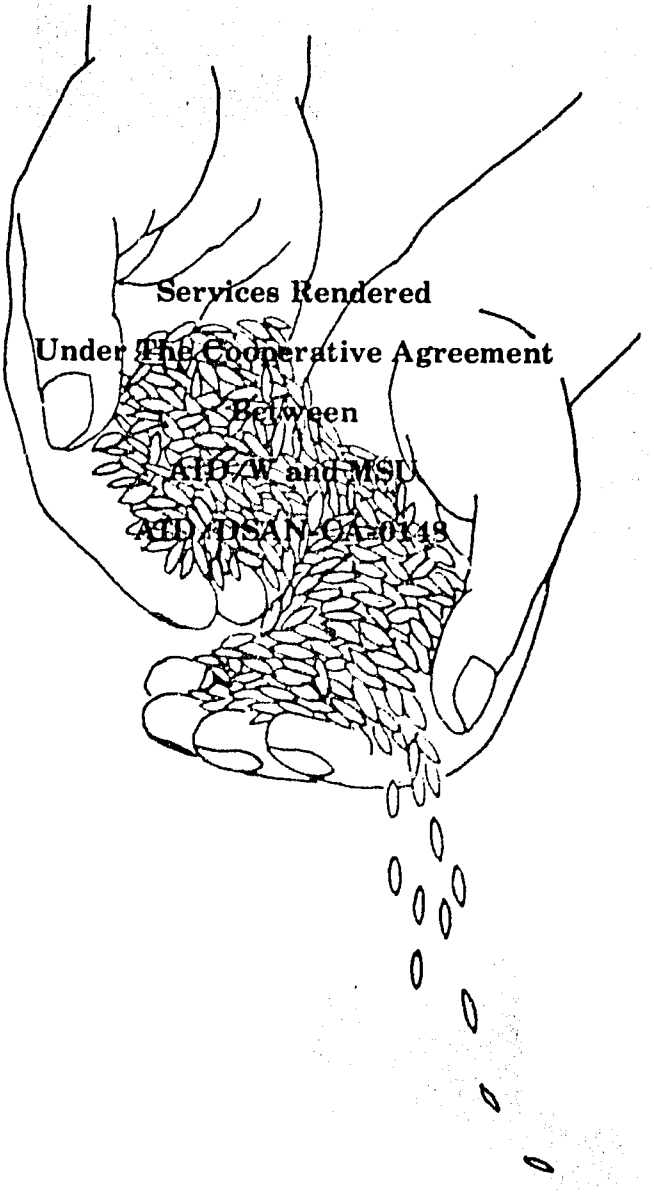
Report to:
AID/W and
USAID/Costa Rica

MISC-81-5

Discussions With UCR/CIGRAS on Proposed Courses for the University of Costa Rica Graduate Program in Seed Technology



Services Rendered

Under The Cooperative Agreement

Between

AID/W and MSU

AID/DSAN-CA-0148

SEED TECHNOLOGY LABORATORY
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

REPORT SUMMARY

Report No: MSU/STL MISC 81-5

Title: Discussions with UCR/CIGRAS on proposed courses for the University of Costa Rica graduate program in seed technology.

Consultant: A. H. Boyd, Agronomist
Seed Technology Laboratory
Mississippi State University

Contract: AID/DSAN-CA-0148 with Mississippi State University

Period of Consultation: 26 Sept - 3 Oct 1981

SUMMARY

USAID/Costa Rica requested that this consultant visit with UCR/CIGRAS on plans for a graduate program in seed technology. Mississippi State University and University of Costa Rica are developing an agreement to cooperate in this area and a major part of the assistance by MSU will be in helping develop teaching capability and teaching materials.

Discussions with Dr. Echandi, Director of CIGRAS indicated that there is a very good nucleus of talent available and teachers were identified for most of the courses.

A listing of probable courses was made which closely resembles those offered at MSU. This was done to take advantage of programs

already proved to be effective and to minimize preparation time for new courses.

Physical facilities available are more than adequate to begin the program and a new building is already planned by UCR.

Planning assistance, some augmentation of their library and consultation with their professors is possible under this contract when requested by USAID/Costa Rica. Details of budget for major funding of the program were not discussed at this time. As the plans progress it is anticipated that cooperation and funding can be obtained from several international agencies who have informally expressed interest in the program.

ACKNOWLEDGEMENTS

I wish to express my appreciation to Dr. Ronald Echandi and his staff for the assistance and friendly welcome. Special thanks are due to Ing. Ramiro Alizaga and Ing. Jorge Flores for their special efforts in my behalf. It was a pleasure to visit with the entire staff.

AHB

A. H. Boyd

DISCUSSIONS WITH UCR/CIGRAS ON PROPOSED COURSES FOR UNIVERSITY OF COSTA RICA GRADUATE PROGRAM IN SEED TECHNOLOGY

Seed program development in Latin America varies widely from country to country. Brazil has the only university programs devoted to advanced degrees in seed technology. Most of the professionals working in seed production-distribution programs received their training in the U.S. at Mississippi State, Oregon State or Iowa State Universities. This has resulted in a nucleus of highly competent workers but the numbers are inadequate to provide the "critical mass" for continuing dynamic development in the region. One of the major constraints to training has been the fact that nowhere in the world is there a program of graduate study in seed technology taught in Spanish. The Centro de Investigaciones de Agricultura Tropical (CIAT) in Cali, Colombia is now offering courses of 4-10 weeks duration but these are not designed to be university level courses.

To help alleviate this problem and to assist in research in the region the University of Costa Riça (UCR) and Mississippi State University (MSU) have entered into an agreement to cooperate in development of a graduate program of study leading to a Master of Science degree in Agronomy-Seed Technology at UCR.

The center for Investigation of Grain and Seed (CIGRAS) at UCR has 1050 square meters (11300 ft^2) of building space. Plans for a complete new facility have been approved but construction will probably not begin for two or three years because of the current financial problems. Nevertheless the current facilities are more than adequate to begin the anticipated graduate program.

CIGRAS is organized into six sections as follows:

1. Grain quality and investigation (official laboratory)
2. Seed quality and investigation (official laboratory)
3. Section for vegetatively propigated crops
4. Plant breeding
5. Seed and grain microbiology
6. Administrative

The following is a listing of full time professional employees of CIGRAS:

1. Ronald Echandi Zurcher
   Ph.D. Cornell University (USA)
   Director
2. Miguel Mora Cordero
   Ph.D. Kansas State University (USA)
3. Enrique Villalobos Rodriguez
   M.S. Universidad de Costa Rica
   Candidate for Ph.D. at Iowa State University
4. Jorge Flores
   M.S. Mississippi State University
5. Gonzalo Bonilla
   M.S. Universidad de Costa Rica
6. Jorge Herrera Quiros
   Ing. Agr. Universidad de Costa Rica

7. Ronald Jimenez Chacon
   Bach. Ing. Mec. Universidad de Costa Rica
   Candidate for M.S. at Kansas State University

8. Manuel Zeledon Grau
   Ing. Agr. Universidad de Costa Rica

9. Ramiro Alizaga Lopez
   Ing. Agr. Universidad de Costa Rica

The attached list of courses are almost identical to those at MSU to take advantage of training materials etc. which are already prepared and the opportunity for assistance by appropriate personnel at MSU. Some of the people listed as available are not currently part of CIGRAS but will be available as plans progress.

COURSES TO BE TAUGHT AND QUALIFICATIONS OF PERSONNEL AVAILABLE

		Credit	Lect.	Lab.
1.	Seed quality evaluation Ronald Echandi Z., Ph.D.	3	32	32
2.	Seed Production Systems Ramiro Alizaga, I.A. UCR To be sent to MSU for MS at first opportunity. Jorge Flores, M.S. Agronomy will possibly begin teaching this course. He needs tutoring by Dr. C. H. Andrews. (See priority 4).	3	32	32
3.	Seed Biology Luis A. Fournier, Ph.D.	3	32	32
4.	Seed Physiology Oscar Arias, Ph.D.			
5.	Seed Pathology Gonzalo Bonilla, M.S. (Microbiology) Currently working with seed, plans to internship at Neergard Institute in Denmark			
6.	Seed Conditioning Equipment Ronald Jimenez, M.S., Ag. Eng. KSU Needs review of equipment and intern with or tutoring by Dr. G. B. Welch, MSU	3	16	60
7.	Seed Conditioning plant design and operation Ronald Jimenez, M.S. Same recommendation as (6)	3	16	60
8.	Seed Drying and Storage	3	32	32

		Credit	Lect.	Lab.
9.	Agri-Business Management Jorge Moya, Ph.D., Ag. Econ., MSU Needs orientation in seed but has the high regard of MSU Ag. Econ. Dept.	3	48	-
10.	Internship with operating unit	3		
	Laboratory - CIGRAS	3		
	Conditioning - CNP or Private company	3		
	Production - CNP or Private company	3		
11.	Thesis Research/Thesis	6		

HIGH PRIORITY AREAS FOR COOPERATION BETWEEN MSU/UCR

1. Translation of syllabi of MSU/STL course into Spanish. Copies will be sent to CIGRAS.
2. Internship at MSU and/or visit to UCR by Dr. G. B. Welch for assistance to Ronald Jimenez in preparing seed conditioning equipment courses.
3. Degree training for Ramiro Alizaga as soon as financing can be obtained and language requirements met.
4. Special internship and/or tutoring for Jorge Flores by Dr. C. H. Andrews. Flores has taken most STL Courses at MSU and has his notes but he has no teaching experience.
5. Initiation of cooperative research on seed drying to include harvest time, drying rate (maximum and minimum), alternative management methods, energy sources and designs.
6. Copies of theses and disseratations from MSU/STL will be sent to UCR/CIGRAS libraray. (List of copies already on hand at CIGRAS attached.)
7. Translation of new edition of Seed Conditioning handbook. (CIAT has offered to assist in this area also.)

THESES ALREADY ON HAND AT CIGRAS LIBRARY.

ANDREWS, C.H. Some aspects of pod and seed development in the soybeans. Thesis, Ph.D. Mississippi State University, 1966. 75 p.

ASSUNCAO, M.V. Field performance of high and low vigor soybean seeds from the same lots. Thesis M.Sc. Mississippi State University, 1972. 70 p..

BASKIN, CH. CH. Relation of certain physiological properties of peanut (Aradius hipogaea L.) seed to field performance and storability. Thesis Ph.D. Mississippi State University, 1970. 108 p.

BOYD, A.H. Potential applicatiɒns of electric color sorting techniques in seed technology. Tesis M.Sc. Mississippi State University, 1967. 60 p.

BYRD, H.B. Influence of mechanical damage and seed treatments on the viability and emergence of cotonseed. Tesis M.Sc. Mississippi State University, 1966. 81 p.

CASTRONUEVO, Pili, E. An accelerated aging technique for evaluating the storability of alfalfa, wheat, corn, and cotton seed lots. Tesis M.Sc. Mississippi State University, 1967. 78 p.

CORREA V., J. Anatomical studies of seed shatering in bahíagrass (Paspalum notatum Flugge) and kleingrass (Panicum coloratum L.). Tesis Ph,D. Mississippi State University, 1973. 61 p.

FAETH, J. Lipoxygenase and ATPase activity in soybean (Glycine max L. Merrill) seed as related to aging. Tesis. M.Sc. Mississippi State University, 1977. 73 p.

FLINT, E.H. Maturation and development of sunflower (Helianthus annus L.) seed. Tesis M.Sc. Mississippi State University, 1971. 51 p.

GILL, N.S. Deterioration of corn (Zea mays L.) seed during storage. Tesis Ph.D. Missisippi State University, 1969. 199 p.

HANAMAIAH, L. Influence of seed size on vigor and field performance in twenip and cabbage. Tesis. M.Sc. Mississippi State University, 1971. 88 p.

KAMIL, J. Relation of specific gravity of rice (Oryza sativa L.) seed to laboratory and field performance. Tesis Ph.D. Missisippi State University, 1974, 66 p.

LANZ, R. MA. Seed development and maturation in guineagrass (Panicum maximum Jack). Tesis M.Sc. Mississippi State University, 1974. 95 p.

LOPEZ CAMPOS. Seed maturation in corn (Zea mays L.)Tesis M.Sc. Mississippi State University, 1973. 60 p.

MIRANDA, F.M. Influence of some seed-borne pathogens and field weathering on soybeans (Glycine max(L) Merrill) seed quality. Tesis M.Sc. Mississippi State University, 1977. 103 p.

OLIVEIRA, M. de Almeida. Effects of seed size and sowing rate on cowpea (Vigna sinensis (L) Savi) performance. Tesis M.Sc. Mississippi State University, 1972. 96 p.

PLUEMSAB, T. Relationships of seed and planting rate to field performance in soybeans. Tesis M.Sc. Mississippi State University, 1972. 60 p.

POPINIGIS, F. Inmediate effects of mechanical injury on soybean (Glycine max (L) Merril) seed. Tesis M.Sc. Mississippi State University, 1972 74 p.

POPINIGIS, F. Effects of the physiological quality of seed on field performance of soybean (Glycine max (L) Merril) as affected by population density. Tesis Ph.D. Mississippi State University, 1973. 85 p.

RAJANNA, B. Some trends in seed maturation of rice (Oryza sativa L.) Tesis M.Sc. Mississippi State University, 1970. 89 p.

SIMOIS CORREA, M.A. Some aspects of seed maturation in bahiagrass (Paspalum notatum Flugge). Tesis M.Sc. Mississippi State University, 1974 44 p.

SITTISROUNG, P. Storage of rice (Oryza sativa) and cowpea (Vigna sinensis) seed. Tesis M.Sc. Mississippi State University, 1967. 59 p.

SITTISROUNG, P. Deterioration of rice (Oryza sativa) seed in storage and its influence on field performance. Tesis Ph.D. Mississippi State University, 1970. 91 p.

TOLENTINO MERCADO, A. Moisture equilibrium and quality evaluation of five kinds of seed stored at various relative humidities. Tesis M.Sc. Missisippi State University, 1967. 56 p.

VAUGHAN, Ch. E. Physical and physiological properties of seed associated with viability. Tesis M.Sc. Mississippi State University, 1962. 67 p.

WATSON, E.C. Effect of seed deterioration on performance and uield of corn (Zea may L.) Tesis Ph.D. Mississippi State University, 1973. 60 -p.