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PEANUT CROP PHYSIOLOGY RELATED PROJECTS AT TIDEWATER AGRICULTURAL RESEARCH & EXTENSION CENTER

2009

Virginia
Cooperative
Extension



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**PEANUT CROP PHYSIOLOGY RELATED PROJECTS AT
TIDEWATER AGRICULTURAL RESEARCH & EXTENSION
CENTER
2009**

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Coastal Chemical Corporation

Syngenta Crop Protection

Monsanto

Valent USA Corporation

ABBREVIATIONS

% Loose Shelled Kernels (%LSK), percent of kernels or portions of kernels free from hulls and scattered throughout the pod sample.

% Foreign Material (%FM), percent of anything other than mature pods found in the sample, including dirt, vines, sticks, stones, insects, broken shells, and raisins (immature pods with shriveled and shrunken shells that cannot be mechanically shelled).

% Moisture, percent kernel moisture at grading, as determined by an electronic moisture meter.

% Fancy, percent pods that ride the 34/64 inch spacing set on the pre-sizer.

% Extra Large Kernels (%ELK), percent kernels which ride a 21.5/64 x 1 inch slotted screen.

% Sound Splits (%SS), percent split or broken kernels which are not damaged. Portions less than 1/4 of a whole kernel are not included but go into other kernels.

% Damaged Kernels (%DK), percent moldy and decayed kernels, or with skin and flesh discoloration due to insects and weather damage.

% Other Kernels (%OK), percent kernels passing through a 15/64 x 1 inch slotted screen. Splits and broken pieces, 1/4 kernel or larger which pass through this screen are considered SS or DK depending upon their condition.

% Sound Mature Kernels (%SMK), percent whole kernels which ride a 15/64 x 1 inch slotted screen. Splits that ride this screen are included as SS or DK, as the case may be.

% Total Kernels, percent all kernels in the shelling sample including SMK, SS, OK, and DK.

Support Price (\$/cwt), price based on a standard loan price (\$358.26 per ton for Virginia-type and \$354.40 per ton for runner-type peanut) taking the various grade factors into consideration.

Yield (lb/A), plot weights converted to an acre basis. All yields are adjusted to a standard 7% moisture with %FM deducted.

Value (\$/A), crop value computed by the following formula:

$$\text{Value} = [\text{Yield} - (\% \text{ LSK})(\text{Yield})] [\text{Support Price}/\text{lb}] + \text{Yield} (\% \text{ LSK})(\$0.07/\text{lb LSK})$$

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Comparisons of Runner- and Virginia-type Peanuts

1. RUNNER vs. VIRGINIA TEST

2. **PURPOSE:** To test the suitability of growing runner type peanut in V – C region under high input growing conditions.

3. EXPERIMENTAL DESIGN

- a) Two locations: Hare Farm (Field # 6) and Wayne Farm (Field # 27)
- b) Four randomized complete blocks with cultivars as the main treatment @ each location
- c) Plots were 2 × 30-ft long and 36" wide

4. PLANT MATERIAL

Eleven genotypes are commercial cultivars. Titan is a niche market peanut type released in 2010. 97x22-HO2-2-B2-1-1-1-B is a Florida breeding line. N70-8-24-5-34-9 is a genetically transformed line with Sclerotinia blight resistance gene derived from NC-7. Similarly, W73-25-17-34-8-2-4B and P39-7-9-43-10-10 are transformed lines from Wilson and Perry, respectively.

Table 1. Name, market type, and growth habit of the genotypes evaluated in the Runner vs. Virginia Test in 2009.

Number	Variety	Market Type	Growth Habit ¹
1	Florida 07	Runner	R
2	GA Green	Runner	R
3	GA 03L	Runner	R
4	AP-4	Runner	R
5	CHAMPS	Virginia	IR
6	Bailey	Virginia	IR
7	NC-7	Virginia	IR
8	Wilson	Virginia	IR
9	Perry	Virginia	IR
10	Titan (VT 9506083-3)	Virginia	IR
11	Sugg	Virginia	IR
12	97x22-HO2-2-B2-1-1-2-B	Virginia	IR
13	N70-8-24-5-34-9	Virginia	IR
14	W73-25-17-34-8-2-4-B	Virginia	IR
15	P39-7-9-43-10-10	Virginia	IR

¹ Plant growth habit classifications: IR = Intermediate Runner; R = Runner

Comparisons of Runner- and Virginia-type Peanuts

5. CULTURAL PRACTICES

Table 2. Soil and crop information for the Runner vs. Virginia Tests, at TAREC (Suffolk), VA, in 2009.

Field # 6							
Planting Date	April 28, 2009			Seeding Rate: 3 seeds per foot row			
Harvest Date	October 8, 2009			Harvested plot size: 0.0041 acre			
Soil Type	Uchee, Nansemond & Eunola						
Soil Tests Results	pH 6.2	P 23	K 83	Ca 371	Mg 24	Zn 0.6	Mn 2.3
Rotation	Corn, cotton, peanut						
Rain and irrigation	26 inches						

Field #27							
Planting Date	April 29, 2009			Seeding rate: 3 seeds per foot row			
Harvest Date	October 6, 2009			Harvested plot size: 0.0041 acre			
Soil Type	Emporia & Uchee						
Soil Test Results	pH 6.3	P 44	K 65	Ca 272	Mg 45	Zn 1.0	Mn 2.6
Rotation	Cotton monoculture						
Rain and irrigation	23 inches						

Field # 6 and # 27

Cultivation	6/23
Soil Fumigant	4/12 – Vapam @ 7.5 gals/A
Landplaster	6/19 – Peanut Maker @ 1200 lbs/A

HERBICIDES			INSECTICIDES		
Date	Product	Rate/Ac	Date	Product	Rate/Ac
4/12	Dual Magnum	1.5 pt	4/28	Temik	7lbs
5/2	Intro	2 qt	5/22	Orthene 97	6 oz
5/2	Gramoxone	14 oz	6/23	Lorsban	13 lbs
5/10	Intro	2 qt	6/30	Asana	6 oz
5/10	Gramoxone	12 oz	8/10	Danitol	10 oz
6/1	Storm	1.5 pts	8/21	Danitol	9 oz
6/23	Intro	1 qt	8/3	Omega	1 pt
			8/21	Headline	10 oz
			9/1	Omega	1 pt

FERTILISERS			FUNGICIDES		
Date	Product	Rate/Ac	Date	Product	Rate/Ac
4/12	Boron	1 qt	6/15	Bravo	8 oz
7/27	Boron	1 qt	7/22	Folicur	7.2 oz

6/18	Manganese	1.5 qt	8/3	Provost	10 oz
7/27	Manganese	1.5 qt	9/13	Bravo	1.5 pt

Peanut Crop Physiology Related Projects @ Tidewater AREC – 2009

Comparisons of Runner- and Virginia-type Peanuts

6. RESULTS

Table 3. Effect of variety on emergence and growth of peanut in Field # 6. Stand count was taken on 20 May. Plant height and width were measured on 17 July.

Variety	Stand Counts ¹	Plant Height ²	Plant Width ³
		<i>inches</i>	
NC-7	158.8 a	19.6 ab	74.9 ab
Wilson	156.5 ab ⁴	16.4 de	68.5 b-d
CHAMPS	154.8 ab	17.6 b-d	79.4 a
P39-7-9-43-10-10	153.3 ab	17.3 cd	79.0 a
Florida 07	153.3 ab	14.5 ef	75.3 ab
N70-8-24-5-34-9	150.5 a-c	20.4 a	70.3 b-d
Perry	147.0 a-c	18.5 a-d	76.3 ab
GA Green	145.8 a-d	14.6 ef	65.0 cd
AP-4	144.5 a-d	13.3 f	63.6 d
Bailey	139.3 a-d	19.5 ab	70.8 b-d
Sugg	134.3 b-d	19.8 ab	72.3 a-c
W73-25-17-34-8-2-4-B	132.5 b-d	19.1 a-c	71.5 a-d
97x22-HO2-2-B2-1-1-2-B	124.8 cd	17.8 b-d	74.8 ab
Titan (VT 9506083-3)	124.5 cd	18.6 a-c	73.8 ab
GA 03L	122.8 d	17.0 cd	71.4 a-d
Mean	142.8	17.6	72.5
LSD_{0.05}⁵	24.0	2.2	8.2

¹Total number of emerged plants in 2 × 30-ft row plots. To get the number of plants/ft, divide stand count by 60.

²Main stem height. Each mean is an average of eight plants.

³Plant maximum lateral spread. Each mean is an average of eight plants.

⁴Means sharing the same letter(s) are not statistically different.

⁵Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 4. Effect of peanut variety on disease incidence in Field # 6. Disease ratings were taken a few days before digging.

Variety	Tomato spotted wilt virus	Sclerotinia blight <i>hit count</i> ¹	Cylindrocladium black rot
Bailey	0.5 e ²	0.0 a	0.0 b
GA 03L	0.8 e	0.0 a	0.0 b
97x22-HO2-2-B2-1-1-2-B	1.0 de	0.0 a	0.0 b
Florida 07	1.3 c-e	0.0 a	0.0 b
Wilson	2.5 b-e	0.0 a	0.0 b
Sugg	2.5 b-e	0.0 a	0.0 b
CHAMPS	3.5 a-d	0.0 a	0.0 b
AP-4	3.8 a-c	0.0 a	0.0 b
Perry	3.8 a-c	0.0 a	0.0 b
Titan (VT 9506083-3)	4.0 ab	0.3 a	0.0 b
W73-25-17-34-8-2-4-B	4.0 ab	0.0 a	0.0 b
P39-7-9-43-10-10	4.5 ab	0.3 a	0.0 b
GA Green	4.8 ab	0.0 a	0.0 b
NC-7	4.8 ab	0.3 a	0.0 b
N70-8-24-5-34-9	6.0 a	0.0 a	0.3 a
Mean	3.19	0.06	0.02
LSD_{0.05} ³	2.65	0.33	0.18

¹ Hit count is a one foot row with plants showing symptoms of Tomato spotted wilt virus, Sclerotinia blight and Cylindrocladium black rot.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 5. Effect of variety on the content and brightness of jumbo and fancy pods of the Virginia-type peanut in Field # 6.

Variety	Jumbo				Fancy			
	Content	Brightness			Content	Brightness		
	%	Hunter L Score	a	b	%	Hunter L Score	a	b
97x22-HO2-2-B2-1-1-2-B	89 a	43.2 b	2.9 a	14.9 a-c	7 f	39.2 f	2.8 ab	12.8 d
Titan (VT 9506083-3)	79 ab	44.7 ab	2.4 b	15.3 a-c	14 ef	42.4 c-e	2.4 de	14.2 bc
N70-8-24-5-34-9	70 b	43.3 b	2.6 ab	14.6 bc	21 de	41.7 e	2.7 bc	14.1 bc
NC-7	69 b	43.3 b	2.7 ab	14.5 c	22 d	42.0 de	2.6 b-d	13.8 c
Perry	44 c	46.2 a	2.4 b	15.6 ab	40 c	45.3 a	2.5 c-e	15.1 ab
CHAMPS	43 c	46.8 a	2.4 b	15.3 a-c	41 c	45.2 a	2.2 e	14.9 ab
Sugg	42 cd	45.6 a	2.6 ab	15.8 a	44 bc	42.8 b-e	3.1 a	14.8 a-c
W73-25-17-34-8-2-4-B	33 c-e	45.7 a	2.6 ab	15.4 a-c	46 a-c	44.8 ab	2.4 de	15.4 a
Wilson	31 c-e	45.8 a	2.6 ab	15.5 a-c	50 ab	44.6 a-c	2.5 c-e	15.0 ab
P39-7-9-43-10-10	30 de	44.9 ab	2.5 b	14.7 a-c	53 a	44.0 a-d	2.6 b-d	14.6 a-c
Bailey	28 e	45.9 a	2.6 ab	15.5 a-c	52 ab	44.0 a-d	2.2 e	15.1 ab
Mean	50.7	45.0	2.6	15.2	35.5	43.3	2.5	14.5
LSD_{0.05}²	13.3	2.2	0.4	1.1	7.3	2.2	0.3	1.0

¹ Means sharing the same letter(s) are not statistically different.

² Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 6. Effect of variety on yield, support price, value and grade characteristics of peanut in Field # 6.

Variety	% LSK	% FM	% Fancy	% Water	% ELK	% SS	% OK	% DK	% SMK	% Total Kernels	Support Price \$/cwt ¹	Yield ² lb/A	Value \$/A ³
N70-8-24-5-34-9	2.3	1.2	91 a-c ⁴	6.8	45 bc	1.0	2.6	1.3	67 a	72 b	17.90 a-c	5314 a	951 a
NC-7	2.8	1.9	91 a-c	7.0	50 ab	1.8	3.3	1.9	66 ab	73 b	17.80 a-d	5287 a	941 a
Florida 07	3.9	1.6	--	6.6	44 b-d	4.9	5.6	2.2	60 c	73 b	17.26 b-f	5290 a	915 ab
W73-25-17-34-8-2-4-B	1.2	0.7	79 d	6.9	38 de	1.6	3.9	1.6	63 a-c	70 d	16.90 d-f	5364 a	907 ab
CHAMPS	1.9	1.2	84 b-d	6.8	41 c-e	2.1	3.5	2.0	65 ab	73 b	17.61 a-e	5041 ab	887 ab
GA Green	4.6	1.7	--	6.5	31 f	5.0	6.1	1.6	64 a-c	77 a	18.05 ab	4893 ab	883 ab
Sugg	1.9	1.4	86 a-d	7.1	45 bc	3.4	4.3	2.6	63 a-c	73 b	17.49 a-e	4933 ab	863 ab
Perry	2.3	1.5	83 b-d	6.9	41 c-e	2.9	4.1	2.9	63 a-c	73 b	17.25 b-f	4939 ab	853 ab
97x22-HO2-2-B2-1-1-2-B	1.6	1.6	95 a	7.2	52 a	0.9	2.7	3.9	63 a-c	70 cd	16.88 ef	5055 ab	853 ab
P39-7-9-43-10-10	1.3	1.8	82 cd	6.9	30 f	1.8	4.8	1.8	63 a-c	72 bc	16.99 c-f	4920 ab	836 ab
GA 03L	2.9	1.8	--	6.5	46 a-c	4.1	4.1	1.4	63 a-c	72 b	17.61 a-e	4667 a-c	825 a-c
AP-4	5.2	1.6	--	6.5	44 bc	6.2	4.1	1.8	64 a-c	76 a	18.39 a	4412 bc	818 a-c
Wilson	1.7	1.3	81 d	7.0	35 ef	1.3	4.4	2.9	61 bc	70 de	16.40 f	4771 a-c	787 bc
Bailey	1.1	1.3	80 d	7.0	41 c-e	2.0	4.6	2.3	63 a-c	72 b	17.21 c-f	4489 bc	774 bc
Titan (VT 9506083-3)	2.1	1.8	92 b	6.9	47 a-c	2.3	2.9	3.0	60 c	68 e	16.46 f	4124 c	681 c
Mean	2.5	1.5	89	6.8	42	2.8	4.1	2.2	63	72	17.35	4900	852
LSD_{0.05}⁵	2.2	1.0	8	0.3	7	2.1	1.0	1.8	5	2	0.01	725	150

¹ Support price represents the market value based on the loan rate.

² All yields are net, adjusted to 7% standard moisture and foreign material is deducted.

³ Value is calculated from yields and support price after premium and deductions were applied to yield based on grade factors: SMK, ELK, SS, OK, DK

⁴ Means sharing the same letter(s) are not statistically different.

⁵ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table7. Effect of variety on peanut development. Observations on reproductive stages were taken daily throughout the growing season.

Variety	DAP 50R1 ¹	DAP R2	DAP R3	DAP R4	DAP R5	DAP R6	DAP R7	Number of days from 50R1to R4	Number of days from R4to R7
Bailey	47.5 a ²	52.3 a	77.3 a	78.5 c	83.0 cd	90.5 e-g	--	26.3 b	--
N03091T	47.5 a	52.3 a	76.3 ab	79.5 bc	83.0 cd	95.5 b-e	135.3 a	27.3 b	51.3 a
Florida 07	46.8 ab	52.5 a	76.0 ab	80.5 a-c	92.0 ab	100.0 ab	132.5 ab	28.0 b	40.5 a-c
Perry	46.5 ab	53.3 a	78.0 a	79.8 bc	86.3 b-d	97.0 b-d	130.7 ab	26.5 b	42.3 a-c
P39-7-9-43-10-10	46.5 ab	51.8 ab	77.8 a	80.0 bc	89.8 b-d	97.0 b-d	130.0 ab	28.3 ab	39.0 a-c
GA 03L	46.3 ab	52.5 a	78.0 a	80.0 bc	92.0 ab	99.0 a-c	122.5 b	27.5 b	30.5 bc
CHAMPS	46.3 ab	52.0 a	76.0 ab	79.0 bc	84.5 b-d	92.0 d-f	125.8 ab	27.0 b	41.3 a-c
N70-8-24-5-34-9	46.0 bc	51.5 ab	76.0 ab	78.8 bc	81.0 d	86.0 g	127.0 ab	27.3 b	46.0 ab
NC-7	44.8 bc	51.5 ab	72.3 b	78.8 bc	80.5 d	86.0 g	133.3 ab	27.3 b	52.8 a
W73-25-17-34-8-2-4-B	43.8 cd	52.0 ab	74.3 ab	78.8 bc	84.0 b-d	92.0 d-f	134.3 ab	26.8 b	50.3 a
GA Green	42.8 c-e	52.3 a	77.8 a	84.3 a	97.8 a	103.5 a	129.0 ab	32.0 a	31.3 bc
Wilson	42.5 de	51.3 ab	76.3 ab	79.3 bc	84.0 b-d	93.8 d-f	125.3 ab	28.0 ab	39.3 a-c
AP-4	42.0 d-f	53.5 a	77.3 a	79.0 bc	87.5 b-d	98.5 a-c	132.8 ab	25.5 b	45.3 ab
97x22-HO2-2-B2-1-1-2-B	41.0 ef	53.3 a	78.0 a	82.8 ab	95.8 a	100.5 ab	122.5 b	29.5 ab	26.8 c
Titan (VT 9506083-3)	40.3 f	49.5 b	76.0 ab	81.5 a-c	83.5 cd	89.3 fg	123.5 ab	32.0 a	40.0 a-c
Mean	44.7	52.1	76.5	80.0	87.0	94.7	128.9	28.0	41.2
LSD_{0.05}³	2.0	2.4	4.4	4.2	8.0	6.0	12.1	4.0	16.2

¹ DAP = Days after planting; 50R1 = 50% of plants in a plot have at least one flower; R2 = beginning peg; R3 = beginning pod; R4 = full pod; R5 = beginning seed; R6 = full seed; R7 = beginning maturity.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 8. Effect of variety on emergence and growth of peanut in Field # 27. Stand count was taken on 22 May. Plant height and width was taken on 17 July.

Variety	Stand Counts ¹	Plant Height ²	Plant Width ³
			<i>inches</i>
NC-7	173.8 a ⁴	16.3 ab	64.9 c-e
GA Green	167.5 ab	11.9 f	60.8 de
Wilson	166.8 ab	15.1 b-d	69.8 a-c
P39-7-9-43-10-10	164.8 a-c	13.6 de	60.1 e
AP-4	162.5 a-d	12.0 ef	60.1 e
Perry	161.3 a-d	13.8 cd	63.6 de
Sugg	159.8 a-d	17.6 a	63.5 de
Florida 07	156.8 b-d	11.3 f	66.0 b-d
CHAMPS	153.0 b-e	14.5 cd	69.8 a-c
N70-8-24-5-34-9	149.8 c-e	15.4 bc	65.4 c-e
97x22-HO2-2-B2-1-1-2-B	148.5 c-e	13.8 cd	71.4 ab
Bailey	147.5 de	14.9 b-d	63.8 de
W73-25-17-34-8-2-4-B	139.3 ef	14.5 cd	66.1 b-d
Titan (VT 9506083-3)	127.5 fg	16.3 ab	73.3 a
GA 03L	121.3 g	14.6 b-d	65.0 c-e
Mean	153.3	14.4	65.6
LSD_{0.05}⁵	16.6	1.7	5.7

¹Total number of emerged plants in two, 30-ft row plots. To get the number of plants/ft, divide stand count by 60.

²Main stem height. Each mean is an average of eight plants.

³Plant maximum lateral spread. Each mean is an average of eight plants.

⁴Means sharing the same letter(s) are not statistically different.

⁵Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 9. Effect of peanut variety on disease incidence in Field # 27. Disease ratings were taken a few days before digging.

Variety	Tomato Spotted Wilt Virus	Sclerotinia Blight <i>hit count</i> ¹	Cylindrocladium black rot
97x22-HO2-2-B2-1-1-2-B	0.0 d ²	0.0 b	0.0 a
Florida 07	0.3 cd	0.0 b	0.0 a
Bailey	0.3 cd	0.0 b	0.0 a
Sugg	0.3 cd	0.5 ab	0.0 a
GA Green	0.8 cd	0.3 ab	0.3 a
AP-4	1.0 cd	0. ab	0.0 a
CHAMPS	1.0 cd	0.8 a	0.0 a
GA 03L	1.8 b-d	0.0 b	0.0 a
P39-7-9-43-10-10	1.8 b-d	0.3 ab	0.0 a
Wilson	2.3 b-d	0.5 ab	0.0 a
W73-25-17-34-8-2-4-B	2.5 bc	0.0 b	0.0 a
Perry	3.8 ab	0.3 ab	0.0 a
NC-7	4.0 ab	0.3 ab	0.3 a
Titan (VT 9506083-3)	5.5 a	0.0 b	0.0 a
N70-8-24-5-34-9	5.5 a	0.0 b	0.0 a
Mean	2.1	0.2	0.0
LSD _{0.05} ³	2.4	0.7	0.3

¹ Hit count is a one foot row with plants showing symptoms of Tomato spotted wilt virus, Sclerotinia blight and Cylindrocladium black rot.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 10. Effect of variety on yield, value, and grade characteristics of peanut grown in Field # 27.

Variety	% LSK	% FM	% Fancy	% Water	% ELK	% SS	% OK	% DK	% SMK	% Total Kernels	Support ¹ Price \$/cwt	Yield ² lb/A	Value ³ \$/A
CHAMPS	1.2	0.6	89 b-d ⁴	6.5	44 cd	2.0	2.4	1.3	69 a	75 cd	18.52 ab	5870 a	1087 a
NC-7	2.0	0.8	89 b-d	6.4	52 a	1.7	2.5	1.3	68 ab	74 de	18.35 a-c	5723 a-c	1049 ab
Sugg	1.1	0.6	88 b-d	6.6	50 ab	2.7	3.0	1.3	68 a-c	75 bc	18.57 a	5532 a-d	1027 a-c
Bailey	0.9	0.7	85 cd	6.6	47 bc	1.6	3.5	0.7	68 ab	74 c-e	18.30 a-c	5559 a-d	1017 a-c
W73-25-17-34-8-2-4-B	0.6	0.5	90 a-c	6.5	41 d-f	1.5	2.6	1.1	65 c-f	70 f	17.40 d	5768 ab	1003 bc
Wilson	0.6	0.5	85 cd	6.7	40 ef	1.7	3.4	1.6	64 e-g	70 f	17.13 de	5820 a	997 bc
97x22-HO2-2-B2-1-1-2-B	1.1	0.8	96 a	6.7	52 a	1.1	2.2	3.3	64 d-g	71 f	17.23 de	5724 a-c	987 b-d
Florida 07	1.9	0.7	--	6.2	47 bc	4.5	4.8	0.8	63 fg	74 de	17.97 c	5475 a-d	984 b-d
Perry	0.8	0.7	88 b-d	6.6	45 cd	2.3	3.5	1.2	66 a-e	73 e	18.02 bc	5364 b-d	967 c-e
N70-8-24-5-34-9	1.9	0.8	92 ab	6.5	48 a-c	1.5	1.9	1.4	68 ab	73 e	18.17 a-c	5317 c-e	966 c-e
GA Green	1.6	0.5	--	6.3	32 g	6.4	6.2	1.2	64 e-g	78 a	18.38 a-c	5209 d-f	958 c-e
AP-4	1.8	0.7	--	6.2	42 cd	4.8	5.4	0.7	65 b-f	76 b	18.44 a-c	4922 ef	909 de
GA 03L	0.8	0.9	--	6.2	48 a-c	2.5	3.8	0.6	67 a-d	74 c-e	18.26 a-c	4876 f	891 e
P39-7-9-43-10-10	0.8	1.0	84 d	6.6	37 f	2.0	3.9	0.8	67 a-d	74 c-e	17.99 c	4931 ef	887 e
Titan (VT 9506083-3)	1.6	1.3	90 a-c	6.5	47 bc	2.1	2.3	1.8	62 g	68 g	16.75 e	4341 g	726 f
Mean	1.2	0.7	91	6.5	45	2.6	3.4	1.3	66	73	17.97	5362	964
LSD_{0.05}⁵	0.5	0.2	6.0	0.2	4.5	1.2	0.9	0.9	2.7	1.2	0.01	414	80.9

¹ Support price represents the market value based on the loan rate.

² All yields are net, adjusted to 7% standard moisture and foreign material is deducted.

³ Value is calculated from yields and support price after premium and deductions were applied to yield based on grade factors: SMK, ELK, SS, OK, DK

⁴ Means sharing the same letter(s) are not statistically different.

⁵ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 11. Effect of variety on the content and brightness of jumbo and fancy pods of the Virginia-type peanut in Field # 27.

Variety	Jumbo				Fancy			
	Content	Brightness			Content	Brightness		
	%	Hunter <i>L Score</i>	<i>a</i>	<i>b</i>	%	Hunter <i>L Score</i>	<i>a</i>	<i>b</i>
97x22-HO2-2-B2-1-1-2-B	87 a	48.4 b-d	3.1 a	17.0 ab	9 f	45.0 c	2.5 a-c	14.8 d
Titan (VT 9506083-3)	75 b	46.8 d	2.4 b-d	15.7 c	15 ef	46.9 bc	2.1 bc	15.3 cd
N70-8-24-5-34-9	73 b	46.4 d	2.8 a-c	15.7 c	19 de	44.7 c	3.1 a	14.8 d
NC-7	61 c	47.8 cd	2.9 ab	15.9 c	28 d	47.9 ab	2.3 bc	16.0 bc
Perry	44 d	47.8 cd	2.8 a-c	16.2 bc	44 c	48.7 ab	2.5 a-c	16.4 ab
W73-25-17-34-8-2-4-B	43 de	50.6 ab	2.7 a-c	17.3 a	47 c	49.5 a	2.8 ab	17.1 a
CHAMPS	42 de	50.6 ab	2.0 d	17.0 ab	48 c	48.8 ab	2.0 c	16.0 bc
Wilson	36 d-f	51.0 a	2.3 cd	17.1 ab	49 bc	49.4 a	2.4 bc	16.7 ab
Sugg	32 ef	48.7 b-d	2.9 ab	16.6 a-c	57 ab	48.2 ab	2.7 ab	16.5 ab
Bailey	25 f	49.1 a-c	2.7 a-c	16.5 a-c	60 a	48.8 ab	2.7 a-c	16.5 ab
P39-7-9-43-10-10	25 f	49.0 a-c	2.5 b-d	16.3 bc	59 a	48.8 ab	2.3 bc	16.4 ab
Mean	49.4	48.7	2.6	16.5	39.5	47.9	2.5	16.0
LSD_{0.05}¹	11.7	2.3	0.6	0.9	8.8	2.4	0.7	1.0

¹ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Runner- and Virginia-type Peanuts

Table 12. Effect of variety on peanut development. Observations on reproductive stages were taken daily throughout the growing season.

Variety	DAP 50R1 ¹	DAP R2	DAP R3	DAP R4	DAP R5	DAP R6	DAP R7	Number of days from 50R1to R4	Number of days from R4to R7
Bailey	45.5 a ²	51.0 a-d	75.0 a	78.5 a-d	84.8 a-e	95.8 a-c	142.0 a	27.5 a-c	61.0 a
Florida 07	45.3 ab	51.3 a-c	68.3 b-d	82.5 ab	86.5 a-d	91.5 c	131.5 a-e	31.3 ab	45.0 b-e
P39-7-9-43-10-10	45.3 ab	51.8 a	68.3 b-d	80.5 a-d	87.8 a-c	95.3 a-c	123.0 de	28.8 a-c	35.3 de
GA 03L	45.0 a-c	51.5 ab	71.0 a-c	82.0 a-c	90.5 ab	99.8 ab	126.0 c-e	30.5 a-c	35.5 de
N70-8-24-5-34-9	45.0 a-c	50.3 cd	66.3 b-d	74.8 d	84.8 a-e	95.3 a-c	130.5 b-e	24.5 c	47.5 b-d
Perry	44.5 a-d	51.5 ab	65.3 d	82.8 a	86.5 a-d	92.8 bc	133.3 a-d	31.3 ab	46.8 b-d
CHAMPS	44.3 b	50.8 a-d	70.0 b-d	78.3 a-d	83.5 b-e	98.0 a-c	130.5 b-e	27.5 a-c	47.0 b-d
W73-25-17-34-8-2-4-B	44.0 a-e	50.5 cd	66.5 b-d	76.5 b-d	81.5 c-e	94.3 a-c	135.0 a-c	26.0 a-c	53.5 ab
N03091T	42.8 b-f	50.8 a-d	65.8 cd	76.0 cd	79.0 de	94.3 a-c	131.3 b-e	25.3 bc	51.7 bc
GA Green	42.5 c-f	51.0 a-d	71.5 ab	78.3 a-d	88.5 a-c	100.8 a	122.0 e	27.3 a-c	33.5 e
NC-7	42.3 d-f	50.8 a-d	66.3 b-d	75.8 d	80.0 de	91.0 c	127.3 b-e	25.0 bc	46.3 b-d
Wilson	41.8 ef	50.0 d	70.8 a-c	76.8 a-d	81.0 c-e	90.5 c	124.3 de	26.8 a-c	44.7 b-e
97x22-HO2-2-B2-1-1-2-B	40.8 fg	50.5 d	69.5 b-d	82.0 a-c	91.8 a	98.0 a-c	129.0 b-e	32.0 a	37.3 c-e
AP-4	40.5 fg	50.8 a-d	65.3 d	78.0 a-d	87.8 a-c	99.8 ab	136.8 ab	27.3 a-c	49.0 bc
Titan (VT 9506083-3)	39.0 g	50.5 b-d	68.3 b-d	77.0 a-d	78.0 e	95.0 a-c	124.3 de	26.5 a-c	46.3 b-d
Mean	43.2	50.9	68.5	78.7	84.8	95.5	129.8	27.8	45.4
LSD_{0.05}³	2.7	1.0	5.4	6.2	7.6	7.9	10.57	6.4	3.0

¹ DAP = Days after planting; 50R1 = 50% of plants in a plot have at least one flower; R2 = beginning peg; R3 = beginning pod; R4 = full pod; R5 = beginning seed; R6 = full seed; R7 = beginning maturity.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparison of Advanced Breeding Lines from Virginia & North Carolina

1. BREEDER/CROP PHYSIOLOGY TEST

2. **PURPOSE:** To compare yield, grade, and disease of a set of 19 advanced breeding lines of the Virginia-type peanut

3.

4. EXPERIMENTAL DESIGN

- a) Four randomized complete blocks with cultivars as the main treatment @ each location
- b) Plots were 2 × 30-ft long and 36" wide

5. PLANT MATERIAL

Table 13. Name, source, and growth habit of nineteen Virginia-type peanut advanced breeding lines and CHAMPS used as the check.

Number	Variety	Market Type	Growth Habit
1	CHAMPS	Check	IR
2	VT 024077	Virginia Tech	IR
3	VT 004152	Virginia Tech	IR
4	VT 003194	Virginia Tech	IR
5	VT 003069	Virginia Tech	IR
6	VT 003191	Virginia Tech	IR
7	VT 003192	Virginia Tech	IR
8	VT 003200	Virginia Tech	IR
9	VT 024024	Virginia Tech	IR
10	VT 023117	Virginia Tech	IR
11	VT 024051	Virginia Tech	IR
12	N06054C	NCSU	IR
13	N06056LT	NCSU	IR
14	N06065CT	NCSU	IR
15	N06066T	NCSU	IR
16	N07001	NCSU	IR
17	N07020JLSm	NCSU	IR
18	N07033olSm	NCSU	IR
19	N07036olSmT	NCSU	IR
20	N07037olSm	NCSU	IR

¹ Plant growth habit classifications: IR = Intermediate Runner

Comparisons of Advanced Breeding Lines from Virginia & North Carolina

6. CULTURAL PRACTICES

Table 14. Cultural practices used in Breeder/Crop Physiology Test, at TAREC (Suffolk), VA, in 2009.

Planting Date	April 28, 2009		Seeding rate: 3 seeds per foot row				
Harvest Date	October 13, 2009		Harvested plot size: 0.0041 acre				
Soil Type	Uchee, Nansemond & Eunola						
Rotation	Corn, cotton, peanut						
Soil Test Results	pH	P	K	Ca	Mg	Zn	Mn
	6.43	23	83	371	24	0.6	2.3
Rain and irrigation	26 inches						
Cultivation	6/23						
Soil Fumigant	4/11 – Vapam @ 7.5 gals/A						
Landplaster	6/19 – Peanut Maker @ 1200 lbs/A						
HERBICIDES				INSECTICIDES			
Date	Product	Rate/Ac	Date	Product	Rate/Ac	Date	Product
4/12	Dual	1.5 pt	4/28	Temik	7.5 lbs		
5/12	Intro	2 qt	4/28	Lorsban	6/23		
5/12	Gramoxone	14 oz	6/30	Orthene 97	6 oz		
6/21	Intro	1 qt	6/30	Asana	6 oz		
5/10	Gramoxone	12 oz	8/3	Danitol	10 oz		
6/1	Storm	1.5 pt	8/21	Danitol	9 oz		
6/23	Intro	1 qt	8/3	Omega	1 pt		
			8/21	Headline	10 oz		
			8/21	Omega	1 pt		
FERTILISERS			FUNGICIDES				
Date	Product	Rate/Ac	Date	Product	Rate/Ac	Date	Product
4/12	Boron	1 qt	6/15	Bravo	3/4 pt		
7/22	Boron	1 qt	7/22	Folicur	7.2 oz		
6/15	Manganese	1.5 qt	8/3	Provost	10 oz		
7/22	Manganese	1 qt	9/1	Bravo	1.5 pt		

Comparisons of Advanced Breeding Lines from Virginia & North Carolina

7. RESULTS

Table 15. Effect of variety on emergence and growth of peanut in the Breeder/Crop Physiology Test. Stand count was taken on 22 May. Plant height and width was taken on 17 July.

Variety	Stand Counts ¹	Plant Height ²	Plant Width ³
		<i>inch</i>	
N07020JLSm	177.8 a ⁴	26.0 a	86.4 a-c
N07001	171.0 ab	22.4 bc	87.0 a
N06056LT	167.3 a-c	17.6 e-g	74.3 afg
VT 003192	167.0 a-c	18.5 d-g	75.4 d-g
VT 003200	166.8 a-c	18.9 d-g	82.6 a-c
VT 004152	165.5 a-c	20.3 c-g	81.1 a-f
VT 023117	163.8 b-d	17.4 fg	80.3 a-f
N07037olSm	163.5 b-d	21.1 cd	81.8 a-d
VT 024051	163.3 b-d	19.4 c-g	83.1 a-c
VT 024024	162.8 b-e	18.1 d-g	71.0 g
N06066T	162.5 b-e	25.9 a	86.4 a-c
N07033olSm	161.8 b-e	21.3 cd	79.5 c-f
CHAMPS	160.8 b-e ⁴	18.0 d-g	82.5 a-c
VT 024077	160.5 b-e	20.6 c-f	83.3 a-c
N07036olSmT	160.3 b-e	20.8 c-e	81.4 a-e
N06065CT	155.0 c-e	24.9 ab	86.5 ab
VT 003191	150.5 d-f	21.0 cd	74.9 d-g
VT 003069	150.3 d-f	17.3 g	83.6 a-c
VT 003194	149.5 ef	20.8 c-e	79.6 b-f
N06054C	140.0 f	18.3 d-g	74.8 e-g
Mean	161.0	20.4	80.8
LSD_{0.05}⁵	13.6	3.3	6.9

¹Total number of emerged plants in 2 × 30-ft row plots. To get the number of plants/ft, divide stand count by 60.

²Main stem height. Each mean is an average of eight plants.

³Plant maximum lateral spread. Each mean is an average of eight plants.

⁴Means sharing the same letter(s) are not statistically different, at P = 0.05.

⁵Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Advanced Breeding Lines from Virginia & North Carolina

Table 16. Effect of variety on disease incidence on peanut in the Breeder/Crop Physiology Test. Disease ratings were taken a few days before digging.

Variety	Tomato spotted wilt virus	Sclerotinia blight <i>hit count</i> ¹	Cylindrocladium black rot
VT 003194	1.0 d ²	3.8 a-d	0.8 ab
VT 003200	1.0 d	3.8 a-d	0.0 b
VT 023117	1.0 d	3.5 a-d	1.0 ab
N06065CT	1.3 d	1.8 cd	0.3 b
N07020JLSm	1.5 cd	4.0 a-d	0.0 b
N07036oISmT	1.5 cd	2.8 b-d	0.3 b
VT 024024	1.8 cd	4.3 a-c	0.5 ab
VT 024051	1.8 cd	4.0 a-d	0.5 ab
N06066T	1.8 cd	3.5 a-d	0.3 b
VT 003192	2.3 b-d	3.3 a-d	1.8 a
N06056LT	2.3 b-d	1.5 d	0.0 b
N07001	2.3 b-d	5.5 a	0.0 b
N07033oISm	2.3 cd	2.8 b-d	0.5 ab
CHAMPS	2.5 a-d	3.3 a-d	0.0 b
N07037oISm	2.5 a-d	2.0 b-d	0.0 b
VT 003191	2.8 a-d	3.3 a-d	0.5 ab
VT 024077	3.3 a-c	4.5 ab	0.0 b
VT 004152	3.8 ab	4.0 a-d	0.0 b
N06054C	4.0 ab	2.3 b-d	0.5 ab
VT 003069	4.3 a	4.5 ab	0.3 b
Mean	2.3	3.4	0.4
LSD_{0.05} ³	1.9	2.7	1.4

¹ Hit count is a one foot row with plants showing symptoms of Tomato spotted wilt virus, Sclerotinia blight and Cylindrocladium black rot.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Advanced Breeding Lines from Virginia & North Carolina

Table 17. Effect of variety on yield, price per pound, value and grade characteristics.

Variety	% LSK	% FM	% Fancy	% Water	% ELK	% SS	% OK	% DK	% SMK	% Total Kernels	Support ¹ Price \$/cwt	Yield ² lb/A	Value ³ \$/A
VT 003069	0.1	0.5	88 a-c ⁴	5.1	52 bc	6.0	1.5	0.0	70 a	78 a	19.69 a	6181 a-c	1217 a
VT 003200	0.1	0.6	88 a-c	5.1	44 e-h	4.3	2.3	0.0	65 d-f	72 d-f	18.01 ef	6690 a	1205 a
N07036olSmT	0.4	0.9	94 a	5.0	56 ab	5.3	2.0	0.0	68 a-d	75 b	19.12 ab	6035 a-d	1154 ab
VT 024051	0.3	0.7	88 a-c	5.1	46 d-g	4.5	2.5	0.0	65 d-f	73 b-e	18.11 c-f	6341 ab	1148 ab
N07020JLSm	0.6	0.7	94 a	5.1	61 a	2.8	1.8	0.0	69 ab	73 b-e	18.83 b-d	6094 b-d	1147 ab
N07033olSm	0.4	0.3	90 a	5.0	52 b-d	4.3	1.8	0.0	68 a-c	75 b	18.97 ab	5943 b-e	1128 a-c
VT 003194	0.3	0.4	80 d-f	5.1	47 c-f	4.5	3.3	0.0	67 a-d	74 bc	18.80 b-d	5936 b-e	1118 a-c
N07037olSm	0.6	0.6	90 a	5.1	52 bc	4.8	2.0	0.0	67 a-d	74 bc	18.87 bc	5857 b-e	1105 a-d
VT 003191	0.7	1.4	77 d-g	5.1	47 c-f	5.5	3.0	0.0	66 b-e	75 b	18.73 b-e	5816 b-e	1090 a-d
VT 024024	0.1	0.8	88 a-c	5.0	49 c-e	3.8	2.3	0.0	65 c-e	72 c-f	18.02 ef	5964 b-d	1076 a-d
VT 024077	0.0	1.2	79 d-f	5.0	41 gh	4.5	3.3	0.0	65 d-f	74 b-d	18.07 d-f	5802 b-e	1049 b-e
VT 023117	0.3	0.7	71 g	5.1	41 f-h	4.0	3.8	0.0	66 b-e	74 bc	18.18 c-f	5632 c-f	1024 b-e
VT 004152	0.3	0.5	82 b-d	5.0	41 gh	3.3	2.5	0.0	68 a-d	75 b	18.46 b-e	4590 d-f	1015 b-e
CHAMPS	0.1	0.3	73 fg	5.1	39 h	4.3	4.0	0.0	63 ef	72 d-f	17.61 fg	5647 c-f	997 c-e
VT 003192	0.2	0.5	74 e-g	5.1	42 f-h	7.5	2.3	0.0	63 ef	73 b-d	18.39 b-e	5280 e-g	972 de
N07001	0.0	0.7	82 cd	5.0	44 e-h	2.3	3.8	0.0	66 a-e	72 c-f	17.97 ef	5105 f-h	917 ef
N06065CT	0.7	0.8	89 ab	5.0	43 e-g	1.5	4.0	0.0	63 ef	71 fg	16.99 gh	4667 gh	796 f
N06056LT	0.5	0.6	59 h	5.1	33 i	1.8	6.3	0.0	63 ef	71 e-g	17.03 gh	4587 h	785 f
N06054C	0.4	1.1	80 de	5.0	25 j	2.3	7.3	0.0	62 f	72 d-f	16.72 h	4692 gh	785 f
N06066T	0.4	1.9	91 a	5.0	44 e-h	1.0	3.8	0.0	63 ef	69 g	16.94 gh	4603 gh	780 f
Mean	0.3	0.7	82.9	5.0	45.0	3.9	3.2	0.0	66	73	18	5573	1025
LSD_{0.05}⁵	0.5	1.0	7.0	0.1	5.9	1.9	1.4	0.0	3	2	0	683	144

¹ Support price represents the market value based on the loan rate.

² All yields are net, adjusted to 7% standard moisture and foreign material is deducted.

³ Value is calculated from yields and support price after premium and deductions were applied to yield based on grade factors: SMK, ELK, SS, OK, DK.

⁴ Means sharing the same letter(s) are not statistically different.

⁵ Fisher's protected least significant difference (LSD) at P = 0.05.

Comparisons of Advanced Breeding Lines from Virginia & North Carolina

Table 18. Effect of variety on content and brightness of the jumbo and fancy pods.

Variety	Jumbo				Fancy			
	Content	Brightness			Content	Brightness		
	%	Hunter L Score	a	b	%	Hunter L Score	a	b
N07020JLSm	85 a ¹	44.9 a-d	2.71 a-c	14.18 ab	10 i	34.8 g	2.07 bc	10.01 e
N07036olSmT	72 ab	46.1 a	3.06 a	14.89 a	19 h	42.3 a-f	2.81 a	13.14 a-c
N07037olSm	70 b	45.6 a-c	2.78 ab	14.26 ab	20 h	42.1 a-f	2.55 ab	13.07 a-c
N07033olSm	66 bc	44.7 a-d	2.72 ab	14.01 a-c	20 h	39.8 ef	2.15 bc	11.74 c-e
VT 003200	63 b-d	46.4 a	2.72 a-c	14.23 ab	26 gh	45.8 a	2.54 ab	14.10 a
N06066T	61 b-d	44.4 a-d	2.60 a-c	13.69 a-c	26 gh	40.0 d-f	2.35 a-c	11.71 c-e
VT 024051	60 b-e	43.0 a-e	2.43 a-c	12.55 b-e	27 gh	41.7 b-f	1.97 bc	11.73 c-e
N06065CT	54 c-f	42.8 a-e	2.57 a-c	13.36 a-c	29 fg	41.5 b-f	2.27 a-c	12.73 a-d
VT 003191	54 c-f	44.4 a-d	2.45 a-c	13.69 a-c	32 e-g	41.6 b-f	2.12 bc	12.45 a-d
VT 024024	54 c-f	45.8 ab	2.54 a-c	14.44 ab	33 d-g	44.3 a-c	2.55 ab	13.80 ab
VT 003069	51 d-g	45.0 a-d	2.53 a-c	14.15 ab	32 e-g	42.9 a-e	2.48 ab	13.08 a-c
VT 024077	50 d-h	37.3 f	2.00 cd	10.63 e	37 b-e	38.9 f	2.20 a-c	11.19 de
N07001	47 e-h	43.0 a-e	2.89 ab	13.25 a-d	37 b-f	42.4 a-f	2.31 a-c	13.01 a-c
VT 004152	43 f-i	45.7 a-c	2.24 b-d	13.86 a-c	40 a-d	42.6 a-f	2.10 bc	12.76 a-d
N06054C	38 g-j	40.5 d-f	2.34 a-d	11.90 c-e	36 c-f	40.7 c-f	2.47 a-c	11.93 cd
VT 023117	37 h-j	42.1 a-f	2.49 a-c	13.02 a-d	45 ab	45.1 ab	2.38 a-c	13.88 a
VT 003192	30 i-k	44.5 a-d	2.34 a-d	13.46 a-c	41 a-c	44.7 ab	2.48 ab	13.36 a-c
VT 003194	30 i-k	40.7 c-f	2.32 b-d	12.33 b-e	47 a	43.8 a-d	2.28 a-c	13.18 a-c
CHAMPS	28 jk	38.8 ef	1.66 d	11.13 de	30 e-g	40.5 c-f	1.85 c	11.14 de
N06056LT	20 k	41.0 b-f	2.36 a-d	12.47 b-e	42 a-c	40.6 c-f	2.48 ab	12.07 b-d
Mean	51	43.3	2.49	13.28	31	41.8	2.32	12.50
LSD_{0.05}¹	14	5.0	0.72	2.19	8	4.0	0.62	1.80

¹ Means sharing the same letter(s) are not statistically different.

² Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety and Quality Evaluations – Crop Physiological Tests

1. **PEANUT VARIETY AND QUALITY EVALUATION**
2. **PURPOSE:** To identify early maturing and water use efficient cultivars and lines
3. **EXPERIMENTAL DESIGN:**
 - a) Location: Suffolk and Southampton Co., VA, and Martin Co., NC.
 - b) Three randomized complete blocks with planting date and genotype as treatments @ each location
 - c) Plots were 2 × 40-ft long and 36" wide
4. **PLANT MATERIAL**

Table 19. Name, source, market type, and growth habit of the genotypes evaluated in the PVQE Test at Tidewater AREC (Suffolk), VA in 2009.

Variety or Line	Source	Market Type	Growth Habit ¹
NC-V 11	Commercial cultivar	Virginia	IR
Gregory	Commercial cultivar	Virginia	IR
Perry	Commercial cultivar	Virginia	IR
CHAMPS	Commercial cultivar	Virginia	R
Phillips	Commercial cultivar	Virginia	IR
Bailey	Commercial cultivar	Virginia	IR
Georgia 08V	Commercial cultivar	Virginia	IR
Florida Fancy	Commercial cultivar	Virginia	IR
VA 98R	Commercial cultivar	Virginia	R
Sugg	Commercial cultivar	Virginia	IR
VT 024077	Virginia Tech	Virginia	IR
VT 004152	Virginia Tech	Virginia	IR
VT 003194	Virginia Tech	Virginia	IR
VT 003069	Virginia Tech	Virginia	IR
VT 003191	Virginia Tech	Virginia	IR
VT 003192	Virginia Tech	Virginia	IR
VT 003200	Virginia Tech	Virginia	IR
VT 024024	Virginia Tech	Virginia	IR
VT 023117	Virginia Tech	Virginia	IR
VT 024051	Virginia Tech	Virginia	IR
N03023EF	NCSU	Virginia	IR
N04074FCT	NCSU	Virginia	IR
N05006	NCSU	Virginia	IR
N05007	NCSU	Virginia	IR
N05008	NCSU	Virginia	IR
N05018	NCSU	Virginia	IR
N03088T	NCSU	Virginia	IR
N05024J	NCSU	Virginia	IR
N05049J	NCSU	Virginia	IR

¹Plant growth habit classifications: IR = Intermediate Runner; B = Bunch; R = Runner

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

5. CULTURAL PRACTICES @ <http://pubs.ext.vt.edu/3001/3001-1432/3001-1432.html>

6. RESULTS

Table 20. Effect of variety and planting date on emergence of peanut in PVQE test at Tidewater AREC (Suffolk), VA in 2009.

Variety	Stand Count ¹	
	Plant Date 04/20/09 (13 May)	Plant Date 05/01/09 (1 June)
N03088T	186.7 a ²	199.0 a-e
VT 024051	183.3 ab	219.7 a
VT 003191	179.7 a-c	190.7 a-e
VT 003192	178.3 a-d	210.0 a-c
N04074FCT	177.7 a-d	199.7 a-e
VT 003194	176.0 a-d	201.7 a-d
N05024J	176.0 a-d	216.3 ab
N05007	175.3 a-e	203.7 a-d
VT 023117	175.0 a-e	212.7 a-c
Phillips	174.7 a-e	215.7 ab
VT 024077	173.0 a-e	195.7 a-e
Sugg	171.7 a-f	186.7 a-e
N03023EF	171.7 a-f	179.3 c-e
VT 003069	171.0 a-f	185.3 a-e
N05018	170.7 a-f	201.0 a-d
VT 003200	168.3 a-f	198.3 a-e
NC-V 11	167.7 a-f	204.3 a-d
N05049J	166.0 a-f	194.3 a-e
CHAMPS	164.3 a-g	205.3 a-d
N05006	161.7 a-g	174.3 de
VT 004152	161.3 a-g	203.0 a-d
Perry	161.0 a-g	192.0 a-e
HST 02-08	157.3 b-h	216.7 ab
Bailey	155.7 b-h	183.0 b-e
VA 98R	155.0 c-h	212.3 a-c
Gregory	150.7 d-h	199.0 a-e
VT 024024	147.7 e-h	212.3 a-c
N05008	145.0 f-h	188.0 a-e
Florida Fancy	138.0 gh	178.7 c-e
Georgia 08V	130.7 h	165.0 e
Mean	165.71	198.12
LSD_{0.05}³	27.69	34.98

¹ Total number of emerged plants in 2 × 40-ft row plots. To get the number of plants/ft, divide stand count by 60.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 21. Effect of variety, planting date, and location on emergence of peanut in PVQE Tests in 2009.

Variety	Stand Counts ¹		
	Martin Co., NC		Southampton Co., VA
	Plant Date 04/30/09	Plant Date 05/14/09	Plant Date 04/24/09
	(6/8/09)		(5/19/09)
Date when counts were made			
N05018	173.0 a	145.7 a-g	157.7 a-d
N04074FCT	161.3 ab	152.3 a-d	157.3 a-d
VT 003192	159.0 ab	153.3 a-c	168.0 a
VT 003200	157.7 a-c	146.7 a-f	164.7 ab
N05049J	157.3 a-c	150.7 a-e	134.7 e-g
VT 024024	157.0 a-c	143.3 a-h	153.7 a-e
N03023EF	155.0 a-d	141.7 b-h	147.7 a-f
VT 023117	154.3 a-d	146.7 a-f	144.0 c-f
N05007	151.0 b-e	143.3 a-h	156.3 a-d
VT 024077	150.3 b-e	140.3 b-h	145.3 b-f
VT 004152	150.3 b-e	137.0 c-i	151.0 a-f
NC-V 11	149.7 b-f	131.3 f-i	152.7 a-e
VT 003194	148.7 b-g	136.0 d-i	153.0 a-e
VT 024051	148.0 b-g	145.3 a-g	154.0 a-e
Phillips	147.7 b-g	130.7 f-i	147.3 b-f
HST 02-08	147.0 b-g	159.3 a	162.3 a-c
Sugg	147.0 b-g	140.7 b-h	150.0 a-f
N05024J	147.0 b-g	146.3 a-f	139.0 d-g
VT 003069	145.3 b-g	140.3 b-h	142.7 c-f
VA 98R	144.7 b-g	135.0 e-i	154.3 a-e
N05006	143.7 b-g	156.0 ab	158.0 a-d
Perry	142.7 b-h	129.0 g-i	151.3 a-f
CHAMPS	142.7 b-h	134.7 e-i	146.0 b-f
Gregory	138.0 c-h	133.7 e-i	145.0 b-f
Bailey	135.3 d-h ²	130.0 f-i	139.0 d-g
VT 003191	134.0 e-h	128.0 hi	140.0 d-g
N03088T	133.0 e-h	138.3 c-h	156.3 a-d
N05008	130.0 f-h	120.0 i	121.7 g
Georgia 08V	129.3 gh	133.0 f-i	131.0 fg
Florida Fancy	123.0 h	130.0 f-i	134.3 e-g
Mean	146.8	140.0	148.6
LSD_{0.05}³	20.1	17.0	20.4

¹ Total number of emerged plants in 2 × 30-ft row plots. To get the number of plants/ft, divide stand count by 60.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 22. Effect of variety and planting time on emergence of peanut in PVQE combined tests from Tidewater AREC (Suffolk), VA, Martin Co., NC, and Southampton Co., VA.

Variety	Stand Count ¹		
	Early Plant Date	Late Plant Date	Average Across Plant Dates
VT 003192	168.4 a ²	181.7 a	173.7 a
VT 024051	161.8 ab	182.5 a	170.1 ab
N04074FCT	165.4 ab	176.0 a	169.7 ab
N05018	167.1 ab	173.3 a	169.5 ab
HST 02-08	155.6 a-c	188.0 a	168.5 ab
VT 003200	163.6 ab	172.5 a	167.1 a-c
VT 023117	157.8 a-c	179.7 a	166.5 a-c
N05007	160.9 ab	173.5 a	165.9 a-c
N05024J	154.0 a-c	181.3 a	164.9 a-c
Phillips	156.6 a-c	173.2 a	163.2 a-c
VT 003194	159.2 a-c	168.8 a	163.1 a-c
VT 024024	152.8 a-c	177.8 a	162.8 a-c
N03088T	158.7 a-c	168.7 a	162.7 a-c
NC-V 11	156.7 a-c	167.8 a	161.3 a-c
VT 024077	156.2 a-c	168.0 a	160.9 a-c
N05049J	152.7 a-c	172.5 a	160.6 a-c
VT 004152	154.2 a-c	170.0 a	160.5 a-c
VA 98R	151.3 bc	173.7 a	160.3 a-c
Sugg	156.2 a-c	163.7 a	159.2 a-d
N03023EF	158.1 a-c	160.5 a	159.1 a-d
N05006	154.4 a-c	165.2 a	158.7 a-d
CHAMPS	151.0 bc	170.0 a	158.6 a-d
VT 003069	153.0 a-c	162.8 a	156.9 a-e
Perry	151.3 bc	160.5 a	155.2 a-e
VT 003191	151.2 bc	159.3 a	154.5 b-e
Gregory	144.6 bc	166.3 a	153.3 b-e
Bailey	143.3 cd	156.5 a	148.6 c-e
N05008	132.2 d	154.0 a	140.9 de
Florida Fancy	131.8 d	154.3 a	140.8 de
Georgia 08V	130.3 d	149.0 a	137.8 e
Mean	153.68	169.04	159.8
LSD_{0.05}³	16.12	41.31	19.1

¹ Total number of emerged plants in two, 30-ft row plots. To get the number of plants/ft, divide stand count by 60.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Crop Physiology Related Projects @ Tidewater AREC – 2009

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 23. Effect of variety, planting date, and growth stage on plant dry weight (vines and pods) production and the number of pods per plant in the PVQE test at Tidewater AREC (Suffolk), VA in 2009.

Variety	June (50% R1) ¹		August (R6)			
	Plant dry weight (g)		Plant dry weight (g)		Pod number/plant	
	PD 1(6/15) ²	PD 3(6/22)	PD 1(8/03)	PD 3(8/05)	PD 1(8/03)	PD 3(8/05)
VT 023117	5.1 a ³	4.4 a-f	103.8 a-e	102.0 a-e	19.7 a-e	24.0 ab
VT 003200	5.0 ab	4.4 a-f	118.1 a-c	151.4 a	27.4 a	27.1 a
VT 024077	4.8 ab	3.8 c-f	86.2 a-e	120.0 a-c	19.2 a-e	20.9 a-d
VT 003069	4.8 ab	5.3 ab	127.2 a	121.8 a-c	25.9 ab	17.7 b-f
Gregory	4.7 ab	4.0 b-f	110.6 a-d	114.8 a-d	20.5 a-e	18.1 b-f
Perry	4.7 ab	3.7 d-f	73.0 c-e	117.4 a-c	10.9 d-f	12.3 d-i
VT 004152	4.6 ab	4.8 a-d	117.7 a-c	92.7 c-e	19.9 a-e	17.3 b-g
N05018	4.6 ab	4.4 a-f	125.5 ab	144.8 ab	23.8 ab	18.8 a-f
N05024J	4.6 ab	3.3 f	96.6 a-e	77.7 c-e	23.1 ab	15.1 c-g
VT 024024	4.5 ab	3.9 c-f	118.7 a-c	87.2 c-e	24.2 ab	19.9 a-e
NC-V 11	4.4 ab	3.5 d-f	107.1 a-e	121.3 a-c	22.4 a-c	19.3 a-f
VT 003194	4.4 ab	4.0 b-f	77.9 c-e	99.1 b-e	19.4 a-e	14.3 c-g
N03088T	4.4 ab	4.4 a-f	89.4 a-e	74.9 de	15.7 b-f	14.2 c-h
N05049J	4.4 ab	5.4 a	74.6 c-e	97.8 b-e	19.2 a-e	21.0 a-d
Phillips	4.3 ab	4.5 a-f	97.8 a-e	119.4 a-c	18.2 a-e	18.3 a-f
Bailey	4.3 ab	3.9 c-f	107.0 a-e	64.8 de	20.7 a-d	8.8 g-i
N05007	4.3 ab	4.3 a-f	113.9 a-d	97.8 b-e	23.7 ab	18.9 a-f
Florida Fancy	4.2 ab	3.9 c-f	62.9 e	80.1 c-e	9.7 ef	10.6 f-i
VT 003191	4.2 ab	4.2 a-f	82.2 a-e	78.8 c-e	20.5 a-e	15.5 b-g
VT 024051	4.1 ab	4.2 a-f	66.8 de	81.2 c-e	16.4 b-e	19.0 a-f
N03023EF	4.1 ab	3.9 c-f	72.9 c-e	65.0 de	15.4 b-f	12.0 e-i
N05008	4.1 ab	4.4 a-f	87.1 a-e	87.4 c-e	15.3 b-f	19.0 a-f
Sugg	4.0 ab	3.6 d-f	102.6 a-e	89.9 c-e	18.3 a-e	14.0 c-h
VA 98R	4.0 ab	5.0 a-c	83.1 a-e	75.9 c-e	16.7 a-e	14.7 c-g
VT 003192	4.0 ab	4.3 a-f	95.5 a-e	76.5 c-e	26.0 ab	18.8 a-f
N05006	3.9 ab	3.4 ef	90.1 a-e	88.8 c-e	15.4 b-f	12.7 c-i
HST 02-08	3.7 ab	3.3 f	82.8 a-e	59.5 e	10.1 d-f	4.7 i
N04074FCT	3.6 ab	3.4 ef	75.7 c-e	88.0 c-e	5.0 f	5.5 hi
Georgia 08V	3.6 ab	4.1 b-f	80.0 b-e	93.2 c-e	12.1 c-f	13.0 c-i
CHAMPS	3.5 b	4.6 a-e	107.9 a-e	103.8 a-e	20.6 a-e	21.2 a-c
Mean	4.3	4.1	94.5	95.8	18.5	16.2
LSD_{0.05}⁴	4.6	1.3	2.8	50.5	11.0	8.8

¹ Indicates the growth stage of the plants at the sampling time. 50%R1 = 50% of the plants in a plot had at least one flower open; R6 = full seed.

² PD 1= planting date on 04/20/09; PD 3 = planting date 05/15/09.

³ Means sharing the same letter(s) are not statistically different.

⁴ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Crop Physiology Related Projects @ Tidewater AREC – 2009

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 24. Effect of variety on plant dry weight (vine and pods), pod number, and pod mass per plant at harvest of peanut varieties in the PVQE tests at Tidewater AREC (Suffolk), VA in 2009.

Variety	Plant dry weight (g)/plant			Pod number/plant			Pod dry weight (g)/plant		
	PD 1	PD 2	PD 3	PD 1	PD 2	PD 3	PD 1	PD 2	PD 3
VT 003200	214.6 a	170.7 b-e	203.0 a-f	74.5 a	48.4 c-g	63.5 a-f	122.1 a	83.5 c-g	111.0 b-f
Florida Fancy	214.0 a	211.4 a-d	198.7 a-f	44.2 b-g	56.7 b-g	47.0 b-h	106.2 ab	97.1 b-g	86.0 c-i
N05018	209.4 ab	215.1 a-d	194.7 a-h	65.2 ab	68.4 b-d	54.6 a-g	106.1 ab	132.0 a-e	95.6 b-h
HST 02-08	197.9 a-c	153.8 c-e	173.3 d-i	53.2 a-g	35.0 gh	47.6 b-h	86.1 a-e	60.1 fg	74.7 e-j
VT 024024	191.9 a-c	208.4 a-d	145.7 f-i	62.1 a-c	54.3 b-g	28.1 hi	100.4 a-c	114.2 a-f	48.2 ij
VT 004152	190.1 a-c	284.1 a	258.0 a	49.9 a-g	75.9 b	68.2 a-d	88.5 a-e	138.6 a-d	127.0 a-c
N05007	189.4 a-c	135.6 de	189.1 b-i	57.4 a-f	34.4 gh	57.3 a-g	102.0 a-c	66.6 e-g	100.0 b-h
Bailey	187.3 a-c	246.6 a-c	243.7 ab	61.2 a-c	62.8 b-f	79.8 a	91.9 a-d	167.0 a	154.0 a
VA 98R	184.9 a-d	135.4 de	167.0 d-i	61.8 a-c	30.5 gh	65.9 a-e	91.9 a-d	54.2 fg	88.0 c-i
Gregory	181.4 a-d	136.7 de	168.7 d-i	50.5 a-g	38.2 f-h	35.9 g-i	91.4 a-d	103.0 a-g	69.8 f-j
VT 003194	177.0 a-d	165.0 c-e	201.6 a-f	57.7 a-f	39.7 e-h	60.1 a-g	91.7 a-d	79.2 d-g	95.8 b-h
VT 003069	173.4 a-d	156.2 c-e	175.1 d-i	51.5 a-g	39.9 e-h	46.0 b-h	93.4 a-d	76.4 d-g	77.0 e-i
CHAMPS	168.9 a-d	193.0 a-e	167.6 d-i	46.1 b-g	57.1 b-g	42.5 d-i	83.5 b-e	102.5 a-g	78.1 e-i
N05049J	168.0 a-d	144.7 c-e	162.8 e-i	59.8 a-f	36.4 f-h	44.2 c-h	90.8 a-d	67.1 e-g	82.8 d-i
Georgia 08V	165.5 a-d	94.6 e	131.6 hi	60.3 a-d	20.7 h	18.1 i	100.0 a-c	39.2 g	34.4 j
VT 003191	162.3 a-e	288.5 a	239.3 a-c	52.6 a-g	71.2 bc	55.7 a-g	78.2 b-e	148.0 a-c	112.3 a-e
NC-V 11	161.9 a-e	151.7 c-e	197.1 a-g	50.1 a-g	49.7 b-g	69.0 a-c	81.6 b-e	82.9 d-g	110.0 b-f
Perry	160.7 a-e	203.6 a-d	177.3 c-i	60.2 a-e	37.7 f-h	50.1 b-h	80.0 b-e	154.3 ab	92.4 b-h
N03088T	157.6 a-e	207.6 a-d	204.4 a-f	48.4 b-g	51.6 b-g	52.9 b-h	76.6 b-e	112.5 a-f	102.3 b-h
N05008	156.4 a-e	162.1 c-e	149.6 f-i	49.5 b-g	51.5 b-g	52.9 b-h	84.2 b-e	98.4 b-g	95.3 b-h
N04074FCT	151.4 b-e	274.9 ab	225.4 a-e	40.1 c-g	103.6 a	71.0 ab	61.1 de	157.5 ab	120.2 a-d
N03023EF	150.5 b-e	247.4 a-c	227.8 a-d	42.7 b-g	66.9 b-e	64.8 a-e	70.0 b-e	152.9 ab	133.4 ab
Phillips	148.9 b-e	167.1 c-e	182.4 b-i	39.0 c-g	43.8 d-h	49.6 b-h	65.2 c-e	58.7 fg	94.4 b-h
Sugg	148.2 b-e	154.4 c-e	130.2 i	35.7 e-g	41.6 d-h	40.6 e-i	70.9 b-e	75.3 d-g	63.1 h-j
VT 023117	145.7 c-e	135.7 de	169.5 d-i	41.9 c-g	39.4 f-h	52.0 b-h	68.0 c-e	62.8 fg	82.1 d-i
VT 003192	143.7 c-e	169.6 c-e	155.6 f-i	42.7 b-g	46.3 c-h	41.8 e-i	73.4 b-e	77.1 d-g	72.3 e-j
N05024J	142.5 c-e	168.1 c-e	153.5 f-i	36.4 d-g	50.0 b-g	37.7 f-i	72.8 b-e	75.5 d-g	65.8 h-j
VT 024077	142.2 c-e	184.0 a-e	152.1 f-i	42.9 b-g	43.3 d-h	40.3 e-i	75.3 b-e	95.2 b-g	77.9 e-i
VT 024051	124.4 de	206.4 a-d	188.4 b-i	32.2 g	55.9 b-g	59.6 a-g	68.8 b-e	116.2 a-f	107.7 b-g
N05006	102.4 e	119.7 de	133.1 g-i	35.6 fg	36.5 f-h	41.2 e-i	51.9 e	61.3 fg	61.4 h-j
Mean	167.1	183.1	182.2	50.2	49.6	51.3	84.1	97.0	90.4
LSD_{0.05}³	61.7	104.5	64.2	24.6	27.4	25.9	37.8	68.3	42.3

¹ PD 1= Planting date on 04/20/09; PD 2 = 05/01/09; PD 3 = planting date 05/15/09.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 25. Effect of variety and planting date on harvest index in PVQE tests at Tidewater AREC (Suffolk), VA, in 2009.

Variety	Harvest Index ¹		
	PD 1 ²	PD 2	PD 3
Georgia 08V	64.6 a	41.5 de	25.4 h
VT 003200	57.0 ab	47.2 c-e	53.4 a-f
VT 024051	54.9 a-c	51.8 b-e	55.9 a-d
N05049J	54.2 a-c	45.4 c-e	50.9 a-f
N05007	53.8 a-c	48.6 c-e	52.9 a-f
VT 003069	53.7 a-d	49.0 c-e	43.8 c-g
VT 024024	53.3 a-d	51.9 b-e	32.2 gh
VT 024077	52.7 a-d	50.0 c-e	49.9 b-f
N05008	51.9 a-d	59.9 a-c	62.7 ab
VT 003192	51.8 a-d	45.3 c-e	46.5 c-f
VT 003194	51.7 a-d	50.6 c-e	47.7 c-f
N05006	51.0 b-d	50.0 c-e	46.4 c-f
N05024J	50.9 b-d	43.9 c-e	42.1 e-g
NC-V 11	50.7 b-d	53.7 b-e	55.8 a-d
Gregory	50.7 b-d	57.7 b-d	41.4 fg
N05018	50.6 b-d	59.3 bc	48.8 c-f
VA 98R	50.5 b-d	38.1 e	55.0 a-e
CHAMPS	50.2 b-d	54.7 b-d	47.4 c-f
Perry	49.8 b-d	75.8 a	52.3 a-f
N03088T	49.0 b-d	51.7 b-e	50.3 b-f
VT 003191	48.8 b-d	52.5 b-e	46.9 c-f
Bailey	48.4 b-d	68.0 ab	63.9 a
Florida Fancy	47.8 b-d	46.1 c-e	44.0 c-g
Sugg	47.8 b-d	49.1 c-e	48.5 c-f
N03023EF	47.1 b-d	59.4 a-c	57.2 a-c
VT 004152	46.4 b-d	48.2 c-e	48.5 c-f
VT 023117	46.3 b-d	45.9 c-e	48.4 c-f
HST 02-08	43.8 cd	37.9 e	43.7 d-g
Phillips	42.8 cd	48.6 c-e	51.7 a-f
N04074FCT	40.2 d	58.1 bc	52.8 a-f
Mean	50.4	51.3	48.9
LSD_{0.05}⁴	13.6	16.4	13.5

¹ Harvest index is the proportion of pod mass to the total plant dry weight. Higher numbers denote less vine and greater pod production.

² PD 1 = planting date on 04/20/09; PD 2 = planting date 05/01/09; PD 3 = planting date 05/15/09.

³ Means sharing the same letter(s) are not statistically different.

⁴ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 26. Reproductive stages of varieties in the PVQE tests at TAREC (Suffolk), VA, Planting Date 1, 20 April, 2009. Observations on reproductive stages were taken daily throughout the growing season.

Variety	DAP 50R1 ¹	DAP R2	DAP R3	DAP R4	DAP R5	DAP R6	DAP R7	Number of days from 50R1 TO R4	Number of days from R4 to R7
Bailey	51.67 a ²	58.00 b	72.00 b	88.00 ab	94.00 ab	101.67 a-c	144.00 ab	36.33 a-e	56.00 a-c
Perry	50.67 ab	57.00 c	68.33 b-g	83.33 a-f	86.00 b-e	93.00 e	131.67 c-e	32.67 a-f	48.33 bc
Georgia 08V	50.67 ab	59.67 a	72.00 b	86.33 a-e	89.33 a-d	96.00 c-e	139.67 a-d	35.67 a-f	53.33 a-c
VA 98R	50.67 ab	57.67 bc	67.33 d-g	71.33 g	74.00 fg	97.67 b-e	129.33 de	20.67 h	58.00 a-c
VT 004152	50.67 ab	57.67 bc	70.00 b-f	86.00 a-e	87.33 b-d	96.00 c-e	147.33 a	35.33 a-f	60.33 ab
NC-V 11	50.33 ab	57.67 bc	67.00 d-g	86.00 a-e	87.33 b-d	101.67 a-c	141.00 a-c	35.67 a-f	55.00 a-c
Gregory	50.33 ab	58.00 b	70.00 c-f	86.33 a-e	89.33 a-d	93.00 e	129.67 de	36.00 a-e	43.33 c
Florida Fancy	50.33 ab	57.33 bc	71.33 bc	87.00 a-d	90.33 a-c	96.33 c-e	137.00 a-d	36.67 a-d	50.00 a-c
Sugg	50.33 ab	57.67 bc	68.33 b-g	77.33 d-g	87.33 b-d	97.67 b-e	129.67 de	28.67 c-h	52.33 a-c
VT 003192	50.33 ab	57.67 bc	70.67 b-d	84.67 a-e	89.33 a-d	98.67 b-e	138.00 a-d	34.33 a-f	53.33 a-c
N05049J	50.33 ab	58.00 b	66.33 fg	88.67 a	91.00 a-c	94.67 de	137.00 a-d	38.33 a-c	48.33 bc
Phillips	50.00 ab	58.00 b	69.33 b-g	79.67 a-g	82.00 c-f	93.00 e	135.00 b-e	29.67 b-h	55.33 a-c
VT 003194	50.00 ab	57.67 bc	69.33 b-g	88.00 ab	89.67 a-d	101.00 a-d	136.33 a-d	38.00 a-d	48.33 bc
VT 003200	50.00 ab	57.67 bc	67.33 d-g	76.67 e-g	80.67 d-g	96.00 c-e	135.00 b-e	26.67 e-h	58.33 a-c
VT 024024	50.00 ab	57.67 bc	70.00 b-f	84.67 a-e	88.00 b-d	93.00 e	138.00 a-d	34.67 a-f	53.33 a-c
VT 024051	50.00 ab	57.33 bc	69.00 b-g	78.33 b-g	83.33 c-f	93.00 e	131.00 c-e	28.33 d-h	52.67 a-c
N03088T	50.00 ab	57.67 bc	72.00 b	81.67 a-f	88.00 b-d	93.00 e	138.00 a-d	31.67 a-g	56.33 a-c
HST 02-08	49.67 a-c	59.67 a	78.67 a	87.33 a-c	98.67 a	105.67 a	139.33 a-d	37.67 a-d	52.00 a-c
VT 024077	49.33 a-c	57.67 bc	71.33 bc	85.00 a-e	87.33 b-d	99.3 a-e	135.67 a-d	35.67 a-f	50.67 a-c
VT 023117	49.00 b-d	57.33 bc	66.67 e-g	71.00 g	72.33 g	93.00 e	124.00 e	22.00 gh	53.00 a-c
N04074FCT	49.00 b-d	57.33 bc	70.33 b-e	88.00 ab	95.00 ab	103.33 ab	138.00 a-d	39.00 ab	50.00 a-c
N05006	48.67 b-e	57.67 bc	68.33 b-g	86.00 a-e	88.67 b-d	97.67 b-e	136.33 a-d	37.33 a-d	50.33 a-c
N05007	48.67 b-e	58.00 b	68.00 c-g	82.00 a-f	86.00 b-e	94.67 de	137.33 a-d	33.33 a-f	55.33 a-c
N05018	48.67 b-e	57.67 bc	66.00 g	74.67 fg	87.00 b-e	93.00 e	138.67 a-d	26.00 f-h	64.00 a
N05024J	48.67 b-e	57.67 bc	69.67 b-g	83.33 a-f	85.67 b-e	93.00 e	144.00 ab	34.67 a-f	60.67 ab
VT 003191	48.33 b-e	57.33 bc	66.00 g	86.33 a-e	88.00 b-d	94.67 de	131.00 c-e	38.00 a-d	44.67 c
CHAMPS	47.33 c-e	57.33 bc	70.33 b-e	87.67 a-c	90.33 a-c	94.67 de	141.00 a-c	40.33 a	53.33 a-c
VT 003069	46.67 de	57.67 bc	69.00 b-g	81.33 a-f	83.00 c-f	93.00 e	135.00 b-e	34.67 a-f	53.67 a-c
N03023EF	46.33 e	57.33 bc	66.67 e-g	86.67 a-d	93.00 ab	101.67 a-c	136.33 a-d	40.33 a	49.67 a-c
N05008	46.33 e	57.33 bc	68.33 b-g	78.00 c-g	77.67 e-g	94.67 de	132.00 c-e	31.67 a-g	54.00 a-c
Mean	49.43	57.75	69.32	83.04	86.99	96.46	136.21	33.67	53.13
LSD_{0.05}³	2.61	0.83	3.76	9.83	9.42	6.65	11.05	9.86	15.09

¹ DAP = Days after planting; 50R1 = 50% of plants in a plot have at least one flower; R2 = beginning peg;

R3=beginning pod; R4 = full pod; R5 = beginning seed; R6 = full seed; R7 = beginning maturity.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 27. Reproductive stages for PVQE Test at TAREC (Suffolk), VA, Planting Date 2, 1 May, 2009. Observations on reproductive stages were taken daily throughout the growing season..

Variety	DAP 50R1 ¹	DAP R2	DAP R3	DAP R4	DAP R5	DAP R6	DAP R7	Number of days from 50R1 to R4	Number of days from R4 to R7
HST 02-08	46.00 a ²	62.00 a	74.33 a-c	81.67 a-c	85.00 a-d	91.33 a-e	133.00 a-d	35.67 b-e	51.33 b-h
Bailey	44.67 ab	50.33 b-d	77.00 a	82.67 ab	83.67 b-e	94.33 a-d	124.00 d-h	38.00 ab	41.33 g-i
Georgia 08V	44.67 ab	55.00 b	71.33 c-e	79.00 b-d	85.00 a-c	96.00 ab	130.00 b-f	34.33 b-e	51.00 b-h
Sugg	44.67 ab	53.67 bc	73.00 a-d	75.67 de	79.00 b-f	82.00 f	136.67 ab	31.00 de	61.00 ab
N04074FCT	44.67 ab	49.67 cd	75.67 ab	87.33 a	92.00 a	98.00 a	125.33 d-h	42.67 a	38.00 i
VT 003192	44.00 bc	50.33 b-d	71.00 c-e	77.00 b-e	82.33 b-f	86.68 c-f	119.33 gh	33.00 b-e	42.33 f-i
VT 003200	44.00 bc	49.33 cd	67.67 ef	75.33 de	78.33 c-f	86.00 d-f	126.00 c-h	31.33 c-e	50.67 b-h
NC-V 11	43.33 b-d	50.33 b-d	69.00 d-f	75.67 de	79.33 b-f	92.67 a-e	120.67 f-g	32.33 b-e	45.00 e-i
VT 024077	43.33 b-d	50.33 b-d	69.00 d-f	77.00 b-e	81.67 b-f	86.00 d-f	119.33 gh	33.67 b-e	42.33 f-i
N03088T	43.33 b-d	51.67 b-d	71.33 c-e	75.67 de	78.33 c-f	82.00 f	130.00 b-f	32.33 b-e	54.33 a-e
Gregory	43.00 b-e	48.33 d	68.33 ef	76.00 c-e	79.33 b-f	89.00 a-f	117.00 h	33.00 b-e	41.00 hi
Perry	43.00 b-e	50.33 b-d	74.00 a-c	76.33 c-e	82.00 b-f	95.33 a-d	133.00 a-d	32.67 b-e	61.00 ab
CHAMPS	43.00 b-e	49.00 cd	71.00 c-e	77.00 b-e	83.00 b-e	88.33 b-f	124.00 d-h	34.00 b-e	47.00 d-i
VT 024051	43.00 b-e	48.67 d	74.00 a-c	74.00 de	79.00 b-f	86.67 c-f	125.33 d-h	31.00 de	51.33 b-h
Phillips	42.67 c-f	47.00 d	69.00 d-f	76.00 c-e	80.00 b-f	93.00 a-d	124.00 d-h	33.33 b-e	48.00 c-i
VT 024024	42.67 c-f	50.33 b-d	69.00 d-f	72.00 e	79.33 b-f	83.67 f	130.00 b-f	30.00 e	58.00 a-e
N03023EF	42.67 c-f	49.67 cd	75.67 ab	79.33 b-d	85.67 a-c	95.33 a-c	133.00 a-d	36.67 b-e	53.67 a-f
Florida Fancy	42.33 c-f	50.33 b-d	65.00 f	79.33 b-d	83.67 b-e	88.33 b-f	133.00 a-d	37.00 a-c	53.67 a-f
VT 004152	42.33 c-f	50.33 b-d	74.00 a-c	75.67 de	78.33 c-f	89.67 a-f	140.00 a	33.33 b-e	64.33 a
VT 003069	42.33 c-f	49.00 cd	73.00 a-d	77.33 b-e	79.00 b-f	92.67 a-e	123.00 e-h	35.00 b-e	45.67 e-i
N05024J	42.33 c-f	47.00 d	69.00 d-f	74.33 de	77.00 ef	82.00 f	128.67 b-g	32.00 c-e	54.33 a-e
VT 003194	42.00 d-f	48.67 d	69.00 d-f	77.00 b-e	79.00 b-f	83.67 ef	124.00 d-h	35.00 b-e	48.00 c-i
N05007	42.00 d-f	48.67 d	71.67 c-e	75.67 de	82.00 b-f	93.00 a-d	127.67 b-g	33.67 b-e	52.00 b-h
N05018	42.00 d-f	48.67 d	68.33 ef	77.00 b-e	79.00 b-f	82.00 f	128.67 b-g	35.00 b-e	51.67 b-h
VA 98R	41.67 d-f	50.33 b-d	71.00 c-e	76.67 c-e	82.33 b-f	91.33 a-e	129.33 b-f	35.00 b-e	52.67 b-g
VT 003191	41.67 d-f	48.33 d	70.67 c-e	76.00 c-e	78.00 d-f	86.67 c-f	129.33 b-f	34.33 b-e	53.33 a-f
VT 023117	41.67 d-f	48.67 d	68.33 ef	75.33 de	78.33 c-f	86.67 c-f	130.67 a-e	33.67 b-e	55.33 a-e
N05049J	41.67 d-f	49.67 cd	70.33 c-e	73.67 de	82.67 b-f	86.68 c-f	133.00 a-d	32.00 c-e	59.33 a-c
N05008	41.33 ef	48.33 d	70.33 c-e	77.00 b-e	79.00 b-f	82.00 f	135.33 a-c	35.00 b-e	58.33 a-d
N05006	41.00 f	49.67 cd	70.33 c-e	73.67 de	75.00 f	93.00 a-d	126.00 d-h	32.67 b-e	52.33 b-h
Mean	42.90	50.12	71.04	76.88	80.88	88.80	127.98	33.96	51.28
LSD_{0.05}³	1.73	4.98	4.29	5.77	7.55	9.06	9.93	5.85	11.59

¹ DAP = Days after planting; 50R1 = 50% of plants in a plot have at least one flower; R2 = beginning peg; R3 = beginning pod; R4 = full pod; R5 = beginning seed; R6 = full seed; R7 = beginning maturity.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 28. Reproductive stages for PVQE Test at TAREC (Suffolk), VA, Planting Date 3, 15 May, 2009. Observations on reproductive stages were taken daily throughout the growing season.

Variety	DAP 50R1 ¹	DAP R2	DAP R3	DAP R4	DAP R5	DAP R6	DAP R7	Number of days from 50R1 to R4	Number of days from R4 to R7
HST 02-08	40.67 a ²	55.67 ab	65.67 a-c	80.33 a	84.67 a	88.00 a	119.00 a-d	39.67 ab	38.67 g-j
VT 003192	39.00 b	53.00 a-c	57.33 e	63.00 g	66.00 ef	74.00 h-j	110.00 c-g	24.00 k	47.00 b-i
VT 003200	38.33 bc	50.33 a-d	57.00 e	64.67 e-g	68.33 ef	71.00 ij	112.00 b-g	26.33 i-k	47.33 b-i
VT 024024	38.00 b-d	48.67 a-e	60.33 c-e	64.67 e-g	67.00 ef	77.33 e-i	107.33 d-g	26.67 i-k	42.67 d-i
Perry	37.67 cd	47.67 b-e	66.33 ab	68.67 d-f	74.33 b-f	81.67 a-g	108.33 d-g	31.00 e-j	39.67 f-j
N04074FCT	37.00 de	48.67 a-e	68.00 a	77.00 ab	81.33 ab	84.67 a-e	112.00 b-g	40.00 a	35.00 ij
Sugg	36.67 cd	49.33 a-d	59.00 de	63.67 fg	79.67 a-d	83.33 a-e	118.67 a-d	26.00 jk	55.00 a-e
N03088T	36.67 cd	51.00 a-d	61.00 b-e	66.33 e-g	73.00 b-f	78.33 e-i	113.67 b-f	28.67 g-k	47.33 b-i
CHAMPS	36.00 e-g	50.00 a-d	58.33 de	64.33 fg	75.67 b-e	86.67 ab	102.00 fg	28.00 h-k	37.67 h-j
Georgia 08V	36.00 e-g	50.33 a-d	63.00 a-d	74.67 bc	80.00 a-c	86.00 a-c	104.00 fg	38.67 a-c	29.33 j
Gregory	35.33 f-h	47.67 b-e	59.00 de	63.00 g	67.67 ef	74.33 g-j	107.00 d-g	27.67 h-k	44.00 c-i
Bailey	35.33 f-h	57.00 a	63.00 a-d	68.33 d-g	73.00 b-f	82.67 a-f	101.00 g	33.00 c-h	40.00 f-j
Florida Fancy	35.33 f-h	46.67 c-e	57.67 de	63.00 g	67.67 ef	75.67 f-j	126.00 a	27.67 h-k	63.00 a
VT 024077	35.33 f-h	53.67 a-c	63.00 a-d	72.33 c-e	74.33 b-f	77.33 e-i	108.33 d-g	37.00 a-d	36.00 ij
VT 004152	35.00 g-i	50.33 a-d	63.00 a-d	67.00 d-g	74.33 b-f	83.00 a-f	116.67 a-e	32.00 d-i	49.67 b-h
N05018	35.00 g-i	46.67 c-e	57.00 e	63.00 g	66.00 f	69.67 j	119.00 a-d	28.00 g-k	56.00 a-d
N05024J	35.00 g-i	51.00 a-d	61.67 b-e	66.33 e-g	71.33 c-f	79.00 c-h	110.00 c-g	31.33 e-j	43.67 c-i
Phillips	34.67 h-j	46.67 c-e	58.67 de	65.33 e-g	71.00 d-f	83.33 a-e	119.00 a-d	30.67 e-j	53.67 a-e
VA 98R	34.67 h-j	46.67 c-e	56.33 e	68.33 d-g	71.00 d-f	85.33 a-d	117.67 a-d	33.67 c-f	49.33 b-h
VT 003194	34.67 h-j	54.33 a-c	63.00 a-d	68.67 d-g	72.00 c-f	78.67 c-h	121.33 a-c	34.00 b-f	52.67 a-f
VT 024051	34.67 h-j	47.67 b-e	59.00 de	63.33 fg	67.00 ef	79.00 c-h	113.67 a-f	28.67 f-k	50.33 a-h
N05006	34.67 h-j	53.67 a-c	61.67 b-e	67.67 d-g	72.67 c-f	80.67 a-h	110.67 c-g	33.00 c-h	43.00 c-i
N05049J	34.67 h-j	53.67 a-c	61.67 b-e	63.33 fg	67.00 ef	80.33 b-h	119.00 a-d	28.67 f-k	55.67 a-e
VT 003191	34.33 h-j	49.33 a-d	60.33 c-e	70.00 c-e	75.00 b-e	80.33 b-h	113.67 b-f	35.67 a-e	43.67 c-i
N05008	34.33 h-j	43.00 de	59.00 de	63.67 fg	68.33 ef	78.67 d-i	110.00 c-g	29.33 f-k	46.33 b-i
VT 023117	34.00 ij	40.67 e	60.33 c-e	65.33 e-g	71.67 c-f	82.67 a-f	101.00 g	31.33 d-j	35.67 ij
N03023EF	34.00 ij	46.00 c-e	58.33 de	65.33 e-g	75.00 b-e	81.67 a-g	113.00 b-g	31.33 d-j	47.67 b-i
N05007	34.00 ij	50.33 a-d	61.67 b-e	65.33 e-g	75.00 b-e	85.67 a-d	123.33 ab	31.33 d-j	58.00 ab
NC-V 11	33.67 j	48.67 a-e	59.00 de	65.33 e-g	79.67 a-d	83.33 a-e	116.67 a-e	31.67 d-j	51.33 a-g
VT 003069	33.67 j	44.33 de	56.33 e	63.00 g	69.00 ef	81.33 a-h	104.67 e-g	29.33 f-k	41.67 e-j
Mean	35.61	49.42	60.52	66.83	72.62	80.46	112.62	31.15	46.03
LSD_{0.05}³	1.16	8.4	5.55	5.67	8.76	7.55	12.07	5.74	13.28

¹ DAP = Days after planting; 50R1 = 50% of plants in a plot have at least one flower; R2 = beginning peg; R3 = beginning pod; R4 = full pod; R5 = beginning seed; R6 = full seed; R7 = beginning maturity.

² Means sharing the same letter(s) are not statistically different.

³ Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 29. Maturity of peanut cultivars based on color of pod mesocarp after pod blasting at TAREC (Suffolk), VA, Planting Date 1 (20 April, 2009).

Variety	Number of pods			% Maturity		
	Total pods	White/ yellow	Orange	Brown/ black	Brown/ black	Orange/ brown/ black
VT 003069	109 a ¹	15 c-e	58 a	36 b-e	32 b-f	85 a-c
HST 02-08	108 ab	23 b-e	55 ab	30 c-f	29 d-f	78 a-d
VT 023117	107 a-c	8 e	42 ab	58 a	54 ab	93 a
VT 003192	106 a-d	20 b-e	33 ab	53 ab	52 a-c	82 a-d
Perry	104 a-e	40 ab	31 b	33 b-f	31 c-f	61 de
CHAMPS	104 a-e	13 de	33 ab	58 a	56 a	88 ab
VA 98R	104 a-e	25 a-e	38 ab	41 a-e	40 a-e	77 a-d
VT 024077	104 a-e	31 a-e	37 ab	36 b-e	35 a-f	70 b-e
VT 024024	102 a-f	12 de	55 ab	35 b-e	35 a-f	88 ab
N03088T	102 a-f	16 c-e	38 ab	48 a-c	47 a-d	85 a-c
N05024J	102 a-f	14 c-e	52 ab	36 b-e	35 a-f	86 ab
VT 024051	101 a-f	25 a-e	33 ab	43 a-d	42 a-e	75 a-d
Bailey	100 a-f	37 a-c	31 b	32 b-f	33 b-f	63 c-e
Sugg	100 a-f	22 b-e	37 ab	41 a-e	41 a-e	78 a-d
N05008	100 a-f	15 c-e	43 ab	41 a-e	41 a-e	84 a-c
VT 003191	99 a-f	33 a-d	31 b	35 b-e	35 a-f	66 b-e
VT 003200	99 a-f	33 a-d	44 ab	23 d-f	23 ef	67 b-e
Gregory	98 a-f	20 b-e	45 ab	33 b-f	34 b-f	79 a-d
N03023EF	98 a-f	28 a-e	33 ab	37 a-e	38 a-e	72 a-d
N05018	98 a-f	21 b-e	43 ab	34 b-f	35 a-f	78 a-d
VT 003194	97 a-f	15 c-e	50 ab	31 c-f	32 b-f	84 a-c
NC-V 11	96 a-f	20 b-e	45 ab	31 c-f	32 b-f	79 a-d
Florida Fancy	96 a-f	18 b-e	46 ab	32 b-f	34 a-f	82 a-d
VT 004152	95 c-f	15 c-e	46 ab	33 b-f	35 a-f	84 a-c
N05049J	95 b-f	25 a-e	38 ab	32 b-f	34 b-f	74 a-d
Phillips	94 d-f	24 a-e	36 ab	34 b-f	36 a-f	76 a-d
N05006	94 d-f	37 a-c	36 ab	22 ef	23 ef	61 de
N05007	94 c-f	18 b-e	45 ab	31 c-f	33 b-f	81 a-d
N04074FCT	92 ef	23 b-e	37 ab	33 b-f	36 a-f	75 a-d
Georgia 08V	90 f	47 a	30 b	14 f	16 f	48 e
Mean	100	23	41	36	36	77
LSD_{0.05}²	13	23	25	21	22	23

¹ Means sharing the same letter(s) are not statistically different.² Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 30. Maturity of peanut cultivars based on color of pod mesocarp after pod blasting at TAREC (Suffolk), VA, Planting Date 2, (1 May, 2009).

Variety	Number of pods			% Maturity		
	Total pods	White/ yellow	Orange	Brown/ black	Brown/ black	Orange/ brown/ black
VT 024077	114 a ¹	16 d	40 b-e	58 a	51 a	86 a
VT 003069	114 a	19 cd	61 ab	34 b-h	30 c-i	84 ab
HST 02-08	113 a	37 a-c	44 a-e	33 b-h	28 d-i	68 b-e
VT 003191	109 a	28 a-d	39 c-e	43 a-e	40 a-g	75 a-e
N05008	109 a	29 a-d	46 a-e	34 b-h	30 c-i	73 a-e
N05024J	109 a	40 a	40 b-e	28 d-h	25 f-i	63 de
NC-V 11	108 a	19 cd	51 a-e	38 b-f	34 a-g	82 a-c
Sugg	108 a	25 a-d	48 a-e	35 b-g	32 b-i	77 a-e
N04074FCT	108 a	36 a-c	45 a-e	26 e-h	24 g-i	66 b-e
VT 004152	107 a	21 b-d	39 c-e	47 a-d	45 a-e	81 a-d
VT 003194	107 a	36 a-c	42 b-e	29 d-h	27 e-i	66 b-e
VT 003200	107 a	22 a-d	39 c-e	46 a-d	43 a-f	80 a-d
VT 023117	107 a	20 b-d	37 c-e	50 a-c	46 a-d	82 a-c
N05018	107 a	30 a-d	48 a-e	29 d-h	27 e-i	72 a-e
N03088T	107 a	18 cd	40 b-e	50 a-c	48 a-c	84 ab
Perry	106 a	30 a-d	48 a-e	28 d-h	26 e-i	71 a-e
Bailey	106 a	27 a-d	44 a-e	35 b-h	32 a-i	75 a-e
VT 003192	106 a	25 a-d	40 b-e	41 a-e	38 a-g	76 a-e
N05006	106 a	36 a-c	34 de	36 b-g	33 a-h	65 c-e
N05049J	106 a	14 d	50 a-e	42 a-e	39 a-g	87 a
Phillips	105 a	21 b-d	55 a-c	29 d-h	26 f-i	80 a-d
N03023EF	105 a	24 a-d	30 e	52 ab	49 ab	77 a-e
Georgia 08V	103 a	39 ab	47 a-e	18 gh	16 hi	61 e
Florida Fancy	103 a	23 a-d	65 a	15 h	15 i	76 a-e
VA 98R	103 a	22 a-d	50 a-e	32 c-h	31 c-i	79 a-e
VT 024024	103 a	25 a-d	46 a-e	33 b-h	32 b-i	76 a-e
VT 024051	102 a	23 a-d	38 c-e	41 a-e	40 a-g	78 a-e
N05007	101 a	21 b-d	54 a-d	26 e-h	26 f-i	79 a-e
CHAMPS	99 a	30 a-d	40 b-e	29 d-h	29 d-i	70 a-e
Gregory	83 b	21 a-d	41 b-e	20 f-h	24 g-i	74 a-e
Mean	106	26	45	35	33	75
LSD_{0.05}²	16	19	21	20	18	18

¹ Means sharing the same letter(s) are not statistically different.² Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 31. Maturity of peanut cultivars based on color of pod mesocarp after pod blasting at TAREC (Suffolk), VA, Planting Date 3 (15 May).

Variety	Number of pods			% Maturity		
	Total pods	White/ yellow	Orange	Brown/ black	Brown/ black	Orange/ brown/ black
VT 004152	110 a ¹	1.0 bc	59 a-d	51 a-j	47 b-h	99 a
VT 003191	107 ab	0.0 c	49 a-f	58 a-e	54 a-g	100 a
N05006	107 ab	0.0 c	57 a-e	50 b-j	47 b-h	100 a
N05049J	107 ab	0.0 c	54 a-f	53 a-i	50 a-h	100 a
VT 024077	106 ab	2.3 a-c	54 a-f	49 b-k	47 b-h	98 a-c
NC-V 11	105 ab	1.3 bc	68 a	35 h-k	34 gh	99 ab
Sugg	105 ab	0.3 c	44 b-f	61 a-d	58 a-d	100 a
Florida Fancy	104 ab	6.3 ab	65 ab	32 jk	31 h	94 bc
VT 003200	104 ab	0.3 c	47 a-f	57 a-f	55 a-f	100 a
Bailey	103 ab	0.0 c	33 f	70 a	69 a	100 a
VA 98R	102 a-c	2.0 a-c	45 a-f	55 a-h	54 a-g	98 a-c
HST 02-08	102 a-c	1.7 bc	60 a-d	40 f-k	40 d-h	98 ab
Gregory	101 a-c	0.0 c	53 a-f	48 b-k	49 a-h	100 a
VT 003069	101 a-c	0.0 c	45 a-f	56 a-g	55 a-f	100 a
N05018	101 a-c	7.3 a	51 a-f	43 d-k	42 c-h	93 c
N03088T	101 a-c	0.0 c	38 c-f	63 a-d	63 a-c	100 a
CHAMPS	100 a-c	0.0 c	48 a-f	52 a-j	52 a-g	100 a
Phillips	100 a-c	2.7 a-c	32 f	65 a-c	66 ab	97 a-c
VT 023117	99 a-c	0.3 c	31 f	68 ab	68 a	100 a
VT 024051	99 a-c	1.0 bc	30 f	68 ab	68 a	99 ab
Georgia 08V	98 bc	1.7 bc	60 a-d	36 g-k	37 e-h	98 ab
VT 003194	98 bc	0.0 c	44 b-f	54 a-i	55 a-f	100 a
N04074FCT	98 bc	0.0 c	51 a-f	47 c-k	48 b-h	100 a
Perry	97 bc	0.0 c	41 b-f	55 a-h	57 a-e	100 a
N03023EF	97 bc	0.0 c	36 d-f	61 a-d	63 a-c	100 a
N05024J	97 bc	0.7 c	42 b-f	55 a-h	56 a-f	99 a
VT 003192	96 bc	0.0 c	62 ab	34 i-k	36 f-h	100 a
N05007	96 bc	4.7 a-c	49 a-f	43 d-k	44 c-h	95 a-c
VT 024024	91 c	0.0 c	54 a-f	37 f-k	41 d-h	100 a
N05008	91 c	0.0 c	62 a-c	30 k	34 gh	100 a
Mean	101	1	49	51	51	99
LSD_{0.05}²	12	6	24	20	21	6

¹ Means sharing the same letter(s) are not statistically different.

² Fisher's protected least significant difference (LSD) at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 32. Specific leaf area (SLA) and leaf area (LA) of fifteen fully developed leaves on the main stem. Leaves were sampled from the first planting dates only. Smaller SLA values denote thicker leaves and they were associated with improved water use efficiency.

Location	Suffolk, VA				Martin Co., NC			
	06/02/2009		06/22/2009		08/03/2009		06/08/2009	
Sampling date	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)
Variety	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)	SLA (cm ² /g)	LA (cm ²)
VT003191	192.4 a ¹	446.6 a	148.1 a-c	379.5 ab	158.3 a-e	579.1 a-c	138.2 a	394.1 a-d
N03088T	190.6 a	344.7 ab	143.9 a-c	372.7 ab	152.9 b-e	662.2 a	138.3 a	381.5 a-d
VT024024	185.7 a	360.9 ab	119.2 bc	313.9 ab	174.1 ab	484.4 c	136.3 a	302.7 f
VT004152	184.4 a	423.9 ab	195.1 a	410.9 a	165.3 a-d	573.8 a-c	141.9 a	392.0 a-d
N04074FCT	183.0 ab	339.7 ab	151.4 a-c	338.2 ab	146.4 c-e	572.7 a-c	162.0 a	327.8 d-f
Sugg	181.7 ab	361.3 ab	120.8 bc	335.4 ab	167.9 a-d	600.7 a-c	128.9 a	387.0 a-d
NC-V 11	181.4 ab	406.3 ab	135.2 bc	342.8 ab	157.1 a-e	568.9 a-c	138.6 a	350.5 b-f
VT024077	180. ab	407.5 ab	116.0 bc	307.1 b	157.4 a-e	530.5 a-c	141.7 a	382.5 a-d
VT024051	177.9 ab	446.6 a	152.5 a-c	347.8 ab	136.6 e	561.3 a-c	136.8 a	383.7 a-d
Gregory	177.3 ab	398.4 ab	141.3 a-c	374.1 ab	155.6 a-e	620.0 a-c	132.2 a	397.0 a-d
N05007	175.9 ab	383.4 ab	145.0 a-c	329.0 ab	163.6 a-d	259.8 a-c	155.0 a	402.8 a-c
N05018	172.8 ab	368.0 ab	146.6 a-c	375.8 ab	160.0 a-e	582.9 a-c	144.2 a	388.0 a-d
VT023117	172.5 ab	420.5 ab	139.9 bc	358.4 ab	156.9 a-e	516.1 a-c	131.8 a	379.3 a-e
Georgia 08V	171.9 ab	409.9 ab	136.3 bc	378.2 ab	157.4 a-e	588.9 a-c	137.0 a	413.2 ab
VT003069	171.5 ab	431.7 ab	142.7 a-c	358.4 ab	172.3 a-c	561.1 a-c	142.0 a	407.6 a-c
VT003194	171.37 ab	373.0 ab	117.8 bc	339.5 ab	164.1 a-d	637.3 ab	134.5 a	388.2 a-d
VT003192	171.2 ab	427.7 ab	166.5 ab	338.0 ab	151.8 b-e	502.0 bc	137.6 a	400.8 a-d
N05008	170.6 ab	373.1 ab	147.8 a-c	365.3 ab	160.6 a-e	532.2 a-c	168.4 a	388.2 a-d
VA 98R	170.0 ab	372.9 ab	168.7 ab	389.9 ab	157.5 a-e	511.9 a-c	137.4 a	394.1 a-d
N05024J	169.4 ab	327.3 b	135.5 bc	297.8 b	163.0 a-d	530.4 a-c	140.7 a	305.8 ef
VT003200	169.3 ab	345.9 ab	158.9 a-c	332.6 ab	161.0 a-e	540.2 a-c	127.0 a	376.8 a-f
Florida Fancy	168.4 ab	416.7 ab	133.6 bc	337.2 ab	181.2 a	577.2 a-c	140.0 a	403.1 a-c
N03023EF	168.1 ab	349.1 ab	110.0 c	316.9 ab	162.2 a-e	582.9 a-c	137.2 a	333.9 c-f
CHAMPS	167.6 ab	402.9 ab	143.2 a-c	360.0 ab	160.5 a-e	572.9 a-c	149.5 a	402.8 a-c
Phillips	167.4 ab	396.3 ab	143.8 a-c	353.4 ab	150.5 b-e	587.8 a-c	154.0 a	384.6 a-d
Perry	166.6 ab	386.5 ab	127.7 bc	339.7 ab	155.7 a-e	544.6 a-c	143.9 a	382.2 a-d
N05006	165.9 ab	415.0 ab	148.9 a-c	373.9 ab	153.7 b-e	598.9 a-c	135.8 a	428.0 a
Bailey	165.4 ab	354.4 ab	126.0 bc	317.5 ab	144.1 de	585.6 a-c	128.4 a	387.1 a-d
HST 02-08	164.8 ab	425.0 ab	133.2 bc	376.5 ab	161.2 a-e	655.2 a	151.4 a	448.3 a
N05049J	152.1 b	392.5 ab	165.0 a-c	395.2 ab	159.5 a-e	556.1 a-c	137.0 a	376.2 a-f
Mean	173.6	390.3	142.0	351.9	158.9	559.3	140.9	383.0

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 33. Leaf area (LA) and stomata number per leaf and LA on leaf samples from Southampton Co., VA. Stomata are the leaf openings that allow carbon dioxide to enter the leaf and water vapors to be released in the atmosphere. Carbon dioxide is essential for biomass and pod production, while loss of water increases the chance of moisture stress.

Variety	LA (cm ²)	Stomata (number/leaf)	Stomata (number/cm ²)
Florida Fancy	8.35 d-f ¹	161,523 a-d	19,517 a
N04074FCT	9.45 a-f	183,050 a-c	19,429 ab
Phillips	10.16 a-e	194,359 ab	19,043 a-c
N05049J	8.51 c-f	158,841 a-d	18,832 a-d
N05024J	7.78 ef	142,562 b-d	18,568 a-d
Georgia 08V	10.43 a-e	188,452 a-c	18,006 a-d
Bailey	9.51 a-f	169,541 a-d	17,971 a-d
VT003191	9.66 a-f	173,336 a-d	17,918 a-d
N05018	10.85 a-d	190,807 ab	17,760 a-d
VA 98R	8.92 b-f	156,164 a-d	17,497 a-d
VT003200	7.16 f	123,922 d	17,426 a-d
VT003069	8.64 b-f	150,199 a-d	17,233 a-d
N03023EF	8.83 b-f	148,313 a-d	17,233 a-d
Perry	10.11 a-e	172,182 a-d	17,058 a-d
N05008	12.02 a	202,170 a	16,882 a-d
CHAMPS	8.69 b-f	143,956 b-d	16,864 a-d
VT004152	9.97 a-f	166,805 a-d	16,829 a-d
N05006	9.33 a-f	157,856 a-d	16,812 a-d
VT024024	8.62 b-f	143,693 b-d	16,689 a-d
Gregory	9.62 a-f	160,878 a-d	16,601 a-d
VT023117	8.49 c-f	138,236 b-d	16,372 a-d
VT003194	10.60 a-e	175,267 a-d	16,267 a-d
N05007	10.96 a-d	176,204 a-d	16,126 a-d
NC-V 11	9.59 a-f	149,904 a-d	16,021 a-d
VT024077	9.78 a-f	153,479 a-d	15,758 a-d
VT024051	11.19 a-c	177,449 a-d	15,687 b-d
HST 02-08	11.42 ab	177,185 a-d	15,512 cd
N03088T	9.09 b-f	137,968 b-d	15,195 d
VT003192	8.52 c-f	129,683 cd	15,178 d
Sugg	10.48 a-e	153,444 a-d	15,020 d
Mean	9.56	161,914	17,043

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 34. Leaf area (LA) and stomata number per leaf and LA on leaf samples from Tidewater AREC (Suffolk), VA. Stomata are the leaf openings that allow carbon dioxide to enter the leaf and water vapors to be released in the atmosphere. Carbon dioxide is essential for biomass and pod production, while loss of water increases the chance of moisture stress.

Variety	LA (cm ²)	Stomata (number/leaf)	Stomata (number/cm ²)
N05024J	7.78 b-d ¹	134,590 ab	17,339 a
Perry	8.30 a-d	136,843 ab	16,548 ab
Florida Fancy	8.05 a-d	131,140 ab	16,179 a-c
VT003191	8.60 a-d	136,806 ab	15,986 a-d
N05049J	8.21 a-d	129,231 ab	15,881 a-d
VA 98R	8.47 a-d	132,737 ab	15,828 a-d
N04074FCT	7.20 d	112,432 ab	15,705 a-e
HST 02-08	8.55 a-d	130,695 ab	15,318 a-e
Sugg	8.32 a-d	126,538 ab	15,301 a-e
N05018	8.58 a-d	130,041 ab	15,248 a-e
VT003200	7.52 cd	113,480 ab	15,108 a-e
VT003069	9.26 ab	139,554 ab	15,090 a-e
Bailey	7.69 b-d	116,053 ab	15,020 a-e
Georgia 08V	9.61 a	143,593 a	14,985 a-e
Gregory	8.94 a-c	132,815 ab	14,879 a-e
Phillips	8.83 a-c	130,200 ab	14,879 a-e
VT024024	7.70 b-d	112,776 ab	14,668 a-e
CHAMPS	8.45 a-d	121,078 ab	14,352 b-e
VT024051	8.64 a-d	123,962 ab	14,335 b-e
VT024077	8.84 a-c	124,306 ab	14,036 b-e
VT003194	7.71 b-d	108,375 b	14,036 b-e
N03023EF	8.58 a-d	121,032 ab	14,036 b-e
VT003192	8.97 a-c	126,361 ab	13,966 b-e
N05008	7.96 b-d	110,015 b	13,966 b-e
N05006	8.95 a-c	125,081 ab	13,948 b-e
VT004152	8.38 a-d	113,837 ab	13,650 c-e
N05007	9.22 ab	125,133 ab	13,579 c-e
N03088T	8.77 a-d	118,425 ab	13,527 c-e
NC-V 11	8.38 a-d	110,800 b	13,263 de
VT023117	8.89 a-c	114,808 ab	12,842 e
Mean	8.45	124,425	14,783

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 35. Carbon dioxide assimilation, stomata conductance to water vapors, and transpiration efficiency of peanut plants planted on 15 April, 2009 at Tidewater AREC (Suffolk), VA. Measurements were taken in the early part of June, when plants had plentiful moisture. The higher

Variety	Carbon dioxide assimilation	Stomata conductance to water vapors	Transpiration efficiency
	A ($\mu\text{mol}/\text{m}^2/\text{s}$)	g_s ($\text{mol}/\text{m}^2/\text{s}$)	A: g_s ($\text{mmol}/\text{m}^2/\text{s}$)
Perry	38.29 a ¹	0.83 bc	53.8 a
N03088T	35.01 a	0.80 bc	53.3 a
VT003192	36.25 a	0.78 bc	52.5 a
Gregory	36.71 a	0.80 bc	52.0 a
Bailey	33.51 a	0.70 c	51.3 a
N05008	34.23 a	0.75 bc	51.3 a
Georgia 08V	39.31 a	0.86 bc	49.7 ab
NC-V 11	37.29 a	0.81 bc	49.1 ab
Phillips	38.43 a	0.90 a-c	48.4 ab
VT003200	33.83 a	0.75 bc	48.0 ab
N05049J	36.32 a	0.77 bc	47.8 ab
VT003191	35.88 a	0.88 a-c	47.5 ab
N05007	36.50 a	0.79 bc	47.5 ab
N03023EF	36.14 a	0.81 bc	47.4 ab
VT024051	37.22 a	0.82 bc	47.2 ab
VT024024	36.44 a	0.80 bc	47.1 ab
VT003194	35.98 a	0.86 bc	45.9 ab
N05006	39.91 a	0.90 a-c	45.9 ab
VT024077	36.13 a	0.89 a-c	45.6 ab
N04074FCT	36.86 a	0.84 bc	45.1 ab
Florida Fancy	38.72 a	0.92 a-c	44.9 ab
VT004152	37.08 a	0.88 a-c	44.8 ab
CHAMPS	38.64 a	0.93 a-c	44.4 ab
VA 98R	38.19 a	1.00 a-c	43.4 ab
VT023117	39.46 a	1.00 a-c	43.1 ab
HST 02-08	40.64 a	1.03 a-c	43.0 ab
N05024J	40.57 a	1.08 ab	42.8 ab
VT003069	37.64 a	0.92 a-c	41.9 ab
Sugg	40.28 a	1.03 a-c	40.2 ab
N05018	41.83 a	1.25 a	34.9 b
Mean	37.44	0.88	46.7

the transpiration efficiency is the better plants conserve water.

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at $P = 0.05$.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 36. Carbon dioxide assimilation, stomata conductance to water vapors, and transpiration efficiency of peanut plants planted on 15 April, 2009 at Tidewater AREC (Suffolk), VA. Measurements were taken in the late part of June, when plants were under water- stressed. The higher the transpiration efficiency is the better plants conserve water. Under water stress, plants assimilated less carbon and conserved water better than in early June (Table 34) when water was plentiful.

Variety	Carbon dioxide assimilation A ($\mu\text{mol}/\text{m}^2/\text{s}$)	Stomata conductance to water vapors g_s ($\text{mol}/\text{m}^2/\text{s}$)	Transpiration efficiency A: g_s ($\text{mmol}/\text{m}^2/\text{s}$)
N05006	22.9 c ¹	0.31 c	93.2 a
N05008	22.8 c	0.30 c	92.6 ab
N04074FCT	23.5 bc	0.34 c	91.4 a-c
N05049J	25.7 a-c	0.40 a-c	84.6 a-d
VT003191	25.4 a-c	0.33 c	82.2 a-d
NC-V 11	26.1 a-c	0.35 c	77.4 a-e
VA 98R	25.2 a-c	0.40 a-c	77.1 a-e
VT024051	25.3 a-c	0.37 c	76.1 a-e
N05018	26.5 a-c	0.43 a-c	73.7 a-e
VT024024	24.4 a-c	0.40 bc	72.1 a-e
CHAMPS	26.0 a-c	0.39 bc	71.9 a-e
Florida Fancy	26.7 a-c	0.44 a-c	71.6 a-e
VT004152	26.1 a-c	0.40 a-c	70.6 a-e
VT003192	27.3 a-c	0.41 a-c	70.0 a-e
VT003069	26.0 a-c	0.43 a-c	69.9 a-e
N05007	28.3 a-c	0.46 a-c	67.9 a-e
N03088T	25.4 a-c	0.43 a-c	67.6 a-e
N03023EF	28.4 a-c	0.50 a-c	66.5 a-e
Gregory	27.0 a-c	0.51 a-c	64.8 a-e
Perry	30.2 a-c	0.52 a-c	64.0 a-e
N05024J	27.8 a-c	0.50 a-c	62.5 a-e
Sugg	27.4 a-c	0.48 a-c	61.7 a-e
VT003200	28.0 a-c	0.52 a-c	61.7 a-e
VT024077	28.3 a-c	0.47 a-c	61.0 b-e
HST 02-08	29.2 a-c	0.51 a-c	60.6 b-e
Bailey	27.0 a-c	0.52 a-c	59.3 c-e
VT023117	29.3 a-c	0.54 a-c	59.0 de
VT003194	29.2 a-c	0.57 a-c	54.2 de
Phillips	31.4 ab	0.71 a	49.0 e
Georgia 08V	32.3 a	0.71 ab	47.9 e
Mean	26.9	0.46	69.4

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at P = 0.05.

Peanut Variety & Quality Evaluation Crop Physiology Comparisons

Table 37. Carbon dioxide assimilation, stomata conductance to water vapors, and transpiration efficiency of peanut plants planted on 15 April, 2009 at Tidewater AREC (Suffolk), VA. Measurements were taken in early July, when plants recovered from water stress after rainfall. The higher the transpiration efficiency is the better plants conserve water. Under optimum water conditions, plants regain carbon assimilation but transpiration efficiency is low.

Variety	Carbon dioxide assimilation	Stomata conductance to water vapors	Transpiration efficiency
	A ($\mu\text{mol}/\text{m}^2/\text{s}$)	g_s ($\text{mol}/\text{m}^2/\text{s}$)	A: g_s ($\text{mmol}/\text{m}^2/\text{s}$)
N05008	30.8 ab ¹	0.64 cd	56.2 a
N04074FCT	29.4 b	0.62 d	53.8 ab
N05006	32.4 ab	0.72 b-d	47.5 a-c
Perry	31.9 ab	0.87 a-d	46.7 a-c
N03023EF	31.2 ab	0.73 b-d	46.7 a-c
NC-V 11	32.4 ab	0.74 b-d	45.2 a-c
VT004152	33.2 a	0.84 a-d	44.8 a-c
VT003191	32.0 ab	0.80 a-d	43.0 a-c
Sugg	32.1 ab	0.84 a-d	42.3 a-c
VT023117	32.9 ab	0.81 a-d	42.2 a-c
Georgia 08V	34.0 ab	0.84 a-d	42.0 a-c
N05049J	34.2 ab	0.92 a-d	41.5 a-c
N05007	32.5 ab	0.82 a-d	40.9 a-c
N05024J	33.1 ab	0.85 a-d	40.4 bc
Bailey	33.0 ab	0.86 a-d	39.9 bc
VT003200	32.9 ab	0.89 a-d	39.8 bc
VT024051	33.4 ab	0.90 a-d	39.7 bc
CHAMPS	34.3 ab	0.91 a-d	38.8 bc
VT003194	33.6 ab	0.90 a-d	38.4 bc
VT003192	33.5 ab	0.96 a-d	37.4 c
Gregory	33.5 ab	0.93 a-d	37.0 c
VA 98R	33.8 ab	0.98 a-c	36.3 c
N05018	34.4 a	1.01 ab	36.3 c
N03088T	32.0 ab	0.91 a-d	36.2 c
VT024077	34.1 ab	0.99 ab	35.2 c
VT024024	34.4 a	1.02 ab	34.7 c
HST 02-08	35.2 a	1.03 ab	34.4 c
Florida Fancy	35.6 a	1.10 a	33.6 c
VT003069	33.2 ab	1.04 ab	32.8 c
Phillips	34.3 ab	1.09 a	32.1 c
Mean	33.1	0.89	40.5

¹ Means sharing the same letter(s) are not statistically different based on Tukey's HSD test at P = 0.05.