

Evaluation of Peanut Varieties in Mississippi

Final Report

Introduction:

Over the past several years, many new peanut varieties have been released. These varieties have improved resistance to diseases, as well as higher yield potential. This study is designed to help determine how varieties perform in Mississippi. Varieties were selected from newly released varieties, varieties to be released in the near future, and varieties that have become the standard over the years.

Materials and Methods:

Seven varieties were selected based on seed availability and grower interest. These varieties included: Georgia Green, Georgia O6G, Georgia Greener, Florida 07, Georgia O7W, AT 215, and Georgia O9B. Study locations included Lucedale, Hamilton, and Stoneville, Mississippi. Plots were arranged in a randomized complete block design with four replications. Plots were 50 feet long by 4 rows wide. In Lucedale and Stoneville locations, the study was planted “early” and “late” in the planting season to determine if differences were detected in planting dates. Only the later planting date was in the Hamilton location due to weather problems. Each study had Georgia Green, Georgia O6G, Georgia Greener, Florida 07, Georgia O7W, and the later plantings at Lucedale and Hamilton had the addition of AT 215 and Georgia O9B. These two varieties were not included in the early studies because AT 215 has proven to be successful only if planted in mid May or later, and Georgia O9B had only enough seed for two locations.

Early planting dates were planted on April 25 and May 4 in Lucedale and Stoneville respectively. Later planting dates were planted on May 21 in Lucedale, May 24 in Stoneville, and May 28 in Hamilton. Plots were managed under standard production practices in each area, and treated the same at each location. Plots were dug based on pod blasting results, and the center two rows in each plot were harvested to determine yield. After the harvested rows had been weighed, a sample was taken from the bag for grade determination.

Results:

In the early planted variety trials, Georgia O6G and Georgia Greener yielded significantly higher at the Lucedale location than the other varieties. Georgia Green and Georgia

O7W yielded significantly lower than all other varieties. At the Stoneville location, Georgia Greener yielded significantly higher than Florida O7, but both were statistically similar to the other varieties. When data from both locations were combined, Georgia O6G and Georgia Greener yielded significantly higher than Florida O7 (Table 1, Figures 1-3).

In the later planted trial at Lucedale, Georgia O6G and Georgia Greener yielded significantly higher than all other varieties. Florida O7 and Georgia O9B were statistically similar, however both yielded statistically higher than Georgia Green, Georgia O7W, and AT 215. Georgia Green had significantly higher yields than did Georgia O7W and AT 215, and AT 215 had significantly lower yields than all other varieties. At the Hamilton location, Georgia O6G and Georgia Greener once again yielded significantly higher than all other varieties. Georgia O9B yielded significantly higher than Georgia Green, and AT 215, and AT 215 yielded significantly lower than all other varieties. In the Stoneville location, Georgia O6G and Georgia Greener had significantly higher yields than did Georgia Green and Georgia O7W, but were statistically similar to Florida O7. When data from these three locations were averaged together, Georgia O6G and Georgia Greener had significantly higher yields than all other varieties (Table 2, Figures 4-7). When the data from the five individual trials were averaged together, Georgia O6G and Georgia Greener once again had significantly higher yields than all other varieties (Table 3, Figure 8). Because Georgia O9B and AT 215 were not in all locations and planting dates, they were omitted from overall yield analysis.

There were no statistical differences between any varieties at any location evaluated in these studies. Mean grades ranged from 73 to 75. Also, when averaged across planting date and location, no statistical differences were observed (Tables 4-6, Figures 9-16). Because Georgia O9B and AT 215 were not in all locations and planting dates, they were omitted from overall grade analysis.

Table 1. Early Planted Peanut Variety Trials

Description Rating Type Rating Unit	Lucedale Yield lbs/acre	Stoneville Yield lbs/acre	Early Planted Avg Yield lbs/acre
Trt Treatment No. Name			
1 Georgia Green	4515c	4863ab	4689ab
2 Georgia O6G	4896a	5026ab	4961 a
3 FI 07	4768b	4013b	4390b
4 Georgia Greener	4840a	5190a	5015a
5 Georgia O7W	4531c	4909ab	4720ab
LSD (P=.05)	67.1	772.1	369.4
Standard Deviation	43.5	501.1	239.7
CV	0.92	10.44	5.04
Grand Mean	4710.0	4800.1	4755.05
Bartlett's X2	4.548	3.386	3.471
P(Bartlett's X2)	0.337	0.495	0.482
Friedman's X2	15.2	7.0	9.6
P(Friedman's X2)	0.004	0.136	0.048

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 2. Late Planted Peanut Variety Trials

Description Rating Type Rating Unit	Lucedale Yield lbs/acre	Hamilton Yield lbs/acre	Stoneville Yield lbs/acre	Late Planted Avg Yield lbs/acre
Trt Treatment No. Name				
1 Georgia Green	4294d	2858c	3849b	3667b
2 Georgia O6G	5006a	3409a	4506a	4395a
3 FI 07	4731b	2941bc	4140ab	3938b
4 Georgia Greener	4959a	3409a	4775a	4291 a
5 Georgia O7W	4519c	2985bc	3734b	3746b
6 AT 215	3950e	2151d		
7 Georgia O9B	4821b	3119b		
LSD (P=.05)	134.3	177.6	531.37	319.5
Standard Deviation	90.4	119.6	344.87	207.4
CV	1.96	4.01	8.21	5.17
Grand Mean	4611.43	2981.61	4200.99	4007.36
Bartlett's X2	2.584	8.105	1.249	0.982
P(Bartlett's X2)	0.859	0.23	0.87	0.912
Friedman's X2	22.58	22.821	11.6	13.6
P(Friedman's X2)	0.001	0.001	0.021	0.009

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 3. Average of All Planting Dates and Locations

Description Rating Type Rating Unit	All Locations Avg Yield lbs/acre
Trt Treatment No. Name	
1 Georgia Green	4076b
2 Georgia O6G	4622a
3 FI 07	4069b
4 Georgia Greener	4581a
5 Georgia O7W	4136b
LSD (P=.05)	276.2
Standard Deviation	179.2
CV	4.17
Grand Mean	4296.43
Bartlett's X2	11.12
P(Bartlett's X2)	0.025*
Friedman's X2	12.8
P(Friedman's X2)	0.012

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 4. Early Planted Peanut Variety Trials

Description Rating Type	Lucedale Grade	Stoneville Grade	Early Planted Avg Grade
Trt Treatment No. Name			
1 Georgia Green	75a	73a	74a
2 Georgia O6G	75a	73a	74a
3 FI 07	74a	72a	73a
4 Georgia Greener	75a	72a	74a
5 Georgia O7W	74a	74a	74a
LSD (P=.05)	1.6	1.7	1.1
Standard Deviation	1.1	1.1	0.7
CV	1.41	1.55	1.0
Grand Mean	74.55	72.7	73.63
Bartlett's X2	2.881	5.458	0.893
P(Bartlett's X2)	0.578	0.243	0.926
Friedman's X2	5.95	6.25	1.6
P(Friedman's X2)	0.203	0.181	0.809

Table 5. Late Planted Peanut Variety Trials

Description Rating Type	Lucedale Grade	Hamilton Grade	Stoneville Grade	Late Planted Avg Grade
Trt Treatment No. Name				
1 Georgia Green	74a	73a	73a	73a
2 Georgia O6G	74a	73a	74a	73a
3 FI 07	75a	73a	74a	74a
4 Georgia Greener	75a	72a	73a	73a
5 Georgia O7W	74a	73a	74a	74a
6 AT 215	74a	74a		
7 Georgia O9B	74a	73a		
LSD (P=.05)	1.8	1.7	1.3	0.9
Standard Deviation	1.2	1.1	0.8	0.6
CV	1.65	1.57	1.1	0.83
Grand Mean	74.11	72.93	73.65	73.52
Bartlett's X2	5.07	4.559	3.398	3.398
P(Bartlett's X2)	0.407	0.601	0.494	0.494
Friedman's X2	4.152	4.848	4.05	1.95
P(Friedman's X2)	0.656	0.563	0.399	0.745

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Table 6. Average of All Planting Dates and Locations

Description Rating Type	All Locations Avg Grade
Trt Treatment No. Name	
1 Georgia Green	74a
2 Georgia O6G	74a
3 FI 07	74a
4 Georgia Greener	74a
5 Georgia O7W	74a
LSD (P=.05)	0.7
Standard Deviation	0.4
CV	0.59
Grand Mean	73.53
Bartlett's X2	6.926
P(Bartlett's X2)	0.14
Friedman's X2	0.2
P(Friedman's X2)	0.995

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

Figure 1. Early Planted Peanut Variety Trial, Lucedale, MS

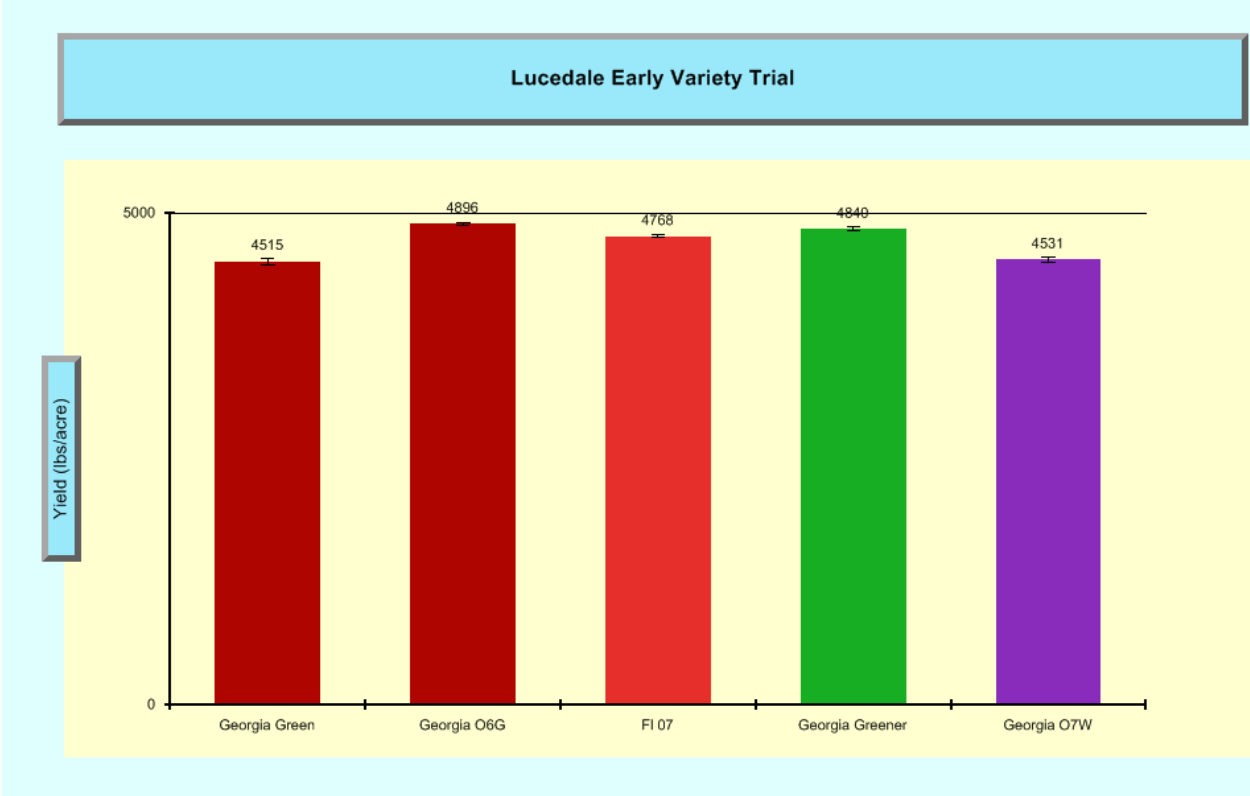


Figure 2. Early Planted Peanut Variety Trial, Stoneville, MS

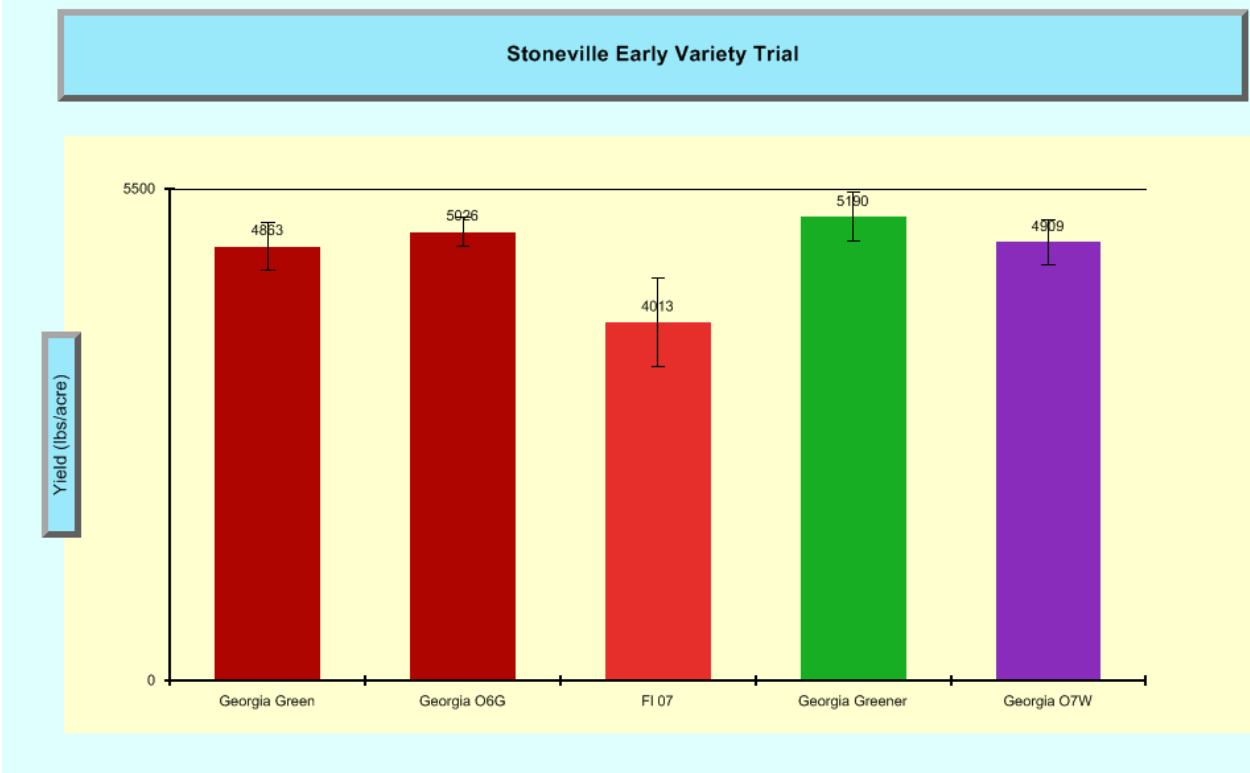


Figure 3. Early Planted Peanut Variety Trial, Average of 2 Locations

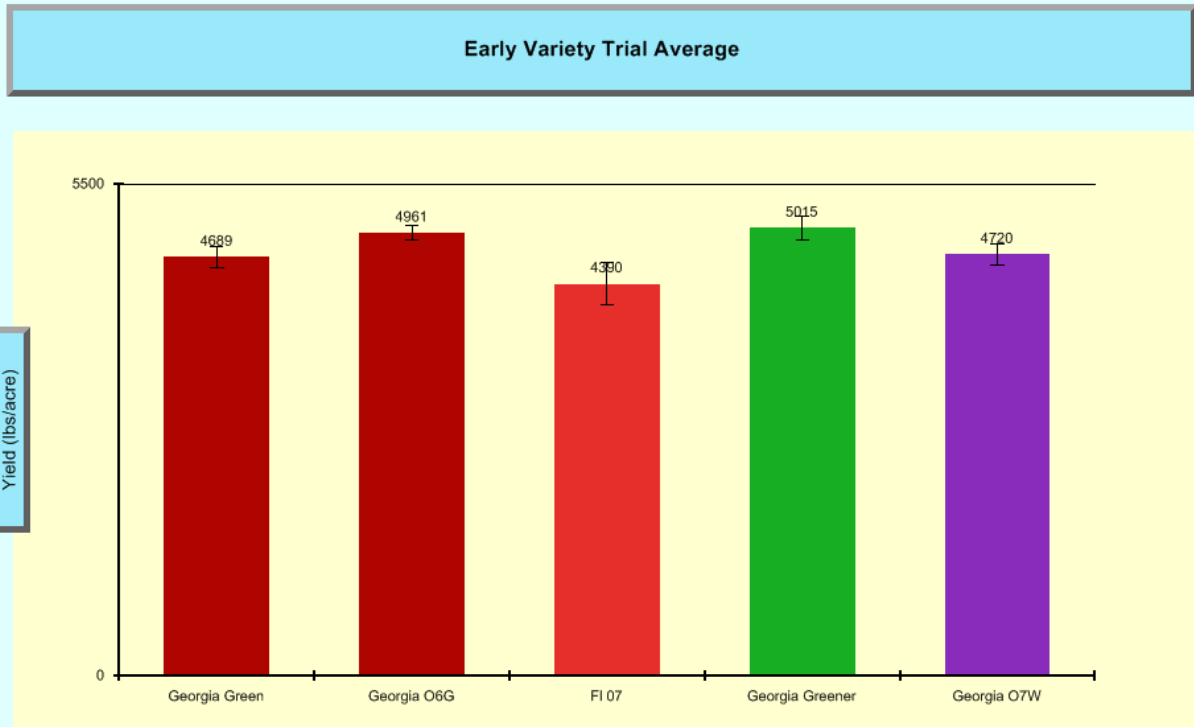


Figure 4. Late Planted Peanut Variety Trial, Lucedale, MS

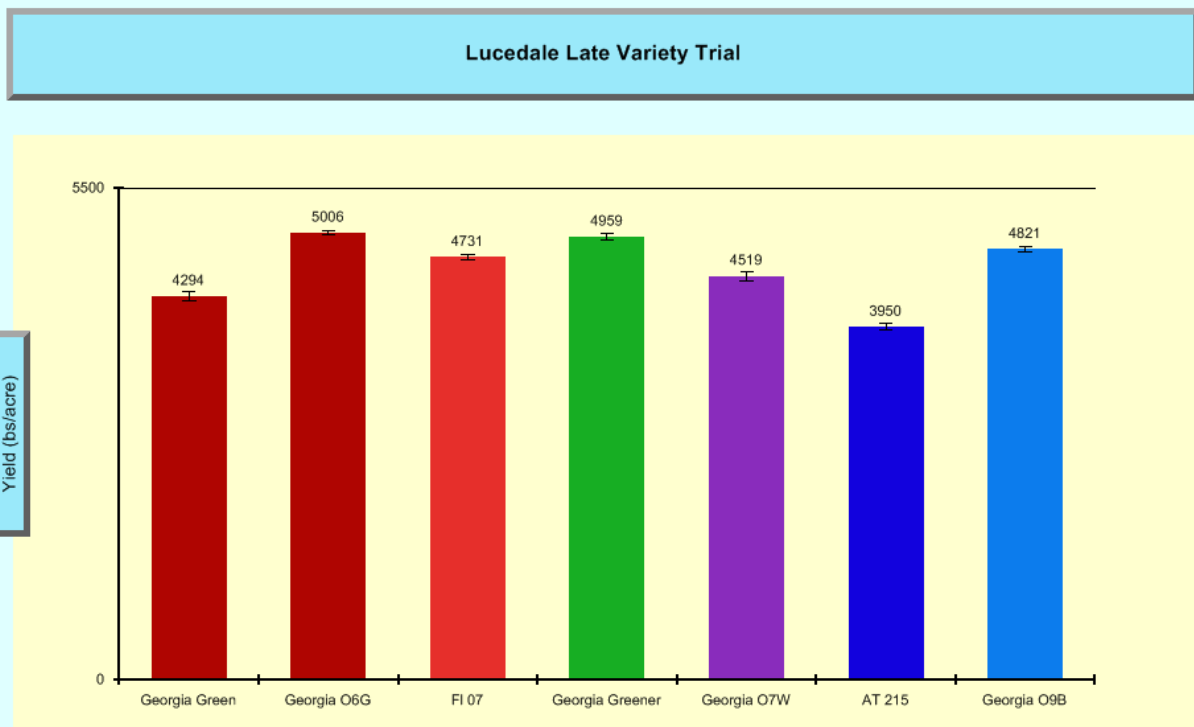


Figure 5. Late Planted Peanut Variety Trial, Hamilton, MS

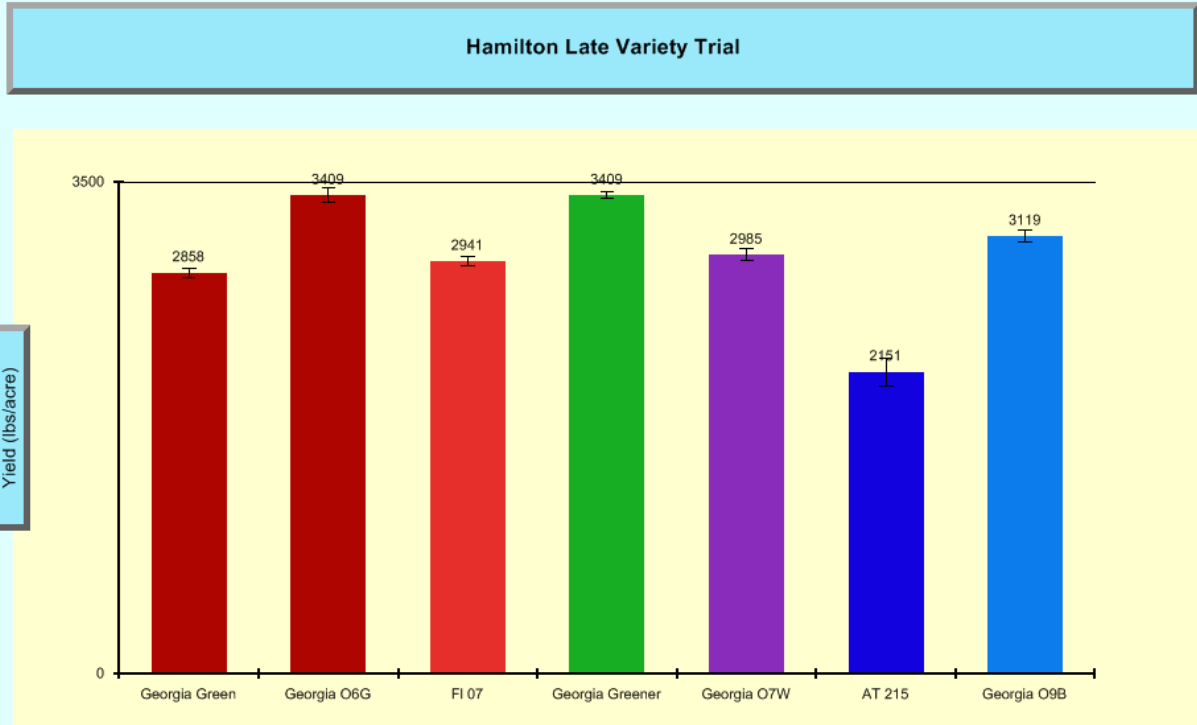


Figure 6. Late Planted Peanut Variety Trial, Stoneville, MS

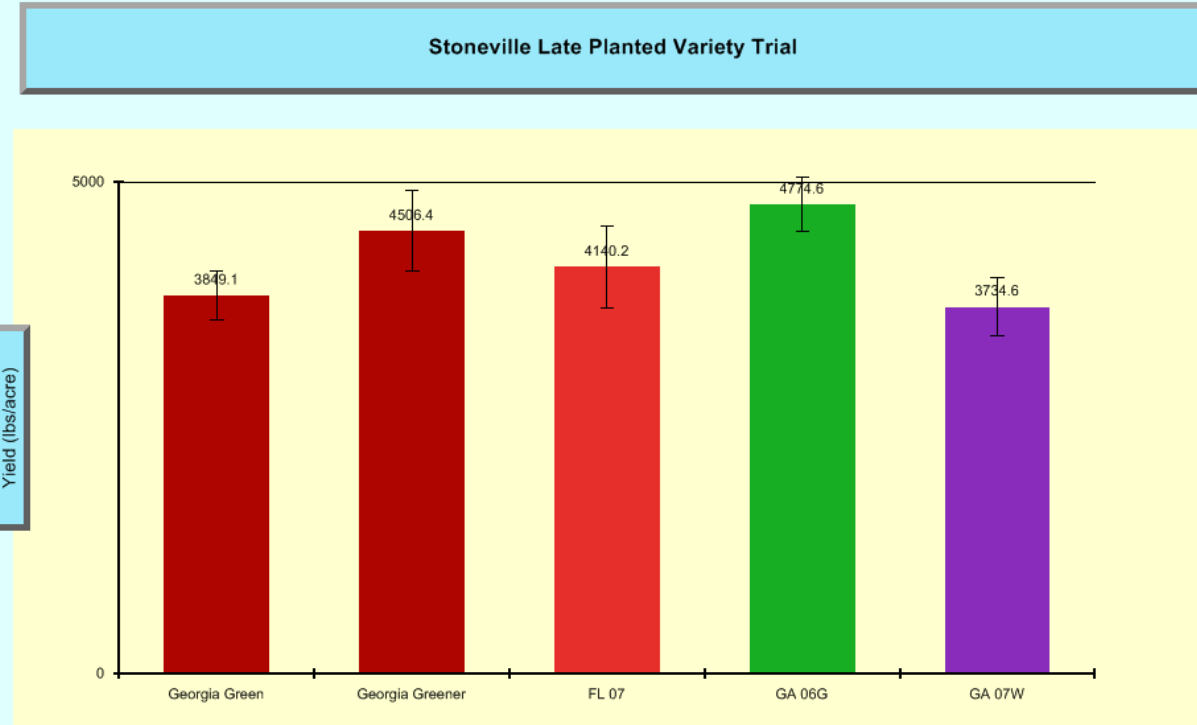


Figure 7. Late Planted Peanut Variety Trial, Average of 3 Locations

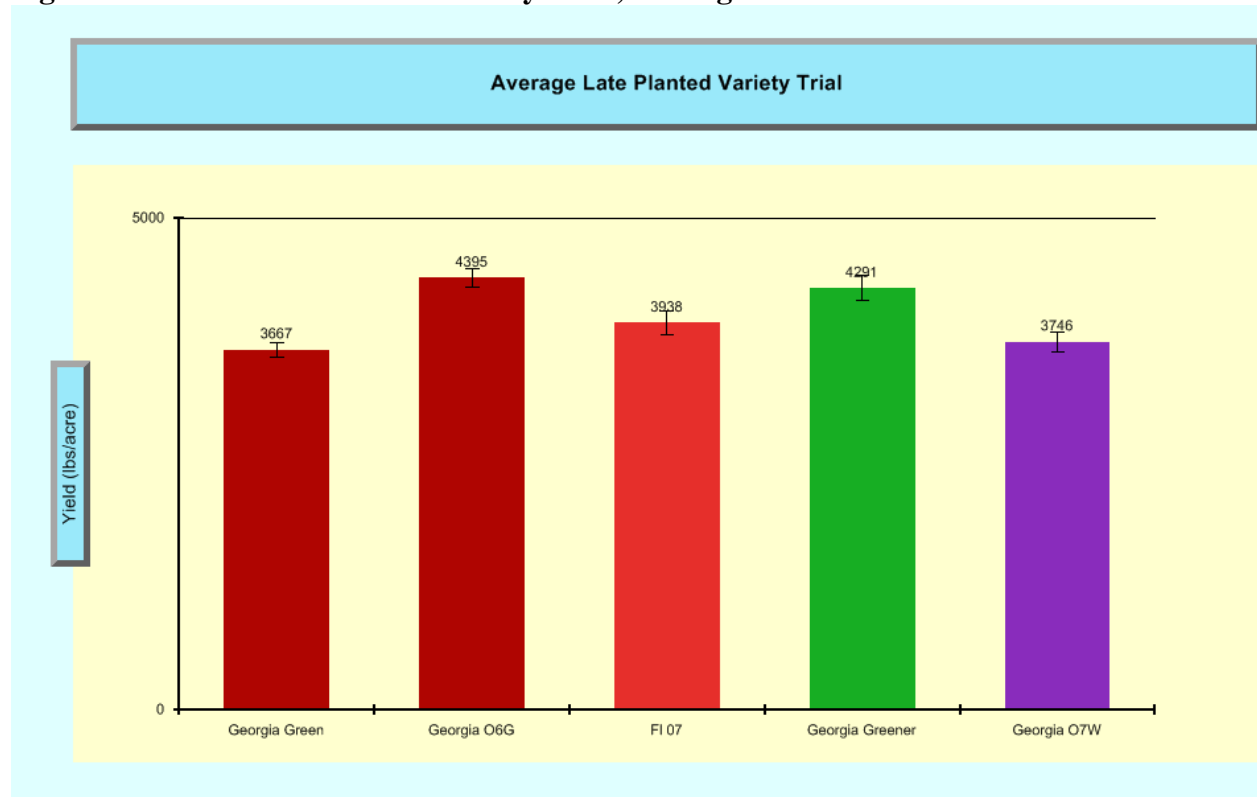


Figure 8. Average of All Locations and Planting Dates

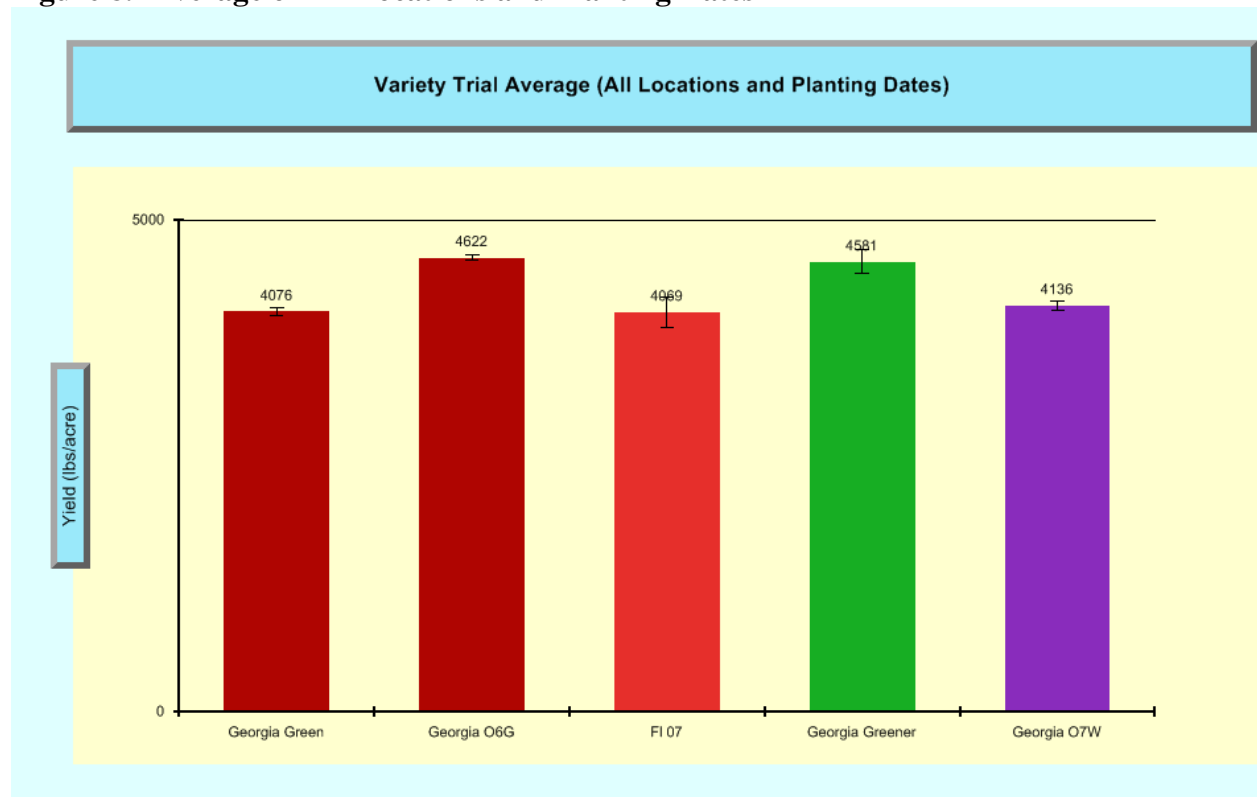


Figure 9. Early Planted Peanut Variety Trial, Lucedale, MS

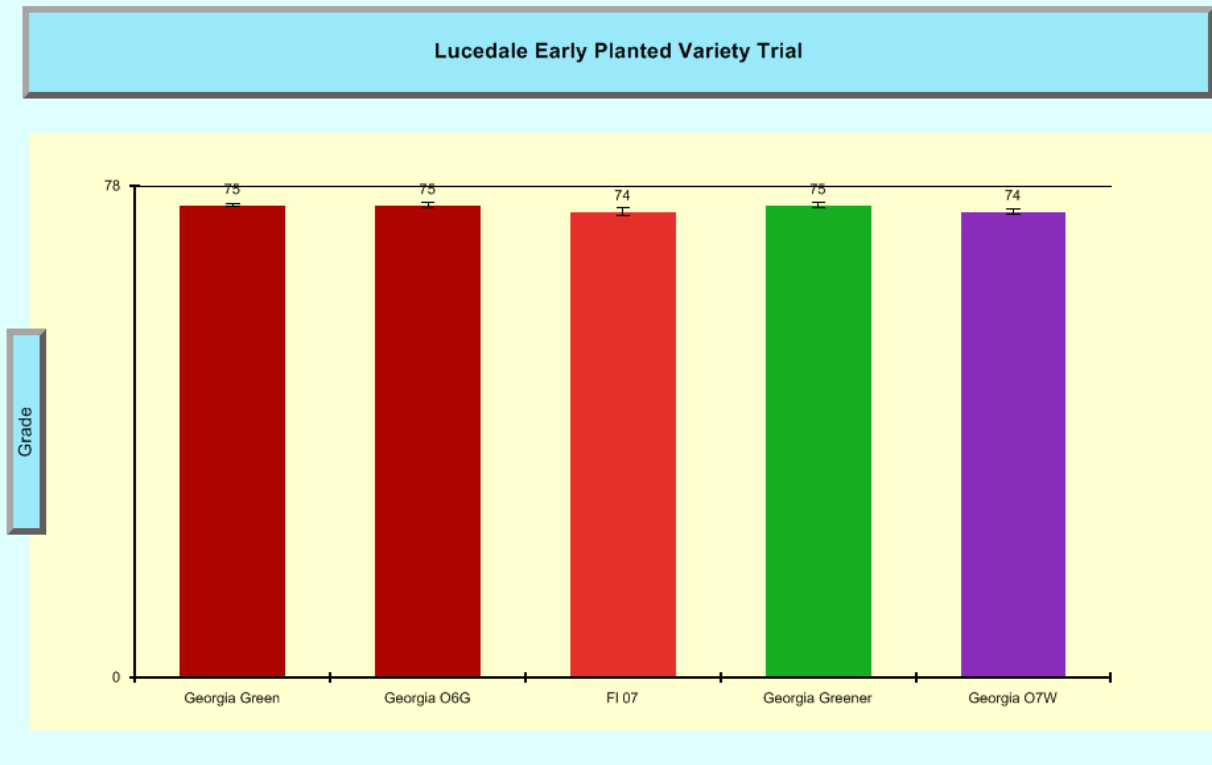


Figure 10. Early Planted Peanut Variety Trial, Stoneville, MS

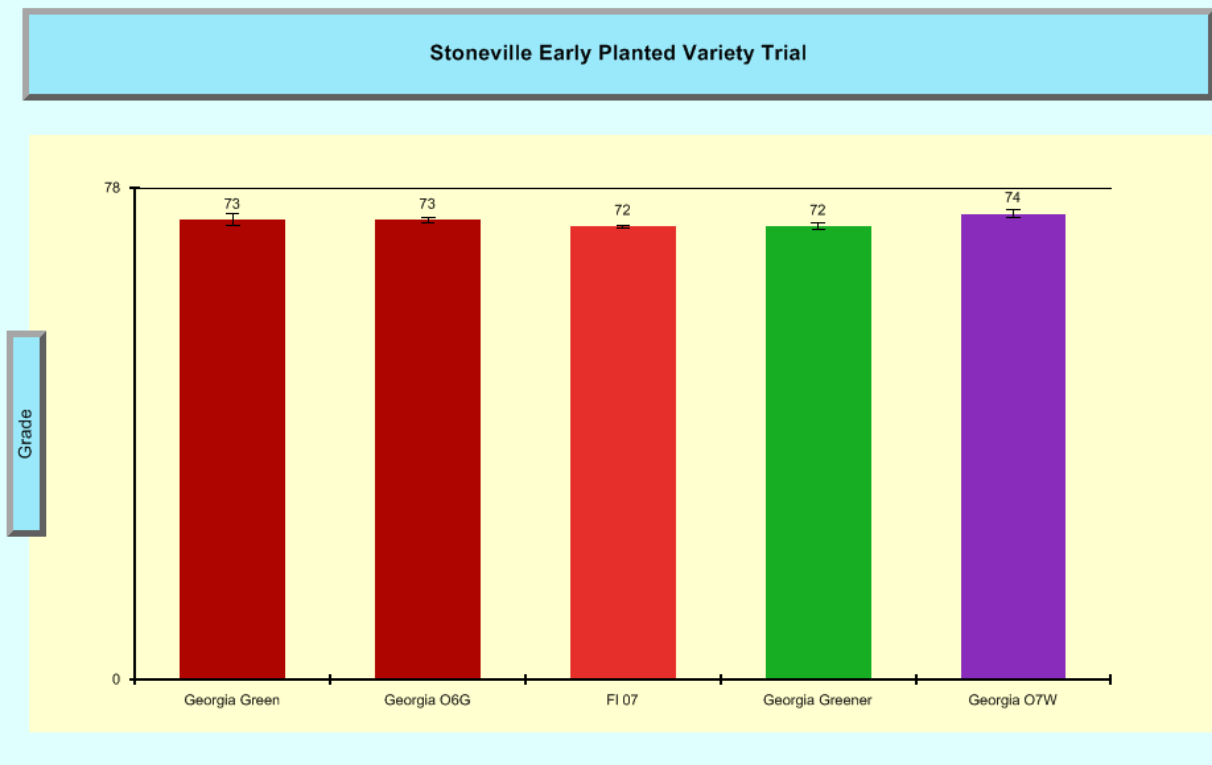


Figure 11. Early Planted Peanut Variety Trial, Average of Two Locations

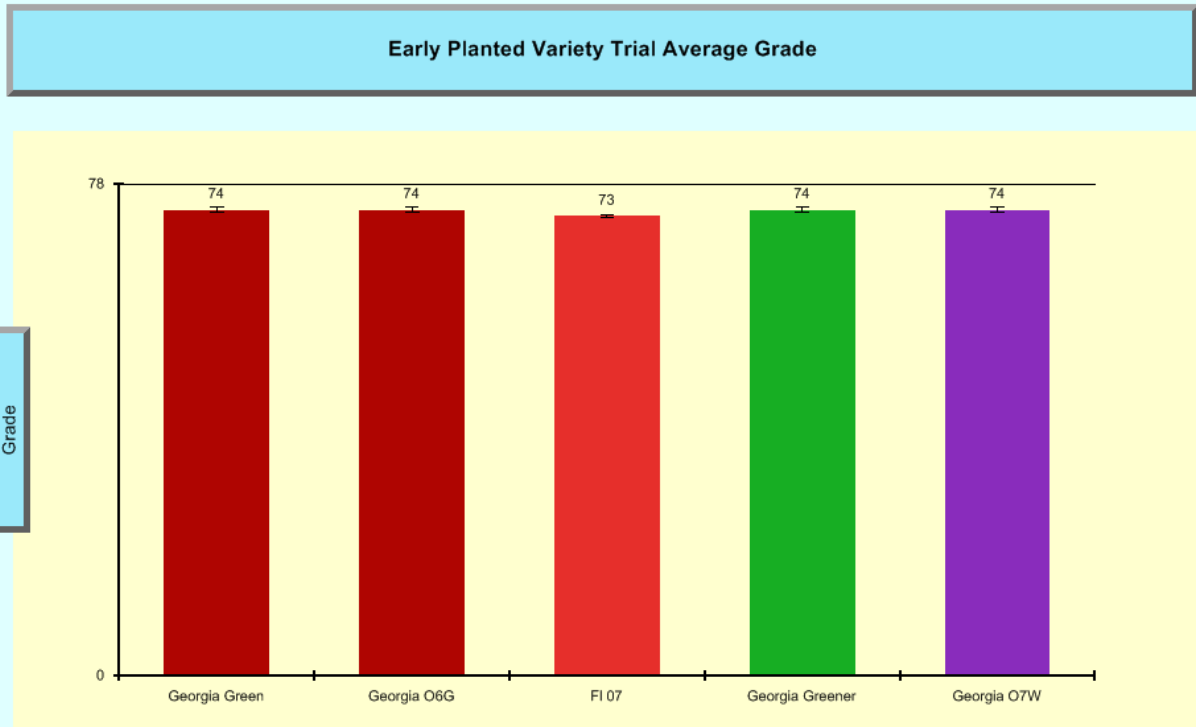


Figure 12. Late Planted Peanut Variety Trial, Lucedale, MS

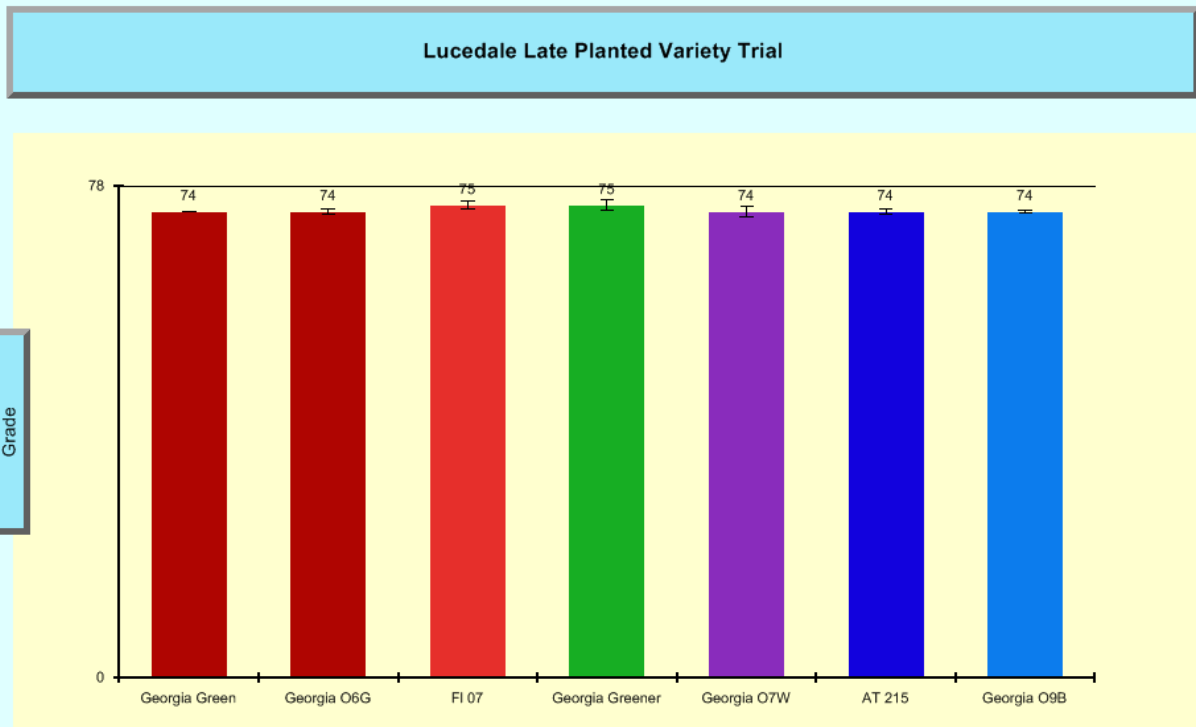


Figure 13. Late Planted Peanut Variety Trial, Hamilton, MS

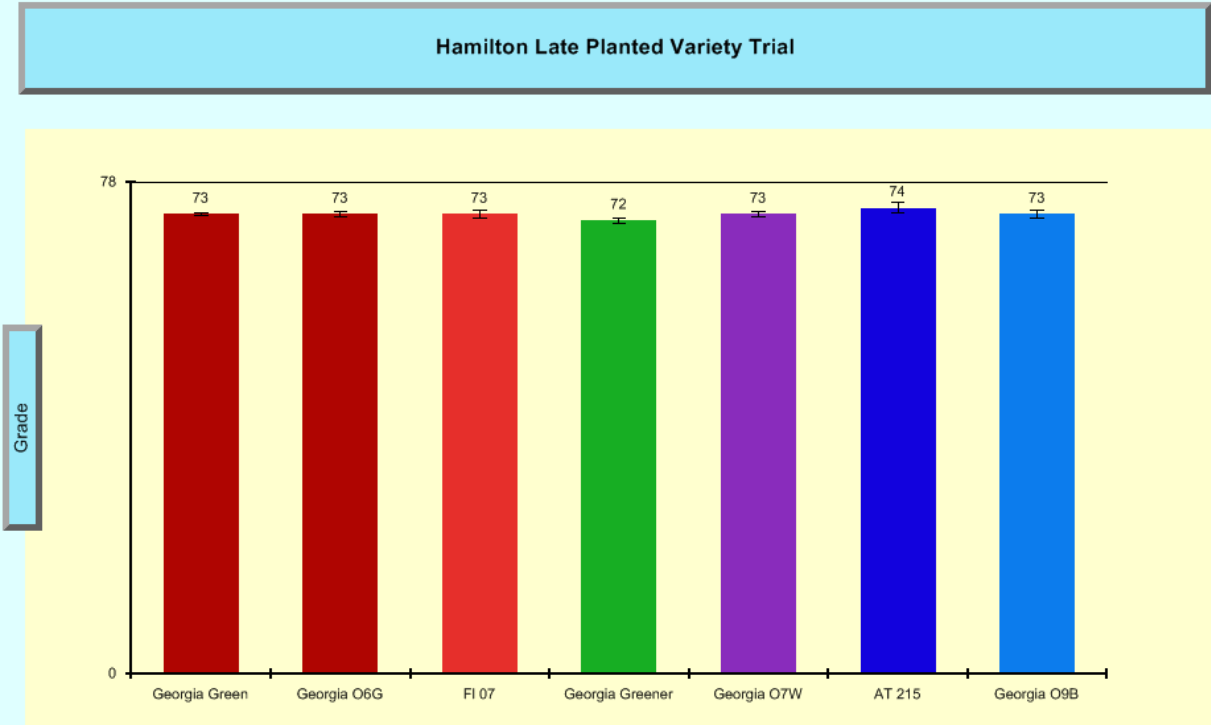


Figure 14. Late Planted Peanut Variety Trial, Stoneville, MS

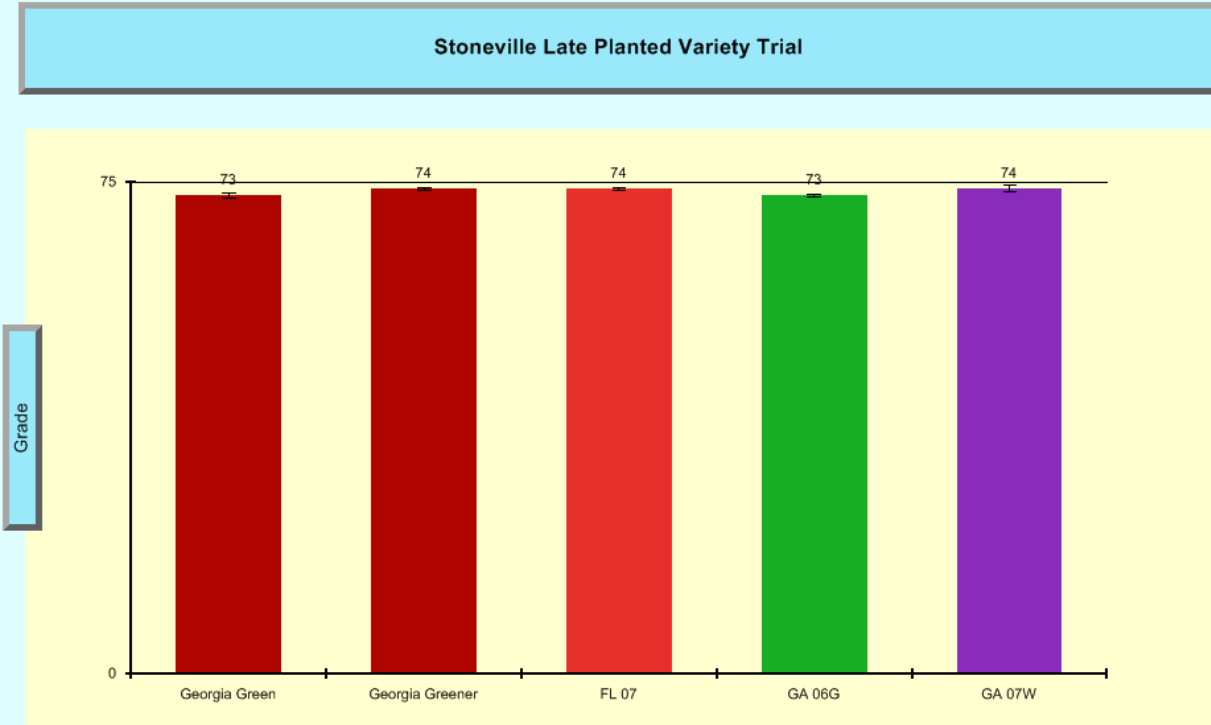


Figure 15. Late Planted Peanut Variety Trial, Average of Three Locations

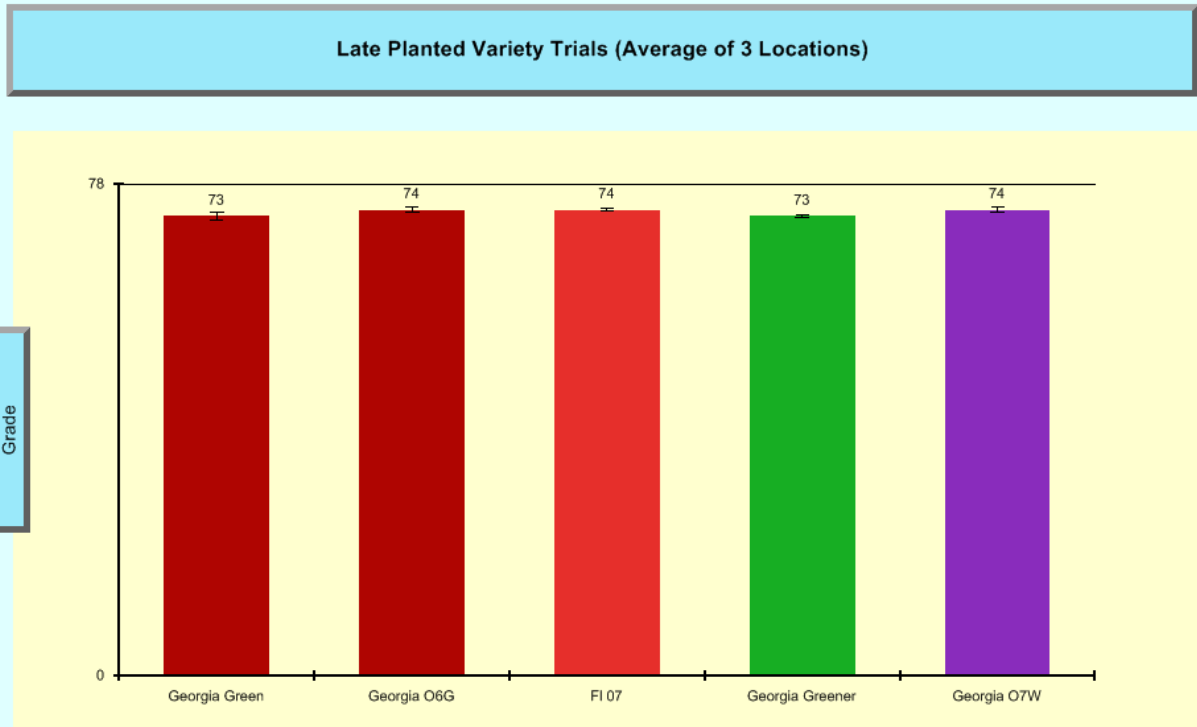


Figure 16. Average of All Locations and Planting Dates

