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NCARS/NCCES CODE: NC-29
OFF CAMPUS RESEARCH
REPORT PERIOD: 01/01/2016–06/30/2017

ANNUAL PROGRESS REPORT
TO
NORTH CAROLINA PEANUT GROWERS ASSOCAITION, INC.

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

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DEPARTMENT(S): **Crop and Soil Sciences**

REPORT:

Starting in the 2011 crop year, the administrations of the NCARS and the NCDA agreed that researchers using the NCARS and NCDA research stations would be responsible for providing half the variable cost of production for the crop under study. In the case of peanut, they 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. Drs. Isleib and Stalker had approximately 31.2 A of actual plots (25.6 A at the Peanut Belt Research Station at Lewiston in Bertie County, 4.6 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 0.8 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.

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Peanut Belt Research Station (Lewiston, Bertie County)	Acronym	Entries	Reps	Plots	Field
Yield trials					
Advanced Yield Test	AYT	90	2	180	D2
Disease Advanced Line Test, Leaf Spots, Sprayed	LAS	56	2	112	D8a&b
Disease Preliminary Line Yield Test	DPT	49	2	98	D2
Early Maturity Advanced Test, Early Digging	EAE	20	2	40	D2
Early Maturity Advanced Test, Late Digging	EAL	20	2	40	D2
Preliminary Yield Test	PYT	219	1	240	D2
Uniform Peanut Performance Test	UPT	30	6	180	D2
Seed increase nurseries	**Acronym**	**Entries**	**Reps**	**Plots**	**Field**
Big-Ass Nursery	BAN	10	1	10	D6
Breeder Seed Increase Nursery	BSI	22	1	132	D2
Breeding Line Purification Nursery	PUR	660	1	660	B5
Disease Advanced Line Nursery	DAN	44	1	132	D8a&b
Disease Preliminary Line Nursery	DPN	41	1	41	C6a&b
Early Maturity Advanced Line Nursery	EAN	18	1	18	C6a&b
Large Plot Increase Nursery	LPI	50	1	300	D2
Preliminary Yield Line Nursery	PYN	163	1	163	C4a&b
Sinclair Drought Resistant Line Nursery	SDN	16	1	48	D8a&b
Small Plot Increase Nursery	SPI	91	1	91	C4a&b
Plant / family selection / RIL development nurseries	**Acronym**	**Entries**	**Reps**	**Plots**	**Field**
$F_{1:2}$ Selection Nursery	F2N	127	1	127	C6a&b
$F_{2:3}$ Selection Nursery	F3N	84	1	84	C6a&b
$F_{2:3}$ Selection Nursery, Oil Content	F3O	12	1	12	C6a&b
$F_{2:4}$ Selection Nursery, Accelerated Program	F4A	98	1	98	C6a&b
$F_{3:4}$ Selection Nursery	F4N	30	1	30	C6a&b
$F_{4:5}$ Selection Nursery	F5N	238	1	238	C6a&b
$F_{4:6}$ Selection Nursery, Accelerated Program	F6A	65	1	65	C6a&b
$F_{5:6}$ Drought RIL Development Nursery	F6D	340	1	340	B5
$F_{5:6}$ Insect Resistant Selection Nursery	F6I	86	1	86	C7b
$F_{5:6}$ Selection Nursery	F6N	424	1	424	C6a&b
$F_{6:7}$ Selection Nursery	F7N	395	1	395	C6a&b
Leaf spot / defoliation trials					
Advanced Line Disease Test, Leaf Spots	ALL	64	2	128	D8a&b
Disease Advanced Line Test, Leaf Spots, Unsprayed	LAU	56	2	112	D8a&b
Disease Selection Test, Leaf Spots	DSL	210	2	420	D8a&b
Tomato spotted wilt virus tests					
Advanced Line Disease Test, TSWV	ALT	64	3	192	C7b
Disease Advanced Test, TSWV	DAT	56	3	168	C7b
Disease Selection Test, TSWV	DST	210	2	420	C7b
Drought / wilting tests					
Sinclair Drought Test, "Outside"	SDO	8	4	32	A2
Sinclair Drought Test, Under Rain-Out Shelters	SDT	9	4	36	A2

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Upper Coastal Plain Belt Research Station (Rocky Mount, Edgecombe County)	Acronym	Entries	Reps	Plots	Field
Yield trials					
Advanced Yield Test	AYT	90	2	180	F1
Disease Preliminary Line Yield Test	DPT	49	2	98	F1
Early Maturity Advanced Test, Early Digging	EAE	20	2	40	F1
Early Maturity Advanced Test, Late Digging	EAL	20	2	40	F1
Preliminary Yield Test	PYT	219	1	240	F1
Cylindrocladium black rot (CBR) tests					
Advanced Line Disease Test, CBR	ALC	64	3	192	D1
Disease Advanced Test, CBR	DAC	56	3	168	D1
Disease Selection Test, CBR	DSC	210	2	420	D1

Sclerotinia blight (SB) tests	Acronym	Entries	Reps	Plots	Field
Advanced Line Disease Test, Sclerotinia blight	ALS	64	3	192	C2
Disease Advanced Test, Sclerotinia blight	DAS	56	3	168	C2
Disease Selection Test, Sclerotinia blight	DSS	210	2	420	C2

Border Belt Tobacco Research Station (Whiteville, Columbus County)	Acronym	Entries	Reps	Plots	Field
Yield trials					
Advanced Yield Test	AYT	90	2	180	F1

Sandhills Research Station (Jackson Springs, Moore County)	Acronym	Entries	Reps	Plots	Field
Drought / wilting tests					
Sinclair Drought Test, "Outside"	SDO	8	4	32	B9
Stalker Wild Species Seed Nursery		200	1	200	E1d2

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 Emery in the spring of 2015. Foundation, Registered, and Certified seed of the previous two releases, Sullivan and Wynne, was grown in 2015. There should be Certified seed available to North Carolina producers in the spring of 2017. Using the 2015 certified seed production figures as estimates of cultivar use in 2016, North Carolina releases were grown on 94% of peanut acreage in North Carolina and 87% of acreage in the VC area. Approximately 81% of the acreage in-state and 75% region-wide were in project releases Bailey and Sugg. 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.