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PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT

(Contract AID/NE-C-1701)

REPORT ON
SHORT-TERM STAFF ASSIGNMENT

Submitted by
DR. DAVID H. BACHE
Department of Agricultural Economics
Purdue University
West Lafayette, Indiana

October 1-31, 1983

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SHORT-TERM STAFF ASSIGNMENT

AT THE

UNIVERSIDADE DE EVORA (UE)

EVORA, PORTUGAL

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ACKNOWLEDGEMENTS

I have greatly enjoyed my short stay at the University of Evora. Credit for any success that I achieved and for the ease of the assignment must be shared with several people. Drs. Woods Thomas, James Collom and John Sanders at Purdue briefed me at the start of the assignment. Vivian Rider of Purdue and Maria do Carmo of the University of Evora handled most of the nasty, difficult problems of transportation, communication, lodging and with accounting for the use of time and funds. Rector Ario Lobo Azevedo and Thomas Gunter provided some insight into the problems and potential of the University of Evora and of agriculture in the Alentejo.

Victor Dordio and Jose Ribeiro developed a detailed plan for the period of my assignment and adjusted that plan as the work evolved. I am indebted to Professor Feio, Maria Helena Estudante and Eng. Banza for spending hours in providing an appreciation of the cultural practices and special problems of Alentejo agriculture. Eng. Francisco Silva of the Ministry of Agriculture and Fisheries in the Alentejo was free and generous in providing information about the problems and accomplishment of his organization in developing an accounting system for farmers.

I had long and detailed discussions with the members of the Farm Management staff regarding their current assignments and career plans. I appreciate the opportunity for such discussions with Jose Ribeiro, Victor Dordio, Carlos Marques, Maria Helena Estudante, Amilcar Serrao and Conceicao Gancho.

I have reserved for last the special thanks that should go to Victor Dordio and Carlos Marques for their patience and sharing and to Jose Ribeiro. Ribeiro shared his office with me, served as my interpreter and devoted himself to my education and comfort. Dordio and Ribeiro took responsibility of extracting from me whatever knowledge they could which might be of value to the University and the Alentejo.

PORTUGAL UNIVERSITY INSTITUTES DEVELOPMENT PROJECT

Report on Short-term Staff Assignment
Submitted by
Dr. David H. Bache
Department of Agricultural Economics
Purdue University

THE UNIVERSITY FARMS

During most of my stay in Portugal, I lived in the little convent at the experimental farm at Mitra. Being a former farmer, I was interested in observing the agricultural activities there. In addition, I spent two days visiting the outlying farms at Daroeira, Almocreva and Outeiro. I would characterize these as commercial farms owned by the university. I spent the equivalent of three more days at Evora studying and discussing the accounting system of the outlying farms with Professor Feio, Victor Dordio and Maria Helena Estudante. Finally, most members of the Farm Management staff (Dordio, Ribeiro, Estudante, Marques and Gancho) attended a mini-seminar on the morning of Thursday, October 13 at which I reported my observations and suggestions regarding the outlying farms. Those thoughts are summarized here.

Management of the Farms

Since the agriculture of the Alentejo is foreign to me, I am not the most competent person to evaluate farming practices here. However, I feel comfortable in making the following observations. Engineer Banza and the resident managers, Melro and Garcia, are to be congratulated. The farmsteads are neat and orderly. Buildings, fences and machinery are well maintained. I saw no evidence of waste or carelessness. All

evidence indicated field operations are performed in a timely and professional manner. When there was an opportunity to compare evidence of weed control and productivity (at this time of year, this was only a comparison of the stubble on harvested fields) with neighboring farms, the university fields were equal or superior.

I understand that the management of these farms has been complicated by general economic and political concerns in Portugal. I further understand that tenure and financial concerns may prevent taking action on a problem even if it is recognized, but I present two further observations.

I was shocked at the size of the administrative and labor forces at Daroeira and Almocreva. I was presented with a listing of the titles of the 42 employees at Almocreva. I was told that there were about 40 full-time employees at Daroeira. By United States standards, Daroeira in 1983 would have been a 3 to 4 man farm. Almocreva in 1983 (because of the livestock) was a 7 to 8 man farm. If the farms were poorly equipped, the variation from labor productivity in the United States would be understandable, but I thought the equipment was comparable in size and design to that being used in the United States. As near as I could tell, Almocreva had about twice as much tractor power and twice as much combine capacity as we would have on a similar land area.

My final farm management observation is also related to the labor problem. I was pleased to discover that Eng. Banza, Maria Helena Estudante and Victor Dordio had already detected this particular opportunity, made a feasibility study and presented a recommendation to the administration. The opportunity is to add livestock at Daroeira and Almocreva. On both farms there is under employed labor, unused pasturage, and straw that is

being sold rather than fed. With these conditions, it would be very surprising if added livestock did not increase profit. It occurred to me that if financing was a problem some of the excess machinery at Almocreva could be sold.

Records on the University Farms

I was greatly impressed with the detailed information being gathered on the university farms. I don't know of another set of production coefficients as complete as those that have been assembled by Professor Feio. Miss Estudante, Victor Dordio and Engineer Banza have faced many frustrations in adding financial information to Feio's system and sectorial (enterprise) accounting to the systems on the other two farms. I think they deserve great credit. I think it would be a tragedy if their work was not continued.

I will discuss the records on the university farms under two headings:

1. Records for Management of the Farms
2. Records as a Source of Coefficients for Research and Extension

Records for Management of the Farms

I spent considerable time looking over various reports dealing with the university farms. The most recently generated report that I saw dealt with the first four months of 1983. I tried to evaluate these reports in terms of their value to the management team. The members of the team with whom I am familiar, Rector Azevedo, Prof. Cruz de Carvalho, Eng. Banza, Senhores Melro and Garcia, are all very busy men with a

variety of responsibilities. It is my opinion that the reports can be improved considerably in terms of promptness, breavity, clarity and usefulness. I made the following recommendations:

1. Identify the key measures of success or failure and bring them to the front of the report. For instance, if Net Worth is a key measure, list it on the front page. So progress or problems can be detected, present Net Worth figures from earlier time periods for comparison. Identify the sources of Net Worth change: retained earnings, inflation, gifts. Relegate the details to an appendix.

2. Management deserves and needs a comparison of performance in the most recent time period with planned performance and with performance in previous periods. To provide that, I would suggest a side-by-side presentation of actual cash flow, the projected cash flow, and cash flow in the same period a year earlier. I was told that there was no tradition of forecasting cash flow. However, I was shown at Almocreva a cropping plan for 1983 prepared in 1982. This plan identified the acreage to go in various crops, the amount and variety of seed to be used, the amount and analysis of fertilizer to be used. With this data and that in the existing records, preparation of a cash flow projection should be routine. With a cash flow comparison of the sort that I have described here, variations from expected performance would promptly be called to the attention of management so corrective action might be taken.

3. If enterprise or sectorial accounts are to be used in planning activities for the following production season, they must be summarized before the season begins. For instance, if wheat is sown in November and December, it is unfortunate if the data from the previous production period is not available until January or February.

4. There is an opportunity to develop a healthy spirit of competition between the farms. Toward that end, I would recommend a side-by-side comparison among farms of the production costs for common products (wheat, barley, oats, sunflower, etc.). That comparison should be shared with resident managers, foremen and workers.

Records as a Source of Coefficients for Research and Extension

Extension:

I believe that the wealth of sectorial (enterprise) data gathered on the outlying farms should be shared with managers of other farms as soon as possible. I understand and share the concerns that the data is not representative of all farms and that it would be nice to have two or four or ten years more data. However, as near as I can tell, the data UE has already collected is far superior to any other available source. Therefore, it should be shared with students in the university and the farm managers of the Alentejo. There is not now a system for extending university findings to practicing farmers. That problem will be discussed at a couple of other points in this report. It seems to me that the available data base provides a valuable opportunity to demonstrate to farmers that the university has useful and practical messages for them.

I would like to suggest that the University of Evora develop a mailing list of farmers and farm managers, an advisory committee of farmers, and a short farm management report which would be sent to the mailing list at irregular intervals. Make mailings only when information is useful. I made two specific suggestions for mailing:

1. Exhibit No. 1 is a photocopy of a pocket-size folder that we distribute by the thousands to farmers in the State of Indiana each year. This data is used as a base by larger numbers of our farmers in planning their cropping programs for the following year and in developing cash flow forecasts for their lenders. Indiana is about equal to Portugal in land area and our farms vary greatly, as they do in Portugal, in size and sophistication. However, we publish only one set of data and each manager makes his own adjustments of it. When I showed Exhibit No. 1 to Professor Feio, his reaction was that no farmer (except him) in Portugal had such information. He made me promise to leave the original with him when I returned home. I am confident that the University has the data to prepare a Portuguese equivalent of Exhibit No. 1. I do not think its preparation should be strictly a Farm Management affair; agronomists and agricultural engineers should be asked to cooperate. I was told by Gabriela M. Silva that she has found an excellent spirit of cooperation among animal and plant scientists in preparing a somewhat similar data base.

2. Exhibit No. 2 is a simple scheme for identifying problems in labor distribution. A similar form was developed at the University of Illinois and used by Illinois farmers for a number

EXHIBIT NO. 1

ESTIMATED PER ACRE PRODUCTION COSTS FOR 1983

The yields are estimated average yields for two different soil types, average and high quality. On either soil, those estimated yields may vary ± 10% for weather, ± 10% for management, ± 10% for plant/harvest date. Fertilizer cost is based on requirements for an average crop yield only.

Production Cost Item	Rotation corn[1]		Continuous corn		Rotation soybeans[1]		Wheat		Double Crop (Wheat-soybeans)	
Yield per acre (bushels)	115	140	105	130	36	44	50	60	50/22	60/26
Direct cost per acre										
Fertilizer and lime[2]	$ 49.25	$ 62.00	$ 53.50	$ 66.00	$ 24.25	$ 29.00	$ 36.00	$ 43.25	$ 49.75	$ 59.00
Seed and chemicals[3]	25.00	31.50	30.10	36.70	22.75	28.20	13.05	13.50	56.20	57.00
Machine operation and drying	45.20	50.30	44.10	48.70	27.80	28.35	21.95	21.95	43.85	46.00
Interest on operating capital and miscellaneous	14.50	16.50	15.10	17.00	10.75	11.35	9.50	10.00	16.60	17.50
Total direct costs	$133.95	$160.30	$142.80	$168.40	$ 85.55	$ 96.90	$ 80.50	$ 88.70	$166.40	$179.50
Indirect costs per acre										
Field machinery[4]	40.00	44.00	40.00	44.00	40.00	44.00	38.00	40.00	40.50	42.50
Drying, handling and storage facilities[5]	35.30	43.00	32.50	40.00	11.00	13.50	-------	-------	8.75	10.25
Interest on stored grain[6]	10.60	13.00	9.70	12.00	8.35	10.20	-------	-------	5.10	6.00
Labor and Management[7]	39.75	42.60	39.25	42.10	34.60	35.80	25.30	25.80	43.90	45.00
Land Charge[8]	89.00	113.00	89.00	113.00	89.00	113.00	89.00	113.00	89.00	113.00
Total cost per acre	$348.60	$415.90	$353.25	$419.50	$268.50	$313.40	$232.80	$268.50	$352.65	$396.25
Total cost per bushel[9]	3.03	2.97	3.36	3.23	7.46	7.12	4.66	4.48	4.66/ 5.46	4.48/ 4.91

[1] First year corn after soybeans or first year soybeans after corn.

[2] Nitrogen priced at 17.5 cents per pound for corn and at 30 cents per pound for wheat; P_2O_5 at 30 cents and K_2O at 13.5 cents for all crops. Nitrogen reduced 20# per acre for corn after beans.

[3] Assumes no insecticides are needed on corn following beans.

[4] This assumes a 400 to 800 acre corn and soybean farm except assumes 1/8 wheat or 1/8 wheat plus soybean double crop where these crops are included. On livestock farms where less time each day is available to work on crops or on smaller farms, machinery fixed costs and/or labor costs will be highe..

[5] Dryer for corn and for wheat when double crop grown, sufficient storage for all crops except wheat sold at harvest.

[6] Grain stored 4 months and interest at 14 percent.

[7] Labor at $6.40 per hour and management at $10 per acre plus 5 cents per bushel of corn and wheat and 15 cents per bushel of beans produced.

[8] Land cost approximates 1983 cash rental rates.

[9] Cost of producing double crop beans is assumed to be additional cost overgrowing wheat.

of years. I adopted it to use in my teaching and extension work in Indiana. The University of Evora has data from the outlying farms indicating the total labor required for the various enterprises and the percentage distribution of that labor over the months. UE is ready, I think, to prepare a form similar to Exhibit No. 2 for Alentejo farmers.

The exhibits represent two ideas that popped into my head. There must be many additional practical lessons to be learned from the data that has already been accumulated. These lessons should be shared with farmers of the Alentejo.

Research:

I am not a research person. My interest is in the application of research findings. So, the comments under this heading will probably sound like a further discussion of extension work. I only make a distinction because a major research effort is needed to extract all the important information locked in the university farm data base.

I understand that the University of Evora has considerable linear programming skill among its staff members. Professor Pinheiro, Serrao, Marques and others have used this technique. Gabriela M. Silva and John Sanders developed a linear programming model to investigate the effects in the lower Alentejo of developing technology on the allocation of resources in agriculture.

I come from a department where we have had about 15 years experience in developing linear programming models for farm planning and have taught farmers to use those models. Linear programming is a very powerful tool that can provide important insights which other methods of analysis will

EXHIBIT NO. 2

Labor Use on Your Farm

	Trigo	Cevada	?	?	Vacas	
1. Hours of labor per unit (hectare or animal unit)	10	8	--	--	15	
2. Units of your farm	--	-	--	--	--	
3. Total for your farm (1 x 2)	--	-	--	--	--	Grand Totals --

Distribution by Months

	%	Hours	%	Hours	%	Hours	%	Hours	%	Hours	Total Hours
January	-	--	0%	--	-	--	-	--	-	--	--
February	-	--	0%	--	-	--	-	--	-	--	--
March	-	--	15%	--	-	--	-	--	-	--	--
April	-	--	20%	--	-	--	-	--	-	--	--
May	-	--	20%	--	-	--	-	--	-	--	--
June	-	--	0%	--	-	--	-	--	-	--	--
July	-	--	0%	--	-	--	-	--	-	--	--
August	-	--	5%	--	-	--	-	--	-	--	--
September	-	--	30%	--	-	--	-	--	-	--	--
October	-	--	20%	--	-	--	-	--	-	--	--
November	-	--	0%	--	-	--	-	--	-	--	--
December	-	--	0%	--	-	--	-	--	-	--	--
TOTAL		--		--		--		--		--	--

likely miss. For instance, in my first meeting with Professor Feio, he described his sectorial accounting system with justifiable pride. He then demonstrated just how clever and perceptive he is. He listed three issues with which his sectorial accounts give him no help:

- identifying the disadvantage of livestock because of their competition with crops for land and labor,
- identifying the importance of timeliness in the cultivation of the Barros soils,
- identifying the value of machinery which is large enough to complete harvest in a timely manner.

I was impressed because these are exactly the kinds of questions that we have been able to address with our linear programming models.

Having discovered that UE's farm management staff is interested in linear programming and that programming has the potential of providing important answers to Alentejo farm managers, I tried to discover whether the data being gathered on the outlying farms was adequate for a farm planning model. I was handicapped by my lack of any skill with the Portuguese language, but I would offer these observations:

1. It is not clear whether the appropriate "activities" to consider are rotations or individual crops. This question needs to be answered with the help of farmers along with plant and soil scientists. I am led to believe that rotations should be considered as activities. There are several reasons for this:
   a) when there is grazing livestock, the farm manager is essentially committed to a rotation,

b) a decision like the one which Professor Feio has made to charge the deep plowing (alqueive) to the following crop is arbitrary and probably misleading, and

c) treating the fallow land as a separate activity is probably also misleading.

In any event, since the university farm data is based on individual crops, it is adequate. There is no problem combining crop data to form rotation coefficients.

2. It is of critical importance that all the limiting resources or restrictions be identified so a data base can be accumulated on each. Farmers and physical scientists should be asked to cooperate in identifying the restrictions. When I quizzed Miss Estudante on this matter, I discovered that she was gathering data on most factors that I thought necessary. I think she is getting everything she can from a set of farm records. She has data on the requirement for various kinds of labor and various kinds of machines by months and by enterprises. She has fertilizer, seed, fuel and repair requirements along with a host of others. I am not sure that she has data on the land requirements for livestock. I am fairly certain that she does not now have data and may not be able to measure the days available for field work (restricted by inclement weather and wet soils) or the yield penalties associated with delays in planting and harvesting.

3. I am very hesitant to suggest the discontinuation of the collection of any data on the outlying farms. I understand the danger

that at some time in the future UE might decide that it is valuable. However, data gathering is expensive. So, I would suggest an attempt to simplify the system. For instance, it is difficult for me to see the present or potential value of detailed records of fuel, lubricants and repair costs for each machine. I do not think that this detailed information will be useful either for research or for farm management. I have known farmers who kept such detailed records to help them in deciding when a machine should be traded. My observation is that the trading decision is always based on other concerns--tax management, the availability of superior replacement, the age of the machine, etc.

RECORDS FOR PORTUGUESE FARMERS

In my early meeting with Rector Ario Lobo Azevedo, he described what he perceived to be a major problem. The problem is a lack of a data gathering and information generating system (a farm records system) for the managers of the farms of the Alentejo. Among my Portuguese contacts, I found unanimous agreement with the Rector on this issue.

Some efforts have been made to alleviate this problem:

- Professor Amandio Galvao of the Gulbenkian Institute has written a book, "Contabilidade Agricola Global" (Simplified Farm Accounting) of which the second edition was published in 1967. Professor Galvao has two research projects in the 1983-85 research program of the Gulbenkian Institute which deal with this area:
  a) Project 123 - Problems Concerning the Introduction of Gross Margin Techniques in Portuguese Agriculture, and

b) Project 125 - Introduction of Simplified Agricultural Accounting in Portuguese Speaking African Countries. Professor Galvao has also had Farm Record extension projects with farm managers at Beja and in the River Ave and Sousa Valleys.

- The Ministry of Agriculture and Fisheries has the responsibility to gather data from a representative group of Portuguese farms with the accounting system called RICA. In the Alentejo, the head of this project is Eng. Francisco Silva. Eng. Silva currently has 12 technicians involved in the project. His team is now gathering data from 82 farms; their goal is 240. Cooperators are paid 14.000$00 per year to provide data. They receive no analysis to help them in managing their farms.

A Program for Action

In the United States, the most successful Land Grant College farm record system is the one guided by the University of Illinois at Champaign-Urbana. That system has approximately 8,000 farmer cooperators. In this particular case, the technicians who service the farmers are not part of the university system. The functions performed by the Farm Management staff at the University of Illinois in this "Farm Business Farm Management" record project are:

1) training the technicians, and
2) recommending changes and improvements in the system of data gathering and analysis.

In effect, the university staff is able to conduct a very effective extension program with about 8,000 farms through a network of about 80 technicians.

The reason for describing the Illinois system is that the ingredients seem to be in place for a similar system to service Alentejo farmers through the University of Evora. Eng. Francisco Silva of the Ministry of Agriculture and Fisheries is intelligent, conscientious and concerned. He understands the need to modify the RICA system so it will provide guidance to the managers of individual farms. He is anxious for cooperation with the farm management staff of the University of Evora in the training of his technicians and in recommending improvements for the RICA system. The young staff members in the farm management group at the University of Evora see an opportunity for an efficient and timely extension effort through an already identified clientele group.

The following may serve as a discussion outline to be used in developing a plan of action for developing a farm record system:

I. Research and Degree Objectives

Make a thorough study of the work of Prof. Amandio Galvao. Investigate the possibility of having Professor Galvao serve as advisor to one or two of the University of Evora staff members as they work towards advanced degrees. Degree programs might test the importance of various measures on the success of the farm business, or they might develop coordinated financial statements for farmers.

II. RICA -- Immediate Action

A. Technical Training -- Develop a plan for training RICA technicians in the basics of accounting management;

B. Data Base -- Obtain calculational definitions of all factors on the RICA data sheets and in the reports as they are currently used. What data is available?

C. Reports for Management -- What calculations can be made from the current data base to help individual farm managers? Institute a plan to make those calculations and to train RICA technicians in the interpretation of them.

III. RICA -- Improving the System

A. Survey farmers who have been or are now in the RICA system as well as a selection of farmers outside that system. Develop a questionnaire to prove:

1. Attitudes towards record keeping;
2. Techniques and training (e.g., are scales available? Are managers literate?) which limit data gathering possibilities;
3. Factors under the manager's control which affect success and should, therefore, be monitored;
4. What would you like to know about your business?

B. Survey RICA technicians and others providing record keeping service to farmers. Develop a questionnaire to probe:

1. Attitudes toward record keeping in general and RICA in particular;
2. Suggestions for improvement;
3. Attitude toward expanding the RICA system by gathering and analyzing data to help farm managers;
4. Recommendations for specific measures to guide management;
5. Attitude toward consulting with farm managers;

C. Choose important and feasible measures and develop a system of analysis. In doing this, it would be very useful to study the work being done at the University of Illinois by Prof. Thomas Frey with coordinated financial statements. In addition, the results of 50 years of experience at that institution in developing a system of management reports for farmers is available for study.

THE FARM MANAGEMENT STAFF AT THE UNIVERSITY OF EVORA

I have been very favorable impressed with the young staff members in the Management group. I think they can be characterized as intelligent, energetic and conscientious. I will comment on three issues concerning these young people and offer suggestions for dealing with each.

Obtaining the Required Advanced Degrees

Because the department was formed by gathering a group of people from the same age group and with similar training, all face the same deadlines for achieving the various certificates and degrees required to let them continue at the university. The result is fierce competition between staff members and considerable anxiety and concern. The resulting atmosphere is counter-productive. I believe it works to the disadvantage of the university and its clientele groups as well as the individual staff members.

I would recommend the development of a departmental plan for the accreditation of the staff members. Each staff member should be counseled in the development of his or her individual plan. The individual plans should include a timetable for achieving specific objectives. So far as

possible, they should identify the institutions where the required training will be sought. They should also identify potential academic and research advisors. The development of a master plan for the group will be an invaluable aid in departmental staffing and management. The development of individual plans will encourage realism in facing problems with languages and funding. They should lead to well-conceived programs for training and research.

Much would be gained by the identification of research activities that involve a team approach rather than separate, fragmented studies. For instance, my Master's program at Purdue University was part of a long-term, interdisciplinary study. In that particular case, an important problem was identified with the help of agricultural producers. Over the following six years, a team of researchers studied the problem. The result was three Master's and three Ph.D. theses, important research findings, and a computerized simulation model to let farmers apply the research results in managing their businesses.

I recommend a similar approach for the Farm Management department for two reasons: First, it helps avoid thesis projects that produce nothing more than another document on the library shelf with no practical application. Secondly, it should contribute to a spirit of team work and cooperation among the staff members.

Job Descriptions

For the time being, the young staff members will, by necessity, give primary emphasis to their problem of accreditation described above. However, after accomplishing their degree goals, it will be most important for them to have specific job descriptions.

I found that each of the staff members had some ongoing research activity. I also found among them considerable interest in extension teaching. I think there is a sincere interest in contributing to the efficiency of agricultural production in the Alentejo.

However, as an economist, I believe firmly in the merits of a system that rewards productivity. Therefore, I think the administrators should develop job descriptions for the various staff members specifying their expected contribution to research and extension as well as teaching. That way, when rewards (salary increases, promotions or whatever) are delivered, they can be based on performance in the various areas. For instance, many members of my department at Purdue University have split appointments. A particular person may be budgeted 50 percent teaching, 30 percent research, and 20 percent extension. Each year, such a person has his performance in all three areas evaluated by a committee of his peers. His rewards are based on that evaluation.

Lack of an Agricultural Background

For the most part, the farm management staff at Evora was recruited from a group of people who do not have an agricultural background. As a result, there is no significant base of support or contacts in the agricultural community. Some staff members suffer from a feeling of inadequacy in understanding farmers' problems and a reluctance to expose that perceived inadequacy. This is a serious obstacle that will interfere with the development of applied research and extension programs.

In my short stay in Portugal, I picked up considerable evidence that there is an intelligent, receptive audience among the farmers of the Alentejo. For instance:

1. Professor Fernando Estacio of the Gulbenkian Institute described his experience in extension teaching. He found his farmer audience to be good and willing students.

2. Gabriela da Silva had fruitful contacts with farmers when she gathered a data base for her linear programming study.

3. According to Professor Feio, there are approximately 1000 farm managers and farm owners in the Alentejo with college degrees.

4. Eng. Silva of the Ministry of Agriculture in Evora expressed an interest in giving the university staff access to a large group of farmers through his technicians.

I recommend an aggressive campaign to identify a group of leading farmers to serve as an advisory group in planning applied research and extension. I believe that practicing farmers should also have an opportunity to influence the content of courses taught to university students. Here are some specific actions that might be taken:

1. Develop a training program for Eng. Silva's farm accounting technicians. Cooperate with them in developing a pilot series of extension schools for farmers.

2. Bring farmers into the classroom. If I were teaching farm management at Evora, I would have Eng. Banza to a meeting of my class. If I were teaching farm accounting, I would have Professor Feio in. In addition to these two, other articulate intelligent farm managers should be identified and invited to meet with students.

3. Develop a mailing list of agricultural producers. The aim should be to demonstrate to farmers that the staff can make an important

contribution to the management of a farm business. So, periodic mailings should be made containing brief, pertinent messages in language that the producer can understand.