AID INSTRUCTION

PAGE 1

PROJECT APPRAISAL REPORT (PAR)

7310578(7)
PD-AAC-[illegible]-C1

1. PROJECT NO.	2. PAR FOR PERIOD:	3. COUNTRY	4. PAR SERIAL NO.
931-17-130-578	9/1/75 TO 7/31/76	TAB	

5. PROJECT TITLE

Development of Improved High Yielding Sorghum Cultivars with Disease and Insect Resistance

5p

6. PROJECT DURATION: Began FY 74 Ends FY 77*	7. DATE LATEST PROP	8. DATE LATEST PIP	9. DATE PRIOR PAR
		August 1976	October 29, 1975

10. U.S. FUNDING	a. Cumulative Obligation Thru Prior FY: $150,000	b. Current FY Estimated Budget: $130,000	c. Estimated Budget to completion After Current FY: $ 950,000

11. KEY ACTION AGENTS (Contractor, Participating Agency or Voluntary Agency)

a. NAME	b. CONTRACT, PASA OR VOL. AG. NO.
Richard A. Frederiksen	AID-ta-c-1092

I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION

A. ACTION (X) USAID	AID/W	MISSION	B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
	X		1. Complete action, including RAC approval, on revised project statement for three-year continuation. PIO/T for FY 77.	October 1976
X			2. Prepare plan for collaborative investigations involving other U. S. institutions, ICRISAT, and regional entities.	December 1976
X			3. Promote involvement of DC professionals and trainees with this project.	Continuous
			* Present project approval and funding are through February 28, 1977. RAC approval of three-year extension will be sought at the October 12-13, 1976 meeting.	

D. REPLANNING REQUIRES REVISED OR NEW: ☐ PROP ☒ Project Paper ☐ PRO AG ☐ PIO/T ☐ PIO/C ☐ PIO/P

E. DATE OF ~~XXXXX~~ REVIEW: Jul 20-23, 1976

PROJECT MANAGER: TYPED NAME, SIGNED INITIALS AND DATE	MISSION DIRECTOR: TYPED NAME, SIGNED INITIALS AND DATE
Earl R. Leng Earl R. Leng Sept 28, 1976	Leon F. Hesser, Director, TA/AGR

GAA 9/30/76

II. Four x four Matrix.

III. Narrative:

A. Utilization and Impact to Date.

The current contract is part of an overall A.I.D. effort to make improved sorghum varieties available to farmers in the developing countries. The Texas A&M research component has been primarily concerned with the collection, breeding, and identification of sorghum cultivars with demonstrated resistance to the most common disease and insect attacks. This work complements other A.I.D. supported research to produce improved sorghum lines for DC use. Texas A&M has long been concerned with pest resistance in sorghum for temperate zones and has been able to meet needs of tropical and subtropical areas through A.I.D. support.

Field trials are conducted in Puerto Rico, Brazil, Mexico, and India. Professional linkages have been established with ICRISAT, ALAD, OAU/STRC (formerly JP-26), and country operations in Senegal and India. International breeding selections have been incorporated in the trials at Texas, and promising lines are included in the selections which are distributed for worldwide testing. Data recording sheets have been supplied by the contractor to ensure uniformity of result tabulation.

A continuous system is in operation for the preliminary screening, multiplication, advanced screening and distribution for field testing of promising cultivars as they are identified. Collaboration with sorghum specialists in other A.I.D. supported research at Purdue, Nebraska, and Puerto Rico has been frequent and close.

Conversion to temperate-adapted sorghums to tropical adaptation and vice versa has been an objective of the Texas sorghum improvement program for several years, and has been part of the A.I.D. funded work since 1974. Tropical adaptation enables sorghum types to be productive in short day, high temperature environments. One hundred and twenty converted lines developed in the cooperative Texas-ARS program have already been released, and more are under development. This program is vital to sorghum breeding work at the international centers and in developing countries, since it makes available new disease and insect resistant germplasm sources, with height and maturity characteristics readily usable in both temperate and tropical areas.

The one hundred twenty converted lines released contain sources of midge, mite, downy mildew, head smut, anthracnose, and lodging resistance which are now being used in development of high yielding insect and disease resistant cultivars.

B. Potentialities for Developing Countries.

The broad spectrum of investigations should permit the cataloguing of thousands of cultivars into categories of salient attributes. On-going breeding programs will combine desirable traits. The end result will be a reserve of plant materials with proven characteristics which will be available for individual country or regional multiplication or cross-breeding into indigenous lines. In essence, the combined efforts of the A.I.D. thrust would eliminate the need for duplication of these exacting and time consuming efforts by each developing country seeking an improvement in sorghum production. Nonetheless, each beneficiary country will need to conduct the final phase of field trials in its own environments. Such testing is already under way in several countries which are cooperating in the evaluations.

Appropriate linkage relationships and coordination with national, regional, and international institutions are being developed. Texas A&M plans to enlarge these linkages each year of the proposed three year contract, as research results become available and breeding material is ready for release.

Expected results should lead to increased food productivity in developing countries, more reliable harvests, and less dependence upon chemical pesticides.

C. Plan for Utilization.

The present channels for dissemination of the findings of this project seem rational and adequate. They utilize the established international centers, particularly ICRISAT, ALAD, OAU/STRC in Nigeria, a regional center in Senegal, and the Indian Agricultural Research Institute. Additional national programs will be added for dissemination of the breeding material.

The rapidity with which findings are utilized in any individual country program depends upon the interest and professional capability in that country. To upgrade this national sorghum breeding capability, Texas A&M will involve developing country graduate students and professionals in the on-campus activities. This will be accomplished by involving foreign advanced degree candidates in the operations and by holding special short courses or workshops and through in-country training.

The new Title XII of the Foreign Assistance Act has presented an opportunity for Texas A&M to give leadership to the development of research linkages among U. S. institutions with competence in sorghum research, as well as working out cooperation with developing country institutions and international centers. Three meetings have been held for this purpose, and if Title XII guidelines permit, a plan for collaborative, DC-oriented sorghum and pearl millet research could be finalized in a few weeks.

D. Management Considerations.

No unusual management problems have arisen in connection with this project. It is similar in concept and design to other centrally funded crop improvement research projects.

Project will continue to be evaluated through a review and evaluation team visit to the campus, through survey of field activities, and by constant review by the project manager in TA/AGR.

AID 1020-28 (11-72)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 74 to FY 77
Total U. S. Funding $280,000
Date Prepared: 9/28/76

Project Title & Number: Development of High-Yielding Sorghum Cultivars with Disease & Insect Resistance AID/ta-C-1092

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: **To increase quantity and nutritional value of food crops in developing countries.**	Measures of Goal Achievement: 1. Significant increase in per capita production of major food crops in LDCs. 2. Improvement in nutritional quality of major LDC food crops.	1. Official production and population statistics (FAO, Foreign Agricultural Service estimates). 2. Nutritional quality surveys in LDCs.	Assumptions for achieving goal targets: 1. LDCs will actively attempt to expand food crop production. 2. Nutritional quality can be improved without major constraints on yield.
Project Purpose: **To make available to LDCs high-yielding, nutritious varieties of sorghum with multiple resistance to moisture and temperature stresses, diseases and insects, together with improved practices for their cultivation.**	Conditions that will indicate purpose has been achieved: End of project status. 1. New, superior varieties available to farmers in LDCs. 2. Research and development activities in sorghum effectively assumed by LDC agencies and international institutions and linked by communications network.	1. Publication and reports of LDC governmental agencies; on-site inspections of seed supply. 2. On-site inspection and review by AID/W personnel and consultants.	Assumptions for achieving purpose: 1. Solutions can be found to major constraints. 2. Agriculture extension services are able and willing to promote proven practices. 3. LDC research institutions develop adequate capabilities.
Outputs: 1. Identification of superior germ plasm. 2. Incorporation of desirable traits into broadly-adapted varieties suitable for LDC use. 3. Evaluation of improved varieties and practices in LDCs. 4. Training of LDC personnel in sorghum research. 5. Establishment of effective linkages with LDC agencies.	Magnitude of Outputs: 1. Not quantifiable. 2. At least 2 superior varieties for each major agroclimatic region. 3. At least 1 test location in each major sorghum-growing zone. 4. Total of 10 LDC trainees completing training. 5. Linkages with 3 international centers and at least 10 LDC institutions.	1. Reports by contractor. 2. Reports by contractor, USAIDs, LDC cooperators, and international agencies. 3. Same. 4. Contractor reports. 5. Contractor reports, communications and reports from LDCs and international agencies.	Assumptions for achieving outputs: 1. LDCs and USAIDs will request technical assistance; research findings will be available. 2. Cooperation of LDCs. 3. Interest and resources exist in LDCs. 4. Collaboration of international institutions. 5. Sufficient interest among LDCs and qualified personnel.
Inputs: 1. AID/W provides financial support and project guidance. 2. Contractor provides qualified personnel and backstopping facilities. 3. Participating personnel and cooperation provided by 1) LDCs, 2) USAIDs, and 3) international organizations.	Implementation Target (Type and Quantity) 1. AID/W funding at approximately $135,000. 2. 70 man months/year technical personnel; adequate laboratory facilities; 5 or more acres field research area. 3. Not directly quantifiable.	1. AID/W records. 2. Contractor reports, on-site inspections. 3. USAID reports, on-site verification.	Assumptions for providing inputs: 1. AID/W funding will be available on schedule and in quantity agreed upon. 2. Contractor will have necessary qualified personnel; university facilities will be available to project. 3. International organizations, USAIDs, and LDCs will have personnel and resources to support this activity.