

446
1374
2015

NATIONAL PEANUT BOARD / SOUTHEAST PEANUT RESEARCH INITIATIVE

FINAL REPORT for WORK DONE UNDER RESEARCH AGREEMENT # GACCP
PNUT MATRITY DET Monfort

INSTITUTION: University of Georgia
PROJECT TITLE: Expanding the PeanutFARM tools to offer a Smartphone app to peanut growers
RES. AGR. NO.:
PROJECT LEADER: Dr. Walter Scott Monfort
EXPIRATION DATE: 30 June 2016
SPRI CONTACT: Joy Purvis
NPB CONTACT: Bob Parker

FINAL REPORT: The following trial was planted in Georgia in crop year 2015 evaluating improved methods for peanut maturity determination. The Peanut Farm APP is continuing to be evaluated and validated with the trials listed below before release to growers.

Planting Date X Harvest Date Trial

A trial was established to evaluate an adjusted Growing Degree Day (aGDD) model for peanut to improve the accuracy of maturity determination. The model was developed by Dr. Diane Rowland (currently peanut physiologist at the University of Florida) and Dr. Wilson Faircloth (currently with Syngenta) when they were research scientists with the USDA-ARS National Peanut Research Lab. The model is now being run as a part of the "Peanut FARM" web site.

This trial was established to evaluate the response of Georgia-06G, Georgia-12Y, Georgia-13M, and TUFRunner™ 297 cultivars to various harvest dates based on the adjusted Growing Degree Day model discussed above. There were two planting dates for each cultivar, April 27 and May 20. The four harvest dates were based on the following aGDD accumulations – 2,300, 2,400, 2,500, and 2,600; however, due to a problem with the Georgia Weather System estimated harvested dates were used. Based on earlier research the optimal harvest time, based on maximized yield and grade, is approximately 2,500 aGDD. The trial was blocked by planting date and the four harvest dates by four cultivars were established as a 2 X 2 factorial within each planting date. Individual plots were two rows (single row pattern) by 40 feet in length and there were 4 replications. Data to be collected include aGDD, Hull-Scrape Profile, yield, and grade factors.

Results

Planting Date 1

Planting Date x Maturity

Location: Ponder Farm, Tifton

Cultivars: Georgia-06G, Georgia-12Y, Georgia-13M, TUFRunner™ 297

Row Pattern: Single Row

Planting Date: April 27, 2015

Harvest Dates: September 18, 2015 (145 DAP)

September 24, 2015 (151 DAP)

October 6, 2015 (163 DAP)

October 14, 2015 (171 DAP)

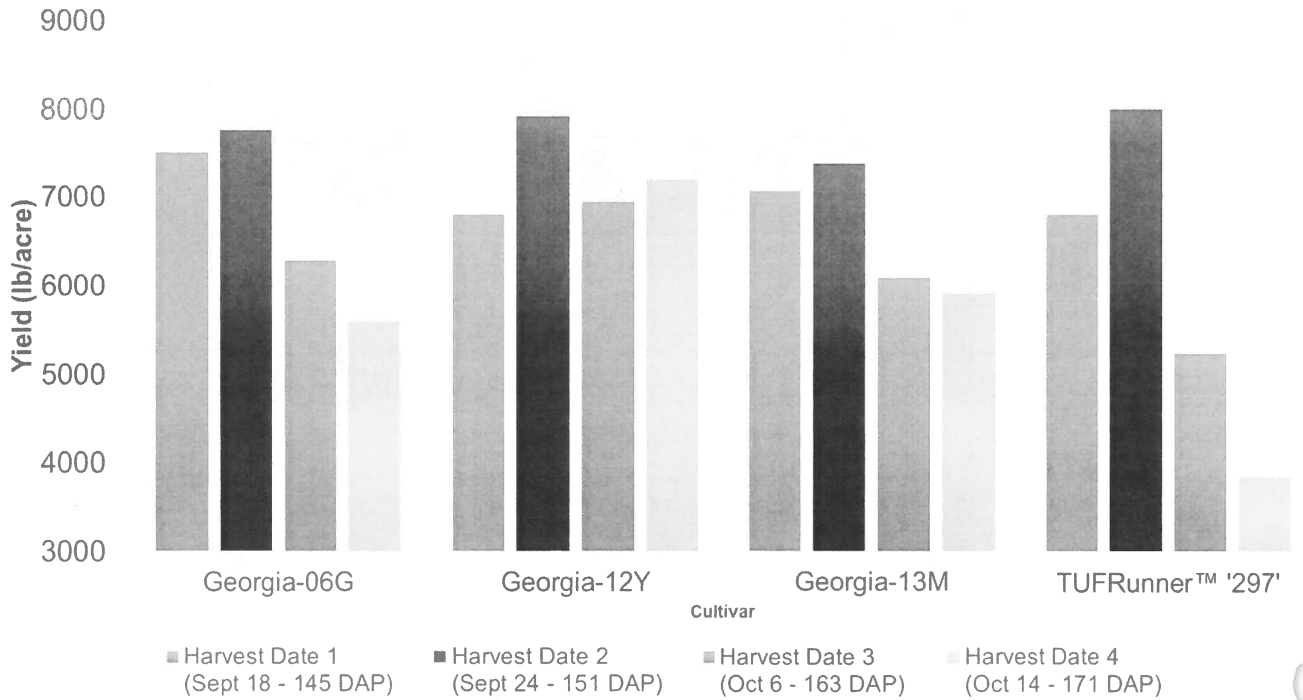
Plot Plan

413	414	415	416									
10	12	11	9									
401	402	403	404	405	406	407	408	409	410	411	412	
13	14	15	16	3	4	2	1	5	8	7	6	
305	306	307	308	309	310	311	312	313	314	315	316	
14	16	15	13	1	4	2	3	9	12	10	11	
209	210	211	212	213	214	215	216	301	302	303	304	
4	3	1	2	14	15	16	13	6	5	8	7	
113	114	115	116	201	202	203	204	205	206	207	208	
8	7	5	6	11	9	10	12	7	6	8	5	
101	102	103	104	105	106	107	108	109	110	111	112	
4	1	2	3	8	10	11	12	15	16	13	14	

Planting Date 1 (4/27/15)

Tmt	Harvest Date	Cultivar	Tmt	Harvest Date	Cultivar
1	Harvest Date 1	Georgia-06G	9	Harvest Date 1	Georgia-13M
2	Harvest Date 2	Georgia-06G	10	Harvest Date 2	Georgia-13M
3	Harvest Date 3	Georgia-06G	11	Harvest Date 3	Georgia-13M
4	Harvest Date 4	Georgia-06G	12	Harvest Date 4	Georgia-13M
5	Harvest Date 1	Georgia-12Y	13	Harvest Date 1	TUFRunner 297
6	Harvest Date 2	Georgia-12Y	14	Harvest Date 2	TUFRunner 297
7	Harvest Date 3	Georgia-12Y	15	Harvest Date 3	TUFRunner 297
8	Harvest Date 4	Georgia-12Y	16	Harvest Date 4	TUFRunner 297

Figure 1. Yield Results for Degree Day Heat Unit Accumulation for Planting Date 1 (April 27, 2015).



**Planting Date 2 ---- May Planting
Planting Date x Maturity**

Location: Ponder Farm, Tifton

Cultivars: Georgia-06G, Georgia-12Y, Georgia-13M, TUFRunner™ 297

Row Pattern: Single Row

Planting Date: May 20, 2015

Harvest Dates:
 October 6, 2015 (139 DAP)
 October 14, 2015 (147 DAP)
 October 21, 2015 (154 DAP)
 October 28, 2015 (161 DAP)

Plot Plan

429 18	430 17	431 20	432 19								

417 23	418 24	419 21	420 22	421 27	422 25	423 26	424 28	425 29	426 31	427 30	428 32

321 18	322 17	323 19	324 20	325 21	326 24	327 23	328 22	329 31	330 32	331 30	332 29

225 26	226 25	227 27	228 28	229 32	230 29	231 31	232 30	317 25	318 26	319 27	320 28

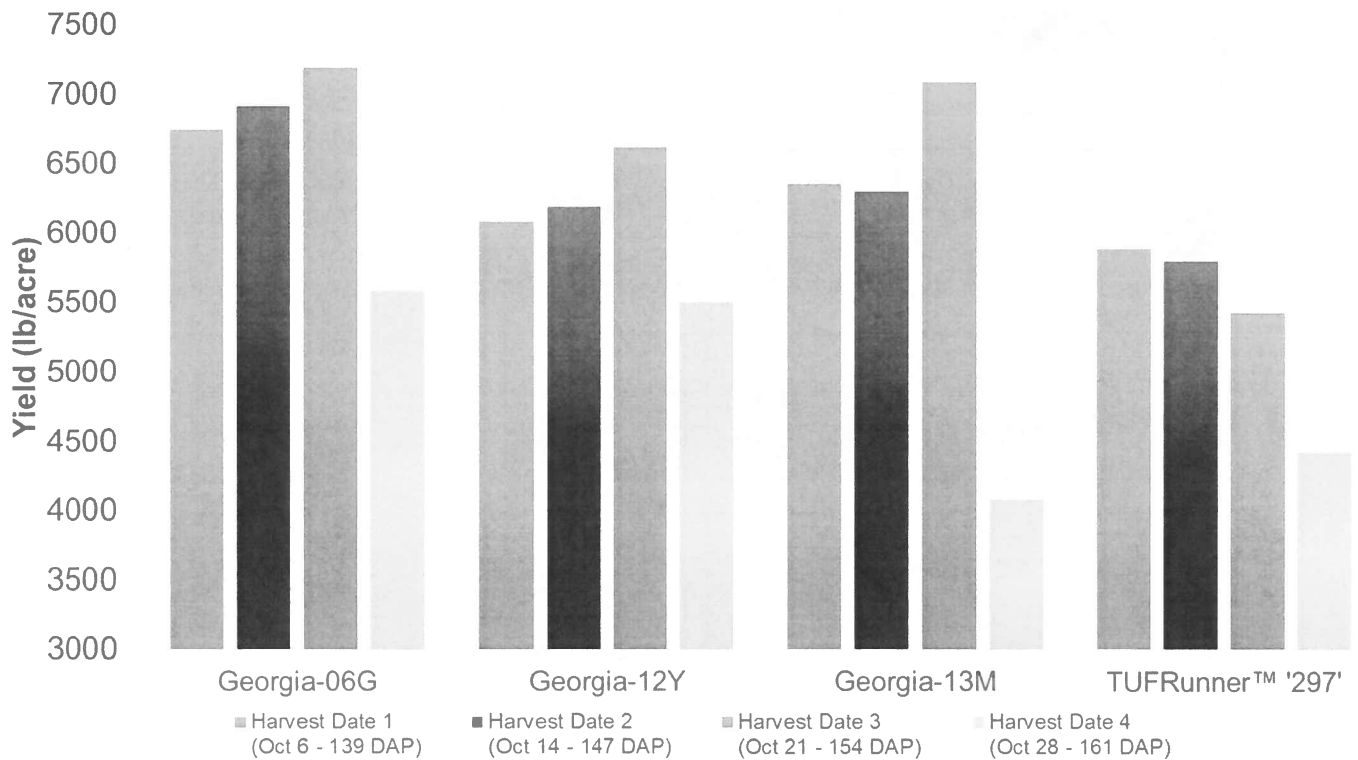
129 27	130 28	131 25	132 26	217 18	218 20	219 19	220 17	221 23	222 24	223 21	224 22

117 24	118 22	119 23	120 21	121 31	122 29	123 30	124 32	125 20	126 19	127 18	128 17

Planting Date 2 (5/20/15)

Tmt	Harvest Date	Cultivar	Tmt	Harvest Date	Cultivar
17	Harvest Date 1	Georgia-06G	25	Harvest Date 1	Georgia-13M
18	Harvest Date 2	Georgia-06G	26	Harvest Date 2	Georgia-13M
19	Harvest Date 3	Georgia-06G	27	Harvest Date 3	Georgia-13M
20	Harvest Date 4	Georgia-06G	28	Harvest Date 4	Georgia-13M
21	Harvest Date 1	Georgia-12Y	29	Harvest Date 1	TUFRunner 297
22	Harvest Date 2	Georgia-12Y	30	Harvest Date 2	TUFRunner 297
23	Harvest Date 3	Georgia-12Y	31	Harvest Date 3	TUFRunner 297
24	Harvest Date 4	Georgia-12Y	32	Harvest Date 4	TUFRunner 297

Figure 2. Yield Results for Degree Day Heat Unit Accumulation for Planting Date 2 (May 20, 2015).



The data indicate that for the predominant cultivar, Georgia-06G, the estimated harvest target of 151 -154 was right on target for maximizing yield. The April planting date seemed to trigger a continual increase in yield up to 151 Days after planting. When planting as late as May 20, the yield for all cultivars continued to increase until 154 days after planting. With the Weather monitoring system back on line, the Accumulated Degree Day Units will need to be revisited and compared to previous years. The Data from these trials do indicate the cultivars all react similarly to accumulated heat units.