MULTISTATE RESEARCH PROJECT S-009
PLANT GENETIC RESOURCES CONSERVATION AND UTILIZATION

Background: Plant genetic resources, along with water, air, soil, minerals, and crop management practices, are crucial components of agricultural production systems that sustain humanity. This project addresses the national priority of Global Food Security and several SAAESD priority areas including 1D. Value-added plant and animal genes in conventional breeding and molecular biology; 1E. New plant and animal species for agricultural production; 3A. Nutritional quality of plant and animal food products; and 4B. Natural resource and ecosystem management. Agricultural stability of the U.S. and Southern Region is based primarily on non-indigenous crops such as peanuts, sorghum, and other imported crops. Few crops (sunflower, nuts, and berries) of commercial importance are indigenous to the U.S. For proper homeland security of American food and fiber, plant genetic resources must be preserved for both current and future research use. Crop collections important to the Southern Region have been supported since 1949 through a joint partnership, designated as Multistate Research Project S-009, between the USDA-Agricultural Research Service (USDA-ARS) and the Southern State Agricultural Experiment Stations (SSAES). For years, S-009 has served as a major repository within the National Plant Germplasm System (NPGS). Its activities have markedly improved crop technology in the U.S. and abroad, through acquisition, conservation, characterization, and distribution of plant genetic resources and associated information to researchers and educators.

Progress to Date: S-009 was established in 1949 to enable federal and state cooperators to participate in coordinated efforts to acquire, regenerate, maintain, characterize, evaluate, document, distribute, and utilize plant genetic resources of value to agriculture. All S-009 annual reports and minutes since 1949 are now posted as searchable PDF files online (www.ars.usda.gov/Main/docs.htm?docid=9592). Plant genetic resources are the building blocks of genetic variability upon which scientists conduct research and develop improved cultivars and products. Hundreds of publications and numerous cultivars have utilized S-009 germplasm. These materials were obtained from over 180 countries in the last 110 years. This project has grown from 811 accessions of 41 genera in 1949 to the largest collection of the four NPGS regional multistate projects with 91,259 accessions of 258 genera and 1,548 species in 2012. Over 88% of S-009 accessions are available for distribution and over 97% are safely backed up at Ft. Collins, CO. Intervals between seed regenerations are maximized to reduce loss of valuable genetic variability by storing 75% of the accessions in -18C rather than 4C. Over 900 requesters each year use these genetic resources in plant breeding, plant pathology, entomology, molecular biology, genomics, archaeology, anthropology, crop management, ecology, medical, and alternative uses. This project has had numerous impacts on research progress, agricultural productivity, and public benefits. For example, a peanut accession (PI 203396) collected in 1952 from a Porto Alegre, Brazil, market has resistance to a major peanut disease, tomato spotted wilt virus. Resistance from this single accession has been bred into 24 peanut cultivars including the five cultivars currently dominating the Southeastern U.S. peanut acreage for an estimated economic return of $200 million per year. In 2011 alone, the project impacted education by providing germplasm for university graduate students in several locations (MI, NC, MS, OK, Egypt, Australia, Turkey, Canada, Italy, Czech Republic, United Kingdom, Spain, and New Zealand). The new project will continue to provide plant genetic resources and information to

scientists for research, education, and extension programs in the region, the nation, and the world.

Proposed S-009 Objectives (2013-2022)
The S-009 Multistate Technical committee met on July 31 – August 1, 2012, and developed the following four proposed objectives for renewal of the S-009 project. These objectives have been expanded into the Development Committee (DC) request submitted on September 10, 2012.

1. Acquire and conserve genetic resources of crops and related wild species of importance to the Southern Region such as sorghum, peanut, watermelon, chili peppers, warm-season grasses, cowpea, clover, tropical/subtropical legumes, and others.

2. Conduct genetic characterizations and phenotypic evaluations of the conserved crops and related wild species for commercially important genetic and agronomic traits.

3. Incorporate characterization and evaluation information into the Germplasm Resources Information Network (GRIN) or other public databases.

4. Distribute genetic resources and associated information to researchers, educators, and plant breeders in the Southern Region and worldwide.

Action Requested: For information only.