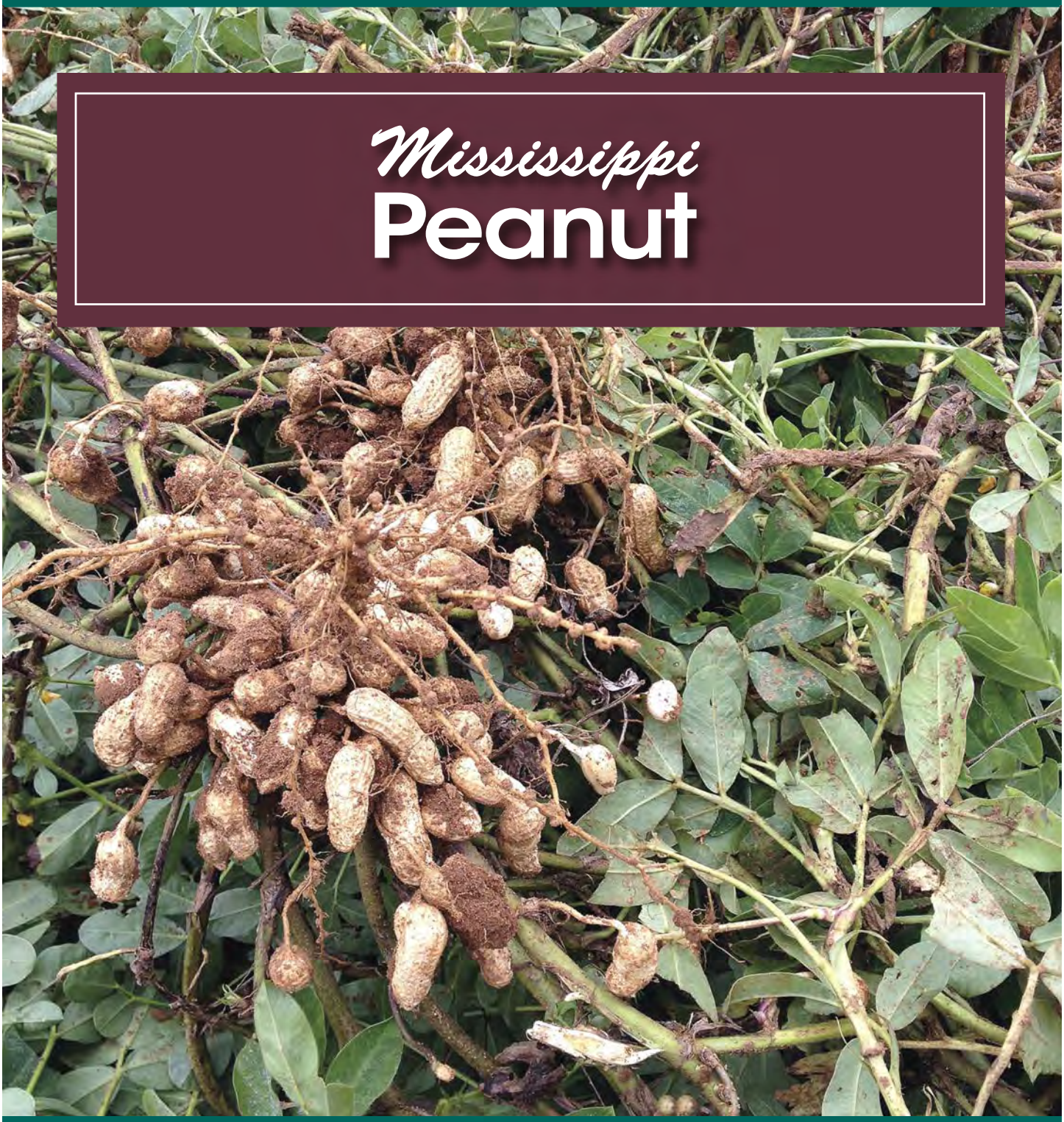
Information Bulletin 505 January 2016

Mississippi Peanut



VARIETY TRIALS, 2015

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

NOTICE TO USER

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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, 2015

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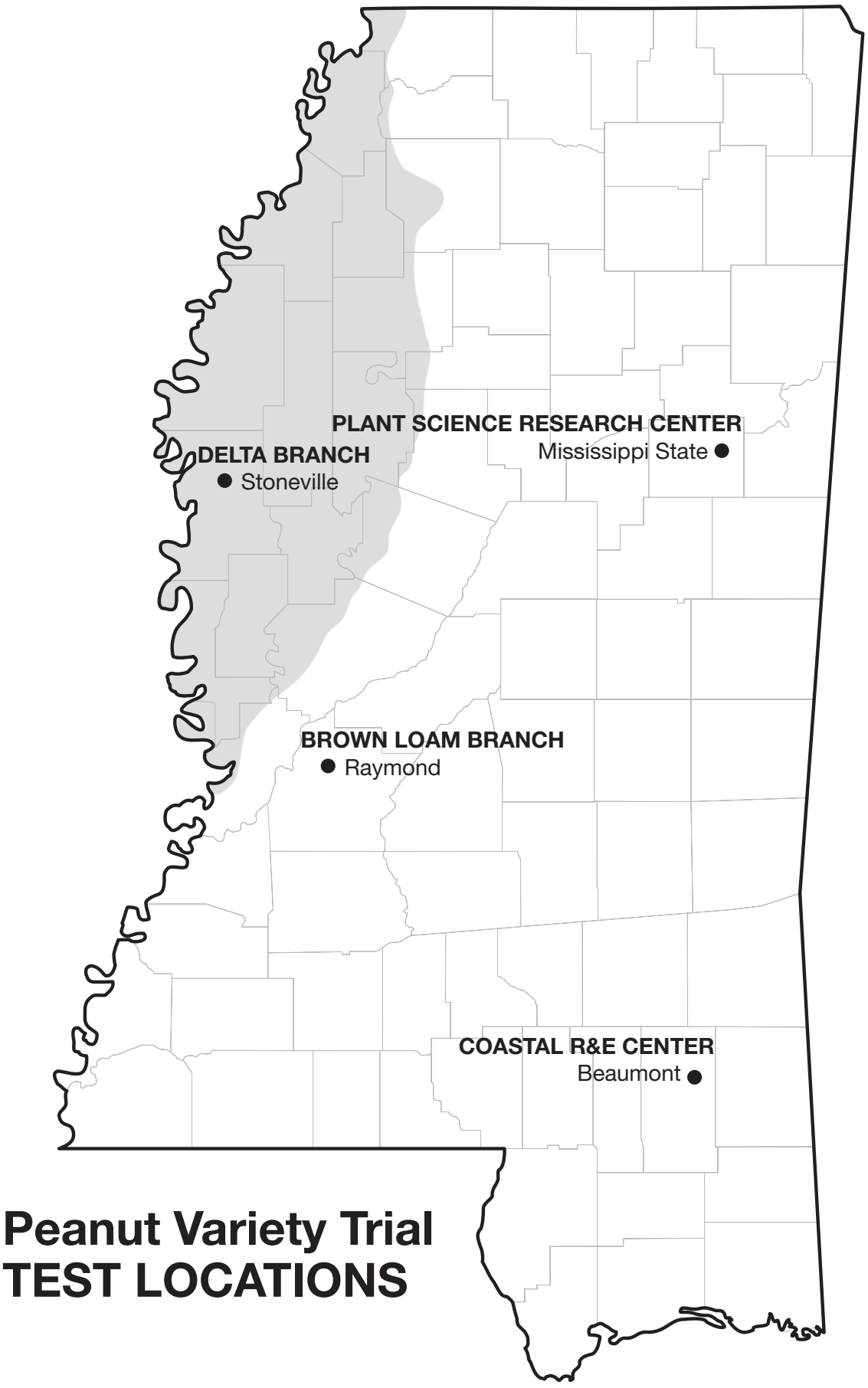
Find variety trial information online at ***mafes.msstate.edu/variety-trials***.



Peanut Variety Trial
TEST LOCATIONS

Mississippi Peanut Variety Trials, 2015

PROCEDURES

Peanut variety trials were conducted at four locations in Mississippi in 2015. Trials were conducted on Experiment Station land 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 four 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. Yield summary of 2015 peanut variety trials in Mississippi.

Variety	Starkville	Beaumont	Stoneville	Raymond	Overall average
	lb/A	*lb/A*	*lb/A*	*lb/A*	*lb/A*
Georgia-06G	3261	2978	4726	1777	3186
Georgia-12Y	3544	3540	5165	2619	3717
Georgia-13M	3311	4066	4777	2432	3647
Georgia-14N	3015	3079	3835	2430	3090
TUFRunner™ '511'	3409	2701	4904	3235	3562
TUFRunner™ '727'	3403	3114	4322	2544	3346
FloRun™ '107'	3297	3040	4611	2403	3338
TUFRunner™ '297'	3631	3958	4649	2793	3758
Algrano 198[1]	3461	2267	3178	2169	2769
Algrano 883[1]	3830	2348	3263	2042	2871
Algrano QR14[1]	3763	3037	3749	2022	3143
Florida 07	3381	3790	4204	2673	3512
Tifguard	3126	2281	3975	2197	2895
Georgia-09B	3449	2205	4152	2262	3017
MRS37	3216	2758	—	—	—
MRS38	3427	2551	—	—	—
Mean	3408	2982	4251	2400	
LSD	604	935	886	739	
CV	12.4	21.8	14.6	17.9	
R sq	0.24	0.53	0.54	0.49	

[1]Short-season (early) varieties.

Table 2. 2015 Mississippi peanut grades (% TSMK).

Variety	Starkville	Beaumont	Stoneville	Raymond	Overall average
	%	%	%	%	%
Georgia-06G	75.2	71.4	75.5	76.2	74.6
Georgia-12Y	72.3	71.7	72.5	71.8	72.1
Georgia-13M	75.1	74.0	74.2	70.5	73.5
Georgia-14N	76.7	74.3	76.8	79.2	76.8
TUFRunner™ '511'	75.1	72.2	74.9	78.6	75.2
TUFRunner™ '727'	74.0	74.7	74.8	73.3	74.2
FloRun™ '107'	72.7	73.4	75.4	76.5	74.5
TUFRunner™ '297'	75.7	74.8	73.9	77.7	75.5
Algrano 198[1]	73.6	70.7	72.4	70.0	71.7
Algrano 883[1]	73.3	70.6	72.1	70.0	71.5
Algrano QR14[1]	73.6	71.7	72.1	71.1	72.1
Florida-07	72.8	71.5	72.5	71.9	72.2
Tifguard	75.5	71.2	73.8	74.3	73.7
Georgia-09B	75.9	73.4	74.9	77.5	75.4
MRS37	74.0	70.6	—	—	—
MRS38	75.9	72.5	—	—	—
Mean	74.5	72.4	74.0	74.2	73.8

[1]Short-season (early) varieties.

Table 3. Two-year (2014 and 2015) yield summary of peanut variety trials in Mississippi.

Variety	Raymond	Starkville	Stoneville	Overall avg.
	lb/A	*lb/A*	*lb/A*	*lb/A*
Florida-07	4395	3286	4854	4178
FloRun™ '107'	3549	2861	4814	3741
Georgia-06G	3505	3199	4772	3826
Georgia-09B	3484	3008	4924	3805
Georgia-12Y	4078	3023	5497	4199
Georgia-13M	4045	2665	5289	4000
Tifguard	3547	3011	4158	3572
TUFRunner™ '511'	4871	3747	5542	4720
TUFRunner™ '727'	4054	3449	5010	4171
Overall Mean	3948	3139	4985	4024

Table 4. Three-year (2013, 2014, and 2015) yield summary of peanut variety trials in Mississippi.

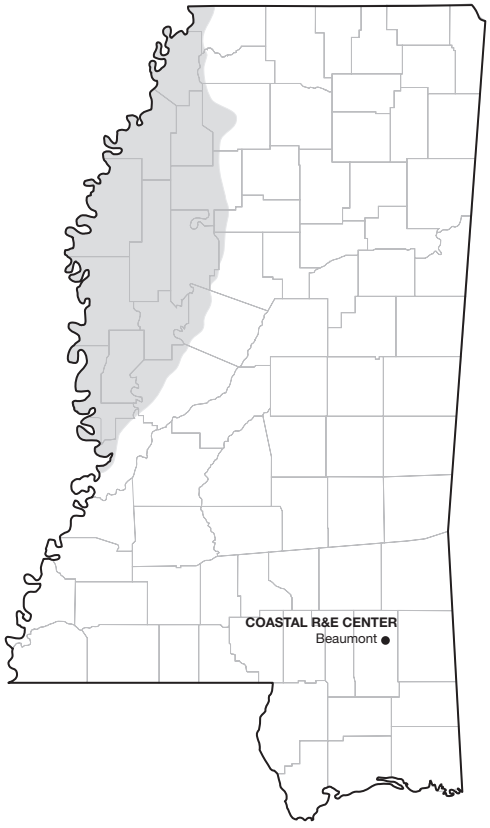
Variety	Starkville
	lb/A
Georgia 06G	2697
FloRun™ '107'	2698
Florida '727'	2966
Florida-07	2992
Tifguard	2713
Georgia 09B	2420
Overall Mean	2748

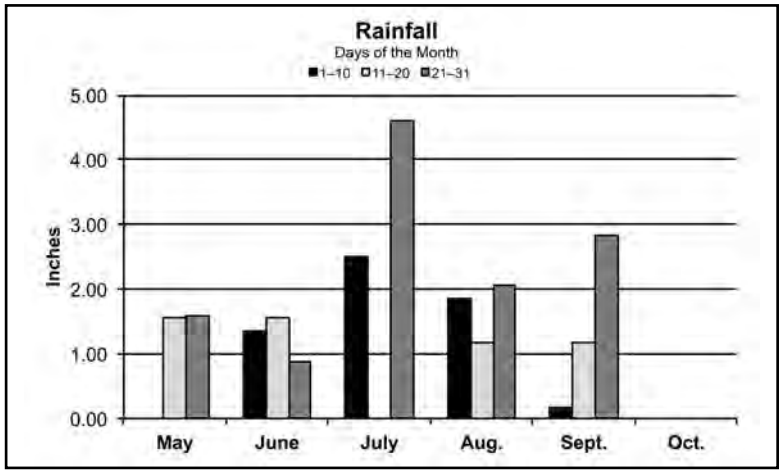
COASTAL R&E CENTER, BEAUMONT

Crop Summary

The plots were planted into a well-prepared seedbed with adequate moisture for germination. All plots quickly emerged to a good stand. By midseason, the plots began to experience heavy deer feeding and a repellant was applied, which appeared to deter this feeding activity. Digging and harvest operations were performed on the same day to help avoid any yield loss due to deer feeding.

Soil type ..... **McLaurin fine sandy loam**
Soil pH **6.4**
Soil fertility ..... **P=H, K=L**
Planting date ..... **May 20**
Digging date ..... **Early varieties — September 24**
Late varieties — October 15
Harvest date ..... **Early varieties — September 24 (Digging and harvest were conducted on the same day to avoid yield loss due to deer predation.)**
Late varieties — October 15 (Digging and harvest were conducted on the same day to avoid yield loss due to deer predation.)
Herbicide application ..... **Preemergence — Dual II Magnum @ 16 oz/A, Valor @ 3 oz/A, Strongarm @ 0.45 oz/A, and Gramoxone @ 12 oz/A on May 20**
Postemergence — Cadre @ 4 oz/A + COC on June 8, Select @ 12 oz/A on June 16, and Dual II Magnum @ 16 oz/A and Butyrac 175 @ 16 oz/A on June 18
Fungicide application ..... **Echo @ 24 oz/A on June 18, Fontelis @ 24 oz/A on July 24, Provost @ 8 oz/A on August 11, and Provost @ 8 oz/A on August 25**
Fertilizer added ..... **Nachurs 10% Boron @ 32 oz/A on June 18 and July 24**
Wildlife repellant application .... **Explode (deer repellant) @ 16 oz/A on July 16 and September 4**





Rainfall Summary

	Inches
May	3.14
June	3.78
July	7.10
August	5.08
September	4.18
October	0.00
Total	23.28

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

Variety	2015 yield	2-year avg.[1]	3-year avg.[1]	Seed avg.	TSMK
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*
Georgia-13M	4066	—	—	736	74.0
TUFRunner™ '297'	3958	—	—	598	74.8
Florida-07	3790	—	—	664	71.5
Georgia-12Y	3540	—	—	696	71.7
TUFRunner™ '727'	3114	—	—	688	74.7
Georgia-14N	3079	—	—	688	74.3
FloRun™ '107'	3040	—	—	688	73.4
Algrano QR14[2]	3037	—	—	—	71.7
Georgia-06G	2978	—	—	636	71.4
MRS37	2758	—	—	652	70.6
TUFRunner™ '511'	2701	—	—	708	72.2
MRS38	2551	—	—	656	72.5
Algrano 883[2]	2348	—	—	—	70.6
Tifguard	2281	—	—	680	71.2
Algrano 198[2]	2267	—	—	—	70.7
Georgia-09B	2205	—	—	720	73.4
Mean	2982			678	72.4
LSD	935				
CV	21.8				
R sq	0.53				

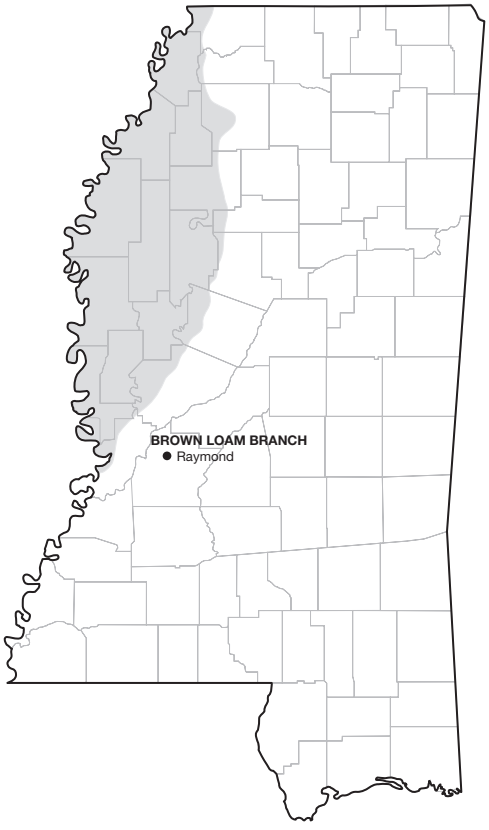
[1]No 2- or 3-year averages.
[2]Short-season (early) varieties.

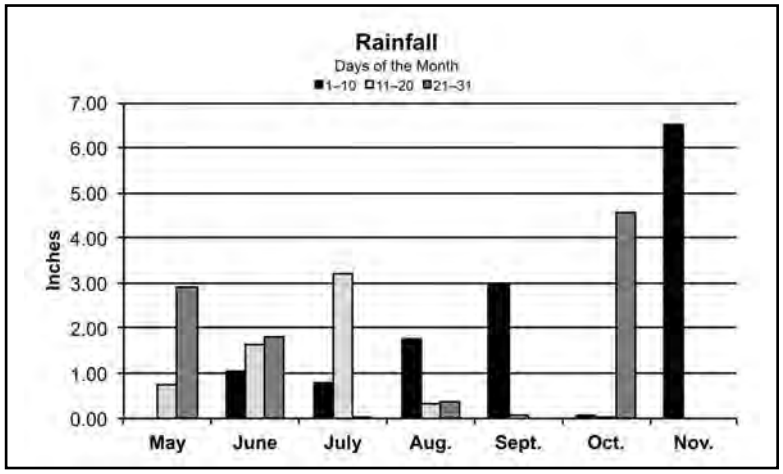
MAFES BROWN LOAM BRANCH, RAYMOND

Crop Summary

The peanut plots were planted on May 7 into a seedbed that had been freshly prepared. A large amount of rainfall was recorded after this initial planting, which resulted in a significant reduction in plant stand. Due to this variability within the test, a replant was warranted, at the discretion of the Extension specialist. The plots were replanted in early June and came up to a good stand. However, this late stand and the hot summer weather limited yield potential at this location. The early varieties were dug and harvested without difficulty. After digging the late varieties, heavy rainfall occurred, which delayed the combining of the late varieties. Due to the dry weather during crucial points of the growing season and a wet fall that delayed harvest, yields produced at this location were well below average.

Soil type . . . . . .Loring silt loam
Soil pH 6.0
Soil fertility . . . . . .P=H, K=M
Planting date . . . . . .May 7; replanted on June 5
Digging date . . . . . .Early varieties — October 15
Late varieties — October 21
Harvest date . . . . . .Early varieties — October 21
Late varieties — November 9
Herbicide application . . . .Preemergence — Dual II Magnum @ 24 oz/A and Valor @ 3 oz/A on May 7
Postemergence — Dual II Magnum @ 16 oz/A and Roundup PowerMax @ 48 oz/A on June 5
Fungicide application . . . .Headline @ 10 oz/A on July 8, Abound @ 10 oz/A on July 22, and Provost @ 8 oz/A on August 13
Fertilizer added . . . . . .Solubor @ 10 oz/A on July 2
Insecticide application . . .Grizzly @ 1.92 oz/A on July 22





Rainfall Summary

	Inches
May	3.65
June	4.50
July	3.99
August	2.48
September	3.05
October	4.67
November	6.53
Total	28.87

Table 6. Yield, average size, and grade of peanut varieties at the MAFES Brown Loam Branch, Raymond.

Variety	2015 yield	2-year avg.	3-year[1] avg.	Seed avg.	TSMK
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*
TUFRunner™ '511'	3235	4871	—	580	78.6
TUFRunner™ '297'	2793	—	—	508	77.7
Florida-07	2673	4395	—	500	71.9
Georgia-12Y	2619	4078	—	584	71.8
TUFRunner™ '727'	2544	4054	—	592	73.3
Georgia-13M	2432	4045	—	660	70.5
Georgia-14N	2430	—	—	624	79.2
FloRun™ '107'	2403	3549	—	520	76.5
Georgia-09B	2262	3484	—	600	77.5
Tifguard	2197	3547	—	572	74.3
Algrano 198[2]	2169	—	—	628	70.0
Algrano 883[2]	2042	—	—	644	70.0
Algrano QR14[2]	2022	—	—	712	71.1
Georgia-06G	1777	3505	—	552	76.2
Mean	2400	3498		591	74.2
LSD	739				
CV	17.9				
R sq	0.49				

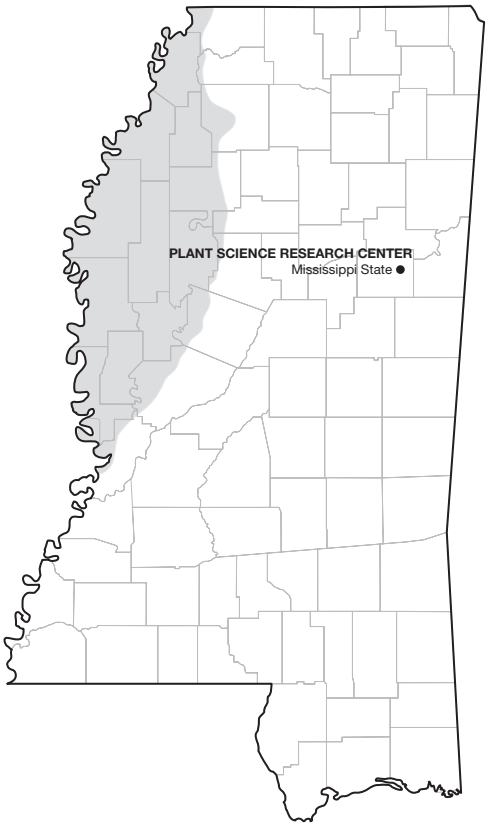
[1]No 3-year averages.
[2]Short-season (early) varieties.

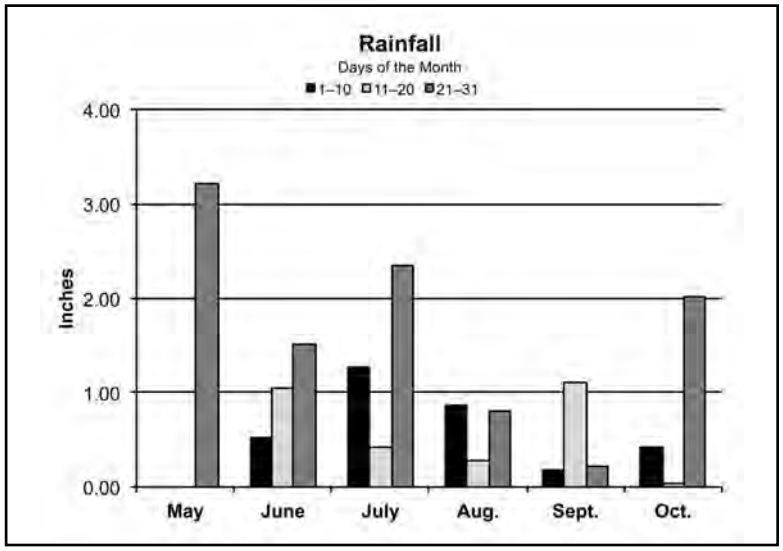
MAFES PLANT SCIENCE RESEARCH CENTER, STARKVILLE

Crop Summary

The plots were planted into a stale seedbed with optimum moisture for germination. The plots quickly emerged to a stand. Rainfall during the growing season was not optimum. Diggings and harvest of the peanut plots were completed in a timely manner without difficulty.

Soil type . . . . . .**Marietta fine sandy loam**
Soil pH **6.6**
Soil fertility . . . . . .**P=H+, K=H**
Planting date . . . . . .**May 22**
Digging date . . . . . .**Early varieties — October 1**
Late varieties — October 15
Harvest date . . . . . .**Early varieties — October 9**
Late varieties — October 21
Fertilizer added . . . . . .**Nachurs 10% Boron @ 32 oz/A on July 19**
Herbicide application . . . .**Preemergence — Dual II Magnum @ 24 oz/A, Valor @ 3 oz/A, and Gramoxone @ 32 oz/A on May 22**
Postemergence — Select @ 8 oz/A + COC on June 15
Fungicide application . . . .**Echo @ 24 oz/A and Tebuconazole @ 7.2 oz/A on July 19, Provost @ 8 oz/A on August 14, Provost @ 8 oz/A on August 27, and Echo @ 24 oz/A and Tebuconazole @ 7.2 oz/A on September 9**





Rainfall Summary

	Inches
May	3.22
June	3.09
July	4.05
August	1.96
September	1.50
October	2.47
Total	16.29

Table 7. Yield, average size, and grade of peanut varieties at the MAFES Plant Science Research Center, Starkville.

Variety	2015 yield	2-year avg.	3-year avg.	Seed avg.	TSMK
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*
Algrano 883[1]	3830	—	—	980	73.3
Algrano QR14[1]	3763	—	—	864	73.6
TUFRunner™ '297'	3631	—	—	616	75.7
Georgia-12Y	3544	3023	2698	800	72.3
Algrano 198[1]	3461	—	—	892	73.6
Georgia-09B	3449	3008	2420	716	75.9
MRS38	3427	—	—	688	75.9
TUFRunner™ '511'	3409	3747	—	612	75.1
TUFRunner™ '727'	3403	3449	2966	744	74.0
Florida-07	3381	3286	2992	652	72.8
Georgia-13M	3311	2665	—	776	75.1
FloRun™ '107'	3297	2861	—	724	72.7
Georgia-06G	3261	3199	2697	788	75.2
MRS37	3216	—	—	704	74.0
Tifguard	3126	3011	2713	692	75.5
Georgia-14N	3015	—	—	808	76.7
Mean	3408	3139	2748	754	74.5
LSD	604				
CV	12.4				
R sq	0.24				

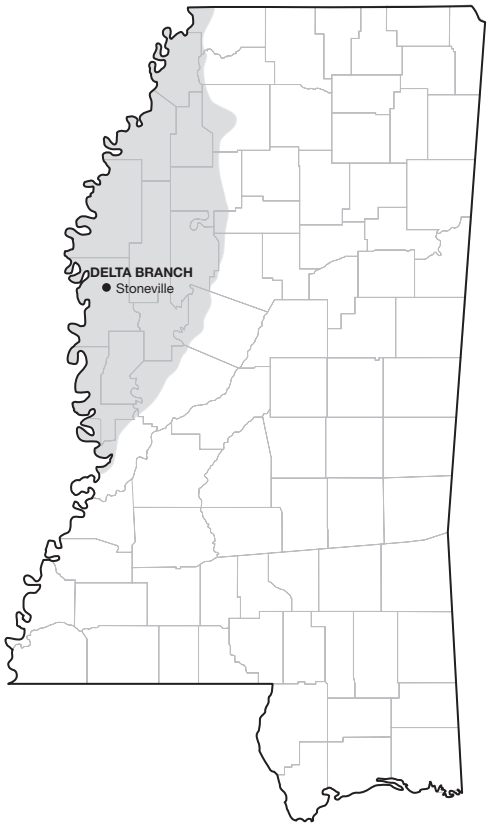
[1]Short-season (early) varieties.

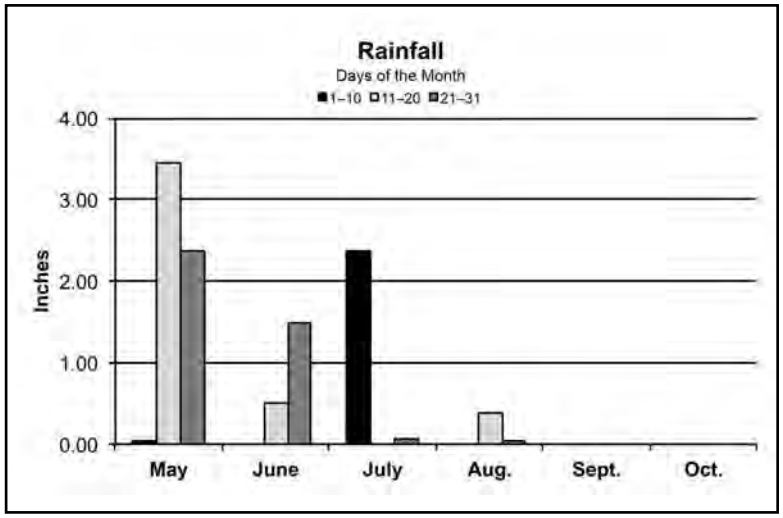
MAFES DELTA BRANCH, STONEVILLE

Crop Summary

Peanut plots were planted in early May into a freshly tilled seedbed. After planting, all plots emerged to a good stand. The majority of the growing season was very hot with limited rainfall. The lack of rainfall resulted in below-average yields for this location. The digging and harvest of these plots was completed in a timely manner without difficulty.

Soil type . . . . . .**Bosket very fine sandy loam**
Soil pH **5.9**
Soil fertility . . . . . .**P=H, K=H**
Planting date . . . . . .**May 6**
Digging date . . . . . .**Early varieties — September 24**
Late varieties — October 7
Harvest date . . . . . .**Early varieties — October 7**
Late varieties — October 16
Herbicide application . . . .**Preemergence — Strongarm @ .025 oz/A, Valor @ 3 oz/A, and Prowl @ 3 pt/A on May 6**
Postemergence — Select @ 16 oz/A on June 24 and Select @ 10 oz/A on August 5
Fungicide application . . . .**Provost @ 8 oz/A on August 5, Provost @ 8 oz/A on August 18, and Convoy @ 32 oz/A on August 28**
Insecticide application . . .**Prevathon @ 14 oz/A on July 2**





Rainfall Summary

	Inches
May	5.86
June	1.99
July	2.43
August	0.41
September	0.00
October	0.00
Total	10.69

Table 8. Yield, average size, and grade of peanut varieties at the Delta Research and Extension Center, Stoneville.

Variety	2015 yield	2-year avg.	3-year avg.[1]	Seed avg.	TSMK
	lb/A	*lb/A*	*lb/A*	*no./lb*	*%*
Georgia-12Y	5165	5497	—	756	72.5
TUFRunner™ '511'	4904	5542	—	652	74.9
Georgia-13M	4777	5289	—	832	74.2
Georgia-06G	4726	4772	—	692	75.5
TUFRunner™ '297'	4649	—	—	636	73.9
FloRun™ '107'	4611	4814	—	724	75.4
TUFRunner™ '727'	4322	5010	—	664	74.8
Florida-07	4204	4854	—	640	72.5
Georgia-09B	4152	4924	—	732	74.9
Tifguard	3975	4158	—	696	73.8
Georgia-14N	3835	—	—	832	76.8
Algrano QR14[2]	3749	—	—	796	72.1
Algrano 883[2]	3263	—	—	844	72.1
Algrano 198[2]	3178	—	—	772	72.4
Mean	4251	4984		733	74.0
LSD	886				
CV	14.6				
R sq	0.54				

[1]No 3-year average.
[2]Short-season (early) varieties.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