AGRONOMIC RECOMMENDATIONS AND PROCEDURES

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The primary considerations when selecting a peanut variety are yield and quality. Other important characteristics to consider are disease susceptibility, maturity, and stability. The disease susceptibility associated with commercially available Virginia marketplace varieties is reported later in this chapter and in the Peanut Disease chapter. The risks associated with peanut production can be minimized by selecting several varieties ranging in maturity and disease susceptibility characteristics. Variety selection should be based on data from multiple locations and years.

Tables 3 through 6 report percent Fancy pods (% FAN), percent extra large kernels (% ELK), percent sound mature kernels (% SMK), percent total kernels (% TK), and yield from 5 years of testing in Southampton county and City of Suffolk. At each location, tables report data from Dig I (approximately September 15) and Dig II (first week in October). Through examining dig dates, the maturity of a variety relative to the other varieties tested can be assessed. Combining the performance of varieties over years and locations should aid in evaluating the stability associated with a particular variety.

Table 3. Agronomic Performance of Commercially Available Peanut Varieties; Southampton County Location - DIG I - 5-Year Average, 2001-2005*.

Variety	% FAN	% ELK	% SMK	% TK	Yield (lb/acre)
NC-V 11	76	36	68	73	4639
Gregory	90	48	66	71	4719
NC 12C	83	45	68	74	4312
VA 98R	71	35	67	73	4621
Wilson	83	36	65	70	4739
Perry	71	40	67	73	4383
CHAMPS	81	37	70	74	4856
Phillips	81	47	69	74	4637

* *Selected data from: Coker, D.L., Peanut Variety and Quality Evaluation Results. January 2006. Information Series No. 479.*

Table 4. Agronomic Performance of Commercially Available Peanut Varieties; Southampton County Location - DIG II - 5-Year Average, 2001-2005*.

Variety	% FAN	% ELK	% SMK	% TK	Yield (lb/acre)
NC-V 11	73	42	68	74	4790
Gregory	88	55	68	73	4690
NC 12C	83	56	70	76	4742
VA 98R	72	42	68	75	4753
Wilson	79	42	67	72	4688
Perry	72	48	70	76	4724
CHAMPS	79	47	70	76	4675
Phillips	82	55	69	75	5110

* *Selected data from: Coker, D.L., Peanut Variety and Quality Evaluation Results. January 2006. Information Series No. 479.*

Table 5. Agronomic Performance of Commercially Available Peanut Varieties; City of Suffolk Location - DIG I - 5-Year Average, 2001-2005*.

Variety	% FAN	% ELK	% SMK	% TK	Yield (lb/acre)
NC-V 11	81	33	67	71	4977
Gregory	94	47	66	70	5020
NC 12C	88	45	68	72	4557
VA 98R	79	35	68	72	5023
Wilson	84	30	65	68	5117
Perry	81	37	68	72	4522
CHAMPS	86	37	69	72	5231
Phillips	86	42	68	72	5018

* *Selected data from: Coker, D.L., Peanut Variety and Quality Evaluation Results. January 2006. Information Series No. 479.*

Table 6. Agronomic Performance of Commercially Available Peanut Varieties; City of Suffolk Location - DIG II - 5-Year Average, 2001-2005*.

Variety	% FAN	% ELK	% SMK	% TK	Yield (lb/acre)
NC-V 11	80	41	68	73	5375
Gregory	94	57	68	73	5557
NC 12C	88	52	68	74	4841
VA 98R	74	43	69	75	5299
Wilson	81	39	66	71	5493
Perry	77	44	68	74	5180
CHAMPS	83	45	70	74	5218
Phillips	85	54	70	74	5586

* *Selected data from: Coker, D.L., Peanut Variety and Quality Evaluation Results. January 2006. Information Series No. 479.*

Peanut Varietal Descriptions

NC 7

NC 7 has a growth habit intermediate between runner (spreading) and bunch types and is considered to be of medium maturity (145 to 155 days, depending upon growing season). It is partially resistant to early leaf-spot disease and has high yield potential. NC 7 produces a high percentage of ELKs and Fancy pods. NC 7 is very susceptible to CBR (black rot), sclerotinia blight, and TSWV diseases. It does well on both loamy and sandy soils.

NC-V 11

Under good conditions, NC-V 11 has high yield and dollar value per acre. Maturity is about the same as NC 7. NC-V 11 produces fewer fancy pods and a lower percentage of ELKs than NC 7. NC-V 11 has a spreading runner growth habit. It is less susceptible to tomato spotted-wilt virus than other Virginia-type varieties.

NC 12C

NC 12C is a large-seeded CBR-resistant variety. It is similar in maturity, plant type, seed size, shape, seed coat color, and yield to NC 7. NC 12C is very susceptible to sclerotinia blight and TSWV diseases. The pods of NC 12C have a thin hull with a tendency to darken on roasting. Care should be taken to avoid pod damage in combining to minimize price penalty resulting from excessive levels of loose shelled kernels. Under close plant spacing or conditions of high water availability, NC 12C may produce excessive vine growth.

VA-C 92R

VA-C 92R is a high-yielding variety which has a spreading (runner) growth habit. Maturity is 3 to 5 days earlier than NC 7. The SMK percentage of VA-C 92R is equal to NC 7. Pods of VA-C 92R are generally darker in appearance than pods of other varieties. It is susceptible to all of the major diseases of the region.

VA 98R

VA 98R has a runner (spreading) growth habit and high yield potential. Maturity is considered early (5 to 7 days earlier than NC 7). This variety has pod-size, shape, and color which is well suited for in-shell markets. The SMK percentage is equal to NC 7 while ELK percentage is approximately equal to that of VA-C 92R, but lower than NC 7, NC 12C, and Gregory. Fancy pod percentage is approximately equal to NC-V 11, but lower than NC 7, NC 12C, or Gregory. VA 98R is susceptible to the major peanut diseases of the V/C production area.

Gregory

Gregory has a growth habit intermediate between runner (spreading) and bunch types. Maturity is equivalent to NC 7. This variety produces an exceptionally high percentage of ELKs and Fancy pods. Due to large seed size, Gregory has a high soil calcium requirement which may result in reduced seedling vigor if seed is produced under conditions which limit calcium uptake.

Perry

Perry is a high-yielding, large-seeded, CBR-resistant variety. Perry is less susceptible to Sclerotinia blight and web blotch than other Virginia-type varieties, but tends to have

high susceptibility to TSWV. Maturity is approximately 14 days later than that of NC 7. Growth habit is intermediate between runner (spreading) and bunch types. Perry has a pink seed coat and good pod color. Fancy pod and ELK percentage is slightly lower than NC 7.

Wilson

Wilson is a high-yielding, large-seeded Virginia-type peanut variety. This variety has an intermediate (spreading) growth habit. Pod characteristics including shape, size and bright color are ideal for in-shell uses. The fancy pod percentage of Wilson is slightly higher than VA 98R. The extra large kernel percentage of Wilson is lower than NC 7, but equal to NC-V 11. Seed-coat color is pink to light pink. Maturity is 5 to 7 days earlier than NC 7 (approximately equivalent to VA 98R). Wilson is less susceptible to TSWV than NC 7, NC 12C, or Perry, but is more susceptible than NC-V 11 or Gregory. Wilson is susceptible to other peanut diseases common to the V/C production region.

Champs

Champs is a recently introduced, large-seeded Virginia-type peanut with a runner growth habit. Plant height is taller than VA 98R, equal to NC-V 11 and shorter than NC 7 and Wilson. It is expected to be the earliest maturing of available Virginia type varieties, demonstrating optimum yields at early digging (135-140 days after planting in Virginia). Pod brightness is similar to VA 98R and Wilson and fancy pod percentage is higher than VA 98R and NC-V 11 but lower than NC 7. Champs is susceptible to all the major diseases in the V/C region although it is less susceptible to tomato spotted wilt virus than most Virginia-type cultivars being equal to NC-V 11.

Brantley

Brantley is a recently introduced Virginia-type high oleic peanut with growth habit and maturity similar to NC 7. Yield and grade are similar to NC 7 although it has produced a statistically higher content of fancy pods, being similar to Gregory. Extra large kernels content is also higher than NC 7 but less than Gregory. It is susceptible to all the major diseases in the V/C region.

Phillips

Phillips is a recently introduced, large-seeded Virginia-type peanut with an intermediate runner growth habit. Yield in a limited number of trials in Virginia has been high relative to other Virginia-type varieties. Phillips has a higher content of extra large kernels than most Virginia-type peanut varieties. It is susceptible to all the major diseases in the V/C region.

Runner Market Types

For several years, runner market type peanuts have been evaluated for variety performance and disease resistance in Virginia research. In 2006, 15 to 20 percent of the peanut acres in Virginia were planted to Georgia Green runner market type variety. Research in Virginia thus far indicates that this variety has the potential to yield equal to or greater than Virginia-type peanuts and offer more TSWV resistance relative to Virginia market type peanuts. Replicated research data are not available regarding maturity of runner market type peanuts in Virginia although acceptable yields were recorded in 2006 when a below average number of heat units accumulated.

Table 7. Agronomic and Market Characteristics of Virginia Market-type Peanut Varieties Recommended for Virginia

	VARIETY										
Characteristic	**NC 7**	**NC 12C**	**Gregory**	**NC-V 11**	**VA 98R**	**VA-C 92R**	**Perry**	**Wilson**	**Champs**	**Phillips**	**Brantley**
General											
Growth Habit	Int.	Int.	Int.	Runner	Runner	Runner	Int.	Int. – Runner	Runner	Int. – Runner	Int.
Maturity[a]	0	0	0	0	-5 to -7	-3	+14	-5 to 7	-7	-3	0
Pod Retention[b]	0	0	0	+	0	+	0	0	0	0	0
Seed Coat Color	Tan	Tan	Pink	Pink	Pink	Pink	Pink	Pink-Lt. pink	Pink-Lt. pink	Tan	Tan
Soil Type (Adapt.)[c]	M-L	M-L	M-L	M-L	M-L	M-L	M-L	M-L	M-L	M-L	M-L
Seed Count/lb	500	500	450	600	550	550	500	575	475	500	500
Calcium[d]	Low	Low	Low	Mod.	Mod.	High	Mod.	Mod.	High	0	Low
Seed Vigor[b]	0	0	-	+	++	++	0	++	0	0	0
Grade & Quality Factors[b]											
% ELK	0	0	+	-	-	-	-	-	-	0	+
% SMK	0	0	0	0	0	0	0	--	0	0	0
% Fancy	0	0	+	--	--	-	-	+	-	+	0
Blanchability	0	0	0	+	+	+	0	-	0	0	0
Shelf-life	0	0	0	--	- -	-	--	0	-	0	+
Splitting	0	0	0	0	0	0	0			0	0

[a] *0 = Same as NC 7; '+' = Days later than NC 7; '-' = Days earlier than NC 7*

[b] *0 = Same as NC 7; '++' = Substantially higher than NC 7; '--' = Substantially lower than NC 7; - = lower than NC 7; '+' = higher than NC 7*

[c] *Performs best on L = light; M = medium; H = heavy soil type*

[d] *Ability to absorb calcium*

Table 8. Disease and Insect Resistance Characteristics of Virginia Market-Type Peanut Varieties Recommended for Virginia

	VARIETY										
Characteristic	**NC 7**	**NC 12C**	**Gregory**	**NC-V 11**	**VA 98R**	**VA-C 92R**	**Perry**	**Wilson**	**Champs**	**Phillips**	**Brantley**
Disease Resistance[e]											
CBR	VS	MR	S	S	S	S	MR	S	S	S	S
Leaf spot	MR	MR	S	S	S	S	S	S	S	S	S
Pod Rot	S	S	S	S	S	S	S	S	S	S	S
Sclerotinia	VS	VS	VS	S	S	S	MR	S	S	S	S
Stem Rot	S	S	S	S	S	S	S	S	S	S	S
TSW virus	VS	VS	MR	MR	S	S	VS	S	MR	S	S
Web blotch	S	S	S	VS	VS	S	MR	S		S	S
Insect Resistance[e]											
Corn earworm	S	S	S	S	S	S	S	S	S	S	S
Leafhoper	S	S	S	S	S	S	S	S	S	S	S
Rootworm	S	S	S	S	S	S	S	S	S	S	S
Spider mites	S	S	S	S	S	S	S	S	S	S	S
Thrips	S	S	S	S	S	S	S	S	S	S	S

[e] *VS = Very Susceptible; S = Susceptible; MR = Moderately Resistant*

Table 9. Plant Population, Seed Size, and Seeding Rates for Recommended Varieties[1]

Seeding Rates			Variety and Approximate Seed Count Per Pound						
Seed Spacing (inches)	# Seed (per foot)	# Seed (per acre)	Gregory (450)	Phillips Brantley NC 7 NC 12C Perry (500)	VA-C 92R (550)	Wilson VA 98R (575)	NC-V 11 (600)	Champs (475)	Georgia Green (825)
For 36" rows[2]			Lbs seed required to plant 1 acre in 36" rows						
2.0	6	81,120	180	174	160	152	145	167	98
3.0	4	58,080	129	116	106	101	97	123	70
4.0	3	43,560	97	87	80	76	73	92	53
6.0	2	29,040	65	58	53	51	48	62	35

[1] *Seed requirements for one acre at 4 intra-row seed spacings in 36-inch rows*

[2] *For any seed spacing in 32", 34", or 38" rows, multiply the pounds of seed required to plant 36-inch rows as noted below:*

Row spacing	*Multiply lbs for 36" rows by:*
32"	*1.125*
34"	*1.060*
38"	*0.947*

Twin-row Planting Patterns

The impact of twin-row planting has been somewhat inconsistent. Yield increases (5 percent to 10 percent) due to twin-row planting have been documented with the NC-V 11, Perry and VA 98R varieties. Twin-row planting has more consistently resulted in yield increases on light-textured soils (sands to loamy sands) than on medium- to heavy-textured soils (loam to sandy clay loams). Yield increases have been documented in twin-row plantings both with seed spaced 3 to 4 inches apart and with seed spaced 5 to 6 inches apart. Twin-row planting has also been noted to reduce the severity of tomato spotted-wilt virus disease. Good early season weed control is essential when planting in twin rows.

Use of Inoculants

The peanut plant depends upon association with Rhizobium bacteria to form root nodules which "fix" atmospheric nitrogen for use by the plant. Commercial inoculants are available which can be applied to the seed or put into the furrow with the seed at planting. In-furrow inoculants are available as either granular or liquid products. If peanuts are to be planted in a field which has not been planted to peanuts within four to five years, or if the field has not produced a well-nodulated, nitrogen-fixing peanut crop, inoculate the seed at planting or use an in-furrow inoculant.

Trace-element Requirements

Manganese

Manganese is needed in small amounts for peanut production. Soils in the peanut area, until recent years, contained adequate available manganese but now most sandy soils are deficient in this nutrient. Manganese availability to plants most commonly becomes critical with a soil pH of 6.2 to 6.5 or higher. In the heavier and more poorly drained soils, manganese deficiency symptoms (leaf-yellowing) often will occur when soil pH exceeds 6.2. On sandy soils, deficiency symptoms usually will not occur until the soil pH exceeds 6.5. Since peanut yields are not increased by pH values which exceed 6.2, it is recommended that peanut soils retain a pH value of 5.8 to 6.2. Generally, if soil tests indicate less than 3 ppm manganese, one or more foliar applications of the nutrient will be required. Monitor the crop for visual symptoms of manganese deficiency. If deficiency symptoms appear, foliar applications of the nutrient will be required. Soil application of manganese is not recommended. Typical plant deficiency symptoms are yellowing of leaflet tissues between the veins while the veins remain green. Nitrogen deficiency is sometimes confused with manganese deficiency when the whole leaf, including the veins, is pale yellow.

Manganese Recommendations

Apply 1 to 3 applications of manganese [Tecmangam, $MnSO_4$, $MnCl_2$, or $Mn(NO_3)_2$] as a foliar spray as needed between mid-June and August 15 at the rate of 1.0 lb elemental manganese per acre per application. Manganese sources may be tank-mixed with leaf-spot sprays. Cone-type nozzles used for leaf-spot sprays are well suited for application of manganese. If other manganese materials are available, spray the material to deliver 1.0 lb elemental manganese per acre. *Do not mix Solubor with any of these manganese products. Boric acid may be mixed with these manganese products.*

When soil tests for manganese are 3.0 ppm or below, three preventative applications should be made at 2-week intervals, beginning mid-June.

Soil Application - Application of manganese to the soil in fertilizer has been ineffective in providing this element to the crop.

Liquid Manganese Products

A number of liquid formulations containing manganese are available for use on peanuts. When used according to label instructions many of these products provide less than 1.0 lb elemental manganese per acre. Recent Virginia research results have shown that liquid manganese formulations should be applied in multiple applications, which supplies a total of at least 0.5 to 1.0 lb elemental manganese per acre per application. With manganese EDTA chelate the material should supply 0.25 to 0.50 lb elemental manganese per acre per application. EDTA chelated products may be tank mixed with cupric hydroxide and with inorganic sources of boron.

Boron

Boron is needed during kernel development; hence, it should be applied about the time of, or immediately following, flowering. Generally, boron is applied as a wettable powder or liquid spray with the leaf spot fungicides. When plants are under stress or if the recommended rates are exceeded, leaf burning will occur. Excessive use of boron can cause severely reduced yields even when foliage burning is not obvious. Boron can be applied satisfactorily as a soil application in fertilizer. Do not mix solubor with inorganic sources of manganese due to potential compatibility problems.

Boron Recommendation

Apply 0.5 lb elemental boron per acre at the early bloom stage to prevent internal damage. The application of boron is especially important on light sandy soils. The following sources and rates are suggested:

2.5 lb/A Solubor foliar applied in 10-30 gal spray/A

2.8 lb/A Boro-spray foliar applied in 10-30 gal spray/A

2.9 lb/A Boric Acid foliar applied in 10-30 gal spray/A

Apply boron at the time of second or third leaf spot application. Do not apply when plants are under moisture stress. Do not apply with sulfur or other chemicals which tend to burn foliage and do not exceed 0.5 lb/A elemental Boron. Split applications, each of 0.25 lb elemental boron per acre, at 2- to 4-week intervals up to August 15 are suggested.

Do not mix Solubor with Techmangam, $MnS0_4$, $MnCl_2$, $Mn(NO3)_2$, or with leaf-spot disease control products containing cupric hydroxide due to potential compatibility problems.

Landplaster-Calcium Recommendations

Table 10. Landplaster-Calcium Recommendations

Source	% $CaSo_4$	Band (16-18")	Broadcast
		----------lb/A --------	
US Gypsum Bagged	85		
US Gypsum Bulk 420 (gran.)	83	600	900-1200
US Gypsum Bulk 500 (gran.)	70		900-1200
Texasgulf Gypsum (Phosphogypsum)	50	---	1500-1800
ISG Resources, Inc. Peanut Maker (Semi-Granular)	71	---	1100-1500

Time of application: June 10 - July 15.

Special Recommendation for Peanut Seed Production

It is essential that peanuts being grown for seed receive a continuously available supply of calcium from pegging through seed development to insure high germination. This can be accomplished by either using two (2) applications or by increasing the amount used at the first application by 50 percent; being certain to apply it after June 10. Specific recommendations are:

1. a) June 10 - June 30 — Apply 75 percent of recommended amounts above for non-seed crop.
   b) July 1 - July 20 — Apply 400-500 lb/A of bagged or dry USG 420 or USG 500 landplaster in a band over the row.

OR

2. June 10 - June 30 — Apply the higher rate of the above rate ranges. CAUTION: If soil potash level is relatively low, this choice could cause a potash deficiency to occur unless potash is applied prior to planting.

Recommendations for Runner Market Type Peanut Production

Runner market type peanuts require less calcium (Ca) for optimum seed development than Virginia market types. To assess the need for supplemental Ca, soil samples should be taken up to a 3-inch depth in the pegging zone in mid to late June. If the ratio of calcium to potassium (K) exceeds 3 to 1 and the calcium levels exceed 250 parts per million (ppm), Ca is not recommended. To calculate the ratio of Ca to K, use the following formula:

Ca to K ratio = Ca saturation (%) / K saturation (%)

To calculate the concentration of Ca in ppm use the following equation:

Ca concentration in ppm = Ca saturation (%) x CEC x 200