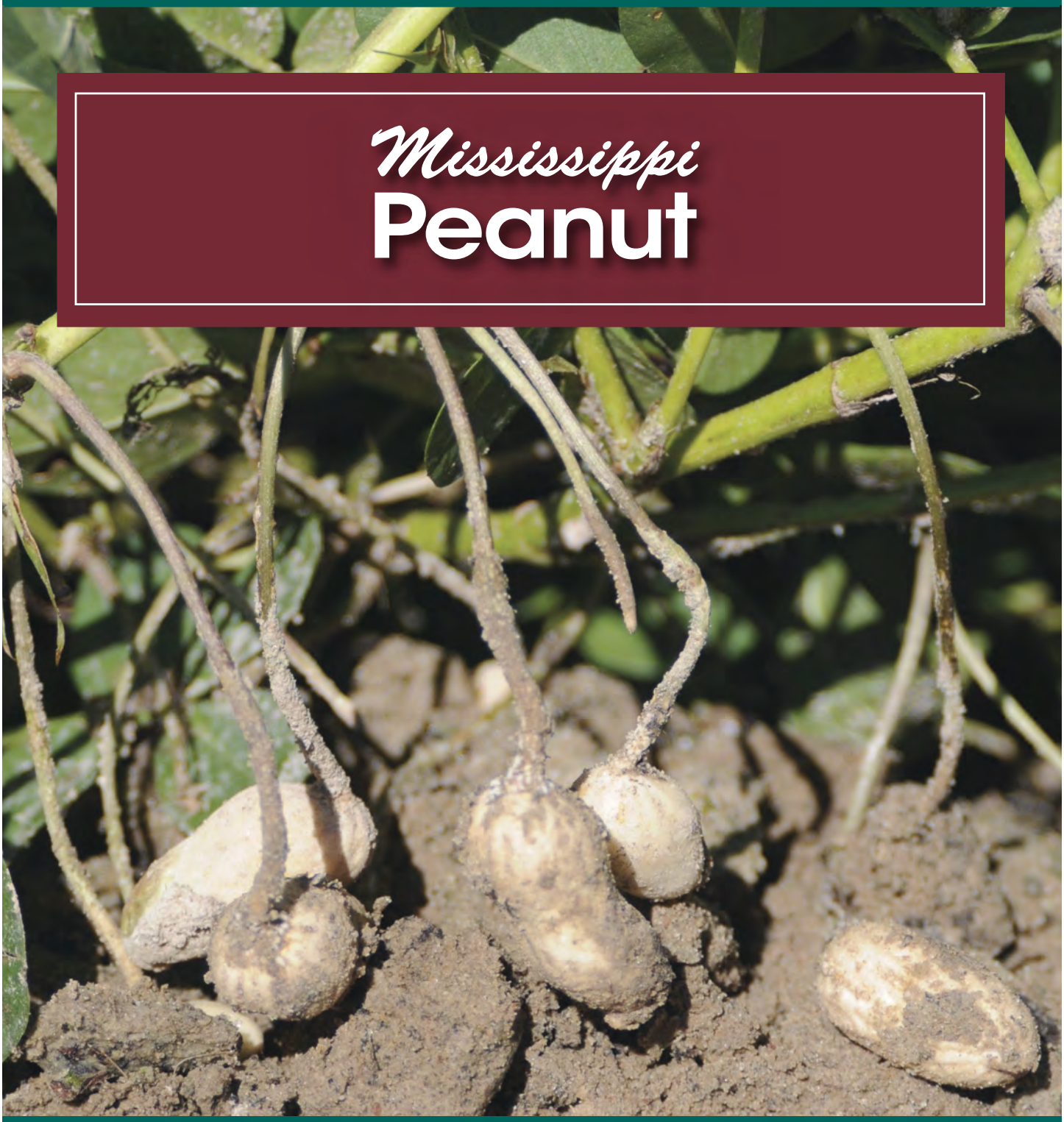
Information Bulletin 492 January 2015

Mississippi Peanut



VARIETY TRIALS, 2014

Mississippi's Official Variety Trials

MAFES

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

Mississippi State University • Mark E. Keenum, President • Gregory A Bohach, Vice President

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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

Mississippi Peanut Variety Trials, 2014

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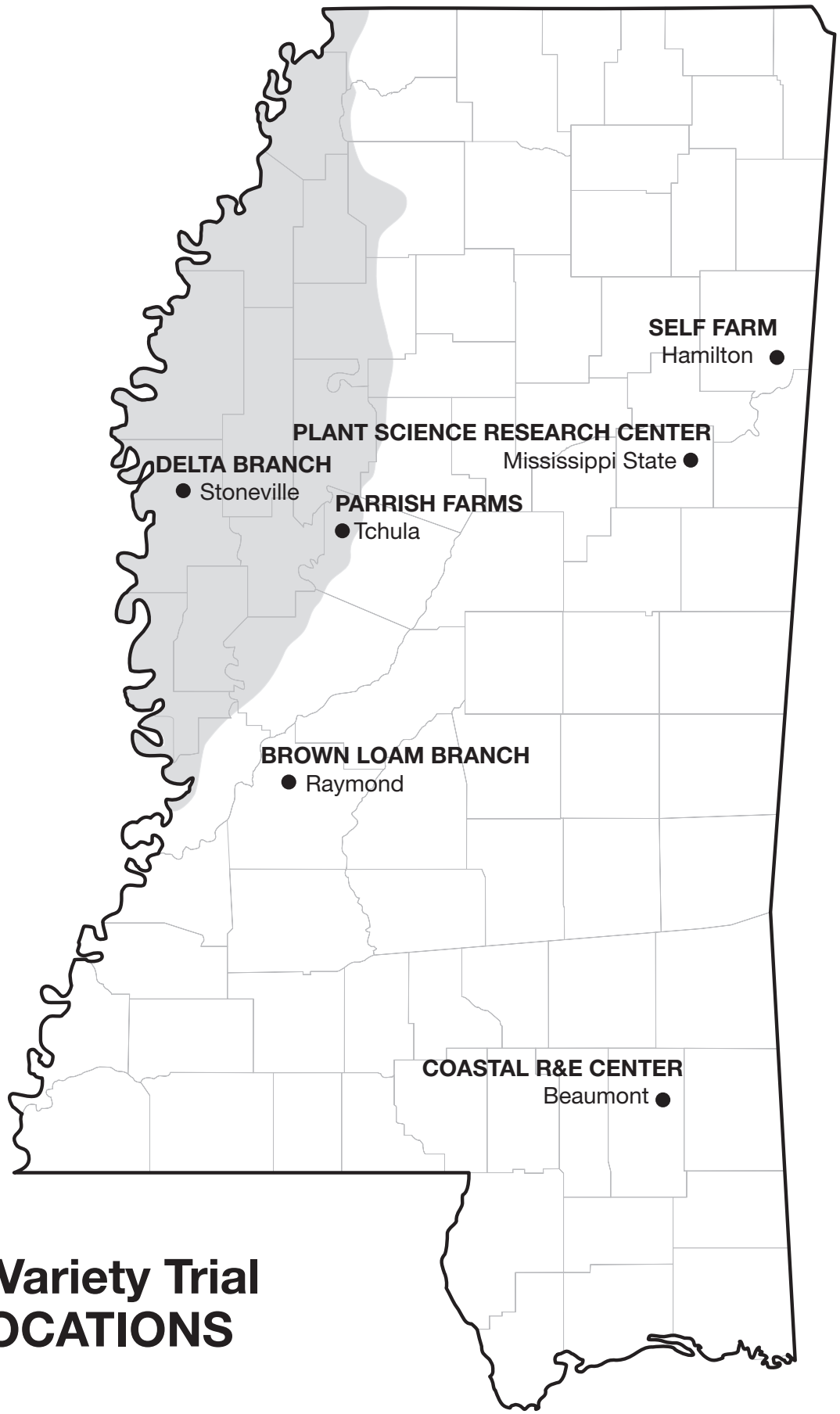
Find variety trial information online at ***mafes.msstate.edu/variety-trials***.



Peanut Variety Trial
TEST LOCATIONS

Mississippi Peanut Variety Trials, 2014

PROCEDURES

Peanut variety trials were conducted at six locations in Mississippi in 2014. 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 six locations.

Plots consisted of two 38-inch-wide, 30-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 four replications at each location.

All varieties were planted with a two-row, twin-drill, Monosem plot 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 KMC two-row peanut digger. After proper drying, the total plot area was harvested with a KMC 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. All plots weights were adjusted to a standard moisture of 13%.

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. 2014 Mississippi peanut yield summary.

Variety	Raymond	Starkville	Stoneville	Tchula	Overall average
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Georgia-06G	5233.5	3137.1	4818.8	5929.6	4779.7
Georgia-13M	5658.2	2018.8	5800.6	5587.9	4766.4
Tifguard	4896.7	2895.2	4340.9	5072.9	4301.4
Georgia-12Y	5537.9	2501.1	5828.6	6218.7	5021.6
Georgia-09B	4706.8	2566.4	5696.5	5649.9	4654.9
FloRun '107'	4695.7	2425.0	5016.8	5108.7	4311.6
Florida-07	6116.3	3190.8	5504.9	5231.0	5010.7
TUFRunner '727'	5563.8	3495.9	5698.3	5518.3	5069.1
TUFRunner '511'	6507.3	4084.8	6180.5	5661.5	5608.5
Mean	5435.1	2923.9	5431.7	5553.2	4836.0
LSD (.10)	598	853	488	443.1	
Error df	24	24	24	24	
CV	9.1	24.1	7.4	6.6	
R^2	70.3	66.2	79.1	74.8	

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

Variety	Starkville	Tchula	Overall average
	lb/A	*lb/A*	*lb/A*
Florida-07	2797.3	6103.4	4450.4
FloRun '107'	2237.3	5865.3	4051.3
TUFRunner '727'	2747.2	6307.0	4527.1
Georgia-06G	2415.0	6538.7	4476.9
Georgia-09B	1905.8	6228.3	4067.1
Tifguard	2506.2	5602.9	4054.6
Overall mean	2434.8	6107.6	4271.2

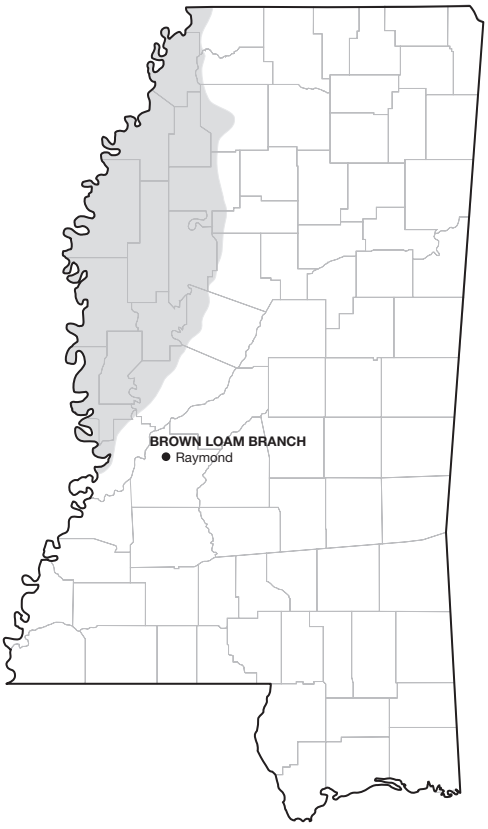
Table 3. Three-year summary of peanut variety trials in Mississippi.			
Variety	**Starkville**	**Tchula**	**Overall average**
	lb/A	*lb/A*	*lb/A*
Florida-07	3766.1	6198.0	4982.1
Georgia-06G	3215.8	6776.4	4996.1
Georgia-09B	2977.0	6088.0	4532.5
Overall Mean	3319.6	6354.1	4836.9

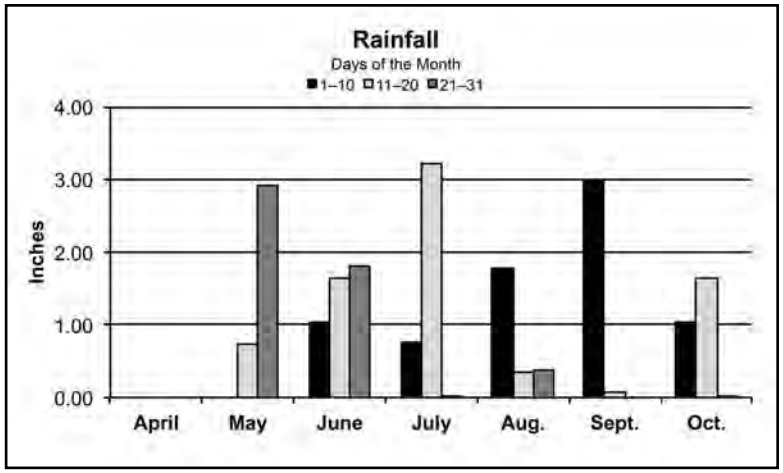
MAFES BROWN LOAM BRANCH, RAYMOND

Crop Summary

The peanut plots were planted into a well-prepared seedbed. Soil moisture was adequate for germination, and all plots quickly emerged to a good stand. Timely rains supplied ample soil moisture throughout the growing season. Conditions were very favorable throughout the harvest season. Harvest was completed in a timely manner.

Soil type . . . . . **Loring silt loam**
Soil pH **5.9**
Soil fertility . . . . . **P=H; K=H**
Planting date . . . . . **May 20**
Digging date . . . . . **October 21**
Harvest date . . . . . **October 30**
Herbicide applications . . . **Preemergence — Dual II Magnum @ 24 oz/A and Gramoxone @ 32 oz/A on May 20**
Postemergence — Select @ 12 oz/A, Pursuit @ 4 oz/A, and Ultra Blazer @ 24 oz/A on June 30; Select @ 12 oz/A, Cadre @ 4 oz/A, and Ultra Blazer @ 24 oz/A on July 10; Select @ 12 oz/A on August 13
Fungicide applications . . . **Headline @ 12 oz/A on August 4; Provost @ 12 oz/A on August 13**
Fertilizer added . . . . . **Borsol @ 12 oz/A on July 10**





Rainfall Summary

	Inches
April	0.00
May	3.65
June	4.50
July	3.99
August	2.48
September	3.05
October	2.72
Total	20.39

Table 4. Yield, average size, and grade of peanut varieties at the MAFES Brown Loam Branch, Raymond, 2014.

Variety	2014 yield	2-year average[1]	3-year average[1]	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*lb/A*	*no./lb*	%	%	%	%	%	%	%
TUFRunner '511'	6507.3	—	—	524	72	4	76	2	1	79	20
Florida-07	6116.3	—	—	564	68	6	74	3	1	78	22
Georgia-13M	5658.2	—	—	692	69	4	73	3	2	78	21
TUFRunner '727'	5563.8	—	—	528	68	8	76	2	0	78	21
Georgia-12Y	5537.9	—	—	664	69	7	76	2	1	79	21
Georgia-06G	5233.5	—	—	548	70	6	76	2	1	79	20
Tifguard	4896.7	—	—	568	69	6	75	3	1	79	20
Georgia-09B	4706.8	—	—	600	72	6	78	2	0	80	19
FloRun '107'	4695.7	—	—	631	66	10	76	2	1	79	21
Mean	5435.1										
LSD (.10)	598										
Error df	24										
CV	9.1										
R^2	70.3										

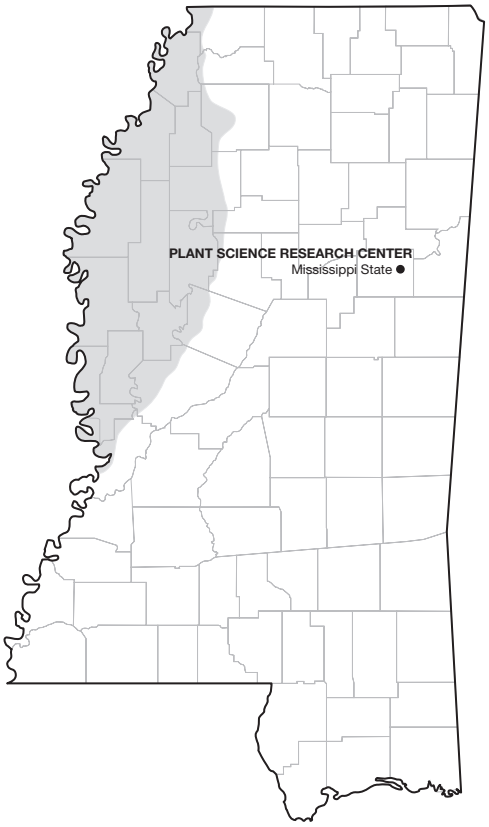
[1]No 2- or 3-year averages.

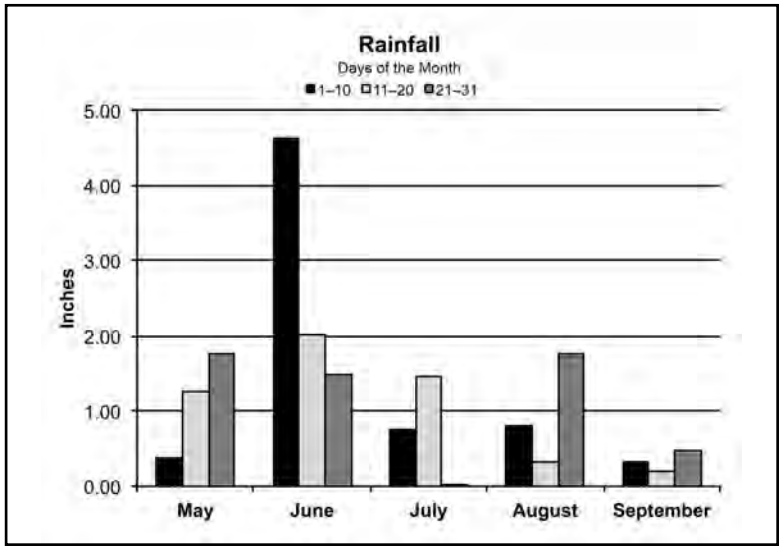
MAFES PLANT SCIENCE RESEARCH CENTER, STARKVILLE

Crop Summary

The peanut plots were planted into a well-prepared seedbed with adequate soil moisture for germination. The plots quickly emerged to a good stand. Rainfall was plentiful in 2014; however, it was somewhat lacking at critical times during the growing season. Rainfall was limiting during the second half of the season. As a result, some peanut pods did not fill out. This resulted in less-than-average yields.

Soil type . . . . . **Stough fine sandy loam**
Soil pH **6.2**
Soil fertility . . . . . **P=M; K=M**
Planting date . . . . . **May 12**
Digging date . . . . . **October 16**
Harvest date . . . . . **October 27**
Fertilizer added . . . . . **Preplant — 0-0-60 @ 200 lb/A; Borsol @ 12.8 oz/A on July 21**
Herbicide application . . . . **Preplant incorporated — Prowl @ 1 qt/A**
Preemergence — Valor @ 3 oz/A on May 12
Postemergence — Select @ 12 oz/A
Fungicide application . . . . **Provost @ 12 oz/A on July 21; Headline @ 12 oz/A on August 15; Provost @ 10.7 oz/A on August 27**





Rainfall Summary

	Inches
May	3.39
June	8.14
July	2.22
August	2.92
September	1.02
Total	17.69

Table 5. Yield, average size, and grade of peanut varieties at the MAFES Research Center, Starkville, 2014.

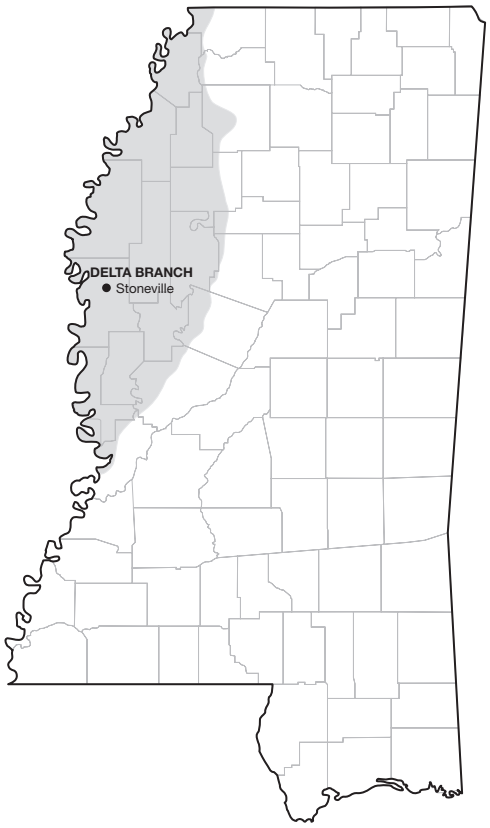
Variety	2014 yield	2-year average	3-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*lb/A*	*no./lb*	%	%	%	%	%	%	%
TUFRunner '511'	4084.8	—	—	536	64	10	74	2	1	77	22
TUFRunner '727'	3495.9	2747.2	—	568	58	12	70	4	1	75	24
Florida-07	3190.8	2797.3	3766.1	552	56	11	67	5	2	74	26
Georgia-06G	3137.1	2415.0	3215.8	666	63	8	71	4	1	76	24
Tifguard	2895.2	2506.2	—	588	65	7	72	3	1	76	23
Georgia-09B	2566.4	1905.8	2977.0	736	58	10	68	6	1	75	24
Georgia-12Y	2501.1	—	—	702	58	8	66	6	1	73	27
FloRun '107'	2425.0	2237.3	—	638	60	10	70	4	1	75	25
Georgia-13M	2018.8	—	—	790	53	9	62	8	2	72	28
Mean	2923.9										
LSD (.10)	853										
Error df	24										
CV	24.1										
R^2	66.2										

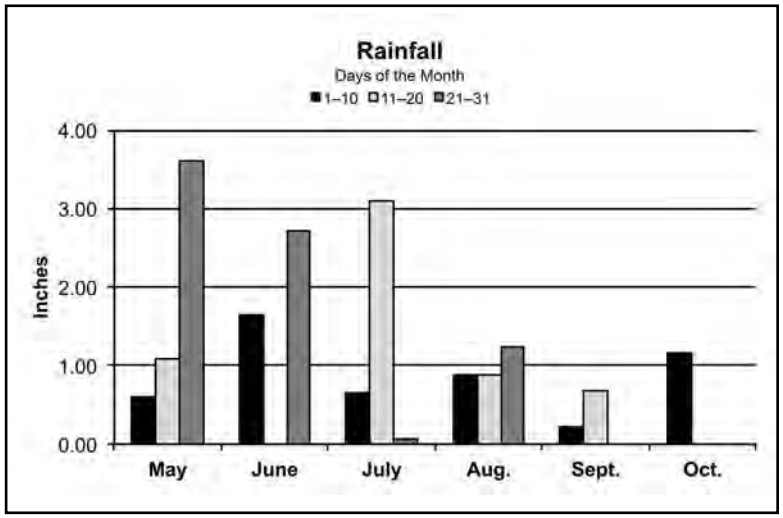
MAFES DELTA BRANCH, STONEVILLE

Crop Summary

The plots were planted into a well-prepared seedbed with excellent moisture for germination. Plots quickly emerged to a good stand. Timely rains occurred during the growing season, allowing for ample soil moisture throughout. The weather was very favorable during the digging and harvest season. Harvest was completed in a timely manner without difficulty.

Soil type . . . . . **Bosket very fine sandy loam**
Soil pH **6.2**
Soil fertility . . . . . **P=H+; K=H+**
Planting date . . . . . **May 13**
Digging date . . . . . **October 6**
Harvest date . . . . . **October 20**
Herbicide application . . . . **Preemergence — Prowl @ 3 pt/A, Valor @ 3 oz/A, and Strongarm @ .025 oz/A on May 13**
Postemergence — Select Max @ 12 oz/A + coc @ 1.5 pt/A on June 14; Select Max @ 12 oz/A + coc @ 1.5 pt/A on July 10; Cadre @ 2 oz/A and coc @ 1.5 pt/A on July 31; Select Max @ 12 oz/A and coc @ 1.5 pt/A on September 10
Fungicide application . . . . **Quadris @ 6 oz/A on July 1; Headline @ 15 oz/A on July 10; Monsoon @ 7.2 oz/A on July 14**





Rainfall Summary

	Inches
May	5.27
June	4.36
July	3.80
August	3.00
September	0.90
October	1.16
Total	18.49

Table 6. Yield, average size, and grade of peanut varieties at the MAFES Delta Branch Experiment Station, Stoneville, 2014.

Variety	2014 yield	2-year average[1]	3-year average[1]	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
TUFRunner '511'	6180.5	—	—	537	71	6	77	2	0	79	20
Georgia-12Y	5828.6	—	—	641	73	2	75	2	0	77	22
Georgia-13M	5800.6	—	—	702	71	6	77	2	0	79	20
TUFRunner '727'	5698.3	—	—	562	68	8	76	2	0	78	21
Georgia-09B	5696.5	—	—	604	70	8	78	1	0	79	20
Florida-07	5504.9	—	—	550	66	7	73	2	0	75	24
FloRun '107'	5016.8	—	—	652	67	9	76	2	0	78	21
Georgia-06G	4818.8	—	—	551	72	5	77	1	1	79	20
Tifguard	4340.9	—	—	594	70	6	76	2	0	78	22
Mean	5431.7										
LSD (.10)	488										
Error df	24										
CV	7.4										
R^2	79.1										

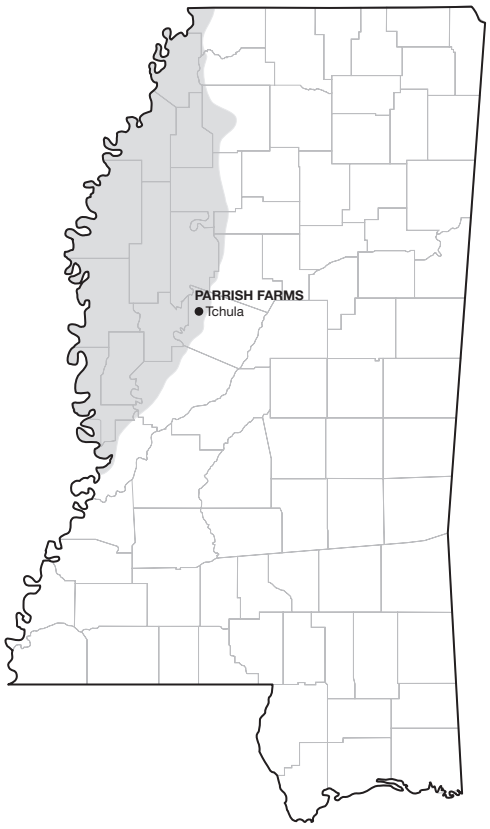
[1]No 2- or 3-year averages

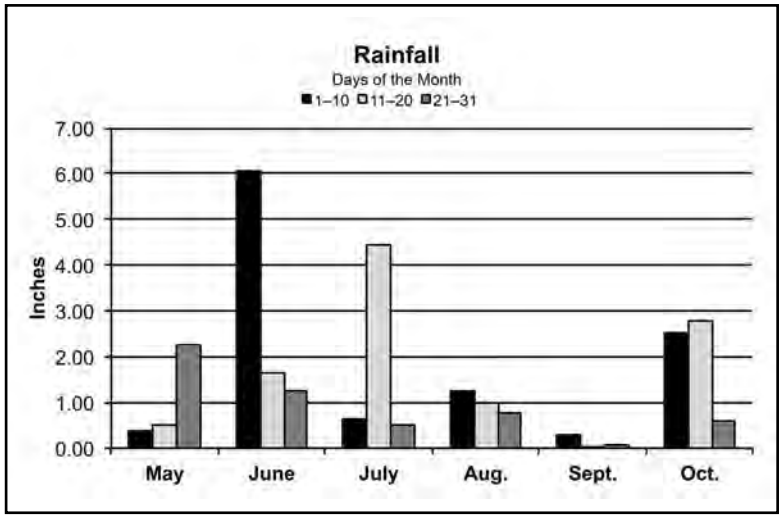
PARRISH FARMS, TCHULA

Crop Summary

Peanut plots were planted into a well-prepared seedbed with excellent soil moisture. All plots quickly germinated and emerged to a good stand. Timely rains occurred throughout the growing season, which provided the crop with ample soil moisture. This resulted in optimum growing conditions. Digging and harvest was completed in a timely manner.

Soil type . . . . . **Collins silt loam**
Soil pH **6.8**
Soil fertility . . . . . **P=H; K=H**
Planting date . . . . . **May 13**
Digging date . . . . . **October 9**
Harvest date . . . . . **October 20**
Fertilizer added . . . . . **Coron Full Bor @ 12.8 oz/A + Induce on June 5; Nachur's Boron @ 1 qt/A on July 7**
Herbicide application . . . . **Preemergence — Valor @ 3 oz/A on May 13**
Postemergence — Cadre @ 4 oz/A and Strongarm @ 0.25 oz/A + Induce on June 5; Volunteer @ 12.8 oz/A on July 7
Fungicide application . . . . **Provoline @ 5.7 oz/A on June 17; Convoy @ 13 oz/A on July 14; Tebuconazole @ 7.2 oz/A on August 14; Convoy @ 13 oz/A and Abound @ 6 oz/A on August 19**
Insecticide application . . . **Dimilin @ 4 oz/A on July 7**





Rainfall Summary

	Inches
May	3.14
June	8.97
July	5.59
August	3.01
September	0.38
October	5.86
Total	26.95

Table 7. Yield, average size, and grade of peanut varieties at Parrish Farms, near Tchula, 2014.

Variety	2014 yield	2-year average	3-year average	Seed	SMKRS	SS	TSMK	OK	DK	TK	Hulls
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*	*%*	*%*	*%*	*%*	*%*	*%*
Georgia-12Y	6218.7	—	—	671	70	7	77	3	0	80	20
Georgia-06G	5929.6	6538.7	6776.4	556	69	11	80	2	1	83	18
TUFRunner '511'	5661.5	—	—	531	64	13	77	3	0	80	19
Georgia-09B	5649.9	6228.3	6088.0	609	73	6	79	2	0	81	18
Georgia-13M	5587.9	—	—	690	67	10	77	2	1	80	19
TUFRunner '727'	5518.3	6307.0	—	539	63	15	78	3	1	82	18
Florida-07	5231.0	6103.4	6198.0	562	64	12	76	2	1	79	20
FloRun '107'	5108.7	5865.3	—	648	66	10	76	3	1	80	19
Tifguard	5072.9	5602.9	—	578	69	8	77	3	0	80	19
Mean	5553.2										
LSD (.10)	443.1										
Error df	24										
CV	6.6										
R^2	74.8										

BEAUMONT AND HAMILTON

Data not reported due to extreme deer predation

Peanut harvest data and variety yield performance were not published from the trials that were planted at the Beaumont and Hamilton locations due to extensive deer damage. These locations experienced heavy deer predation during the growing season, which resulted in substantial variability within the trial and extremely poor yields that were well below average for these locations.

mafes.msstate.edu/variety-trials