

ANNUAL REPORT OF COOPERATIVE REGIONAL PROJECTS  
Supported by Allotments of the Regional Research Fund  
Hatch Act, as Amended August 11, 1955  
January 1 to December 31, 1992

- 1. PROJECT: S-9 Plant Germplasm: Its Introduction, Maintenance and Evaluation
- 2. COOPERATING AGENCIES AND PRINCIPAL LEADERS:

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*received signed originals back Mosjidis 3-2-93 RH*

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*March 2, 1993  
Have originals + copies to Sandy for Dr. Arkin & Fed. to Wash DC. State Dir. RH*

Southern Regional Plant Introduction Station,  
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Regional Coordinator  
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FILE COPY

*March 4, 1993  
copies mailed to all members by SW  
RH*

3. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

Germplasm of 2,196 new Plant Introductions (PI's) were received and processed into the S-9 germplasm collections. The majority of these new accessions were sorghum, sweetpotato, watermelon and peanuts. Distribution of seed packets and vegetative clones totaled 32,333 in response to 709 requests. The S-9 region received 18,211; NC-7, 5,854; NE-9, 709; W-6, 4,960. Regeneration of 1,573 PI's was carried out by the PI station staff and cooperators in several states (AL, CA, FL, NM, PR, TX). The S-9 plant germplasm collection now totals 68,817 PI's.

An additional 80 accessions of I. batatas were introduced into the in vitro collection for maintenance. These materials represent accessions from latin America and the South Pacific. Twenty four accessions of tetraploid I. batatas were collected as botanical seed in Ecuador in collaboration with the International Potato Center (CIP) and INIAP (Ecuadorian government). Four Ipomoea species were collected in Hawaii. Seed of all species collected in 1992 is scheduled for increase in 1993. Propagules of sweetpotato have been distributed in response to requests nationally and internationally. Forty accessions of Ipomoea representing 5 species were increased in the greenhouse during 1992. Funding was obtained for a plant collection trip to Papua New Guinea in 93.

A plant exploration trip into Brazil resulted in the collection of 17 accessions of 10 species of wild peanuts from 5 sections of the genus Arachis. In addition 90 accessions of wild peanuts and 82 accessions of the cultivated species (A. hypogaeae) were brought back that had been collected in earlier explorations and increased by a Brazilian cooperator.

Watermelon accessions (347) were screened in the greenhouse for resistance to watermelon mosaic virus 2 and eight accessions were screened in the field. Five from the greenhouse screening were resistant. Additional testing is scheduled. In the screening of the cowpea collection a NADP-amplified ELISA method to detect 1 blackeye cowpea mosaic virus in seeds was developed. Preliminary results indicate the virus is mostly in seed coats and cotyledons.

4. USEFULNESS OF FINDINGS:

Results obtained through this project at the regional station, at state experiment stations, by federal agencies, and by private enterprise are mutually beneficial to plant breeders and other plant scientists, and through them ultimately to the public. Desirable traits found in plant introductions can be used to develop superior

varieties thereby increasing the efficiency of production and reducing the need for pesticides. Through work at the regional station seed of world collections of economic crops is maintained for future use. New information gained from cultural studies of potential crops may lead to greater diversification of agriculture.

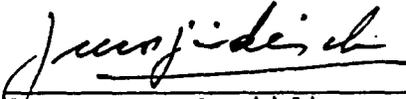
5. WORK PLANNED FOR NEXT YEAR:

The Regional Plant Introduction Station will continue to receive, propagate, and catalogue plants for distribution to plant breeders and other cooperators. Screening studies will be continued to locate resistance to insects and pathogens. A seed germination testing program will be initiated with the percent germination information placed in the S-9 seed inventory records and the GRIN database.

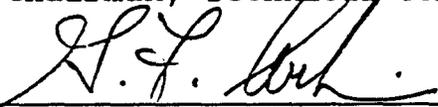
6. PUBLICATIONS ISSUED OR MANUSCRIPTS APPROVED DURING THE YEAR:

A list of publications related to evaluation and use of plant germplasm in the Southern Region are listed in Supplement I to this report.

7. APPROVED:

  
\_\_\_\_\_  
George A. Mosjidis  
Chairman, Technical Committee

1-27-93  
DATE

  
\_\_\_\_\_  
Gerald F. Arkin  
Administrative Advisor

1/27/93  
DATE

Publications Related to Evaluation and Use of Plant  
Germplasm in the S-9 Region, 1992

ALABAMA

Beuselinck, P.R. and J.A. Mosjidis. 1992. Genetic nomenclature in clover and special-purpose legumes III. Lotus, Lespedeza, Kummerowia and Vicia. Crop Science 31:871-874.

Boyhan, G.E. and J.D. Norton. 1991. Inheritance of resistance to alternaria leaf blight in muskmelons. HortScience 27(10):114-115.

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Mosjidis, J.A. and X. Zhang. 1992. Seed germination of seventeen accessions of *Vicia* spp. at different temperatures. Abstracts Annual Meeting of the Southern Branch of American Society of Agronomy, Lexington, Kentucky, 2-5 February 1992. p.5.

J.D. Norton, G.E. Boyhan, B.R. Abrahams, J.S. Bannon, M.H. Hollingsworth, and J.T. Eason. 1992. New disease-resistant watermelon produced in AAES research Al. Agric. Exp. Sta., Auburn Univ., Highlights of Agric. Res. Vol. 38 No.4.

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J.D. Norton, G.E. Boyhan, D.A. Smith, and B.R. Abrahams. 1992. 'AU-Golden Producer': A high quality, disease resistant watermelon for the South. Al. Agric. Exp. Sta., Cir. (at printers).

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Sollenberger, L.E., M.J. Williams, and C.S. Jones, Jr. 1991. Vegetative establishment of dwarf elephantgrass: Effect of planting date, density, and location. Soil Crop Sci. Soc. Fla. Proc. 50:47-51.

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#### KENTUCY

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