



AGRICULTURAL RESEARCH SERVICE

## Priorities and Plans for the Curation of the USDA National Germplasm System Peanut Collection

Shyam Tallury<sup>1</sup>, Angie Lewis<sup>2</sup> and Gary Pederson<sup>1</sup>  
<sup>1</sup>PGRCU, USDA-ARS, Griffin, GA  
<sup>2</sup>Univ. of Georgia, Griffin, GA



### Introduction:

The USDA National Plant Germplasm System peanut collection consists of 9,166 accessions of the cultivated peanut (*Arachis hypogaea* L.) and 611 accessions of wild *Arachis* species. Of this, 8,514 (93%) cultivated and 442 (72%) accessions of wild species are available for distribution. The collection is maintained by the Plant Genetic Resources Conservation Unit (PGRCU) located on the University of Georgia-Griffin Campus. It is maintained at -18 C with a distribution sample kept at 4 C and 25% RH.

### Primary Goal:

The primary goal of the collection is to preserve, maintain and distribute the germplasm to researchers in the USA and worldwide and also for other educational purposes

### Priorities:

- Make all unavailable accessions available by conducting annual regenerations
- Acquire missing accessions from breeders or ICRISAT
- Periodical regenerations of *A. hypogaea* accessions to replenish fresh seeds to maintain seed quality and quantity
- Choose accessions based on low seed quantity, low germination percentage and the length of time in storage
- Maintain vegetatively propagated wild species accessions in the greenhouses
- Characterization of the regenerations for morphological and biochemical traits
- Compile digital images of plant, pod and seed traits
- Upload data on public GRIN-Global website for worldwide access

### Plans:

#### Curation:

- Regenerate between 600-1000 accessions of *A. hypogaea* annually under field conditions
- Regenerate about 200 accessions of *Arachis* wild species annually in the greenhouses

#### Characterization:

- Morphological observations of plant, pod and seed traits
- Biochemical analysis for total oil and fatty acid profiles

#### Future plans include

- Molecular characterization of the core and mini core accessions as well as wild species accessions
- Biochemical analysis of *Arachis* wild species accessions
- Nutritional analysis of perennial rhizomatous wild species accessions for forage potential
- Disease screening of *Arachis* wild species accessions
- Understanding taxonomic relationships of wild species accessions in crosses with standard set of A, B, D, F, K genome species
- Develop additional quarantine testing methods for emerging pathogens and pests

### 2016 Progress:

- 963 *A. hypogaea* accessions which are unavailable for distribution mainly because of low seed quantity, were selected for regeneration
- 378 accessions were planted at the USDA Southeastern Fruit and Nut Research Station Farm in Byron, GA
- 325 accessions were sent to cooperators in FL, NM, OK and TX for regenerations
- 260 accessions were planted in the greenhouses in Griffin
- Additionally, seeds of 58 wild species from the original and/or the oldest inventories were planted in the greenhouses
- Further, phenotypic characterizations of *A. hypogaea* and wild *Arachis* species is continued