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**ANNUAL PROGRESS REPORT  
TO  
NORTH CAROLINA PEANUT GROWERS ASSOCIATION, INC.**

**TITLE:** Offsetting the Input Cost of Breeding Plots at NCDA&CS (Peanut Belt) Research Stations

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**REPORT:**

Starting in the 2011 crop year researchers using the NCARS and NCDA research stations are responsible for providing half the variable cost of production for the crop under study. In the case of peanut, it was calculated that this comes to \$500 per acre. Because there is no mechanism for the transfer of funds from an NCSU grant account to any of the research stations, the mechanism whereby the funds are transferred is to have the NCSU project buy supplies for the research station which then uses the supplies to grow, harvest, and process the project's plots.

In the 2017 season, Drs. Isleib and Stalker had approximately 34.6 A of actual plots (25.8 A at the Peanut Belt Research Station at Lewiston in Bertie County, 5.7 A at the Upper Coastal Plain Research Station at Rocky Mount in Edgecombe County, 2.2 A at the Sandhills Research Station at Jackson Springs in Moore County, and 0.9 at the Border Belt Tobacco Research Station at Whiteville in Columbus County), most of those acres for selection, seed increase, and replicated trials at the Peanut Belt Research Station at Lewiston, NC, but several replicated trials at UCPRS, one replicated trial at BBTRS, and one replicated trial of cultivated peanut and a seed nursery of wild peanut species at SRS. Because the actual plots must be fit into sometimes irregularly shaped fields that must be filled in with station-planted border, and because there are station-planted strips to allow passage of irrigation equipment, the station superintendents generally calculate area used on the basis of entire fields rather than actual plots.

Peanut Belt Research Station (Lewiston, Bertie Co.)	Acronym	Entries	Reps	Plots	Field
<b>Yield trials</b>					
Advanced Yield Test	AYT	100	2	200	D3
Chamberlin Oleic Acid Test	COT	8	4	24	D3
Disease Advanced Line Test, Leaf Spots, Sprayed	LAS	56	2	112	D9b
Disease Preliminary Line Yield Test	DPT	49	2	98	D3
Early Maturity Advanced Test, Early Digging	EAE	10	3	30	D3
Early Maturity Advanced Test, Late Digging	EAL	10	3	30	D3
Preliminary Yield Test	PYT	200	1	200	D3
Uniform Peanut Performance Test	UPT	30	6	180	D3
<b>Seed increases</b>					
Big-Ass Nursery	BAN	10	1	13	D7a
Breeder Seed Increase Nursery	BSI	20	1	60	D3
Disease Advanced Line Nursery	DAN	48	1	144	B2
Disease Preliminary Line Nursery	DPN	39	1	39	B2
Even Bigger Increase	EBI	30	1	180	D3
F5:6 Insect Resistant Selection Nursery	F7I	86	1	86	B2
F6:7 Drought RIL Development Nursery	F7D	340	1	340	B2
Germplasm Increase Nursery	GIN	741	1	741	B2
H.T. Stalker A. diogoi Germplasm Nursery	HTS DGN	32	1	32	B2
H.T. Stalker F1 Seed Increase	HTS SI1	32	1	32	B2
Hancock Arachis diogoi Line Nursery	HDN	87	1	87	B2
Large Plot Increase Nursery	LPI	20	1	60	D3
Preliminary Yield Line Nursery	PYN	158	1	158	B2
Sinclair Drought Resistant Line Nursery	SDN	9	1	27	B2
Single-Plant Nursery	SGL	4	1	36	B2
Small Plot Increase Nursery	SPI	96	1	96	B2
<b>Plant / family selection nurseries</b>					
F1:2 Selection Nursery	F2N	166	1	166	C1
F2:3 Selection Nursery	F3N	226	1	226	C3
F2:3 Selection Nursery, Oil Content	F4O	10	1	10	C1
F2:4 Selection Nursery, Accelerated Program	F4A	105	1	105	C1
F3:4 Selection Nursery	F4N	277	1	277	C1
F4:5 Selection Nursery	F5N	315	1	315	C1
F4:6 Selection Nursery, Accelerated Program	F6A	62	1	62	C1
F5:6 Selection Nursery	F6N	254	1	254	C3
F6:7 Selection Nursery	F7N	395	1	395	B2
H.T. Stalker F1:2 Late Leaf Spot Nursery	HST LLS	84	1	84	D9b
<b>Leaf spot trials</b>					
Advanced Line Disease Test, Leaf Spots	ALL	56	2	112	D9b
Disease Advanced Line Test, Leaf Spots, Unsprayed	LAU	56	2	112	D9b
Disease Selection Test, Leaf Spots	DSL	210	2	420	D9b
H.T. Stalker F2:5 Cercospora Leaf Spot Test	HST CLT	30	4	120	D9b
Hancock Arachis diogoi Tetraploid Test, Leaf Spot	HDL	100	3	300	D9b
<b>Tomato spotted wilt trials</b>					
Advanced Line Disease Test, TSWV	ALT	56	3	168	A1
Disease Advanced Test, TSWV	DAT	56	3	168	A1
Disease Selection Test, TSWV	DST	210	2	420	A1
Hancock Arachis diogoi Tetraploid Line Test, TSWV	HDT	100	2	200	A1
<b>Drought tolerance</b>					
Sinclair Drought Test	SDT	9	4	36	B2

Upper Coastal Plain Research Station  
 (Rocky Mount, Edgecombe Co.)

	Acronym	Entries	Reps	Plots	Field
Yield trials					
Advanced Yield Test	AYT	100	2	200	E4
Disease Preliminary Line Yield Test	DPT	49	2	98	E4
Early Maturity Advanced Test, Early Digging	EAE	10	3	30	E4
Early Maturity Advanced Test, Late Digging	EAL	10	3	30	E4
Preliminary Yield Test	PYT	200	1	200	E4
Cylindrocladium black rot trials					
Advanced Line Disease Test, CBR	ALC	56	3	168	D1
Disease Advanced Test, CBR	DAC	56	3	168	D1
Disease Selection Test, CBR	DSC	210	2	420	D1
Sclerotinia blight trials					
Advanced Line Disease Test, Sclerotinia blight	ALS	56	3	168	C2
Disease Advanced Test, Sclerotinia blight	DAS	56	3	168	C2
Disease Selection Test, Sclerotinia blight	DSS	210	2	420	C2
Hancock Sclerotinia Blight Test	HSB	256	2	512	C2
Tomato spotted wilt trials					
Hancock Arachis diogoi Tetraploid Line Test, TSWV	HDT	100	2	200	E4
Drought tolerance					
Sinclair Drought Test	SDT	9	4	36	E5
Border Belt Tobacco Research Station (Whiteville, Columbus Co.)					
Yield trials					
Advanced Yield Test	AYT	100	2	200	E4

## IMPACT STATEMENT

Although we gain information each year on each line tested, the main measurable outcome of the project is the release of new cultivars and/or registered breeding lines. The latter are released because they have one or more desirable traits but are not sufficiently good to be cultivars. Our last release was the high-oleic cultivar Bailey II in the spring of 2017. Foundation, Registered, and Certified seed of the previous two releases, Sullivan and Wynne, was grown in 2017. There should be Certified seed available to North Carolina producers in the spring of 2018. Using the 2016 certified seed production figures as estimates of cultivar use in 2017, North Carolina releases were grown on 72% of peanut acreage in North Carolina and 76% of acreage in the VC area. An estimate of the difference in crop value achieved by the new releases, using value-per-acre figures at the loan rate taken from the PVQE program, is \$10 million region-wide. Such estimation requires a lot of assumptions, but even if the estimate is inflated twofold, the improvement would still be \$5 million in a single year.