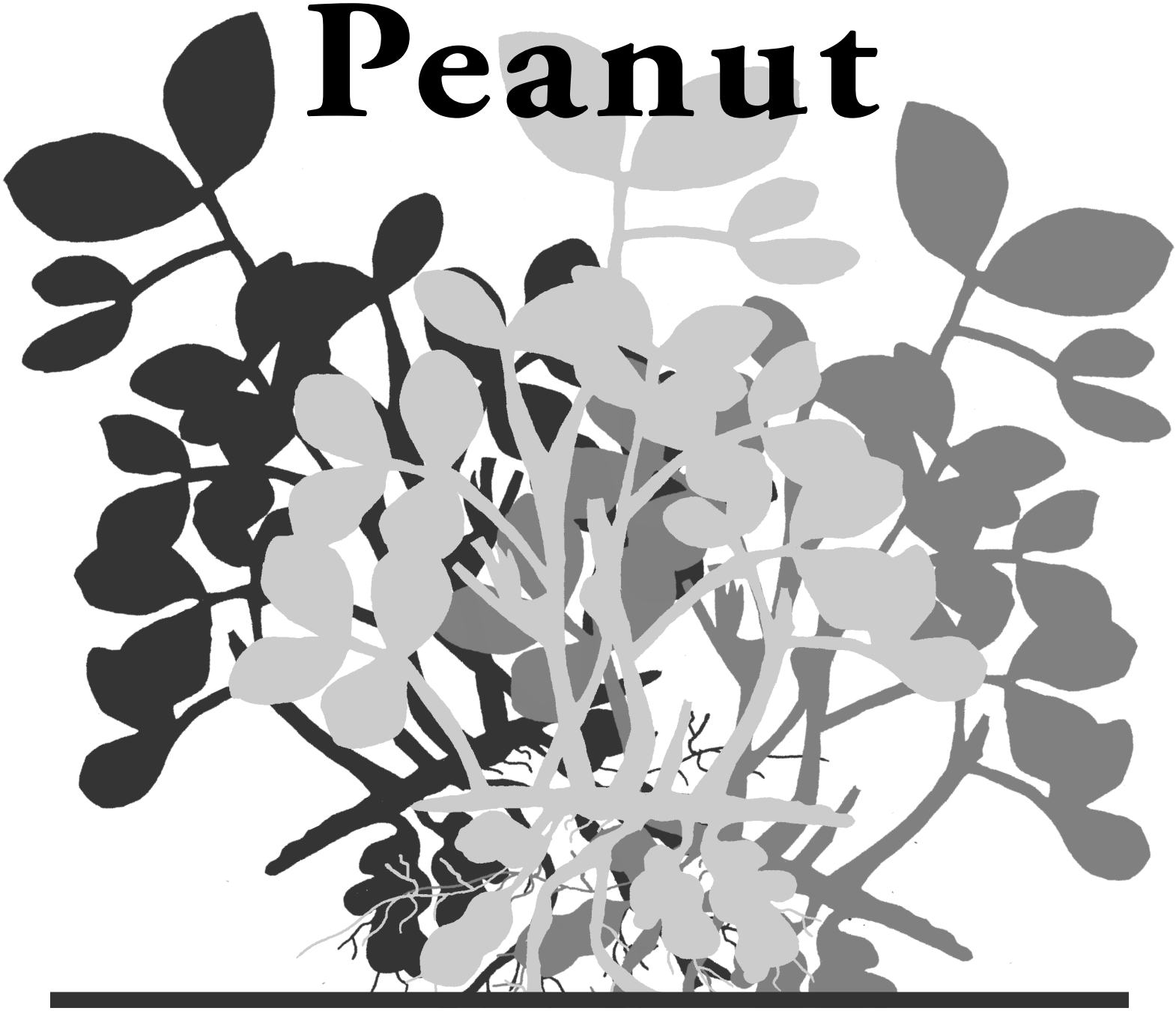
Information Bulletin 482 December 2013

MISSISSIPPI Peanut



VARIETY TRIALS, 2013

MAFES

Mississippi Agricultural & Forestry Experiment Station • George M. Hopper, Director

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This report contains data generated as part of the Mississippi Agricultural and Forestry Experiment Station research program. Trade names of commercial products used in this report are included only for clarity and understanding.

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Mississippi Peanut Variety Trials, 2013

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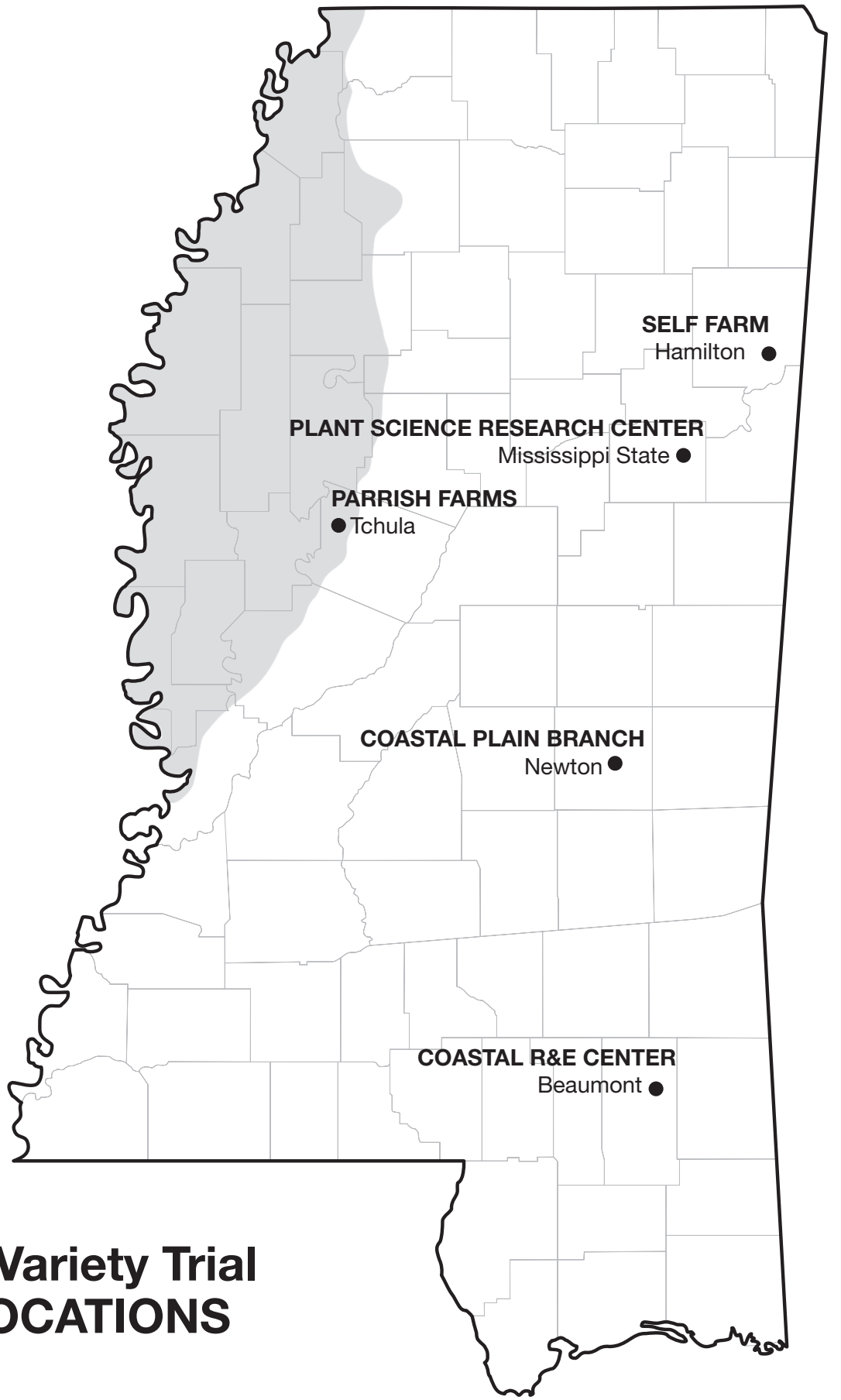
Recognition is given to Jason Hillhouse and Jerry W. Nail, research technicians for the Variety Testing Program, for their assistance in packaging, planting, harvesting, and recording plot data; and Dennis Rowe for statistical analyses. This publication was prepared by Dixie Albright, office associate for MAFES Research Support Units. It was published by the Office of Agricultural Communications, a unit of the Mississippi State University Division of Agriculture, Forestry, and Veterinary Medicine. Our website address is http://msucares.com/crops/variety/index.html.



Peanut Variety Trial
TEST LOCATIONS

Mississippi Peanut Variety Trials, 2013

Procedure

Peanut variety trials were conducted at five locations in Mississippi in 2013. Trials were conducted on Experiment Station land and on grower-cooperator fields to attempt to represent the different geographic regions of the state in which peanuts are grown. The same commercially available varieties of peanuts were tested at all five locations.

Plots consisted of two 38-inch-wide, 40-foot-long twin rows. Weeds were controlled by cultivation and/or herbicides. Only herbicides currently registered for use on peanuts were used in these studies, with strict adherence to all label instructions

All varieties were treated with a fungicide seed treatment and an in-furrow insecticide. Experimental design was a randomized complete block with three replications at each location.

All varieties were planted with a two-row, twin-drill, Monosem planter at a uniform seeding rate of six seeds per foot. Fertilizer was applied according to soil test recommendations.

The plots were dug with a two-row peanut digger. After proper drying, the total plot area was harvested with a two-row, pull-type, peanut combine fitted with a bagging attachment. The harvested plots were weighed, moisture was determined, and yields were converted to pounds per acre, following statistical analysis.

Use of Data Tables and Summary Statistics

The yield potential of a given variety cannot be predicted with complete accuracy. Consequently, replicate plots of all varieties are evaluated for yield, and the yield of a given variety is estimated as the mean of all replicate plots of that variety. Yields vary somewhat from one replicate plot to another, which introduces a certain degree of error to the estimation of yield potential. This natural variation is often responsible for yield differences among different varieties. Thus, even if the mean yields of two varieties are numerically different, they are not necessarily significantly different in terms of yield potential. In other words, the ability to measure yield is not precise enough to determine whether such small differences are observed purely by chance or because of superior performance. The least significant difference (LSD) is an estimate of the smallest difference between two varieties that can be declared to be the result of something other than random variation in a particular trial. Consider the following example for a given trial:

Variety	Yield
Abe	6,000 lb/A
Bill	5,600 lb/A
Charlie	4,900 lb/A
LSD	500 lb/A

The difference between variety Abe and variety Bill is 400 pounds per acre (6,000 - 5,600 = 400). This difference is **smaller** than the LSD (500 pounds per acre). Consequently, it is concluded that variety Abe and variety Bill have the same yield potential since the observed difference occurred purely due to chance. The difference between variety Abe and variety Charlie is 1,100 pounds per acre (6,000 - 4,900 = 1,100), which is **larger** than the LSD (500 pounds per acre). Therefore, it is concluded that the yield potential of variety Abe is superior to that of variety Charlie since the difference is larger than would be expected purely by chance. The coefficient of variation (CV) is a measure of the relative precision of a given trial and is 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. This unexplained variation could be the result of variation between plots with respect to soil type, fertility, insects, diseases, weather stress, etc. In general, the higher the CV is, the lower the precision in a given trial. The coefficient of determination (R^2) is another measure of the level of precision in a trial and is also used to compare the relative precision of different trials. The R^2 is a measure of the amount of variation that is explained, or accounted for, in a given trial. For example, an R^2 value of 90% indicates that 90% of the observed variation in the trial has been accounted for, with the remaining 10% being unaccounted. The higher the R^2 value is, the more precise the trial. The R^2 is generally considered to be a better measure of precision than the CV for comparison of different trials.

Terms Used

SMKRS count per pound (number per pound of sound, whole, 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 ¾-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 thorough a 15/64 x 1-inch slotted screen or 16/64 x ¾-inch slotted screen for Virginia or Runner varieties, respectively.

Pct. DK (damaged kernels) — Kernels that are moldy, decayed, or 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.

Table 1. 2013 Peanut yield summary.

Variety	Beaumont	Hamilton	Newton	Starkville	Tchula	Overall average
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Georgia 07W	4652.5	4096.2	4095.0	1506.8	6603.6	4190.8
FloRun 107	4750.3	3631.2	3984.1	2049.7	6621.9	4207.4
Tifguard	4873.3	4443.4	3430.1	2117.3	6133.0	4199.4
Georgia 09B	4340.9	3849.4	4055.5	1245.3	6806.7	4059.5
Georgia 06G	4828.7	3879.3	4267.2	1692.9	7147.9	4363.2
Georgia Greener	4222.2	4017.9	4597.7	2006.7	6887.8	4346.4
Florida 07	4860.3	4326.3	3905.9	2403.8	6975.8	4494.4
Florida 727	4377.8	4403.9	4580.6	1998.5	7095.8	4491.3
Mean	4613.3	4080.9	4114.5	1877.6	6784	4294.1
LSD	471.5	373.9	529.2	380.4	623	
Error df	14	14	14	14	14	
CV	7.1	6.4	8.9	14.1	6.4	
R-square	58	74.9	69.7	77.2	65.3	

Table 2. Two-year summary of peanut variety trials in Mississippi.

Variety	Beaumont	Hamilton	Newton	Starkville	Tchula	Overall average
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Florida 07	4648.8	4488.4	5072.6	4053.7	6681.6	4989.0
Georgia 06G	5164.7	4326.3	5452.2	3255.2	7199.8	5079.6
Georgia 07W	4354.3	4217.2	5019.9	3104.6	6435.9	4626.3
Georgia 09B	4636.0	3932.3	5038.5	3182.3	6307.0	4619.2
Overall mean	4700.9	4241.0	5145.8	3398.9	6656.1	4828.6

MAFES Coastal Plain Branch, Newton

Crop Summary

The study was planted into a well-prepared seedbed with good moisture. The plots germinated quickly and had good early growth. Temperatures were below normal, and rainfall was adequate except for an extremely dry period between late August and mid-September. Harvest was accomplished in a timely manner.

Soil type	**Prentiss fine sandy loam**
Soil pH	**6.4**
Soil fertility	**P=H+, K=H+**
Fertilizer added	**Postemergence — Borsol @ 12.8 oz/A on August 1**
Herbicide application	**Preemergence — Dual II Magnum @ 24 oz/A and Valor @ 3 oz/A on May 20**
	Postemergence — Select @ 12 oz/A, Pursuit @ 4 oz/A, and Cadre @ 4 oz/A on June 20; Select @ 12 oz/A on August 1
Fungicide application	**Headline @ 20 oz/A on August 1; Provost @ 12 oz/A on August 27**
Planting date	**May 20**
Digging date	**October 9**
Harvest date	**October 21**

Rainfall Summary

	Inches
May	**1.43**
June	**4.73**
July	**3.28**
August	**5.23**
September	**3.25**
October	**1.12**
Total	**19.04**

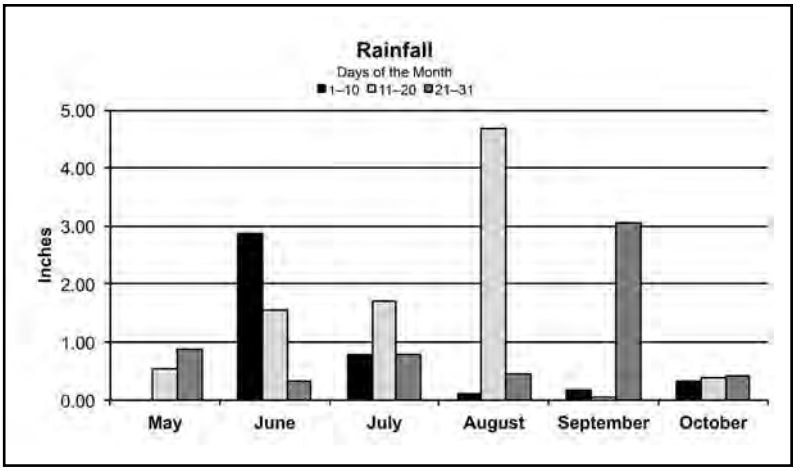


Table 3. Yield, average size, and grade of peanut varieties at the MAFES Costal Plain Branch, Newton, 2013.

Variety	Yield	2-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Georgia Greener	4597.7	—	690	68	6	74	3	1	78	21
Florida 727	4580.6	—	650	66	6	72	4	1	77	23
Georgia 06G	4267.2	5452.2	660	68	6	74	3	2	79	21
Georgia 07W	4095.0	5019.9	630	65	8	73	4	1	78	21
Georgia 09B	4055.5	5038.5	640	68	5	73	3	2	78	21
FloRun 107	3984.1	—	680	63	5	68	6	2	76	23
Florida 07	3905.9	5072.6	640	58	9	67	5	1	73	26
Tifguard	3430.1	—	640	67	6	73	3	2	78	22
Mean	4114.5	5145.8								
LSD (.10)	529.2									
Error df	14									
CV	8.9									
R-square	69.7									

MAFES Plant Science Research Center, Starkville

Crop Summary

Plots were planted into freshly prepared soil with good moisture. All plots quickly germinated to an adequate stand. Weather conditions were favorable for the majority of the growing season. However, a very dry period was observed from mid-August through mid-September. Harvest was completed without difficulties.

Soil type	**Stough fine sandy loam**
Soil pH	**6.1**
Soil fertility	**P=M, K=M**
Fertilizer added	**Preemergence — 0-0-60 @ 200 lb/A**
	Postemergence — Borsol @ 12.8 oz/A on July 31
Herbicide application	**Preemergence — Dual II Magnum @ 24 oz/A and Valor @ 3 oz/A on May 13**
	Postemergence — Select @ 12 oz/A, Pursuit @ 4 oz/A, and Cadre @ 4 oz/A on June 28
Fungicide application	**Headline @ 20 oz/A on July 31; Provost @ 12 oz/A on August 27**
Planting date	**May 13**
Digging date	**October 11**
Harvest date	**October 30**

Rainfall Summary

	Inches
May	**3.10**
June	**3.17**
July	**3.66**
August	**1.98**
September	**4.60**
October	**0.50**
Total	**17.01**

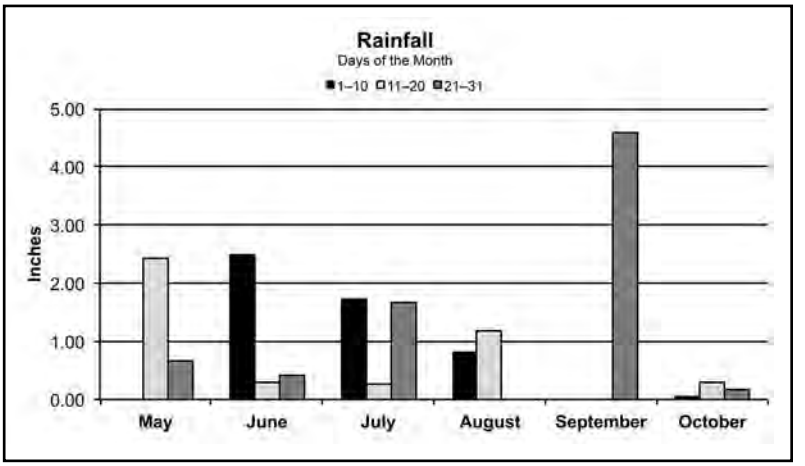


Table 4. Yield, average size, and grade of peanut varieties at the MAFES Research Center, Starkville, 2013.

Variety	Yield	2-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Florida 07	2403.8	4053.7	670	36	4	40	14	4	58	41
Tifguard	2117.3	—	650	48	4	52	12	4	68	31
FloRun 107	2049.7	—	770	49	7	53	13	4	70	30
Georgia Greener	2006.7	—	610	43	5	48	16	2	66	33
Florida 727	1998.5	—	690	41	5	46	17	2	65	34
Georgia 06G	1692.9	3255.2	770	46	4	50	15	4	69	31
Georgia 07W	1506.8	3104.6	750	39	4	43	13	4	60	39
Georgia 09B	1245.3	3182.3	680	41	3	44	17	3	64	35
Mean	1877.6	2385.5								
LSD (.10)	380.4									
Error df	14									
CV	14.1									
R-square	77.2									

Coastal Research and Extension Center, Beaumont

Crop Summary

The plots were planted into freshly prepared soil with good moisture. All plots quickly germinated to a good stand. The average temperatures were lower than normal for the growing season. Sufficient rainfall fell during the season to allow for adequate soil moisture. Good yields were observed. Harvest was completed with no weather delays.

Soil type	**McLaurin sandy loam**
Soil pH	**6.5**
Soil fertility	**P=H, K=H**
Fertilizer added	**Preplant — 8-24-24 @ 250 lb/A**
	Postemergence — Borsol @ 12 oz/A on July 23 and August 1
Herbicide application	**Preemergence — Dual II Magnum @ 24 oz/A and Valor @ 3 oz/A on May 21**
Fungicide application	**Echo @ 24 oz/A on August 1; Echo @ 20 oz/A, Muscle @ 10 oz/A, and Mustang @ 3 oz/A on August 9; Echo @ 24 oz/A, Headline @ 12 oz/A, and Mustang @ 4 oz/A on August 17; Echo @ 24 oz/A and Headline @ 12 oz/A on August 21; Echo @ 24 oz/A and Muscle @ 12 oz/A on August 28; Echo @ 24 oz/A, Headline @12 oz/A, and Muscle @ 4 oz/A on September 4; Echo @ 40 oz/A and Muscle @ 12 oz/A on September 10 and September 17**
Planting date	**May 21**
Digging date	**October 9**
Harvest date	**October 21**

Rainfall Summary

	Inches
May	**0.68**
June	**6.80**
July	**7.32**
August	**3.58**
September	**4.99**
October	**0.87**
Total	**24.24**

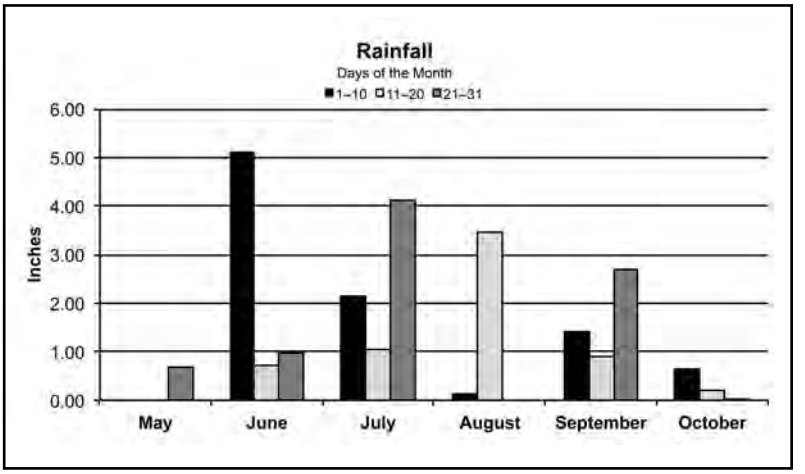


Table 5. Yield, average size, and grade of peanut varieties at the MAFES Coastal Research and Extension Center, Beaumont, 2013.

Variety	Yield	2-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Tifguard	4873.3	—	590	69	5	74	4	0	78	22
Florida 07	4860.3	4648.8	560	67	6	73	2	1	76	23
Georgia 06G	4828.7	5164.7	600	74	4	78	1	0	79	20
FloRun 107	4750.3	—	660	67	7	74	3	0	77	22
Georgia 07W	4652.5	4354.3	610	72	3	75	4	0	79	20
Florida 727	4377.8	—	610	67	11	78	2	0	80	19
Georgia 09B	4340.9	4636.0	660	70	2	75	3	1	79	20
Georgia Greener	4222.2	—	660	70	5	75	4	0	79	21
Mean	4613.3	4700.9								
LSD (.10)	471.5									
Error df	14									
CV	7.1									
R-square	58									

Self Farm, Hamilton

Crop Summary

The plots were planted into a freshly prepared soil with good moisture. All plots quickly germinated and grew off to a good stand. Peanuts encountered some drought stress during June. After July 4, the plots received timely rainfall for the remainder of the season. Weather conditions at the time of harvest were optimum.

Soil type	**Cahaba fine sandy loam**
Soil pH	**6.0**
Soil fertility	**P=M-H, K=M-H**
Fertilizer added	**Postemergence — Borsol @ 12.8 oz/A on August 12**
Herbicide application	**Preemergence — Prowl H2O @ 2 pt/A and Valor @ 2.46 oz/A on May 28 Postemergence — Cadre @ 4 oz/A, Volunteer @ 16 oz/A, and 2,4-DB @ 1pt/A on July 10**
Fungicide application	**Provost @ 11 oz/A on July 26; Convoy @ 16 oz/A on August 12**
Planting date	**May 28**
Digging date	**October 11**
Harvest date	**October 30**

Rainfall Summary

	Inches
May	**0.00**
June	**1.56**
July	**5.21**
August	**1.24**
September	**5.40**
October	**0.33**
Total	**13.74**

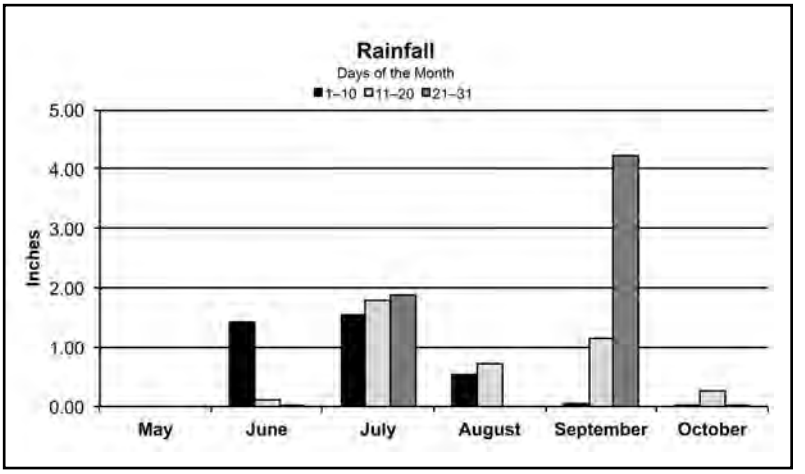


Table 6. Yield, average size, and grade of eight peanut varieties at Self Farms, near Hamilton, 2013.

Variety	Yield	2-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Tifguard	4443.4	—	570	69	3	72	4	1	77	22
Florida 727	4403.9	—	590	70	2	72	5	0	77	23
Florida 07	4326.3	4488.4	550	65	3	68	5	0	73	26
Georgia 07W	4096.2	4217.2	590	73	3	76	2	0	78	21
Georgia Greener	4017.9	—	630	72	1	73	4	1	78	22
Georgia 06G	3879.3	4326.3	560	67	4	71	5	1	77	22
Georgia 09B	3849.4	3932.3	530	69	4	73	4	0	77	22
FloRun 107	3631.2	—	588	63	1	64	8	0	72	27
Mean	4080.9	4241.0								
LSD (.10)	373.9									
Error df	14									
CV	6.4									
R-square	74.9									

Parrish Farms, Tchula

Crop Summary

A very wet spring delayed planting but was followed by a very dry period throughout June, July, and August. Timely irrigations supplied ample soil moisture during this dry period, and excellent yields were observed. Harvest was completed without weather delays.

Soil type	**Collins silt loam**
Soil pH	**6.8**
Soil fertility	**P=M, K=M**
Fertilizer added	**Preplant — 0-46-0 and 0-0-60 (variable rate)** **Postemergence — Boron @ 12.8 oz/A**
Herbicide application	**Preemergence — Sonalan @ 1qt/A and Valor @ 3 oz/A on May 16** **Postemergence — Stalwart C @ 1.3 pt/A, Butyrac 175 @ 1 pt/A, and Cadre @ 4 oz/A on June 20; Tapout @ 12 oz/A on September 23**
Fungicide application	**Convoy @ 16 oz/A and Abound @ 6 oz/A on July 25 and August 22**
Planting date	**May 16**
Digging date	**October 10**
Harvest date	**October 23**

Rainfall Summary

	Inches
May	**1.72**
June	**2.94**
July	**2.21**
August	**2.53**
September	**8.09**
October	**1.13**
Total	**18.62**

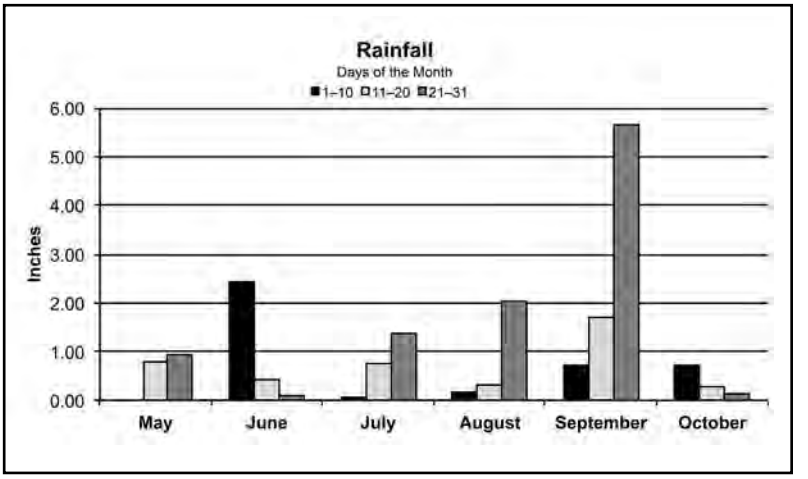


Table 7. Yield, average size, and grade of peanut varieties at Parrish Farms, near Tchula, 2013.

Variety	Yield	2-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Georgia 06G	7147.9	7199.8	630	75	3	78	3	0	81	19
Florida 727	7095.8	—	640	72	4	76	3	0	79	20
Florida 07	6975.8	6681.6	610	68	5	73	3	1	77	23
Georgia Greener	6887.8	—	610	74	3	77	3	0	80	19
Georgia 09B	6806.7	6307.0	590	72	7	79	3	0	82	18
FloRun 107	6621.9	—	660	67	4	71	6	1	78	21
Georgia 07W	6603.6	6435.9	680	70	3	73	4	1	78	22
Tifguard	6133.0	—	600	71	2	73	4	0	77	22
Mean	6784	4856.1								
LSD (.10)	623									
Error df	14									
CV	6.4									
R-square	65.3									

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