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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, 1976

1. PROJECT: S-9 "New Plants" - Their Introduction, Multiplication, Evaluation, and Preservation
2. COOPERATING AGENCIES AND PRINCIPAL LEADERS:

State Experiment Stations and Representatives

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Southern Regional Plant Introduction Station, Experiment, GA.

Regional Coordinator
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3. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

Foreign plant explorations were made to (1) New Guinea to collect germplasm of sugarcane; (2) to South Africa to collect Cenchrus ciliare, Panicum spp. and Eragrostis spp.; (3) to Honduras and Nicaragua for germplasm of Cotton; and to (4) Central America for germplasm of tomatoes. Seed or plants of 4572 new accessions were added to the regional germplasm collection in 1976, increasing the inventory of plant introductions held at the regional station to 34,000. Pigeon peas from Iran and warm season grasses from South Africa constitute much of the new material.

* Voting members of S-9 Technical Committee

4208 accessions were grown at the regional station for seed increase and preliminary evaluation. 4078 introductions of pigeonpea were grown by the Puerto Rico Experiment Station for seed increase and evaluation of seed and plant characteristics. In addition to these plantings cooperators in Georgia, Oklahoma, Florida, and Puerto Rico increased the seed of 1486 introductions for use at the regional station and storage in NSSL.

In preliminary tests watermelon P.I. 271363 showed a high level of resistance to race 2 anthracnose, and Paspalum alcalinum P.I. 404637 showed good potential for forage production in the South. Facilities for evaluating plants for insect resistance were completed; and the screening of Cucumis melo and Vigna unguiculata for resistance to melon aphid and cowpea aphid, respectively, was initiated.

Catalogues listing available introductions of winter legumes, table legumes, peanuts, vine crops, and summer grasses were up-dated to include materials increased last year. 17,729 packets of seed and plants were distributed to plant scientists for further evaluation and use in their research activities.

All states in the region participated in the evaluation of agronomic and horticultural plant introductions. 835 accessions were evaluated at four SCS Plant Materials Centers for use in the conservation of soil, water, and wildlife. A total of 533 farm plantings involving 50 accessions that previously showed good potential for conservation uses were made throughout the South.

Plant introductions found to possess useful characteristics are listed in a supplement to this report.

Chemical assays were made of seed from 350 new species to locate new sources of unique seed oils and other useful constituents. Cultural studies of kenaf, sunn hemp, or other potential crops for industrial use were continued in Georgia, North Carolina, Oklahoma, Texas, and Puerto Rico.

The S-9 Technical Committee met August 19-20 at the USDA Subtropical Horticulture Research Station, Miami, Florida and at the University of Florida Agricultural Research and Education Center, Homestead, Florida. Progress reports 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 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:

Plant explorations will be made to collect germplasm of: (1) Clovers in Italy, Yugoslavia, and Greece; (2) Sugarcane in New Guinea and Indonesia; (3) Peanuts in Argentina and Bolivia; and (4) Oil palms and subtropical fruits in Brazil and Paraguay. The regional station will continue to receive, propagate and catalogue plants for distribution to plant breeders and other cooperators. Inventories and evaluations of available plant germplasm will be computerized for easy access to cooperators. Screening studies will be continued to locate resistance to insects and diseases.

6. PUBLICATIONS ISSUED OR MANUSCRIPTS APPROVED DURING THE YEAR:

Journal Series Articles

Oakes, A. J. Sources of Disease Resistance in Digitaria Germplasm. Trop. Agric. 1976:1-13.

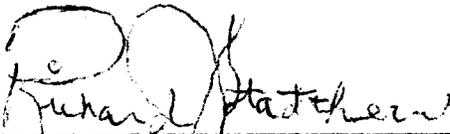
Oakes, A. J. and R. H. Ratcliff. Resistance in Digitaria to Yellow Sugarcane Aphid, Sipha flava (Forbes). Trop. Agric. 1976:15-24.

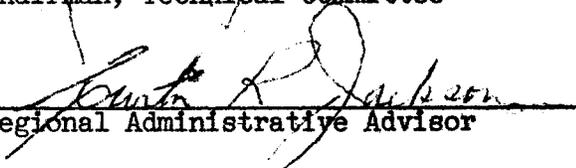
Sowell, G., Jr., D. H. Smith, and R. O. Hammons. 1976. Resistance of Peanut Plant Introductions to Cercospora arachidicola. Plant Disease Reporter 60:494-498.

7. APPROVED:

February 14, 1977
Date

Feb. 10, 1977
Date


Richard Hatfield
Chairman, Technical Committee


Santa K. Jackson
Regional Administrative Advisor

Supplement
to
1976 ANNUAL REPORT FOR REGIONAL PROJECT S-9

Plant introductions that exhibited desirable characteristics in S-9 Regional evaluation tests, 1976

Name & P.I. NO.	State reporting	Reported Value
<u>Vegetable Plants</u>		
<u>Abelmoschus esculentus</u>		
306379	LA.	) Good type, long, round, green pods
357997	LA.	) Good cover crop
379583	LA.	) Nice plant, light green angular) pods, medium length
<u>Allium cepa</u>		
275164	OKLA.	) Most light resistance of those tested
288079	OKLA.	) Best of white onions tested
321385	OKLA.	) Best of yellow globe onions tested
379073	OKLA.	) Best of flat onions tested
<u>Apium graveolens</u>		
171499	FLA.	) Resistance to <u>Cercospora apii</u> .
<u>Capsicum annuum</u>		
105363	TEXAS)
105444	TEXAS)
109469	TEXAS)
123166	TEXAS	) All of these show resistance to
142838	TEXAS	) Tobacco Etch Virus
152250	TEXAS)
155349	TEXAS)
159229	TEXAS)
159234	TEXAS)
159236	TEXAS)
159237	LA.	) High commercial potential
159261	TEXAS)
159262	TEXAS)
159274	TEXAS	) Resistance to Tobacco Etch Virus
174810	TEXAS)

Name & P.I. No.	State reporting	Reported value
<u>Capsicum annuum</u>		
201244	LA.)
321003	LA.	)High commercial potential
322730	LA.)
344296	LA.)
<u>Capsicum chinense</u>		
194879	LA.	)High commercial potential
260478	LA.	)Good commercial potential
260491	LA.	)High commercial potential
260558	LA.	)High commercial potential
<u>Citrullus lanatus</u>		
189225	ALA.	)Resistance to Gummy Stem Blight
255137	FLA.	)Resistance to watermelon mosaic virus
<u>Cucumis melo</u>		
124111	GA.	)Resistance to powdery mildew
140471	ALA.	)Resistance to Gummy Stem Blight)and pickle worm
321005	ARK.	)High resistance to powdery mildew)and good eating qualities
<u>Cucumis sativus</u>		
27741	FLA.	)Resistance to <u>Corynespora cassicola</u>
308916	N.C.	)Compact type, useful for mechanical)harvest
<u>Phaseolus vulgaris</u>		
165426	ARK.	)Good resistance to <u>Rhizoctonia</u>
203598	ARK.	)root rot
165933	ARK.)
169787	ARK.)
172035	ARK.)
173045	ARK.)
190076	ARK.)
200959	ARK.	)Show promise of resistance to
208773	ARK.	)<u>Rhizoctonia</u> root rot.
307760	ARK.)

Name & P.I. No.	State reporting	Reported value
<u>Phaseolus vulgaris</u>		
307783	ARK.	)Show promise of resistance to
309743	ARK.	)<u>Rhizoctonia</u> root rot
310531	ARK.)
<u>Vitis</u> spp.		
18902	FLA.	)Large productive fruit
279898	FLA.	)Good for breeding of root stock
354108	FLA.	)Very early ripening
360750	FLA.	)Early ripening, crack resistance
391446	FLA.)
391448	FLA.	)Breeding for seedlessness and
391449	FLA.	)earliness of ripening
<u>Ornamental Plants</u>		
<u>Abelmoschus esculentus</u>		
370029	LA.	)Red pods and main stems, no spines,)good ornamental
<u>Betula platyphylla</u> var. <u>Japonica</u>		
235128	GA.	)Good growth, white bark
<u>Capsicum annuum</u>		
159252	LA.	)Rates good as potential ornamental
224405	LA.	)pepper
267730	LA.)
267731	LA.	)Rates high as potential ornamental
322730	LA.	)pepper
<u>Capsicum chinense</u>		
215737	LA.)
215738	LA.)
260475	LA.	)These rate good as potential
260491	LA.	)ornamental pepper
260518	LA.)
260558	LA.)
260472	LA.	)Rates high as potential ornamental)pepper

Name & P.I. No.	State reporting	Reported value
<u>Capsicum frutescens</u>		
210981	LA.	)Rates good as potential ornamental)pepper
<u>Castanea mollissima</u>		
70314	SCS	)Good nut production, potential)source of wildlife feed
<u>Cryptomeria japonica</u>		
NA 13454-C	GA.	)Maintains green color throughout)winter
<u>Cupressocyparis leyhaadii</u>		
NA 4464-C-C-C	KTY.	)Well adapted, excellent tree
<u>Hoya australis</u>		
190391	P.R.	)Showy inflorescence flower
<u>Malus hupehensis</u>		
122586	SCS	)Moderate production of small)crabapples for wildlife forage
<u>Metasequoia glyptostroboides</u>		
286608	GA.	)Good specimen tree
<u>Pinus brutia</u>		
NA 33064	OKLA.	)Resistance to cold and pinetip moth
<u>Pistachia chinensis</u>		
21970	GA. - SCS	)Good growth, free of disease and)insects, attractive fall color
<u>Pyracantha hybrid 'Mohave'</u>		
NA 32225	OKLA.	)Attractive, red-orange fruit)producer
<u>Quercus acutissima</u>		
142294	SCS	)Wildlife, beautification planting

Name & P.I. No.	State reporting	Reported value
<u>Quercus chenii</u>		
102653	GA.	)Very spreading form, may be)used to screen large areas
<u>Quercus myrsinaefolia</u>		
74222	GA.	)Spreading evergreen, good)specimen tree
<u>Agronomic Crops</u>		
<u>Arachis benthamii</u>		
338282	SCS	)Excellent hay or grazing potential
<u>Arachis cardenasii</u>		
262141	OKLA.	)Little or no apparent spotting)from leafspot
<u>Arachis chacoense</u>		
276235	OKLA.	)Little or no apparent spotting)from leafspot
<u>Arachis glabrata</u>		
262839	SCS	)Resistant to attack by insects
<u>Arachis hypogaea</u>		
274190	FLA.	)Leafspot resistance
280688	OKLA.	)High resistance to defoliation)from leafspot
383423	FLA.)
383424	FLA.	)Leafspot resistance
393516	OKLA.)
393526	OKLA.	)High resistance to defoliation
393527	OKLA.	)from leafspot
393529	OKLA.)
393532	OKLA.)

Name & P.I. No.	State reporting	Reported value
<u>Arachis spp.</u>		
262817	SCS	)Extremely drought, insect and)disease resistant
276233	OKLA.	)Little or no apparent spotting
338280	OKLA.	)from leafspot
<u>Calamagrostis pseudopragmites</u>		
220584	SCS	)Excellent growth and vigor
222041	SCS	)Valuable for erosion control
<u>Crotalaria juncea</u>		
248491	KTY.	)Good fiber producer for paper pulp
<u>Desmodium cinerascens</u>		
282691	SCS	)Abundant forage producer for cattle
<u>Desmodium heterocarpon</u>		
217910	FLA.	)Long lived perennial that can)withstand heavy grazing, high yield)and has non-seed shattering)characteristics
<u>Digitaria pentzii</u>		
279651	FLA.	)Good growth habit, good cool)season growth
<u>Eragrostis curvula</u>		
295689	SCS	)Good to excellent survival and)good growth
<u>Eragrostis lehmanniana</u>		
295698	SCS	)Drought resistant and good seed)producer
<u>Festuca arundinacea</u>		
231557	ALA.)
231560	ALA.)
231561	ALA.	)Exhibited excellent winter forage
231562	ALA.	)and acceptable seed yield
234719	ALA.)
297903	ALA.)

Name & P.I. No.	State reporting	Reported value
<u>Festuca arundinacea</u>		
231560	ALA.	)High magnesium content
<u>Festuca spectabilis</u>		
257742	SCS	)Rhizome and stolon producer
<u>Glycine max</u>		
88788	TENN.	)Resistant to Race 4 <u>Heteroderia</u>) <u>glycines</u>
200503	TEX.	)Resistant to soybean mosaic
227555	TEX.	)virus
<u>Glycine ussurrinsis</u>		
164453	SCS	)Reseeding soybean
<u>Hemarthria altissima</u>		
299993	SCS	)Highly palatable to cattle,)cold hardy
349752	FLA.)
365509	FLA.	)High forage yields
364891	FLA.)
<u>Hibiscus cannabinus</u>		
365441	KTY.	)Used in fiber production for)paper pulp
<u>Indigofera pseudotinctoria</u>		
197015	SCS	)Good for erosion control
<u>Lespedeza virgata</u>		
218004	SCS	)Good for erosion control
<u>Malus hupehensis</u>		
122586	SCS	)Moderate production of small fruits
<u>Paspalum dilatatum</u>		
304014	S.C.	)High forage producer, more than
316729	S.C.	)average vigor and extreme pubescence

Name & P.I. No.	State reporting	Reported value
<u>Paspalum nicorae</u>		
202044	SCS	)Potential forage and Critical)area cover plant
310128	S.C.)
310129	S.C.	)High forage yielders
310131	S.C.)
310133	S.C.)
<u>Paspalum pauciciliatum</u>		
310216	S.C.	)Very leafy and high yielder
<u>Paspalum urvillei</u>		
202046	S.C.)
310253	S.C.	)High forage yield
310255	S.C.)
<u>Pennisetum purpureum</u>		
300086	SCS	)Excellent forage producer
<u>Simmondsia chinensis</u>		
246807	P.R.	)Reported as very promising for)arid lands, plant produces a liquid)wax that may be substituted for)whale oil
<u>Trifolium purpureum</u>		
287174	ALA.	)Found to be most productive cool)season legume in replicated forage)yield trials
<u>Zea mays</u>		
195114	FLA.	)High resistance to southern corn
209135	FLA.	)leaf blight
217413	TENN.	)Resistant to corn earworm
226685	FLA.)
317326	FLA.	)High resistance to southern
317330	FLA.	)corn leaf blight