

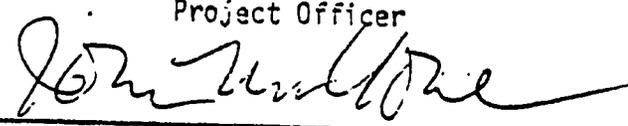
Oct 1979

931054
AEC-698-21

PROJECT EVALUATION SUMMARY
(Submit to MO/PAV after each project evaluation)

1. Mission or AID/W Office Name DSB/AGR/ECP			2. Project Number 931-0154.115		
3. Project Title A Grant to strengthen the competence of the University of Puerto Rico in Disease Control and Related Insects and Cultural Practices of Soybeans and Other Food Legumes for Tropical and Subtropical Areas					
4. Key project dates (fiscal years)			5. Total U.S. funding life of project		
a. Project Agreement Signed	b. Final Obligation	c. Final input delivered	\$ 500,000		
6. Evaluation number as listed in Eval. Schedule	7. Period covered by this evaluation FROM: Dec/ 77 Month/year		TO: September/78 Month/year		8. Date of this Evaluation Review 3/23/78 month/day/year
9. Action Decisions Reached at Evaluation Review, including items needing further study (Note--This list does not constitute an action request to AID/W. Use telegrams, airgram, SPARS, etc., for action) This project was evaluated on March 23, 1978 and there are no problems or issues which will delay the accomplishment of the purpose for which this project was approved. The project is on schedule and I recommend its continuation without any changes in the design. It is recommended the UPR/MC submit a proposal for a revised Institutional Grant Project Statement in preparation for requesting a two-year grant extension.			10. Officer or Unit responsible for follow-up John M. Yohe		11. Date action to be completed Jun 30

12. Signatures:

Signature 	Project Officer	Signature 	Mission or AID/W Office Director
Typed name John M. Yohe, DS/AGR/FCP		Typed name Leon F. Hesser, DS/AGR	
Date		Date	

13. SUMMARY - Summarize in about 200 words the current project situation, mentioning progress in relation to design, prospects of achieving purpose, major problems encountered, etc.

Puerto Rico has made significant progress towards the development of a coordinated interdisciplinary research program in the area of crop protection of soybeans and other food legumes. The grant has had a significant effect on the teaching program within the College of Agricultural Sciences and the Department of Crop Protection. Through providing new and improved laboratory facilities, audiovisual equipment, increased library resources and increased staff personnel, the grant has enhanced the quality of teaching at UPR/MC. At present, 20 graduate students are working toward the M.S. degree in Crop Protection. Research accomplishments include new populations of high yielding tropically adapted cultivars, identification of germplasm with good seed quality characteristics and resistance to seed infection by fungi, recommendations for producing high quality soybean seed under tropical conditions, and others. They have developed extensive involvement and linkages with LDCs, other American institutions, and other donors. They have made significant progress toward achieving the purposes of the project in relation to the project design. The major problems encountered have been lack of adequate funding to introduce the entomological phase of the program.

Though there are no problems or issues which will delay the accomplishment of the purpose for which this project was approved, it is recommended that a two-year extension be approved. At the present time, there is virtually no production of soybeans on farms in Puerto Rico and there is danger that without outside support the soybean program at UPR/MC might be gradually reduced and terminated. This is critical because the international program in soybeans conducted by the University of Illinois (UI/UC) for the LDCs can be fully effective only if there is close cooperation with an institution located in the tropics, since most of the transfer of knowledge will be to tropical areas. Secondly, the JRC of the BIFAD Board of Title XII has identified soybeans as a priority research and with tentative implementation of a CRSP on soybeans in 1980-81. This extension will maintain and assure a critical level of expertise, involvement and outreach capability until the CRSP is in place.

14. EVALUATION METHODOLOGY - Describe the methods used for this evaluation, i.e. was it a regular or special evaluation? was it in accordance with the Evaluation Plan in the PP with respect to timing, study design, scope, methodology and issues? What kinds of data were used and how were they collected and analyzed? Identify agencies and key individuals participating and contributing.

This was a regular evaluation. It was in accordance with the Evaluation Plan of the P.P. and DS/PO with respect to timing, study design, scope, methodology, and issues. The primary sources of data were the Annual Report for October 1, 1976 to September 30, 1977, the comprehensive review reports of Jan 25 - 29, 1977 personal interviews with the principal investigator, fiscal reports, and a site visit.

15. Documents to be revised to reflect decisions noted page 1 (other side:)

Project Paper (PP) Logical Framework CPI Network Financial Plan
 PIO/T PIO/C PIO/P Project Agreement Other

Evaluation findings about EXTERNAL FACTORS - Identify and discuss major changes in project setting which have an impact on the project. Examine continuing validity of assumptions.

There have been no major changes that have had any major impact upon the project.

Evaluation findings about GOAL/SUBGOAL - For the reader's convenience, quote the approved sector or other goal (and subgoal, where relevant) to which the project contributes. Then describe status by citing evidence available to date from specified indicators and by mentioning progress of other projects (whether or not U.S. which contribute to same goal). Discuss causes - can progress toward goal be attributed to project, why shortfalls?

The broader objective to which this project contributes is the increased tropical production of soybeans by small farmers of the LDCs through the development of technology and training activities in the area of crop protection of soybeans.

Progress has been made toward achieving this goal in that there are at present 20 graduate students working toward the M.S. degree in Crop Protection and the number of students developing interest in the field is continually increasing. The UPR (University of Puerto Rico) and UIUC (University of Illinois at Urbana-Champaign) have developed a truly integrated and coordinated research and advisory program in the area of tropical soybean production and protection. This research team is composed of (1) Plant Breeder - UIUC; (2) Soil Microbiologist - UIUC; (3) Agronomist - UIUC; (4) Weed Scientist - UPR; (5) Seed Pathologist - UPR; (6) Plant Pathologist - UPR; (7) Nematologist - UPR. All are permanently stationed at Puerto Rico and are working within the framework of an integrated, coordinated research and advisory team.

Since the beginning of the grant, a total of 21 students have received M.S. degrees with specialization in the area of tropical crop protection. These graduates represent Guatemala, Puerto Rico, Panama, Colombia, Nicaragua, El Salvador, and Bolivia. At present there are 21 additional students representing LDCs and Puerto Rico in the program.

18. Evaluation findings about PURPOSE - Quote the approved project purpose. Cite progress toward each End-of-Project Status (EOPS) condition. When can achievement be expected? Discuss causes of progress or shortfalls.

The approved project purpose for this activity is to develop, mobilize, and maintain a U. S. institutional response capability in tropical crop protection and production of soybeans, utilizing the competence, leadership, and facilities of the University of Puerto Rico, Mayaguez Campus and the University of Illinois at Urbana-Champaign and focusing on the solution of LDC problems with emphasis on technology applicable to the small farmer and improving nutrition of the rural and urban poor.

Progress is being made toward each and of project status (EOPS) condition. They are individually discussed in the following:

- a. Recognition of UPR/MC as a center of excellence in research and training activities related to tropical crop protection and production of soybeans.

The grant has had a profound effect on the teaching program within the UPR College of Agricultural Sciences and the Department of Crop Protection. Staff personnel have been active in the development of the curriculum for the new Department of Crop Protection and three grant-supported staff members are currently teaching courses at the graduate level. Teaching and research facilities have been significantly improved under this grant. New laboratory facilities, including greenhouses have been developed at the college farm (La Finca). These facilities are available to staff and students. Laboratory facilities on campus for plant pathology and nematology have also been developed and made available to staff and students. The development of these facilities has had a direct effect upon the development of UPR/MC institutional response capability. At present, UPR/MC is capable and willing to provide education, training, and consultation to LDCs of the tropics in protection and production of soybeans and other food legumes. A total of 20 courses relevant to the science of crop protection are currently being offered by the Department of Crop Protection. These courses are being taught in Spanish. The opportunity for advanced degree training in the field of tropical crop protection (especially for persons from the LDCs of Latin America) is currently available at UPR/MC. At present, there are 20 students matriculating toward the M.S. degree in Protection. Twenty-one students have received the M.S. degree since the beginning of the grant. They represent Guatemala, Puerto Rico, Panama, Colombia, Nicaragua, El Salvador, and Bolivia. In recent years, a number of requests have been made for short term non-degree training programs in the area of tropical crop protection and production of soybean. This type of non-degree training eliminates problems of academic prerequisites and language problems in relation to Spanish. At present trainees from any Spanish speaking country can come directly to Puerto Rico with no language problems.

- b. Continuing and increasing demand for expertise and services from tropical LDCs, and increased response to requests.

The number of requests for assistance from LDCs to the University of Puerto Rico is increasing annually. Most recently, in the past year, UPR has responded to one request in Peru and three requests to Panama for technical assistance. Staff members have been requested to contribute to short courses in Peru, Brazil, Ecuador, Bolivia, Panama, Puerto Rico, Costa Rica, and Colombia.

- c. Increased tropical production of soybeans through the development and application of technology in the area of pest management and control.

The UPR/MC program has initiated a study called "transfer of technology in seed pathology and production of tropical legumes." The objective of this study is to identify basic control methods and agricultural practices which will aid in the production of high quality seed of grain legumes in the tropics. Soybeans are of primary interest to the program, but studies are also being conducted on field bean (Phaseolus vulgaris, cowpea (Vigna unguiculata) and pigeon pea (Cojanus cojan). Results of studies conducted thus far suggest that when basic principles of tropical seed production are identified for soybean, they can be applied directly or indirectly to other grain legumes.

Weeds are a major problem in the production of most field crops in the tropics. Research thus far conducted under the grant has demonstrated that without successful weed control, soybean production in the tropics is not feasible. Research results thus far suggests that the time of maximum weed competition changes with variations in climatic conditions, especially rainfall. The correct time for weeding is a critical factor to successful soybean production in the tropics. Weeds must be removed or controlled before they achieve their maximum growth rate.

- d. Integration of grant programs and activities into the mainstream of the UPR-MC.

This has been accomplished in that the grant research program and grant staff are integrated fully into the UPR-MC Department of Crop Protection activities for research, teaching, and staff activities.

- c. Adequate financing made available for sustaining the program.

The soybean program within Puerto Rico still does not warrant full support for the continuation of the program under UPR/MC funds. External funding is still needed to keep the program active and viable.

Funds under the grant have never been used to replace existing funds for other university projects. Activities under the grant have been designed to complement and strengthen existing programs.

19. Evaluation findings about OUTPUTS and INPUTS - Note any particular success or difficulties. Comment on significant management experiences of host contractor, and donor organizations. Describe any necessary changes in schedule or in type and quantity of resources or outputs needed to achieve purpose.

The outputs are discussed in detail on pages 9-67, 68-71, 72, 73, and 74.

The most outstanding success has been the influence of the grant upon the development of a Department of Crop Protection at UPR/MC. Through providing new and improved laboratory facilities, audiovisual equipment, increased library resources, and increased staff personnel, the grant has significantly enhanced the quality of teaching at UPR/MC. Direct effect of this is the increased enrollment of graduate students from various LDCs.

UPR/MC has developed and is continuing to develop a research and advisory team in the area of tropical soybean protection and production. The grant has developed and is maintaining competence among its core staff. Grant personnel are prepared to respond to requests from A.I.D., other donors, and tropical LDCs for expert advice or assistance in the problem area of crop protection. The fact that both Spanish and English languages are used by the faculty members and technical personnel especially qualify this university for work with LDCs of Latin America.

Linkages are an output goal which requires the development of formal research and informational linkages with national and international organizations and institutions. Since the beginning of the grant, linkages have been developed with the following institutions.

- a. International Crops Research Institute for the Semi-Arid Tropics, Hyderabad, India
- b. Centro Internacional de Agricultura Tropical (CIAT), Cali, Colombia
- c. Instituto Colombiano Agropecuario (ICA), Colombia
- d. Instituto Interamericano Ciencias Agrícolas (IICA), El Salvador, San Salvador
- e. Instituto Nacional de Investigaciones Agropecuarias (INIAP), Quito, Ecuador

- f. Universidad de Panama, Panama
- g. International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria
- h. Centro Internacional de la Papa (CIP), Lima, Peru
- i. Ministerio de Alimentacion, Lima, Peru
- j. Asian Vegetable Research and Development Center (AVRDC), Taiwan
- k. Fundacao Instituto Agronomico do Parana (IAPAR), Londrina, Brazil
- l. Canada Agriculture Research Station, Winnipeg, Manitoba.

At the national level, linkages have been developed with the Mayaquez Institute of Tropical Agriculture (MITA), the United States Department of Agriculture and Agricultural Research Service, Iowa State University, North Carolina State University, Mississippi State University, Oregon State University and the University of Hawaii.

The outputs can be summarized as follows:

- Output 1. Improved education and training capabilities in tropical crop protection and production of soybeans.
- Output 2. Expanded knowledge base and research capability which emphasizes the development and application of technology in the area of tropical crop protection of soybeans, with special emphasis on technology applicable to the small farmer in tropical LDCs.
- Output 3. Expanded advisory and consultation capability in soybean production and protection to meet the needs of LDCs of the tropics and subtropics.
- Output 4. Expanded and strengthened linkages and networks among organizations and individuals with interests in tropical and subtropical soybean crop protection and production.
- Output V. Information Capacity.

The University of Puerto Rico has made remarkable progress in its research and educational capabilities and accomplishments under the 211 (d) grant. The program in soybean breeding and crop protection is impressive in that the university has a long tradition of excellence in plant protection of other tropical crops. The Puerto Rican environment provides

exposure to almost all tropical soybean diseases of any significance. Thus it is a tropical disease laboratory condition within the United States where U. S. know-how can be adapted to bridging the gap between U. S. technology within a temperate climate and that of the tropical LDC environment.

20. Evaluation findings about UNPLANNED EFFECTS - Has project had any unexpected results or impact, such as changes in social structure, environment, technical or economic situation? Are these effects advantageous or not? Do they require any change in plans?

There has been one unplanned effect. It is now recognized that there should be an entomologist on the project staff. This would definitely be an advantage. The program would then provide adequate coverage of pathology, entomology, and weed science. The major change in plans would be the requirement for additional funds. Other than an increase in budget, there would be no other requirements.

21. CHANGES in DESIGN or EXECUTION - Explain the rationale for any proposed modification in project design or execution which now appear advisable as a result of the preceding findings (items 16 to 10 above) and which were reflected in one or more of the action decisions (listed on page 10, noted in Item 15 on page 2).

It is recommended that the program be modified to include an entomologist. This will provide a balance among the disciplines which need to be represented in order to have a fully effective research and educational effort on soybeans.

22. LESSONS LEARNED - What advice can you give a colleague about development strategy --e.g. how to tackle a similar development problem or to manage a similar project in another country? What can be suggested for follow-on in this country? Similarly, do you have any suggestions about evaluation methodology?

SPECIAL COMMENTS or REMARKS (For AID/W projects, assess likelihood that results of project will be utilized in LDCs).

This project is critical in serving as the tropical link between tropical LDCs and INTSOY at the University of Illinois. UPR/MC is especially capable of being utilized in the Latin American tropics. UPR/MC has great potential for being effective in future soybean Title XII Programs.