38.6	55.0	65.3	61.3
168 DAP	4779	4359	2900	70.0	68.0	63.0	49.3	40.3	43.8	54.7	61.0	62.0
LSD (10%)	584	NS	NS	3	NS	NS	5.1	9.3	7.0	9.2	7.6	14.5
CV (%)	13	15	20	3	6	4	7.0	18.6	13.7	11.2	8.7	19.3
Average	3674	4596	2811	69.8	66.6	61.4	48	39	40	54	69	60

Planted at Ag-Cares Farm, Lamesa, TX April 30, 2009, Gregory, DAP - Days After Planting
 LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

Texas AgriLife Extension Service

Valencia Digger Timing Trial

Varieties	2007	2008	2009	2007	2008	2009
	Yield			Grade		
	------(lb/A)-----			------(%)-----		
114 DAP	4041	2686	3277	74.0	74.7	67.3
121 DAP	4297	3894	3771	75.0	75.7	65.9
128 DAP	4816	2903	2545	77.0	74.1	66.4
135 DAP		3843	3478		73.0	65.1
142 DAP			2181		74.6	66.1
LSD (10%)	484	478	610	1	NS	NS
CV (%)	8	11	16	1	4	4
Average	4385	3332	3050	75.3	74.4	66.2

DAP - days after planting

LSD - least significant difference, CV - Coefficient of Variation, NS = not significantly different

A planting rate study was conducted in 2009 at the Ag-Cares facility in Lamesa, TX. Runner peanut (Tamrun OL02) was planted at 6, 5, 4, 3, 2, and 1 seed/ft. Final plant populations were 3.4, 3.1, 2.7, 2.5, 1.8, and 1.2 plants per foot. There were no differences in yield across plant populations. There were differences in grade but these were not consistent with plant populations.

In 2006, approximately a 0.5 acre plot of foundation Gregory seed was planted at Ag-Cares. This was harvested and a sample of seed was collected, graded, and separated into the following segments. All seed collected, only extra large kernel, and minus the extra large kernel. This seed has been kept separate and continually planted by segment for three years. Again in 2009, we did not observe a difference in yield, grade, extra large kernels, or jumbo pods.

In 2007, we started a study to determine the effects of digging date on Virginia and Valencia peanut. Peanut digging has started at approximately 140 days after planting (DAP) for Virginia and 114 DAP for Valencia. The only thing consistent is generally the first digging date is lower in yield and grade than the highest digging date. Weather after digging and before thrashing especially rainfall seems to have a bigger negative impact on yield than delayed digging for both Virginia and Valencia peanut.

Ten peanut progress newsletters were published in 2009. This included agronomic, weed science, plant disease, and harvesting issues. There were 8 scientists who provided information to this newsletter. In addition, the peanut extension website is being maintained and improved and information and presentations were provided at many extension meetings and field days throughout the state.

Acknowledgements

Appreciation is extended to the Texas Peanut Producers Board for assistance in funding this research and the Extension Peanut Agronomy Program. I would also like to thank each of the producers: Jud Chevront, Chet Grissom, Dan & Rex Henard, Monty Henson, Clay Jeter, Glen and James Martin, Haldon Messamore, James Overstreet, Clint White, and Jet Wilmeth who devoted land, time, and equipment for these studies. In addition the support of the AG-CARES Farm near Lamesa is appreciated. Without their assistance and interest none of this research would be possible. We appreciate the support of Ronnie Wallace, B&E Implement and South Plains Implement in the establishment and harvest of these trials. Finally thanks is extended to the extension agronomy, the weed science, the extension plant pathology and the South Texas agronomy crews; and Wayne Keeling and Danny Carmichael for technical assistance.