

ANNUAL REPORT January 1, 1957 - December 31, 1957

1. TITLE

S-9 "New Plants" - The Introduction, Multiplication and Evaluation of New Plants for Industrial and Agricultural Use and the Preservation of Valuable Germplasm.

2. COOPERATING AGENCIES AND PRINCIPAL LEADERS

State Agricultural Experiment Stations

Alabama	-	W. R. Langford	North Carolina	-	H. D. Gross
Arkansas	-	A. M. Davis	Oklahoma	-	R. S. Matlock
Florida	-	G. B. Killinger	Puerto Rico	-	R. O. Woodbury
Georgia	-	A. H. Dempsey	South Carolina	-	J. A. Martin
Kentucky	-	E. N. Fergus	Tennessee	-	W. E. Roever
Louisiana	-	J. C. Miller	Texas	-	R. G. Reeves
Mississippi	-	H. W. Bennett	Virginia	-	T. J. Smith

Administrative Adviser

R. D. Lewis, Texas

U. S. Department of Agriculture
New Crops Research Branch

C. O. Erlanson
W. E. Whitehouse
A. D. Stoesz
W. C. Kennard
Edwin James

Soil Conservation Service
State Experiment Stations Division
Regional Plant Introduction Station - Coordinator

3. PROGRESS OF WORK and PRINCIPAL ACCOMPLISHMENTS

Improvement of Facilities:

The plant of the Introduction Station at Experiment, Georgia has been improved by an addition to the existing building. This addition provides 500 square feet of space for seed processing. The addition has permitted the completion of two satisfactory office rooms in the older section. These offices have also been furnished.

Thermostatically controlled hot-air furnaces have been installed in the greenhouse as replacements for the open gas heaters which were considered a temporary expedient when the greenhouse was built. The Introduction Station has also cooperated with the Agronomy Department at the Georgia Experiment Station in the construction of a new pond for irrigation, which is more accessible to most of the nursery area.

One new piece of tractor equipment has been acquired.

Work Accomplished:

During the year 960 new introductions were received, which have been placed in the current increase program. Catalogues covering 413 accessions not previously listed were distributed. A table covering these by crop groups is presented below.

Summary of Introductions Received and Catalogued in 1957

Crop Groups	Forage legumes and grasses	Field crops	Vegetable crops	Misc. crops	Totals
Introductions Received	151	542	113	170	960
Introductions Catalogued		169	233	35	437

The numbers catalogued do not represent the extent of the nursery plantings during the year. Although the winter nursery was small, over 1400 accessions were grown during the summer season. Many of these provided for reincrease of materials in low supply or were dropping in viability. Over 300 old muskmelon introductions obtained from the Cheyenne, Wyoming Horticultural Field Station were grown and seed increases obtained. All viable seeds of several species obtained from this source have now been increased and are in the process of being catalogued.

Distribution of introductions remained at a high level with 5195 lots being sent out during the year. Table 1, appended, shows that 4477 introductions were requested by and supplied to cooperators in the Southern Region.

All the Experiment Stations in the Region were visited by the Coordinator during the year. In addition the Coordinator participated in meetings of various commodity groups including the Southern Corn Improvement Conference, the Southeastern Vegetable Breeders Conference and the Southern Pasture and Forage Crops Conference.

Regional Activities:

A meeting of the S-9 Technical Committee was held at Clemson, South Carolina, August 19-20. Special emphasis was placed on the phase of the Regional Project pertaining to New Crops for Industrial Use. Workers in the Southern Region were canvassed for suggestions as to possibilities for new crops. These suggestions have been forwarded to the New Crops Research Branch and the Northern Utilization Laboratory at Peoria, Illinois. Some of the Southern States, and the Introduction Station have already sent materials to the laboratory for preliminary chemical screening as to possible industrial use. In some states interdepartmental committees have been formed to further implement this phase of the project.

Reports by each of the cooperating states were given at the Technical Committee meeting in August. It was the consensus of the group that these reports as printed in the minutes serve also as their annual report to the Technical Committee, and the Committee of Nine. Copies of the minutes are available on request to the Coordinator. The highlights of these reports are given under the following section.

4. USEFULNESS OF FINDINGS

Several plant introductions have either been released as varieties or have been used as parents for varieties. Sunturf Bermuda (P.I. 184339) has been officially released in Texas as a turf grass. Five states now have this variety on their recommended list. The Texas Station has also released foundation stocks for increase of a rust-resistant ryegrass from Uruguay (P.I. 193145) and Israel Sweet-clover (P.I. 200335). A new variety of Blue Lupine, the "Blanco" has been recommended for certification in Georgia. This had as one of its parents, the "Borre" (P.I. 189191).

Each year introductions with valuable characteristics are reported by many of the workers in the region. Some of these are used in crosses which may develop new varieties or they may later be discarded as more valuable germplasm is found. Those reported during the year are listed in Table 2 in the appendix.

5. WORK PLANNED FOR NEXT YEAR

New introductions received during the past 18 months which have not been increased and evaluated will be placed in the nursery at Experiment or under contract with other Experiment Stations. In the event that a plant pathologist can be obtained, disease screening work will be completed on those introductions which have already been partially evaluated. If the position is not filled arrangements will be made to have some of this work done at other Experiment Stations.

In some of the Southern States work with miscellaneous and special crops is to be expanded. Breeding work with Panicum and Phalaris species is planned in other states. These have received little attention in the past. Promising introductions will be largely used as a basis for these programs. Continued screening of Dactylis species is to be continued in the three Atlantic Coast States. Efforts to hybridize Vicia and Trifolium introductions have not been highly successful in the past. Three of the Southern States will continue this work.

As interdepartmental committees begin to function, it is expected that more collections will be made for chemical screening of plants for industrial use. Individual staff members in other states have expressed a willingness to collect materials. They are to be called upon when the need arises.

6. PUBLICATIONS

In addition to nine catalogues distributed by the Introduction Station, introductions hold an important place in others published by research workers in the south.

Brown, W. V. and Emery, H. P., Apomixis in the Gramineae: Panicoidae American Journal Botany, March, 1958 (A study of apomixis in introductions supplied by the Southern Regional Plant Introduction Station.)

Forbes, Ian, Wells, H. D., and Edwardson, J.R., Resistance to Gray Leafspot Disease in Blue Lupines. Plant Disease Reporter 41: 1037-1038, December 15, 1958. (Covers work with several introductions resistant to gray leafspot disease.)

Huffine, Wayne, Sunturf Bermuda, Oklahoma Agricultural Experiment Station Bulletin, B-494, July, 1957.


Edwin James, Coordinator


R. G. Reeves, Chairman
S-9 Technical Committee


R. D. Lewis
Administrative Adviser

Appendix

Table 2

Promising Introductions Reported During 1957 in the cooperative New Plants Project in the Southern Region (S-9)

Species	P.I. No.	State Station Reporting	Apparent Value and Use
Abelmoschus esculentus	109215	) = South Carolina	Appear resistant to root-knot nematode. Further tests required.
	120833		
	172674		
	175567		
	178808		
Arachis hypogaea	152125	) = Texas	Used in crosses on Spantex. Promising selections made. Renumbered "Basse" variety from Africa which provided germplasm for Dixie Spanish, Florispan, and N.C.#2 varieties.
	161317		
	229553			Ga., Fla., N. C.
Bothriochloa ischaemum	172720	Oklahoma	Equal or superior to standard checks.
Brassica oleracea var. capitata	172743	Mississippi	Collard with exceptionally sweet flavor. Selections being made.
Cajanus cajan	218066	Florida	Early and prolific. Considered valuable as a long season agronomic crop, but with seed harvesting problem.
Crotolaria spectabilis	192976	Texas	Vigorous, high-seed producer as opposed to usual weak chlorotic types tried in Rio Grande Valley.
Cucumis sativus	220860	South Carolina	Male sterile line which offers possibilities for hybrid cucumbers.

Table 2 (Cont'd)

Species	P.I. No.	State Station Reporting	Apparent Value and Use
Cucurbita pepo	135394	South Carolina	Either resistant or tolerant to squash mosaic virus and used in crosses on Yellow Crookneck, Early Prolific, Straightneck, or Early Corozelle.
	165558		
	167053		
	169426		
	169442		
	169454		
	169474		
	171627		
	172870		
	172872		
	176536		
	181878		
	183232		
	212002		
	212006		
	212032		
	216060		
222247			
227237			
229688			
234252			
Dactylis glomerata	217416	Arkansas	Fine leaved type selected for use in crosses.
Eragrostis curvula	202505	Oklahoma	Equal or superior to standard Lovegrass checks.

Table 2 (Cont'd)

Species	P.I. No.	State Station Reporting	Apparent Value and Use
Lupinus angustifolius	167938	= Georgia	Resistant to gray leafspot disease and selections made.
	167940		
	168525		
	168526		
	168527		
	168530		
	168533		
	168535		
Panicum antidotale	204906	Texas	Leafy and vigorous.
Panicum coloratum	166400	Texas	Being increased by S.C.S. for distribution.
Phalaris tuberosa	201944	Oklahoma	Equal or superior to standard checks.
Pisum sativum	203064	Oklahoma	Disease resistant, and only pea surviving the winter in 1956.
Sesamum indicum	153517		Possible aphid resistance
	154298		Long, large capsules
	154304		Possible aphid resistance
	158040		Long capsules
	158045		Large loose capsules
	158056		Long capsules
	158062		Large capsules
	158073		Extremely short internodes
	158901		Long tetracarpellate capsules. Orange colored plant at maturity.
	(All considered to be valuable breeding lines as shown under value.)		158935	Texas	Loose capsules

Table 2 (Cont'd)

Species	P.I. No.	State Station Reporting	Apparent Value and Use
Sesamum indicum (cont'd)	162563	)	Large tetracarpellate capsules; straw colored at maturity.
	195123	)	Erect branches; some bacterial leafspot resistance.
	223013	)	Heavy pubescence
	234424	)=	Altenaria stem spot resistance
	234426	)	Altenaria stem and leafspot resistance
	234427	)	Altenaria stem spot resistance
	234428	)	Altenaria stem spot resistance
	238466	)	Altenaria stem spot resistance
Sorghum alnum	207837	Texas	Very leafy vigorous. Other S. alnums inferior to better grasses.
Vicia dasycarpa	220802	Oklahoma	More winter hardy than most V. dasycarpa strains.
Vicia sativa	220917	Oklahoma	White seeded and very cold hardy.
Vigna sinensis	206005	Florida	Small white-seeded bushtype pea. Valuable breeding line.