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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, 1974

1. PROJECT: S-9 "New Plants" - Their Introduction, Multiplication, Evaluation and Preservation

2. COOPERATING AGENCIES AND PRINCIPAL LEADERS:

State Experiment Stations and Representatives

Ala.	C. S. Hoveland*	N.C.	W. T. Fike*
Ark.	J. L. Bowers*	Okla.	R. S. Matlock*
Fla.	G. B. Killinger*	P.R.	J. Velez Fortuno*
Ga.	W. R. Langford*	S.C.	R. G. Halfacre*
Ky.	R. E. Sigafus*	Tenn.	M. J. Constantin, Sec.*
La.	R. J. Stadtherr*	Tex.	E. L. Whiteley*
Miss.	R. G. Creech, Chm.*	Va.	T. J. Smith*

Administrative Advisor — C. R. Jackson

U.S. Department of Agriculture

National Program Staff, ARS	Quentin Jones
Germplasm Resources Laboratory, ARS	G. A. White
	H. L. Hyland
	A. J. Oakes
	H. F. Winters
Cooperative State Research Service	C. I. Harris
Northern Regional Research Center	W. H. Tallent*
Soil Conservation Service	A. G. Davis

Southern Regional Plant Introduction Station, Experiment, Ga.

Regional Coordinator	W. R. Langford
Plant Pathologist	Grover Sowell, Jr.

3. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

Seed or plants of 1117 new introductions were received in 1974 through international exchange of plant materials and plant explorations conducted by the ARS Germplasm Resources Laboratory. Major additions to the S-9 germplasm collection were 126 cantaloupes, 80 watermelons, 45 Luffas and 170 Solanums from India; 25 Stylosanthes from Australia; and 42 cowpeas from Thailand. 3241 introductions were grown at the Regional Station for seed increase and preliminary evaluation. Good seed increases were obtained from all plantings except some late maturing grasses and summer legumes. Catalogues listing grasses, peppers, peanuts, melons and sorghum were up-dated to include materials increased in 1973. 12,373 packets of seed were distributed to plant scientists for their evaluation and use in plant breeding programs.

Resistance to bacterial wilt from P.I. 200818 and to anthracnose from P.I. 197087 is being utilized in the Arkansas station's cucumber breeding program. Several spinach lines which derived resistance to white rust from P.I. 165560 have consistently shown a high level of resistance to the disease in field tests. The Florida Station is using pepper P.I. 342948 as a source of tolerance to two virus diseases. This station also released "McCaleb Bermudagrass" from P.I. 224152. Two peanut germplasm lines, P.I. 337394 and P.I. 337409, with significant tolerance to toxin-producing strains were released cooperatively by the Alabama Station and ARS, USDA. Research with an introduction of Crambe abyssinica in Georgia demonstrated that the species is resistant to race 1 from cabbage and susceptible to race 2 from radish. P.I. 109839 was recommended for use as a source of resistance to Cercospora leafspot of peanut based on five years of field testing in Georgia. The Louisiana Station tested 95 ornamental introductions and reported that 20 of these were well adapted.

Four soybean introductions, P.I.'s 171451, 227687, 229321, and 223358 have been used in breeding for resistance to leaf feeding insects in North Carolina. 'Oklan' bermudagrass, developed from introductions, was recommended for southern Oklahoma by the Oklahoma Station. Two Coleus introductions (P.I.'s 249788 and 249792) were very promising for hanging baskets in Puerto Rico. Resistance to corn earworm from P.I. 217413 is being transferred to inbred lines used in Tennessee hybrids. The Texas Station released four TAM bulks for use by sorghum breeders as sources of downy mildew resistance and yellow endosperm. These are TAM Bulk 45 (from P.I. 257599, TAM Bulks 46 and 47 (from P.I. 276837) and TAM Bulk 48 (from P.I. 276840).

The S-9 Technical Committee met at El Paso, Texas, October 30 - November 1, 1974. The W-6 Technical Committee met at El Paso at the same time and the two Committees held a joint meeting. Detail progress reports presented by participants in the S-9 meeting are recorded in the Minutes of the meeting.

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 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 chemurgic crops will aid in the development of new crops and diversification of agriculture.

5. WORK PLANNED FOR NEXT YEAR:

The regional station will continue to receive, propagate, and catalogue plants for distribution to plant breeders and other cooperators. Screening studies will be continued to locate new sources of disease and insect resistance. Evaluation of introductions will be continued at state stations and SCS plant material centers.

6. PUBLICATIONS ISSUED OR MANUSCRIPTS APPROVED DURING THE YEAR:

Station publications

Florida

Hinson, Kuell, R. L. Smith, R. A. Kinlock, and H. W. Lundy. 1973. Hutton Soybean. Fla. Agric. Exp. Sta. Cir. S-225, 1-7.

Williams, Mary. 1973. Perennial Peanuts Look Good for Forage. Sunshine State Agric. Res. Rept. Sept./Oct. 14-16.

Woods, Chuck. 1974. Kenaf a New Paper Source. Sunshine State Agric. Res. Rept. March 10-12.

North Carolina

Emery, D. A., A. J. Norden, J. C. Wynne and R. Walton Mozingo. 1974. NC-FLA 14, An Early Maturing Large-Seeded Virginia Bunch Peanut Variety. N.C. State Univ. at Raleigh Agric. Exp. Sta, Bul. 448:1-15.

South Carolina

Floyd, John Alex, Jr. 1974. New Ornamental Plants for South Carolina. S.C. Experiment Sta. Bul. Dept. of Hort. Sta. Bul. #571.

Floyd, John Alex, Jr. 1974. Holly Evaluation at the Horticultural Gardens of Clemson University. Tech. Bul. #1050.

Journal Series Papers

Georgia

Sowell, Grover, Jr. and W. L. Corley. 1973. Resistance of Cucurbita Plant Introductions to Powdery Mildew. HortScience 8(6):492-493.

Sowell, Grover, Jr. and W. L. Corley. 1974. Severity of Race 2 of Sphaerotheca fuliginea (Schlecht.) Poll. on Muskmelon Introductions Reported Resistant to Powdery Mildew. HortScience 9(4):398-399.

Sowell, Grover, Jr. and W. L. Corley. 1974. P.I. 321005 (Tainan #2), A High-Quality Source of Resistance to Three Cantaloupe Diseases. Plant Dis. Reptr. Vol. 58, No. 10:899-902.

7. APPROVED:

2/7/75
Date

Roy G. Creech
Chairman, Technical Committee

1/29/75
Date

Curtis R. Dickson
Regional Administrative Advisor