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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, 1972

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, Chm.*
Ark.	J. L. Bowers*	Okla.	R. S. Matlock*
Fla.	G. B. Killinger*	P.R.	J. Velez Fortuno*
Ga.	W. R. Langford*	S.C.	J. A. Martin*
Ky.	R. E. Sigafus*	Tenn.	M. J. Constantin, Sec.*
La.	R. J. Stadtherr*	Tex.	E. L. Whiteley*
Miss.	H. W. Bennett*	Va.	T. J. Smith*

Administrative Advisor

C. R. Jackson

U.S. Department of Agriculture

National Program Staff, ARS	J. L. Creech*
Germplasm Resources Laboratory, ARS	Quentin Jones
	H. L. Hyland
	A. J. Oakes
	H. F. Winters
	G. A. White
Cooperative State Research Service	C. I. Harris
Northern Regional Research Laboratory	W. H. Tallent*
Soil Conservation Service	W. C. Young*
Southern Regional Plant Introduction Station, Experiment, Ga.	
Regional Coordinator	W. R. Langford
Plant Pathologist	Grover Sowell, Jr.
Assistant Agronomist	J. H. Massey
Assistant Horticulturist	W. L. Corley

3. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

Seed or plants of 570 new introductions were added to the regional germplasm collection in 1972. More than 27,000 accessions representing 263 plant genera are now held at the regional station. 3150 accessions were grown at the regional station for preliminary evaluation and to increase the seed. Catalogues listing all introductions of pulse crops, vine crops, peppers, and forage legumes held at the regional station were prepared and distributed to cooperators. Plant scientists in this country were supplied with 12,772 packets of seed and plants, and through international exchange of plant materials scientists in foreign countries were supplied with 3684 packets.

All states in the region participated in the evaluation of agronomic and horticultural plant introductions. Results from screening tests in Alabama showed that Arachis P.I.'s 337394 and 337409 are resistant to the toxin-producing strains of Aspergillus flavus. All Vigna introductions were analyzed in Alabama for protein content, and this collection was evaluated in Arkansas for resistance to powdery mildew and Cercospora leafspot and for other desirable genetic characters. Crude protein in Vigna ranged from 18% in some introductions to 36% in others. Introductions with a high protein content were selected for further studies of protein quality and subsequent use as breeding stocks. A high level of resistance to powdery mildew and Cercospora leafspot was found in P.I.'s 339584, 255785 and 205241. P.I. 293437 noted for very long pods and P.I. 293456 distinguished by its earliness were selected as parent stocks for crossing with cream-type breeding lines. In Florida sexual plants of Panicum maximum were isolated from P.I.'s 156542, 277901, and 277962 making it possible to manipulate the genetic variability of this species.

More effort was directed toward evaluation of new plants for ornamental uses in Louisiana and Georgia. Evaluation of tropical fruit and nut crop introductions was continued in Puerto Rico. Numerous introductions were placed under evaluation for erosion control, wildlife feed, and other conservation uses. Introductions of pulse crops were evaluated for productivity and nutritive quality in Oklahoma.

Cultural studies of Brassica spp. and kenaf were conducted in North Carolina, South Carolina, Georgia, Florida and Texas. Adaptation and cultural studies of sunflower, Crepis alpina and Limnanthes were conducted in three states. Four new cultivars developed in part from introduced germplasm were released during 1972. They are: 'Chilton' and 'Gulfcoast' cantaloupe developed at Auburn University, 'Altika' peanut and 'Jupiter' soybean released by the University of Florida. Numerous other plant introductions that appear to have economic value and merit further evaluation are summarized in Appendix A.

The S-9 Technical Committee met at Auburn University July 6-7. Detail progress reports on new crops research presented by each participant 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:

Information obtained to date from evaluation of potential new chemurgic crops will be summarized and published. Likewise, results from evaluation of ornamental plant introductions will be published. 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:

Alabama

Station publications

- Norton, J. D. 1971. Gulfcoast - a sweet cantaloupe for the produce chain store market. Auburn Univ. (Ala.) Agr. Exp. Sta. Leaflet 82.
Norton, J. D. 1972. Chilton - a high quality fruit for the commercial market. Auburn Univ. (Ala.) Agr. Exp. Sta. Leaflet 84.

Florida

Station publications

- Norden, A. J., H.A.D. Chesney and A. P. Stephenson. 1972. Altika - a peanut variety for the tropics (Guyana). Fla. Agr. Exp. Sta. Cir. S-215.

Georgia

Journal Series Papers

- Corley, W. L. 1972. A new annual ornamental - Solanum nodiflorus. Amer. Horticulturist. 51(1):31.

Regional publications

- S-9 Technical Committee. 1971. Plant introduction and development of new crops in the South. Sou. Coop. Ser. Bul. 161.

Mississippi

Journal Series Papers

- Burson, Byron L. and H. W. Bennett. 1972. Cytogenetics of Paspalum urvillei x P. vaginatum and P. urvillei x P. juergensii hybrids. Crop Sci. 12:106-108.
Burson, Byron L. and H. W. Bennett. 1972. Cytology of hybrids between an intraspecific dallisgrass hybrid and two diploid species. Proc. Assoc. Sou. Agric. Workers.
Burson, Byron L. and H. W. Bennett. 1972. Genome relations between an intraspecific Paspalum dilatatum hybrid and two diploid Paspalum species. Can. Jour. of Genetics and Cytology.

Puerto Rico

Journal Series Papers

- Mattern, F., William Pennock and Santos Valle-Lamboy. 1972. Supplying the New York Market with High Quality Puerto Rican Mangoes. J. Agr. Univ. P.R. 56(1), 1-10.
Oakes, A. J. and A. Sierra-Bracero. 1972. Resistance in Digitaria to yellow sugarcane aphid, Sipha flava (Forbes) as related to temperature and rainfall. J. of Agr. Univ. Puerto Rico 56:33-38.

Agricultural Research Service

- Gaskins, M. H., G. A. White, F. W. Martin, N. E. Delfel, E. G. Ruppel, and D. K. Barnes. 1972. Tephrosia vogelii: A source of rotenoids for insecticidal and piscicidal use. USDA, ARS. Tech. Bul. 1445, 44 pp.

7. APPROVED:

1-26-73

Date

W. T. Fike

Chairman, Technical Committee

1-26-73

Date

Curtis R. Jackson

Regional Administrative Advisor

APPENDIX A

1972 Annual Report Regional Project S-9 "New Plants"

Plant Introductions that exhibited desirable characteristics
in S-9 regional evaluation tests, 1972

Name & P.I. No.	State or agency reporting	Reported value
<u>Agronomic plants</u>		
<u>Andropogon intermedius caucasicus</u>		
78758	SCS	) Winter-hardy
<u>Arachis hypogaea</u>		
331326	Ala.	) Resistant to toxin producing strains
343419	Ala.	) of <u>Aspergillus flavus</u>
259747	Ga.)
298115	Ga.)
314817	Ga.	) Resistant to Jamacain strain of
341879	Ga.	) peanut rust
350680	Ga.)
<u>Arachis monticola</u>		
263393	SCS	) Forage producer and wildlife food
<u>Brachiaria humidicola</u>		
257678	Fla.	) High forage yields
<u>Brachiaria sp.</u>		
299498	Fla.	) High forage yields
<u>Brachypodium pinnatum</u>		
172692	SCS	) Highly productive of forage and seed
<u>Brassica napus</u>		
269449	Ark.)
271452	Ark.)
282570	Ark.)
305278	Ark.	) High yield of seed
311731	Ark.)
311732	Ark.)

APPENDIX A - con't.

Name & P.I. No.	State or agency reporting	Reported value
<u>Calamagrostis pseudophragmites</u>		
220584	SCS	) Spreads rapidly and produces a) good ground cover in a short time
<u>Cynodon dactylon</u>		
224566	Fla.)
225957	Fla.	) High forage yields
<u>Digitaria decumbens</u>		
299601	Fla.	) High forage yields
<u>Digitaria milaniana</u>		
299675	Fla.	) High forage yields
<u>Echinochloa holubii</u>		
207924	SCS	) Spreads by rhizomes, produces good) quantities of warm season forage on) wet sites
<u>Eragrostis curvula</u>		
295689	SCS	) Good ground cover on road cuts and) other critical areas
<u>Glycine max</u>		
200503	Texas)
227555	Texas	) Resistant to soybean mosaic virus
<u>Hemarthria altissima</u>		
299994	Fla.	) High forage yields
<u>Lespedeza virgata</u>		
218004	SCS	) Good forage legume and useful in) erosion control
<u>Lolium perenne</u>		
231603	Northrup, King & Company	) Good turf quality, has good) heat tolerance

APPENDIX A - con't.

Name & P.I. No.	State or agency reporting	Reported value
<u>Panicum maximum</u>		
156542	Fla.)
277901	Fla.	) Source of sexual plants within
277962	Fla.	) this species
<u>Paspalum nicorae</u>		
202044	SCS	) Good plant for forage production) and erosion control
<u>Phalaris arundinacea</u>		
236525	SCS	) Cool season plant which produces) a good quantity of forage
<u>Vigna sinensis</u>		
293546	Ark.	) Early
205241	Ark.)
255785	Ark.	) Resistant to powdery mildew and
339584	Ark.	) Cercospora leafspot
<u>Zea mays</u>		
175334	Ga.	) High content of stearic acid
✓194385	Fla.)
✓194389	Fla.)
✓194390	Fla.)
✓209135	Fla.)
✓226685	Fla.)
✓253730	Fla.	) Some resistance to
✓257607	Fla.	) <u>Helminthosporium maydis</u>
✓260614	Fla.)
✓274014	Fla.)
✓317330	Fla.)
✓317331	Fla.)
✓318728	Fla.)
217413	Tenn.	) Resistant to corn earworm

APPENDIX A - con't.

Name & P.I. No.	State or agency reporting	Reported value
<u>Horticultural plants</u>		
<u>Apium graveolens</u>		
169007	Fla.	) Resistant to bacterial leafspot
171499	Fla.	) and early blight
<u>Cryptomeria japonica</u>		
279746	N.C.	) Evergreen; perfect shape and) symmetry
<u>Capsicum annuum</u>		
163184	Texas)
163192	Texas)
164471	Texas)
164677	Texas)
173877	Texas)
182646	Texas	) Shows resistance to bacterial spot
183439	Texas	) under field conditions
183440	Texas)
183441	Texas)
183922	Texas)
244669	Texas)
244670	Texas)
246331	Texas)
357579	Ga.	) Non-pungent parent for developing) a small fruited sweet ornamental) pepper
<u>Daucus carota</u>		
261648	Fla.)
226043	Fla.	) Shows some resistance to alternaria
294090	Fla.)
<u>Ilex (Hybrids)</u>		
331203	S.C.)
331204	S.C.	) Heat, drought, and cold tolerant

APPENDIX A - con't.

Name & P.I. No.	State or agency reporting	Reported value
<u>Ipomoea batatas</u>		
280036	Miss.	) Flowers profusely and sets large) numbers of seed
<u>Lycopersicon esculentum</u>		
129080	Miss.	) Resistant to southern bacterial wilt
<u>Lycopersicon hirsutum</u>		
126449	U.S. Vegetable Breeding Lab.	) Contains an ethanol soluble factor) which is detrimental to fruitworm) larvae
<u>Phyllostachys bissettii</u>		
143540	SCS	) A good plant for screens for wind-) breaks
<u>Pinus thunbergii</u>		
317258	Ga.	) Potential for specimen tree; evergreen
<u>Rhododendron ericaceae</u>		
337619	S.C.	) Spreading growth habit; insect free) and cold hardy
<u>Rhododendron oldhamii</u>		
325036	La.	) Blooms sporadically throughout the) year
<u>Solanum melongena</u>		
181921	S.C.)
271412	S.C.	) Source of tolerance to <u>Meloidogyne</u>
302807	S.C.	) <u>incognita acrita</u>
320507	S.C.)