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**NATIONAL PEANUT BOARD / SOUTHEAST PEANUT RESEARCH
INITIATIVE**

FINAL REPORT for WORK DONE UNDER RESEARCH AGREEMENT #25-21-
RF328-696/GACCP RF Eval Newly Beasl

ENDING: 30 June 2005

INSTITUTION: University of Georgia

PROJECT TITLE: Evaluation of Newly Released Cultivars for Adaptability to
Southeast Growers

RES. AGR. NO.: 25-21-RF328-696

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REPORT OF PROGRESS: The following trials were planted in the southeast in crop
year 2004 evaluating cultivar response to various management factors.

- 1) **Effect of Planting Date on Five Late-Maturing Cultivars** – C-99R, Georgia-01R, DP-1, Hull, and Tifrunner were planted on April 20, May 10 and May 25 at the University of Georgia's Ponder Farm near Ty Ty. Spotted wilt disease rating, white mold ratings, yield and grade factor data were collected. The major finding in this trial was that Tifrunner and Hull had a significantly higher level of white mold than the other cultivars, which resulted in significantly lower yield. The percent white mold levels were: DP-1 – 8%, Georgia-01R – 11%, C-99R – 16%, Hull – 37%, and Tifrunner – 41%. Spotted wilt disease levels decreased significantly for the May 10 and May 25 planting dates compared to the April 20th planting date. There was a significant cultivar by planting date interaction for yield. The following table provides the yield data for cultivars at each planting date.

Cultivar	Planting Dates – 2004		
	April 20	May 10	May 25
C-99R	3607	3523	4295
DP-1	3526	5073	4640
Georgia-01R	4190	4416	4874
Hull	3154	3952	3896
Tifrunner	3273	2715	4010

- 2) **Reduced Fungicide Program on Four Late Maturing Cultivars** – C-99R, Georgia-01R, DP-1, and Tifrunner were planted on May 10 at the University of Georgia’s Ponder Farm near Ty Ty. Each of these four cultivars were sprayed with an eight spray fungicide regime and a four spray fungicide regime. The eight spray regime is: Headline, Headline, Folicur, Folicur, Folicur, Folicur, Bravo, and Bravo. The four spray regime is Headline, Folicur, Folicur, and Bravo. Data collected included leaf spot ratings, stem rot ratings, spotted wilt ratings, yield, and grade factors. Tifrunner had a significantly higher level of stem rot (white mold) than the other three cultivars. As a result, its yield was also significantly lower. There was no difference in the level of spotted wilt disease among the four cultivars. The following table provides the data for yield (lbs/A) of each cultivar treated with four versus eight fungicide applications. There was no difference in yield between fungicide applications within each of the cultivars. This indicates that the more disease resistant cultivars can be treated fewer times with fungicide and still maintain similar yields compared to a full fungicide spray program.

Cultivar	4 fungicide applic.	8 fungicide applic.
C-99R	4389	4284
DP-1	4941	5000
Georgia-01R	4847	5362
Tifrunner	3642	3442

- 3) **Georgia-03L Evaluation** – The newly released Georgia-03L from the UGA peanut breeding program was planted in growers’ fields in nine counties in Georgia. At all locations it was compared head-to-head with Georgia Green and at five of the nine locations Georgia-02C was also included in the comparison. When averaged over all locations, there was no difference in yield between Georgia-03L and Georgia Green. Georgia-03L had significantly less (about 3 times less) spotted wilt disease than Georgia Green. Georgia-03L also averaged 3 points less in percent total sound mature kernels (TSMK) than Georgia Green.
- 4) **Cultivar Maturity Profile** – A trial was initiated at the RDC Pivot on the UGA Coastal Plain Experiment Station to compare the optimal maturity of all currently released runner cultivars in the southeast. In addition, several advanced breeding lines were also included. All cultivars had a maturity profile conducted at 110, 120, 130 and 140 days after planting to determine the relative maturity compared to Georgia Green. The major finding from this trial was that Georgia-02C was two to three weeks later in maturity than Georgia Green.
- 5) **Cultivar Response to Irrigation Strategies** – Twelve cultivars were planted at the University of Georgia’s Stripling Irrigation Research Park and are being irrigated using three different strategies. The three irrigation strategies are: Irrigator Pro, UGA EASY Pan, and an experimental irrigation strategy based on physiological growth stage and water requirement. The objective was to determine if cultivars respond differently to the irrigation regimes. Ten of the twelve cultivars had a higher yield under the experimental strategy compared to Irrigator Pro and UGA EASY Pan.

- 6) **Cultivar Trial** – At the UGA Attapulgus Research and Education Center five mid maturing and five late maturing cultivars were compared for yield and grade response. The five mid maturing cultivars are: Georgia Green, Georgia-02C, Carver, ANorden, and Georgia-03L. The five late maturing cultivars are: C-99R, DP-1, Georgia-01R, Tifrunner, and Hull. There was a significant difference in yield and percent TSMK among the cultivars. The table below provides the data from that trial. There was a significant difference in yield among cultivars for yield and percent total sound mature kernels. C-99R and DP-1 had the highest yields while Georgia Green and Georgia-02C had the highest percent of total sound mature kernels. At the UGA RDC Pivot, seven cultivars were planted in twin rows. The cultivars were: Georgia Green, Carver, ANorden, Georgia-02C, AP-3, Georgia-03L and an experimental line from Golden Peanut (3081B). There was a significant difference among cultivars for both yield and percent TSMK at the RDC Pivot in Tifton. AP-3 and AT 3081B had the highest yields while Georgia-02C had the highest percent of total sound mature kernels.

Cultivar Trial – Attapulgus Research & Education Center, 2004		
Cultivar	Lbs/A	TSMK %
ANorden	4261	74.3
Carver	4957	72.3
Georgia-03L	3962	74.5
Georgia Green	4675	76.3
C-99R	6187	71.3
DP-1	6170	66.3
Georgia-01R	5590	69.5
Georgia-02C	5158	77.8
Hull	5663	71.3
Tifrunner	5740	70.5

Cultivar Trial – RDC Pivot, 2004		
Cultivars	Lbs/A	TSMK %
Georgia Green	4278	72.8
Georgia-02C	4245	74.3
Georgia-03L	4538	69.3
AT 3081B	4872	71.8
Carver	4724	72.5
ANorden	4210	70.7
AP-3	4960	69.3

- 7) **Georgia-01R and Tifrunner on Twin and Single Rows** – At UGA’s Southwest Research and Education Center near Plains Georgia-01R and Tifrunner were planted on twin and single rows. According to data analysis, there was a significant cultivar by row pattern interaction. The following table provides the yield data from that trial. Tifrunner had a higher yield on the single row pattern than on twin rows. Georgia-01R had a higher yield on twin rows. Georgia-01R had a 777 lbs/A yield advantage over Tifrunner when averaged over row patterns.

- 8) **Cultivar Response to Planting Date and Vapam for control of CBR** – Georgia Green, Carver, Georgia-02C, C-99R, Georgia-01R, and DP-1 were planted on April 22 and May 13, with and without the soil fumigant Vapam on a site known for having *Cylindrocladium black rot* (CBR). The objective of the trial was to evaluate the cultivars' level of resistance to CBR with and without Vapam at two planting dates. Data analysis indicated the following significant interactions: Cultivar X Vapam treatment and Planting Date X Cultivar. The following table provides yield data (lbs/A) for the planting date X cultivar interaction when averaged over Vapam treatments.

Cultivar	April 22	May 13
Georgia Green	3225	3633
Carver	3339	4132
Georgia-02C	3729	3739
C-99R	3472	4499
Georgia-01R	4266	4574
DP-1	3526	4375

The next table provides the yield data (lbs/A) from the Cultivar X Vapam treatment interaction when averaged over planting dates.

Cultivar	Vapam	No Vapam
Georgia Green	3534	3324
Carver	4066	3405
Georgia-02C	3781	3687
C-99R	4108	3863
Georgia-01R	4439	4401
DP-1	3817	4085

- 9) **Experimental Runner Cultivars and Row Pattern Interaction** – A new advanced line from Golden Peanut (formerly an AgraTech advanced line) and a proposed release from USDA in Tifton were planted in twin and single row patterns. The lines are AgraTech Exp 3081B and C34-24, which was formally released as Tifrunner in November 2004. AgraTech 3081B is now released as AT 3081R. There was a significant difference in yield between the cultivars when averaged over row pattern. AT 3081R had a yield of 5229 lbs/A compared to 4256 for Tifrunner.