

PURDUE UNIVERSITY
International Education and Research
International Programs in Agriculture



**PORTUGAL UNIVERSITY
INSTITUTES
DEVELOPMENT PROJECT**

(Contract AID/NE-C-1701)

NINTH SEMI-ANNUAL REPORT

August 25, 1984 to February 25, 1985

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(Contract AID/NE-C-1701)

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Submitted to

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Washington, DC

by

International Programs in Agriculture
School of Agriculture
Purdue University
West Lafayette, IN

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from August 25, 1980 through February 25,
1985

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
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INTRODUCTION

Purdue University contracted with the Agency for International Development (AID) on August 25, 1980, to assist three Portuguese universities to develop and strengthen their capabilities. In early 1984, the project was extended through December 1985.

The three cooperating university institutes are the Universidade de Evora (UE) at Evora, the Instituto Universitario da Beira Interior (IUBI) at Covilha, and the Instituto Universitario de Trasmontes e Alto Douro (IUTAD) at Vila Real.

Activities and accomplishments from August 25, 1984, to February 25, 1985, are covered in this Ninth Semi-Annual Report.

SUBSTANTIVE REPORT

The Portugal program seeks to strengthen the Portugal university institutes' educational, research and extension efforts. Indications that objectives are being met include:

- 1) Seven faculty from the university institutes have received M.S. degrees and six are in progress under this project.
- 2) Several faculty plan to pursue Ph.D. degrees if the project is extended beyond December 31, 1985;

- 3) Teaching programs at the universities have improved;
- 4) New research programs, relevant to the problems of the region, have been initiated.
- 5) Numerous community extension activities have been executed and new ones are being initiated.
- 6) Cooperative ties with other regional development institutions have been reinforced.

The Rectors of the three universities have indicated that the improvements are a direct result of the Purdue/AID Portugal project.

Improvements at the institutes and the success of the project have also been mentioned by advisors who completed second and third assignments. Dr. Robert Pricer, who was an advisor at IUTAD in 1981 and again in 1984 and 1985, stated in his final report: "...the project with IUTAD has been extremely successful and faculty members are now working directly with area business and this experience is having a direct impact on the quality of curriculum being provided." He also said that exciting and meaningful outreach and extension activities are being developed at IUTAD.. He is convinced that the project has been a major factor in its success. Dr. Pricer also mentioned that the President of Portugal, in his formal remarks during a building dedication ceremony at IUTAD, acknowledged the role of the United States and the Division of International Programs at Purdue University for their achievements at Vila Real.

On January 1, 1981, Clemson University was subcontracted by Purdue to handle specific aspects of the textile technology and management activities of the Portugal project. The subcontract was

in the process of being amended to coincide with the prime contract termination date when Clemson regretfully notified Purdue in December 1984 that they would not be able to extend the subcontract. This was because the state government of South Carolina denied permission to sign the extension. Clemson's request came at a time when unemployment in South Carolina's textile industry was increasing rapidly. Because of this, it was believed inappropriate for Clemson University to provide assistance to a textile-oriented university abroad. Clemson indicated that it would continue to assist Purdue informally in whatever way they could. Training of IUBI faculty will continue at Clemson and Purdue will continue to recruit Clemson faculty for advisory assignments, but will hire them as outside consultants rather than under the subcontract mode. We regret that the effective working relationship with Clemson cannot continue.

At the suggestion of Dr. D. Woods Thomas, short-term advisor Dr. James Ahlrichs discussed with Reitor Real the possibility of establishing a Memorandum of Agreement between Purdue and IUTAD. The purpose of the agreement would be to continue cooperative efforts that commenced under the AID/Purdue Portugal program after the contract ends. An agreement was drafted and handcarried back to Purdue by Dr. Ahlrichs. It is currently being reviewed by Purdue administrators. It is hoped that similar agreements will be developed with the University of Evora and the University at Covilha.

Since August 1980, five long-term advisors have provided 102.5 person months of technical assistance. Fifty-six short-term advisory assignments have been completed for a total of 88.5 person months.

The six short-term advisors who served during this reporting period provided support by: 1) offering courses for Purdue graduate credit; 2) helping to develop and activate Ph.D. research programs and proposals; 3) presenting seminars dealing with soils, quantitative genetics, linear statistical models, improvement of university teaching, and export market development; 4) collecting and evaluating data, setting up research experiments, collecting soil samples and visiting variety field trials; 5) providing advice and assistance in research and service aspects of running the Soil Analysis Laboratory at IUTAD; 6) developing course outlines for teaching staff; and 7) assisting with the development and publication of extension bulletins.

Faculty from IUTAD, UE and IUBI have received 124.5 person months of non-academic training and 209 person months of academic training at Purdue and other U.S. universities. Non-academic programs during the past six months, were carried out at the universities of Illinois, Purdue, Cornell, California, Washington State, Idaho and Clemson. The programs provided training in resource planning and economics; hydraulics and irrigation; textile technology; and range resources. Six participants continue degree programs at Clemson, Purdue and Wisconsin universities in rural extension, production economics, farm management, quantitative methods, operations research, and administration/decision making.

At the request of the Portuguese universities, the following supplies and equipment were purchased from the dollar budget and shipped to Portugal:

- a drying chamber and replacement parts for IUTAD's freeze dryer;
- 3 Pipette pumps for IUTAD;
- various chemicals, resins and cellulose for research being carried out at IUTAD;
- various publications and reference materials for each of the universities.

Problems Encountered and Recommendations

The most difficult administrative problem faced during this reporting period was dealing with the schedules for training and advisors--more explicitly the manner in which they were received and the continuous changes.

We assumed that the schedules developed this past summer during Dr. Hassan Behery's assignment at IUBI were approved and final. We proceeded accordingly to identify advisors and to develop training programs. Unfortunately, we have been receiving revised and incomplete schedules by telex directly from each of the universities. For example, advisors' schedules are arriving at one time and later the short-term training schedules arrive and still later the long-term schedules. It is very difficult to keep all of this sorted out. In addition, numerous changes are continually being made. To illustrate this point, IUBI cut five short-term advisors' assignments from 2 person months to 1.5. We were advised of this reduction after candidates had accepted offers to serve two full months. Several of the prospective advisors were quite annoyed by the change and one refused to accept the reduced amount of time.

We suggest that future scheduling be carefully thought through and that the schedules be "firm" before they are transmitted. We realize that a certain amount of change is unavoidable due to unexpected circumstances, but every effort should be made to keep this to a minimum. We would also prefer that all schedules be submitted to USAID/Lisbon for review and approval and then USAID transmit them to us.

The problem of prepaid airline tickets for advisors continues to exist. Duplicate reservations (those made by the advisors and those made in Portugal), the inability to schedule or pay for connecting commuter flights and tickets arriving at the last minute are a few of the inconveniences experienced.

Advisors returning from each of the university institutes have noted that the library and computer facilities need to be further strengthened. The current facilities are potential constraints for the development of research activities. These constraints have been mentioned by advisors throughout the project. We recommend that, if at all possible, USAID or perhaps some other funding source assist in the support of upgrading these facilities.

Other recommendations made by advisors include: 1) introducing more formal course work into degree programs in order to provide broader training for graduate degree candidates; 2) more on-site leadership and advice be provided by senior scientists and recent Ph.D. graduates for young staff to develop teaching, research and thesis work; 3) redistributing teaching responsibilities between faculty who are only teaching and those who teach but also administer

service laboratories, carry out major research, etc.; 4) arranging for the library and computer facilities to be more accessible to faculty and staff for class preparation and research activities by extending weekday hours and/or establishing weekend hours.

Plans for the Next Six Months

We anticipate that activities during the next six months will include:

1. Closely monitoring the dollar budget to determine if funds are adequate to provide staff inputs scheduled during the remainder of the project;
2. Continue review and finalize Memorandum of Agreement between Purdue and IUTAD. Pursue with UE and IUBI the possibility of similar agreements.
3. Discuss with USAID the possibility of extending the current contract beyond the December 1985 expiration date.
4. Plan effective training programs and continue administration of ongoing programs.
5. Identify advisors with appropriate qualifications to fulfill technical assignments in Portugal.

ADMINISTRATIVE REPORT

Personnel Employed Under the Contract

Purdue is responsible for providing overseas staff and for back-stopping the project with on-campus administrative staff. Five long-term advisors were employed during the first half of the project to provide technical assistance and serve as project coordinators at their respective cooperating institution. They have all completed their tours-of-duty and returned to the United States. In addition, 56 advisors were employed under the contract to provide assistance on a short-term basis. The on-campus staff is comprised of a project coordinator, an administrative assistant and a training coordinator.

Appendix A lists field staff who have participated overseas in the Portugal program. The five advisors who served during the past six months and a brief description of their activities are provided below.

Short-term Professional Staff

Dr. Daniel Gianola, Department of Animal Science, University of Illinois, was primarily occupied with teaching two courses at IUTAD from August 10-30 and from September 17-October 16, 1984. One course dealt with "Linear Statistical Models." The course was attended by approximately 30 participants from IUTAD as well as faculty, students and visitors from other Portugal institutions. Twelve participants received special recognition for completing the course and six received two hours of Purdue graduate credit for fulfilling additional requirements. The other course, "Quantitative

Genetics," had an enrollment of 12. Eight completed all of the class requirements and five received two hours of graduate credit from Purdue.

Dr. Gianola assisted with developing research programs for faculty of the Animal Science Department. Emphasis was placed on research in the areas of prediction of breeding value and simulation techniques. With Dr. Gianola's assistance, Drs. Jorge A. Colaco and Fernando Macedo developed their doctoral theses proposals. Dr. Gianola also outlined a two-year schedule for Macedo and Colaco to assist them in successfully completing their research.

Dr. James L. Ahlrichs, Department of Agronomy, Purdue University, served as a long-term advisor at IUTAD at the beginning of the project. He returned to IUTAD on August 29, 1984, to serve as a short-term advisor through November 1.

Dr. Ahlrichs spent a great deal of time developing research programs for four soil science faculty. He assisted with the doctoral programs of Joao Coutinho and Ester Portela. Coutinho's program deals with the problems of appropriate liming requirement tests for Northern Portuguese soils and clarifies the problem of aluminum toxicity and lime responses for culture of the region. Dr. Ahlrichs had helped Coutinho with the development of a general doctoral plan when he was at IUTAD as a long-term advisor. During this visit he worked with Coutinho in carrying out a number of soil tests, completing a statistical correlation on the aspects of acidity and aluminum for various soils and completing a file of pertinent literature on liming and aluminum toxicity. They visited the CRIDA station

at LaCoruna, Spain, where similar research is being done to get information on acidity and liming.

Ester Portela's doctoral program will involve potassium fertility problems. Considerable time was spent discussing literature that Dr. Ahlrichs brought for her. He outlined her general thesis plan which was submitted to the Scientific Council for approval to begin the doctoral program. They also began the first attempts to displace true soil solutions.

Dr. Ahlrichs discussed and encouraged Rui Vale to complete his thesis research proposal and to submit it to PROCALFER since they have indicated interest in supporting such a study. Vale received his M.S. degree at the University of Wisconsin in 1982 under the AID Portugal program.

Manuel Teles Oliveira had not as yet started in research after receiving his M.S. degree in 1982 at the University of Wisconsin (supported by the AID program). Dr. Ahlrichs encouraged him to do so, helped identify a viable study and assisted with the draft of a research plan on water content of Douro vineyard soils and various types of plantings--terrace vertical and slope.

Other activities included presenting two seminars on teaching; consulting with PROCALFER personnel about funding of research and graduate training for IUTAD faculty; teaching a two-hour session on soils; editing and redrafting a number of articles and abstracts, in English, for the Plant Breeding group and editing and redrafting a Portuguese research article on cereal-fertility research; and, at the request of Vice-Rector Pereira and Prof. Larry Peters, began

writing a paper on Agricultural Education and Vocational Agriculture for publication in Portugal.

Dr. Homer T. Erickson, Department of Horticulture, Purdue University, spent one month (August 29 - September 28, 1984 at IUTAD. Dr. Erickson provided assistance on potato crop production and storage; seed potato technology, true seed production; and worked with Fernando Martins to devise an applied research program on potatoes.

Since this was Dr. Erickson's first visit to IUTAD, he met and became acquainted with the faculty, the university and surrounding area. With Fernando Martins, he inspected field plots of potatoes grown from seed; went to Chaves to harvest plots of Golden Nematode resistant potato varieties; collected data and evaluated the harvested material; and tested 24 lines of potatoes for five viruses.

Visits were made to Sabroso to collect soil samples in a field suspected of heavy Golden Nematode infestation and to Chaves to visit producers and coops where the crop of certified seed is stored and marketed.

Dr. Erickson conferred with Martins concerning his doctoral research and studied related research programs and facilities. He and Martins set up a small greenhouse experiment. Lengthy discussions were held with the plant breeding group which is heavily committed to working on cereals, especially Triticale.

Prof. William H. Friday, Department of Agricultural Engineering, Purdue University, returned to IUTAD for a second assignment on September 1, 1984. He spent six weeks assisting with teaching, research and extension in IUTAD's agricultural structures program.

During his 1983 assignment, Professor Friday found the agricultural structures course offered at IUTAD to be excellent, but it included only a small amount of construction topics. He suggested a second course be added dealing primarily with materials and construction of agricultural structures. A course content outline was developed and typical U.S. construction and materials background references were provided by Professor Friday.

A program for agricultural building research on the subject of effectiveness of natural ventilation and evaporation was planned and a proposal developed. The program has sufficient scope to provide opportunity for student projects as well as for Ph.D. projects.

As a result of last year's assignment, additional extension publications have been published. An extension bulletin, published last year, was reprinted in a more typical Portuguese format; another was completed and published; two others in the agricultural buildings area are ready for printing; and four more are outlined and ready for writing, all co-authored by Professor Friday.

Visits were made to Famalicao to observe swine farm buildings; to Castelo Branco to inspect sheep buildings; and, with veterinarians, visited IUTAD's swine farm. Consultations were held with extension service personnel on swine ventilation and research was discussed with Luis Pereira, University of Lisbon.

Professor Friday ended his visit on October 12, 1984.

Dr. Robert W. Pricer, Small Business Development Center, University of Wisconsin, was in Portugal on business unrelated to the AID program in September/October and November/December of 1984 and again

in January/February 1985. IUTAD invited Dr. Pricer to serve as an advisor during each of his visits and UE invited him to participate in a seminar that they offered in September. Dr. Pricer spent six weeks at IUBI in 1981 at which time he presented an extension workshop for the AID Portugal project.

On September 27, 1984, Dr. Pricer presented a paper at a seminar held at UE for faculty of the three cooperating institutes and MAP members engaged in extension activities. The paper, "A University Model for Assistance to Small and Medium-Sized Farms," advocated a central role for universities engaged in extension activities, following the U.S. Land Grant Universities' model. The participants deemed the model to be potentially effective and discussions followed on how it could be adapted for use in Portugal.

The week of October 5 was spent at IUTAD where Dr. Pricer offered a workshop on the development of export markets. It was attended by IUTAD faculty and representatives from MAP and local cooperatives. The seminar was favorably received and, as a result, Dr. Pricer was asked to return to IUTAD during his next trip to Portugal.

The second visit to IUTAD in 1984 took place from November 30 to December 8. Since IUTAD faculty have little experience in working directly with business firms, the objective of Dr. Pricer's assignment was to: 1) encourage relationships with the business community; and 2) initiate interactive relationships that would result in research and extension of additional university knowledge which will lead to a direct university role in economic development.

Jose Manuel de Menlo Vaz Caldas, who teaches economic and farm/ag business management courses at IUTAD and is interested in becoming

involved in agribusiness, worked with Antonio J. Q. Duarte, Ministry of Agriculture, to organize appointments for Dr. Pricer with important, regional businesses. The meetings allowed Vaz Caldas to learn the operation of agribusinesses and allowed Dr. Pricer to work with them in presenting management and export development materials and educational opportunities to directors and administrators. Vaz Caldas also cataloged business needs for inclusion in IUTAD curriculum development and planning of outreach services.

Dr. Pricer's third assignment was from January 25 - February 1, 1985, at the invitation of IUTAD. He was asked to work on in-depth counseling with selected area businesses and to train IUTAD faculty in techniques of one-to-one counseling, as well as assist businesses in developing more sophisticated distribution systems and export markets. The key faculty members for this assignment were again Vaz Caldas and Duarte. Visits were made to selected regional businesses and cooperatives. Dialogue, commenced during prior visits, continued with management personnel.

Dr. Pricer concluded in his last end-of-tour report that IUTAD faculty members are now working directly with area businesses and that this experience is having a direct impact on the quality of curriculum being provided.

Dr. Stephen A. Garrison, Department of Horticulture and Forestry, Rutgers University, departed the U.S. on February 6, 1985, for a one month assignment at IUTAD. He will assist IUTAD faculty to determine which green vegetable crops will adapt to the Tras-os-Montes region in an effort to increase IUTAD's capabilities for horticulture production. Detailed activities will be provided in the next semi-annual report.

Advisors Scheduled for the Remainder of 1985

According to the latest schedules received from the university institutes, the following individuals are scheduled for assignments.

Universidade de Evora:

Prof. Horace Paarlberg, Director of Regional Agricultural Centers, Purdue University -- 1 month, Crop Production

Dr. William C. Dahnke, Soil Science Department, North Dakota State University -- 1 month, Soil Analysis/Fertilization

Dr. Truman G. Martin, Department of Animal Sciences, Purdue University -- 1 month, Livestock Production

Dr. Timothy G. Baker, Department of Agricultural Economics, Purdue University -- 1 month, Business Management

Dr. William L. Sims, Department of Vegetable Crops, University of California, Davis -- 1 month, Horticulture (vegetable crops)

Universitario de Tras-os-Montes e Alto Douro:

Dr. James R. Mayhew, Department of Continuing and Vocational Education, University of Wisconsin -- 2 months, Rural Extension

Dr. Michael Collins, Department of Agronomy, University of Wisconsin -- 2 months, Forages

Dr. Daniel Gianola, Department of Animal Science, University of Illinois -- 3 weeks, Animal Breeding and Genetics

Dr. Raymond W. Wright, Department of Animal Science, Washington State University -- 1 month, Embryo Transfer

Mr. Brent Dillon, technician and private consultant -- 1 month Embryo Transfer

Prof. Clifford D. Spies, professor emeritus, Department of Agronomy, Purdue University -- 4 months, Operations and Methodology of the Teaching/Learning Resource Center

Prof. David F. Moses, assistant director of Undergraduate Library Services, Purdue University -- 3 months, Management of Teaching/Learning Resource Center

Instituto Universitario da Beira Interior

Dr. George T. Friedlob, School of Accountancy, Clemson University -- 1.50 months, Preparation and Appraisal of Investment Projects

Dr. Joseph L. Gaddis, Department of Mechanical Engineering, Clemson University -- 1.50 months, Energy Conservation

Dr. Mark A. McKnew, Department of Management, Clemson University -- 1.50 months, Industrial Management (Quantitative Methods)

Dr. Hassan M. Behery, School of Textiles, Clemson University-- 1.50 months, Textile Physics and Technology

Dr. Farrell B. Brown, associate dean of Graduate School, Clemson University -- 1 month, Graduate Studies

Dr. R. Christopher Peterson, Paper Science and Engineering Department, Miami (Ohio) University -- 1.50 months, Pulp and Paper Engineering

Dr. John J. Porter, School of Textiles, Clemson University -- 2 months, Effluent Treatment (textile chemistry)

On-campus Staff -- Purdue and Clemson Universities

Administrative support for the project and field staff is provided at Purdue by Dr. James L. Collom, project coordinator; Vivian L. Rider, administrative assistant; and training coordinators Kim Irwin and Ann Oyer. Up to the termination of the Clemson subcontract in December 1984, Dr. Hassan M. Behery served as the project coordinator at Clemson University.

Educational and Training Programs

There has been a shift from non-academic training to academic training since the beginning of the project. The original scheduling called for 12 person months of academic training and 204 person months of non-academic training. After the contract was amended in 1983,

the person months of academic training increased to 237 and non-academic decreased to 180.5.

A list of Portuguese faculty who have received or are currently enrolled in training programs is provided in Appendix B. Training which took place during the past six months is listed below.

Academic Training Programs

No long-term academic programs commenced during this reporting period. Academic programs in progress include:

Eduardo Figueira, Un'iversidade de Evora
January 4, 1983 to January 4, 1985
M.S. in Rural Extension at the University of Wisconsin

Mr. Figueira received an M.S. degree and completed course work to earn 54 credits towards a doctorate under the AID program. On January 4, 1985, he was transferred to a PROCALFER scholarship to continue his Ph.D. studies.

Joao Lisboa, Instituto Universitario da Beira Interior
August 6, 1983 to December 20, 1984
M.S. in Quantitative Methods at Clemson University

Mr. Lisboa's program was extended (from November to December 1984) in order to complete his M.S. studies.

Carlos Marques, Universidade de Evora
January 5, 1984 to December 31, 1985
M.S. Program in Production Economics, Purdue University

Mr. Marques continues his course work. Purdue faculty who have worked with Mr. Marques have been very complimentary of his degree of effort and his desire for knowledge.

Amilcar Serrao, Universidade de Evora
January 5, 1984 to December 31, 1985
M. S. program in Farm Management at Purdue University

Mr. Serrao continues his coursework. He has received commendations from faculty in the Agricultural Economics Department for the quality of his work and the progress he is making.

Amandio Baia, Instituto Universitario da Beira Interior
January 5, 1984 to June 30, 1985
M. S. studies in Operations Research at Clemson University

Administration of Mr. Baia's training program was transferred from Clemson to Purdue University on February 1, 1985.

Alberto Pereira, Instituto Universitario da Beira Interior
August 6, 1983 to June 30, 1985
M. S. in Administration and Decision Making at Clemson University

Mr. Pereira requested and received approval for a three month extension (from March to May 30, 1985) to complete his M. S. program. Administration of Mr. Pereira's training program was transferred from Clemson to Purdue University on February 1, 1985.

Non-academic Training Programs

The following non-academic training programs took place during this reporting period.

Armando Melo, Instituto Universitario de Tras-os-Montes e Alto Douro, Vila Real, June 24 - September 23, 1984. Dr. Melo spent three days at Purdue University where he met with staff members to obtain information on modern teaching strategies for the training of teachers of 3-12 year olds. He also met with individuals from the Biochemistry Department to discuss course offerings and visited laboratory facilities.

Dr. Melo spent three months at the Washington University School of Medicine, St. Louis, Missouri, where he worked with Dr. Luis Glaser, Department of Biochemistry. He was introduced to updated experimental methods in applied research in order to assist him in the lab support given to the agrarian departments upon his return to IUTAD.

Jose Ribeiro, Universidade de Evora, August 3 - December 15, 1984. Mr. Ribeiro spent four months at Purdue University in the Department of Agricultural Economics under the direction of Dr. David Bache. He took three courses for credit and audited several others with emphasis on farm accounting and computers in agriculture. As part of his training, Mr. Ribeiro traveled to the University of Illinois for a one-day program on farm record keeping. He also attended the national meeting of the American Agricultural Economics Association at Cornell University and the On-Farm Computer Use Conference and Trade Show at Purdue University.

Maria L. Fernandes, Instituto Universitario de Tras-os-Montes e Alto Douro, August 26 - December 20, 1984. Ms. Fernandes spent four months at Washington State University under the supervision of Dr. Day Bassett where she audited several courses on hydraulics and irrigation. In addition, she familiarized herself with field methods and computer analysis of irrigation data.

Francisco Rego, Instituto Universitario de Tras-os-Montes e Alto Douro, August 26 - December 20, 1984. Mr. Rego spent four months at the University of Idaho under the direction of Dr. Stephen Bunting. In addition to attending several courses for credit, Mr. Rego analyzed

data dealing with the use of prescribed burning in range vegetation and studied techniques used in range science and fire control.

Manuel dos Santos Silva, Instituto Universitario da Beira Interior, September 14 - October 24, 1984. Mr. Santos Silva spent one-and-one-half months at Clemson University under the direction of Dr. Hassan Behery. He also worked with various other professionals regarding automation in the weaving and apparel industry and the use of lasers in measuring fiber orientation. Mr. Silva visited the Spinning Mill and Platt Saco Lowell where he observed computers and microprocessors being used as control tools. Besides his work at Clemson, Mr. Silva participated in four conferences which dealt with the aspects of the apparel industry and its technology.

E. Cruz de Carvalho, Universidade de Evora, September 21 - December 6, 1984. Mr. Carvalho spent two weeks at Cornell University under Dr. David Pimentel's supervision. He reviewed papers, met with faculty and visited an energy efficient farm. Mr. Carvalho then spent two months at the University of California, Davis, under the direction of Dr. Kenneth Watt. At UC/Davis, he pursued his interest in developing a new curriculum for universities in Portugal for alternative, ecologically sound approaches to agriculture. He gathered informational data on energy efficient agriculture as well as audited courses and collected course material.

Training Scheduled for the Remainder of 1985

The latest revised schedules indicate that three academic and fifteen non-academic training programs will commence during the remainder of 1985. These figures do not, however, include IUTAD's training since they have not as yet submitted their 1985 training schedules. Programs scheduled to date include:

- M. J. Geraldles, IUBI
M. S. program in Fiber and Textile Physics, Clemson University. May 1985 - October 1986
- J. P. Domingues, IUBI
M. S. training in Fiber and Polymer Formation at Clemson University. May 1985 - October 1986
- V. Pereira, IUBI
M. S. program in Paper Manufacturing at Miami (Ohio) University. May 1985 - October 1986
- C. M. Passos Morgado, IUBI
General Administration. March-April
- H. Daniel, IUBI
Organization and Information of the Documentation Service
April - May
- A. Morgado, IUBI
Energy Conservation. August-September
- D. Nabais, IUBI
Regional Development. September
- J. C. Pinheiro, IUBI
University Administration, Management. September
- J. P. Carvalho, IUBI
Computer Science. September
- L. Goncalves, IUBI
Thermal Energy Conservation. September
- M. R. Oliveira, UE
Crop Production, March-April
- P. Silveira, UE
Pastures and Forages, April-June

- M. Carvalho, UE
Crop Production, July-August
- C. G. Coelho, UE
Business Management, July-October
- A. Pinheiro, UE
Business Management, August-September
- C. S. Carvalho, UE
Agricultural Mechanization, August-September
- J. L. Lucio, UE
Computer Science, September-November
- J. Albuquerque, UE
Agricultural Mechanization, April-May

Expenditures--Dollar Budget

The total contract award for the Portugal project was \$2,897,425. Funds that have been expended or committed through March 31, 1985, total \$2,234,678.02, which leaves a projected balance of \$662,746.98. Table 1 provides a summary of expenditures by line item.

Computations are being carried out monthly to determine if funds will be available to fulfill staffing inputs during the remainder of the project. If the projection indicates that the remaining funds are not sufficient, it will be necessary to make adjustments in the technical assistance and training schedules.

TABLE 1

Dollar Budget--Projected Expenditures/Commitments

Through 3/31/85

PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT

Dollar Budget -- Projected Expenditures/Commitments Through 3/31/85

	Total Project Budget for 6 Periods**	Budget Periods 1-5**	Projected Expenditures Thru 3/31/85	Balance Periods 1-5**	Budget Period 6**	Balance Through 3/31/85
Salaries & Wages	\$1,040,530	\$ 986,045	\$ 904,876.59	\$ 81,168.41	\$ 54,485	\$135,653.41
Fringe Benefits	218,980	204,253	170,217.87	34,035.13	14,727	48,762.13
Education Allowance	2,050	2,050	2,050.00	-	-	-
Travel/Transportation	61,708	60,208	14,249.34	45,958.66	1,500	47,458.66
Participant Training	813,974	727,674	511,597.92	216,076.08	86,300	302,376.08
Other Direct Costs	127,284	123,034	186,408.17	(63,374.17)	4,250	(59,124.17)
Indirect Costs	632,899	595,692	445,278.13	150,413.87	37,207	187,620.87
TOTAL	\$2,897,425	\$2,698,956	\$2,234,678.02	\$464,277.98	\$198,469	\$662,746.98

*Actual Purdue expenditures through 2/28/85 only. Purdue expenses for 3/31/85 estimated.
Clemson subcontract has one more invoice coming for actual expenditures through 12/31/84.

**6 periods, from 8/25/80 through 12/31/85; periods 1-5, first 5 contract years; period 6
from 8/26/85 through 12/31/85.

2.4

APPENDIX A

Advisors Who Have Completed Assignments in Portugal

August 25, 1980 - February 25, 1985

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUTAD -- Advisory Assignments Completed

Name	Area	University	Dates	PM
THOMPSON, Robert	Agricultural Economics	Purdue	5/18/81 - 5/23/81	.25
RHYKERD, Charles	Pastures and Forages	Purdue	6/14/81 - 7/24/81	1.75
TAYLOR, Robert	Farm Mgmt & Production Economics	Purdue	5/9/82 - 6/15/82	1.25
MARTIN, Marshall	Policy and International Trade	Purdue	5/9/82 - 6/15/82	1.25
GAROYAN, Leon	Mgmt. of Agr. Cooperatives	California/Davis	5/15/82 - 6/15/82	1.00
COLLINS, Michael	Forages	Wisconsin	7/17/82 - 8/7/82	.75
OUTHOUSE, James	Production & Mgmt. of Sheep	Purdue	9/20/82 - 11/28/82	2.25
MARTIN, Truman	Artificial Breeding & Reproduction	Purdue	10/11/82 - 11/28/82	1.75
BUNTING, Stephen	Forestry	Idaho	10/15/82 - 12/12/82	2.00
FOLEY, John	Purdue Project Coordinator/IUTAD	Purdue	8/20/80 - 11/2/82	27.00
AHLRICH, James	Visiting Scientist/Soil & Agr. Sci.	Purdue	1/26/81 - 1/26/83	24.00
COLLINS, Michael	Forages Nutritive Value Testing	Wisconsin	2/21/83 - 3/28/83	1.25
TYLER, Horace	Teaching/Learning Resource Center	Purdue	6/5/83 - 6/25/83	.75
MOSES, David	Teaching/Learning Resource Center	Purdue	6/5/83 - 7/29/83	1.75
BASSETT, Day	Hydraulics and Soil Erosion	Washington State	7/15/83 - 8/26/83	1.50
FRIDAY, William	Agricultural Machinery	Purdue	9/15/83 - 11/15/83	2.00
FRANZMEIER, Donald	Soil Survey and Mapping	Purdue	9/22/83 - 10/21/83	1.00
MARTIN, Truman	Research Methods & Approaches	Purdue	9/22/83 - 11/3/83	1.50
LECHTENBERG, Victor	Research Methods & Approaches	Purdue	9/22/83 - 11/3/83	1.50

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUTAD -- Advisory Assignments Completed (Cont.)

Name	Area	University	Dates	PM
CARTER, Edward	Pastures/Forages	Waite, Australia	5/6/84 - 5/18/84 and 5/28/84 - 6/1/84	.75
MOSES, David	Teaching/Learning Resource Center	Purdue	5/20/84 - 7/13/84	2.00
RHYKERD, Charles	Pastures/Forages	Purdue	5/29/84 - 6/15/84	.75
COLLINS, Michael	Forage Evaluation	Wisconsin	6/25/84 - 7/25/84	1.00
CUNFER, Barry	Plant Pathology	Georgia	7/1/84 - 7/30/84	1.00
BUNTING, Stephen	Fire Ecology	Idaho	7/6/84 - 8/3/84	1.00
GIANOLA, Daniel	Quantitative Genetics	Illinois	8/10/84 - 8/31/84 and 9/17/84 - 10/16/84	1.75
AHLRICHS, James L.	Soil Acidity	Purdue	8/29/84 - 11/1/84	2.00
ERICKSON, Homer T.	Potato Crop Production & Storage	Purdue	8/29/84 - 9/28/84	1.00
FRIDAY, William	Agricultural Structures	Purdue	9/1/84 - 10/12/84	1.50
PRICER, Robert	International Trade	Wisconsin	9/27/84 & 10/5-12/84 11/30/84 - 12/8/84 1/25/85 - 2/1/85	.25 .25 .25

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
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UE -- Advisory Assignments Completed

Name	Area	University	Dates	PM
BROWN, Amanda	Family Resource Management	Georgia	9/25/80 - 11/18/80	3.00
THOMPSON, Robert	Agricultural Economics	Purdue	4/19/81 - 5/17/81	1.00
RHYKERD, Charles	Pastures and Forages	Purdue	7/25/81 - 8/5/81	0.50
JANICK, Jules	Horticulture	Purdue	9/10/81 - 10/10/81	1.00
JOHNSON, Dennis	Land Use Planning & Reg. Devel.	Priv. Consultant	1/2/82 - 3/4/82	2.00
CARTER, Edward	Pastures and Forages	Waite, Australia	5/9/82 - 6/4/82	1.00
HEADY, Earl	Economics/Management	Iowa State	6/13/82 - 7/22/82	1.25
RHYKERD, Charles	Pastures and Forages	Purdue	10/4/82 - 12/17/82	2.50
OUTHOUSE, James	Production & Mgmt. of Sheep	Purdue	11/29/82 - 12/8/82	.25
MARTIN, Truman	Artificial Breeding & Repro.	Purdue	11/29/82 - 12/8/82	.25
SANDERS, John	Purdue Project Coordinator/UE	Purdue	3/11/81 - 3/29/83	24.50
CARTER, Edward	Pastures and Forages	Waite/Australia	4/16/83 - 5/16/83	1.00
TAYLOR, Howard	Crop Production	Texas Tech	4/14/83 - 6/1/83	1.50
JANICK, Jules	Horticulture	Purdue	5/11/83 - 6/9/83	1.00
BACHE, David	Farm Management	Purdue	10/1/83 - 10/30/83	1.00
MONKE, Edwin	Irrigation and Drainage	Purdue	10/14/83 - 11/14/83	1.00
McGUIRE, William	Forages and Pastures	Oregon State	10/14/83 - 11/17/83	1.00
CARTER, Edward	Forages and Pastures	Waite, Australia	4/23/84 - 5/4/84	.50
OUTHOUSE, JAMES	Livestock Production	Purdue	4/30/84 - 6/1/84	1.00

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

UE -- Advisory Assignments Completed (Cont.)

Name	Area	University	Dates	PM
JAMES, Sydney	Farm Management/Farm Accounting	Brigham Young	5/13/84 - 6/18/84	1.25
JONES, Milton	Soil Fertility	California/Davis	6/27/84 - 8/1/84	1.25
RHYKERD, Charles	Pastures and Forages	Purdue	6/18/84 - 7/13/84	1.00

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUBI -- Advisory Assignments Completed

Name	Area	University	Dates	PM
LA ROCHE, Evan	Organization of Textile Products	Clemson	2/3/81 - 6/1/81	4.00
BEHERY, Hassan	Nonwoven Technology	Clemson	5/15/81 - 7/15/81	2.00
PRICER, Robert	Extension Communication Methods	Purdue	6/4/81 - 7/3/81	1.00
FRIST, Robert	Extension Communication Methods	Purdue	6/4/81 - 7/3/81	1.00
ATKINSON, Julian	Purdue Project Coordinator/IUBI	Purdue	9/30/80 - 12/21/81	15.00
EDIE, Dan	Rheology	Clemson	5/1/82 - 6/30/82	2.00
BEHERY, Hassan	Fiber & Textile Physics	Clemson	6/1/82 - 7/15/82	1.50
SPENCER, Garth	Chemical Degredation of Fibers	Clemson	10/22/82 - 12/22/82	2.00
GUNTER, Thomas	Purdue Project Coordinator/IUBI	Clemson	12/17/82 - 12/17/83	12.00
WHITEHURST, Clinton	Managerial Economics (Indus. Mgmt.)	Clemson	8/15/83 - 12/15/83	4.00
SIMON, Frederick	Color Science	Clemson	3/7/84 - 4/12/84 and 5/18/84 - 6/3/84	1.75
DAVIS, James	Accounting Info. Systems (Ind. Mgmt.)	Clemson	3/18/84 - 5/16/84	2.00
GRIGSBY, David	Management (Agrobusiness Mgmt.)	Clemson	5/9/84 - 6/30/84	1.75
BEHERY, Hassan	Instruments of Textile Control	Clemson	5/23/84 - 7/16/84	2.00

APPENDIX B

Training Programs Completed or in Progress
August 25, 1980 - February 25, 1984

PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUTAD -- Training Programs Completed or in Progress

Name	Area of Training	Training Received at	Dates	PM
CAMPOS, Amadeu	Veterinary Medicine	Purdue	6/30/80 - 7/17/80	.75
ANDRADE, Virgilio	Livestock Extension	Purdue	6/30/80 - 7/17/80	.75
ALMEIDA, Orlando	Livestock Extension	Purdue	6/30/80 - 7/17/80	.75
OLIVEIRA, Teles	Soil Conser.& Tillage (MS)	Wisconsin	1/1/81 - 12/31/81	12.00
SEQUEIRA, Carlos	Animal Nutrition (MS)	Cornell	1/1/81 - 12/31/81	12.00
REGO, Francisco	Range Management Resources	Idaho	8/22/81 - 11/26/81	3.00
CRISTOVAO, Artur	Rural Extension	Purdue, Wisconsin	9/7/81 - 10/24/81	1.75
LUIS, Jaime Sales	Forest Management* (MS)	Oregon State	9/20/82 - 6/19/83	9.00
MOREIRA, Nuno	Forage Production	Purdue, Wisconsin, UC/Davis	7/19/82 - 8/30/82	1.50
SANTOS, Alberto	Micropropagation of Nut Trees	Purdue, Florida, Georgia, Missouri, UC/Davis, Oregon	7/4/82 - 8/1/82	1.00
COLACO, Jorge	Livestock Reproduction	Purdue, No. Carolina State, Illinois, Canada meetings	8/2/82 - 9/30/82	2.00
CARDOSO, Alberto	Cooperative Organization	Purdue, Wisconsin	8/1/82 - 11/30/82	4.50
MARTINS, Afonso	Soil Mapping	Purdue	9/4/82 - 11/3/82	2.00
POTES, Jose	Animal Reproduction	Purdue, Canada meetings	8/1/82 - 9/26/82	2.00
FERREIRA, Arlete	Enology	UC/Davis	4/8/83 - 7/8/83	3.00
REAL, Fernando N.F.	Teaching/Learning Resource Ctr. & Coop. Extension	Purdue, Wisconsin	5/22/83 - 6/15/83	.75
MACHADO, Antonio	Farm Buildings	Purdue, Agr. Engr. Meetings, Bozeman, MT	6/15/83 - 8/12/83	2.00

*From 6/20/83 to 6/19/83 Luis pursued MS under project funding; received outside funding to complete MS program in 6/1984.

PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUTAD -- Training Programs Completed or in Progress

Name	Area of Training	Training Received at	Dates	PM
ABREU, Carlos	Plant Pathology	Purdue, Georgia, Int'l. Workshop at Bozeman, MT	6/8/83 - 8/6/83	2.00
MARTINS, Fernando	Potato Production	Purdue, No. Carolina Research Ctr., Wisconsin, Oregon, Washington, Potato Assoc. meetings at Lansing, MI	7/5/83 - 9/7/83	2.00
ROSA, Eduardo	Horticulture	Rutgers	7/5/83 - 10/2/83	3.00
AZEVEDO, Jorge	Small Ruminant Production	Calif. State, Utah State, Purdue, Ani. Sci. meetings at Pullman, WA	6/18/83 - 9/22/83	3.00
MAGALHAES, Nuno	Viticulture	UC/Davis	8/29/83 - 10/31/83	2.00
ALVES, Virgilio	Dairy & Beef Production	Cornell	9/6/83 - 12/10/83	3.00
REGO, Francisco	Range Management Resources	Idaho	3/1/84 - 4/30/84	2.00
MELO, Armando	Research Methods	Purdue, Washington Univ., St. Louis, MO	6/24/84 - 9/23/84	3.00
FERNANDES, Maria L.	Hydraulics & Irrigation	Washington State University	8/26/84 - 12/20/84	4.00
REGO, Francisco	Range Management Resources	Idaho	8/26/84 - 12/20/84	4.00

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IE -- Training Programs Completed or in Progress

Name	Area of Training	Training Received at	Dates	PM
BARRISCO, Maria	Equine Reproduction	Texas Stock Breeders, Purdue, Colorado State, N. Mexico, UC/Davis	1/9/81 - 3/9/81	2.00
COVAS, Maria	Home Economics	Georgia	6/15/81 - 8/15/81	2.50
DORDIO, Victor	Farm Mgmt. & Finances	Iowa State, Purdue	6/1/81 - 9/1/81	3.00
MARINHO, Artur	Microbiology of Ani. Nutr.	Purdue, Virginia Polytech, Natl. Ani. Ctr. at Ames, IA	8/31/81 - 12/4/81	3.25
CARVALHO, Leonor	Regional Implications of ECC	Purdue	8/24/81 - 12/19/81	4.00
VASCONCELOS, Ana Maria	Wine Quality & Grape Prod.	UC/Davis	1/4/82 - 3/25/82	3.00
CECILIO, Maria	Economics of Ag Technology	Minnesota	1/4/82 - 6/13/82	5.75
SERRALHEIRO, Ricardo	Irrigation	Arizona, Utah State, Colorado State, UC/Davis, Irrig. Conf. at Jackson, MS	7/31/82 - 10/30/82	3.00
ABREU, Manuel	Animal Nutrition	Texas A&M	8/15/82 - 12/12/82	4.00
PINHEIRO, Ermelinda	Forage Production (MS)	Iowa State	8/16/82 - 11/16/83	15.00
RAMOS, Francisco	Exten. Methods & Farm Mgmt.	Wisconsin	9/9/82 - 12/19/82	3.50
BATISTA, Manuela	Soil Chem./Soil Lab. Mgmt.	No. Carolina State, Arizona, UC/Riverside, Soil Sci. meet- ings, Los Angeles, CA	9/18/82 - 12/5/82	2.75
FIGUEIRA, Eduardo	Rural Extension (MS)	Wisconsin	1/4/83 - 1/4/85	24.00
BENTO, Ofelio	Livestock Nutrition	Purdue, Dairy Sci. meetings at Madison, WI	5/15/83 - 7/17/83	2.00
NUNES, Jose T.	Livestock Production	Purdue, Utah State, Texas A&M Virginia Polytech, USDA Sheep Expr. Sta. in Idaho, Ani. Sci. meetings at Pullman, WA	7/16/83 - 12/10/83	5.00

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

UE -- Training Programs Completed or in Progress (Cont.)

Name	Area of Training	Training Received at	Dates	PM
AVO, Jose	Livestock Management (Sheep)	Utah State, Purdue, Texas A&M, Ani. Sci. meetings, Pullman, WA	7/22/83 - 12/17/83	5.00
ROQUETE, Carlos	Livestock Management (Beef)	Utah State, Texas A&M, Purdue, Ani.Sci. Meetings at Pullman, WA	7/22/83 - 12/17/83	5.00
MARQUES, Carlos	Production Economics (MS)	Purdue	1/5/84 - 12/5/85	24.00
SERRAO, Amilcar	Farm Management (MS)	Purdue	1/5/84 - 12/5/85	24.00
ARAUJO, Joao	General Viticulture	UC/Davis	4/29/84 - 6/30/84	2.00
AZEVEDO, Ario Lobo	Ag Extension/Farm Accounting	Purdue, Wisconsin, Illinois	5/2/84 - 5/23/84	.75
RIBEIRO, Jose	Farm Management	Purdue, Cornell	8/3/84 - 12/15/84	4.50
CARVALHO, Cruz	Resource Planning & Economics	Cornell, U. of Calif./Davis	9/21/84 - 12/6/84	2.50

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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT
(Contract AID/NE-C-1701)

IUBI -- Training Programs Completed or in Progress

Name	Area of Training	Training Received at	Dates	PM
MORGADO, C.M. Passos	Textile Engr./ Regional Planning	Purdue, Clemson	7/15/80 - 7/28/80	.50
JESUS, Fernando de	Textile Engr./Regional Planning	Purdue, Clemson	7/15/80 - 7/28/80	.50
LUCAS, Jose Mendes	Color Science	Clemson	8/15/81 - 12/31/81	4.50
LISBOA, Joao	Business Mgmt. (MS-incomplete)	Wisconsin	8/29/81 - 12/31/81	4.00
LUCAS, Jose Mendes	Color Science (MS)	Clemson	1/1/82 - 6/30/83	18.00
AMORIM, Maria	Textile Production/Polymers	Clemson	8/15/82 - 10/22/82	2.00
FIADEIRO, Jose	Textile Chem./Effluent Treatment	Clemson	8/15/82 - 10/22/82	2.00
NUNES, Mario	Textile Science/Rheology (MS)	Clemson	1/1/83 - 5/30/84	17.00
BARROS, Mario	Management (Industrial) (MS)	Clemson	1/1/83 - 7/30/84	19.00
PEREIRA, Alberto	Admin. & Decision Making (MS)	Clemson	8/6/83 - 5/12/85	22.00
LISBOA, Joao	Quantitative Methods (MS)	Clemson	8/6/83 - 12/20/84	17.00
BAIA, Amandio	Operations Research (MS)	Clemson	1/5/84 - 5/16/85	18.00
RAPOSO, Nicolau	Teaching/Learning Resource Center	Purdue, Clemson, Wisconsin	10/24/83 - 11/19/83	.75
SILVA, Manuel	Textile Technology	Clemson	9/14/84 - 10/24/84	1.50

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