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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, 1983

1. PROJECT: S-9 Plant Germplasm - Its Introduction, Maintenance
and Evaluation

2. COOPERATING AGENCIES AND PRINCIPAL LEADERS:

State Experiment Stations and Representatives

Ala.	J. Pederson*	N. C.	W. T. Fike*
Ark.	J. L. Bowers*	Okla.	J. S. Kirby*
Fla.	G. M. Prine*	P. R.	O. D. Ramirez*
Ga.	C. S. Hoveland*	S. C.	D. W. Bradshaw*
Ha.	P. J. Ito*	Tenn.	D. L. Coffey*
Ky.	R. E. Sigafus*	Tex.	O. E. Smith*, Chm.
La.	W. A. Meadows*	Va.	R. T. Johnson*
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Southern Regional Plant Introduction Station,
Cooperative ARS and SAES

Regional Coordinator
Plant Pathologist
Research Geneticist

G. R. Lovell
Grover Sowell, Jr.
W. C. Adamson

*Indicates voting members of the Technical Committee

3. PROGRESS OF WORK AND PRINCIPAL ACCOMPLISHMENTS:

Germplasm of 2,147 new introductions from 27 countries was added to the S-9 Project plant germplasm collections. These new collections were composed of 60 genera and 106 species. The major crops included were sorghum (1,161), peanut (485), and winged bean (155). A total of 5,319 introductions, composed of 30 genera and 136 species were grown at the regional station and other locations for seed increase and evaluation. These increases are being carried out under agreements with Auburn University, Clemson University, University of Florida (at Ft. Pierce), University of Georgia, Oklahoma State University, Texas A&M University, SCS Plant Materials Center, Americus, GA, South Texas Plant Materials Center, and the Tropical Agriculture Research Station, Mayaguez, Puerto Rico.

Requests for samples of plant germplasm continued at a high level. Distribution of seed packets totaled 30,361 in the following categories: S-9 Project, 5243; NC-7 Project, 3531; NE-9 Project, 1654; W-6 Project, 1211; Collection Transfers to other regions, 1539, NSSL Long-term Storage, 777; Increase Plantings with Cooperators, 4144; Forage Legume Field Trials, 2469; Germination Tests, 4124; Foreign, 5669 to 56 countries.

Virus symptoms that had not been previously reported in peanuts were observed in new peanut introductions in the 1982 nursery. Through serological testing it was proven to be a virus unrelated to the endemic peanut mottle virus. All peanut research units in the United States were alerted to the new Peanut Stripe Virus. Field surveys were carried out during the 1983 peanut growing season in all the peanut growing states. Symptoms were observed, leaf samples collected and serological tests were carried out. Positive identifications were recorded in samples from Virginia, North Carolina, Georgia, Florida, Oklahoma, and Texas. A program was activated to evaluate and assay breeders' seed lots and some 700 accessions of suspect Plant Introduction peanuts. The assay efforts will identify infected plants for roguing and clean plants to be grown for production of virus-free peanuts. By testing and cleaning the peanut lots in research programs, Plant Introduction nurseries, and in the pending cultivar increase fields we should be able to prevent the spread of the virus to the commercial production fields. Continuation of this program for several successive years should arrest the spread of the virus and eventually eradicate it.

The S-9 Technical Committee met June 22-23 at Iowa State University in conjunction with a meeting of the National Germplasm System. Progress reports for each State 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:

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 resistance to insects and disease. Evaluation of watermelon and muskmelon for resistance to gummy stem blight will continue. Breeding lines will be selected which combine resistance with acceptable fruit size. Large field nurseries of Eupatorium and Phytolacca will be evaluated as superior sources of oils and hydrocarbons. The evaluation and assay of peanut lines suspected of contamination by the new Peanut Stripe Virus will continue and the increase of virus-free seed will be initiated.

6. PUBLICATIONS ISSUED OR MANUSCRIPTS APPROVED DURING THE YEAR:

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

7. APPROVED:

2-1-84

DATE

O. E. Smith

O. E. Smith, Chairman, Technical Committee

2-8-84

DATE

C. W. Laughlin

C. W. Laughlin, Adm. Advisor

Supplement
to
1983 ANNUAL REPORT FOR REGIONAL PROJECT S-9

Publications related to evaluation and use of plant germplasm in the Southern Region.

1. Adamson, W. C. 1983. Weeds for oil, polyphenol or hydrocarbon production in the southeast. Third Ann. Solar and Biomass Wrokshop Proc. 155. (Abstract).

2. Adamson, W. C., M. O. Bagby and W. B. Roth. 1982. Oil, polyphenol, and hydrocarbon content in culms of Phyllostachys species. J. Am. Bamboo Soc. 3:29-32.

3. Adamson, W. C., M. O. Bagby, and W. B. Roth. 1983. Variation in acetone extractions among populations of Rhus glabra and R. capallina. Sou. Br. ASA. (Abstract).

4. Adamson, W. C., F. L. Long, G. M. Prine and J. A. McGuire. 1982. Removal of nitrogen and potassium by keanf. Tappi Non-wood Plt. Fiber Pulping Rept. 13:99-103.

5. Adamson, W. C. and T. A. Campbell. 1983. Pokeweed as a producer of oil and polyphenols. Agronomy Abstracts, 1983 (Abstract).

6. Campbell, T. A. and W. C. Adamson. 1982. Response of kenaf to selected herbicides and herbicide combinations. Tappi Non-wood Plt. Fiber Pulping Rept. 13:1-4.

7. Christiansen, Scott. 1982. Energy reserves and agronomic characteristics of our limpoggrass Hemarthria altissima (Poir) Stapf et C. E. Hubb for Florida flatwoods, PhD. Dissertation Univ. of Fla. 193 p.

8. Freytag, G. F., M. J. Bassett, and M. Zapata. 1982. Registration of XR-235-1-1 Bean Germ Plasm. Crop Sci. 22(6):1268-69.

9. Govina, S. M., H. A. Melouk and D. J. Banks. 1983. Sporulation of Cercospora arachidicola as a criterion for screening peanut genotypes for leaf spot resistance. Phytopathology 73:556-558.

10. Green, V. E., Jr., J. A. Robertson, G. W. Simone, Shaw-Ming Yang, Gerald Seiler and W. G. Genung. 1982. Oilseed Sunflower Research in Florida--1982. Agronomy Research Report AG 83-03, 98 pages.
11. Hoveland, C. S., R. L. Haaland, R. R. Harris, and J. A. McGuire. 1982. Birdsfoot Trefoil in Alabama. Alabama Agri. Exp. Sta. Bull. 537.
12. Ketring, D. L., W. R. Jordan, O. D. Smith, and C. E. Simpson. 1982. Genetic variability in root and shoot growth characteristics of peanut. Peanut Sci. 9:68-72.
13. Kim, B. S. 1983. Inheritance of resistance of bacterial spot (Xanthomonas campestris pv. vesicatoria (Doidge) Dye) in peppers (Capsicum spp.) PhD Dissertation. University of Hawaii, Honolulu.
14. Knight, R. J., Jr. 1982. Response of carambola seedling populations of Dade County's oolitic limestone soil. Proc. Fla. State Hort. Soc. 95:121-122.
15. McLeod, J. M., W. Witcher, W. M. Epps, and M. L. Robbins. 1983. Resistance of okra plant introductions to root knot nematode and fusarium wilt. HortScience 18:249-250.
16. Menzel, M. Y., S. G. Goetz and W. C. Adamson. 1983. Some pieces of the african genome puzzle in Hibiscus sect. Furcaria (Malvaceae) Amer. J. Bot 70:285-297.
17. Mislevy, P., E. M. Hodges, and F. G. Martin. 1983. Hydrocyanic acid potential in stargrass (Cynodon spp.) In (Edited by J. Allan Smith and Virgil W. Hays) Proceeding of the XIV International Grassland Congress Pg. 732-735.
18. Mislevy, P., G. O. Mott, and F. G. Martin. 1983. Screening perennial forages by mob-grazing technique. In (Edited by J. Allan Smith and Virgil W. Hays) Proceedings of the XIV International Grassland Congress. Pg. 516-519.
19. Mislevy, P., G. O. Mott, and F. G. Martin. 1982. Effect of grazing frequency on forage quality and stolon characteristics of tropical perennial grasses. Soil Crop Sci. Soc. of Fla. Proc. 41:77-83.

20. Monasterios, T. 1980. Genetic resistance to cercospora leafspot diseases in peanut (Arachis hypogaea L.) PhD. Dissertation University of Florida, Gainesville, 102 p.
21. Parvin, P. E. 1982. Evaluation of new protea cultivars from Africa. Proc. 10th Protea Workshop, CES, Honolulu. (in press).
22. Quesenberry, K. H., A. J. Oakes, and D. S. Jessop. 1982. Cytological and geographical characterizations of Hemarthria. Euphytica 31:409-416.
23. Quesenberry, K. H. and W. R. Ocumpaugh. 1982. Mineral composition of autumn-winter stockpiled limpograss. Trop. Agric. 59(4):283-286.
24. Ramirez, O. D., and J. J. Green, Nueva variedad de name (Guinea Negro) de alto rendimiento. Adelanto científico num. 100, Est. Exp. Agricola, U. P. R.
25. Ramirez, O. D., J. J. Green and I. B. Caloni, Guinea Negro, a high yielding out of season yam cultivar. J. Agr. Univ. P. R. (in press).
26. Ruelke, O. C., K. H. Quesenberry. 1982. Limpograss for off-season forage production for beef cattle. Fla. Beef Cattle Res. Rept. IFAS U of Fla. 39-42.
27. Ruelke, O. C. and K. H. Quesenberry. 1983. Effect of fertilization timing on the yields, seasonal distribution and quality of limpograss forage. Soil and Crop Sci. Soc. Fla. Proc. Vol. 42. In Press.
28. Taylor, R. W., J. L. Griffin, and G. A. Meche. 1982. Evaluation of annual and perennial clovers for tolerance to 2,4-D. 74th Ann. Prog. Rpt. RES. 74:424-425.
29. Velez-Santiago, J., Sotomayor Rios, A., Torres-Rivera, S. and Mendez-Cruz, V. 1982. Performance of six Cenchrus and four forage grasses under cutting management in the Lajas Valley, Puerto Rico. J. Agric. Univ. P. R. 66(4):268-277.
30. Velez-Santiago, J., Arroyo Aguilu, J., Corchado Juarbe, N. 1982. Performance and chemical composition of 18 non dormant alfalfa cultivars in the Lajas Valley. J. Agri. Univ.P.R. (In Press).

31. Wilson, C. W., III, Shaw, P. E., and Knight, R. J., Jr.
1982. Analysis of oxalic acid in carambola (Averrhoa carambola
L.) and spinach by high performance liquid chromatography. J.
Agric. Food Chem. 30(6):1106-1108.