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Mr. Michael Lukomski
 Program Officer
 U.S. Agency for International
 Development
 Lisbon, Portugal

SUBJ: TA Grant 15-00001 Secondary Vocational
 Agricultural Education In Portugal

Dear Mr. Lukomski:

PSI Associates, Inc. is pleased to transmit to you herewithin two documents completed by Dr. Richard Welton under terms of the above-mentioned project:

- o Consultant's Final Report - Describing activities, program evaluations, recommendations for improvement, and relevant annexes.
- o Proposed curriculum in agricultural education.

Relevant sections of the consultant's final report have been translated into Portugese. All sections of the proposed curriculum are in Portugese.

ATTACHMENT 1

1. CURSOS EM REGIME DIURNO

CURSOS COMPLEMENTARES (10° e 11° Anos da escolaridade)

DISCIPLINAS DE FORMAÇÃO GERAL	Tempos Semanais	
	10° Ano	11° Ano
PORTUGUÊS Áreas de estudos A-B-C-E.....	3	3
Áreas de estudos D	5	5
FILOSOFIA	3	3
LÍNGUA ESTRANGEIRA	2	2
EDUCAÇÃO FÍSICA	2	2
RELIGIÃO E MORAL (facultativa)	(1)	(1)
TOTAL A-B-C-E	10+(1)	10+(1)
D	12+(1)	12+(1)

A scheme devised and managed by the Ministry of Education was initiated in 1980 to provide in-service supervision and instruction at the state, zone, and school levels. The system is headed by a council of 12 orientadores. Four hundred orientadores serve schools in an assigned zone. These orientadores provide in-service supervision and assistance to teachers (through delegados) in many disciplines at the school level. Each school has a pedagogical council that aids in meeting the in-service needs of teachers in the school. Within each discipline in a school, a teacher is selected to serve as a delegado. In other words, one who provides pedagogical training and assistance for teachers within their discipline. Appendix B contains an outline of the formation of this in-service scheme.

PROJECT OBJECTIVES

This activity has the following objectives:

1. Improve the secondary agricultural curriculum by upgrading instructional years in the area of vocational agricultural education;
2. Develop written plans for the efficient use of Portuguese school farms in the area of secondary vocational agricultural education;
3. Formulate plans for training secondary vocational agricultural teachers using modern teaching techniques and instructional methods;
4. Develop a plan for possible future assistance from US AID in secondary vocational agricultural education.

The consultant for this project departed from Manhattan, Kansas on September 11, 1981 and returned on October 11, 1981. A detailed itinerary and consultancy activities may be seen in Appendix C.

INTRODUCTION

The educational system in Portugal is administered by the Ministry of Education. The formal system is comprised of four years of primary school, two years of preparatory, three years of general course work, two years of unified complimentary (10th and 11th grades), and a final year of diversified options. The latter year became operational after 1978. During the 10th and 11th years, agricultural students have two basic options -- crop and livestock production (producao agro pecuaria) and food industries (industrias alimentares). Agricultural students in the 12th year may choose a track for university preparatory or work in agriculture. There may be some exploratory course work for students in agriculture at the 9th grade level.

Course work in agriculture at the secondary level is offered in 13 schools. See Appendix A for a listing of these schools. The approximately 1500 students enrolled in these schools are served by approximately 70 full-time instructors at the pre-service level. Teacher training for these teachers is non-existent. A project funded by the World Bank has instituted an Education Faculty at the University of Lisbon with the expressed purpose of providing pre-service teacher training at the secondary level. This faculty will provide one year of pre-service pedagogical studies for 500 selected fourth-year students from other faculties at the University of Lisbon. A total of 15 places will be provided for teacher training in agriculture. This faculty would also supervise a fifth year internship. A licenciatura will be awarded upon successful completion of this fifth year. This program will be required of all new teachers once it becomes established. The Faculty of Education will also provide the two-year pedagogical program for graduates of technical agriculture programs and award them the licenciatura degree. In-service courses are also planned. The Education Faculty is scheduled to become operational in October of 1981. Numerous attempts were made to contact someone connected with the Education Faculty during the term of this consultancy; however, all were unsuccessful.

The teachers here were experienced, dedicated, professional, and progressive. There are leaders in this school.

Student data that will not appear in the following section include: fifty percent of those enrolled are from the farm. Of the 1981 students who graduated, it appears that 100 percent (36) will be pursuing degrees at either post-secondary or university levels.

Upon leaving St. Tirso, this consultant had a distinct feeling that the director was in charge. Any future US AID projects must utilize their position in the school to enhance success of the project(s).

QUESTIONNAIRE

A questionnaire to assess teacher competency in the areas of the classroom and school farm and older demographic data was developed. The primary basis for selecting teaching competencies was taken from a list of 100 competencies identified by the National Center for Vocational Education at Ohio State University. A copy of the National Center competencies is shown in Appendix D. Reference was also made with two studies in Brazil by da Silva¹ and Welton².

A questionnaire was also developed to solicit selected demographic information from school directors. They also received the list of competencies for classroom and school farm instruction. All respondents were asked to indicate the level of competency they possess at the present time and also the degree they consider necessary. Appendix E contains copies of the questionnaire for both teachers and directors.

¹ da Silva, Jose Edson, "Professional Education Competencies for Elementary and Secondary Agricultural Education Teachers in Northeast Brazil," Unpublished, Ph.D. dissertation, Kansas State University, 1978.

² Welton, Richard F., "Evaluation of Agricultural Education Program Activities at the Federal University of Santa Marese, Brazil, 1971-1975," A staff study, Southern Illinois University, 1973.

The questionnaire was examined by Sr. Joaquim Cerqueira to verify the language and completeness. Agriculture teachers and directors in each school offering agriculture received a copy of the questionnaire. Questionnaires were distributed to representatives from Regua, St. Tirso, Paia, Mirandela and Grāv̄dola during a meeting in Lisbon on September 24, 1981. Sufficient copies of the questionnaire were mailed to those schools not present at the meeting. By the time the consultant left Portugal on October 10, 1981, questionnaires had been returned from four schools (St. Tirso, Paia, Regua, and Grāv̄dola). A total of 32 questionnaires were returned from directors and teachers. Data from these questionnaires are summarized in Tables appearing in Appendix F. A brief summary of these data follow.

Director Experience - Directors of the four responding schools have an average of 22 years of teaching experience. The average years administrative experience at their present school was 4.25.

Level of Education of Directors - Seventy-five percent of directors have completed a university course.

Number of Students Enrolled - The number of students enrolled in the four responding schools was 1002. Of this number, nearly one-third were female students.

Number of Teachers - Forty-four teachers were employed in the four schools returning questionnaires. Ninety-three percent of these teachers are hired on a full-time basis. The average tenure for these teachers was six years in their present school with 2.4 years in another school.

Projected Need for Teachers - The directors indicated an increased need for more teachers by 1984-5. With present trends, they expect the number of teachers to expand from the present number of 44 to 56.

Teacher Level of Training - Seventy-one percent of the responding teachers had completed a university program.

Teacher Training Courses Attended - Thirty-nine percent of the teachers have not attended any kind of teacher training course. Of those attending (61 percent), the average number of courses attended was 1.9 courses.

Classroom Teaching Competencies - Table 8 presents a complete listing of teaching competencies in the classroom. The differences between competencies possessed at the present time and necessary to possess indicate a need for assistance in nearly all the competencies assessed. Those competencies that should be given emphasis include developing course objectives, developing objectives for student improvement, summarizing a lesson, preparing visual aids, creating, directing, and maintaining a student association establishing and coordinating profits for students, and keeping records. Data revealed in Table 8 should be examined carefully when planning in-service educational activities for teachers.

School Exploration Competencies - Competencies possessed at present and actually needed by teachers are presented in Table 9. Teachers appear to be very competent in their handling of student discipline. Otherwise, teachers need in-service instruction in the remaining competencies.

IN-SERVICE TRAINING OF TEACHERS

The Ministry of Education in Portugal began a nationwide program to professionalize teachers in January of 1981. The program is called "Profissionalização em Exercício." This is a project designed to certify teachers through a series of exercises over a period of two years. This program is being executed by the Council of Orientadores and others included in this scheme as discussed in the introduction of this report.

The specific projects identified in a Ministry of Education Dispatch Number 3/81 appear to be thorough and well planned; however, the orientadores appear to function independently of any guidance and coordination from the Ministry of Education.

The plan includes specific objectives for the professional formation of agriculture teachers in Groups A (Crop and Livestock Production) and B (Food Industries). These specific objectives seem to be complete and will provide a basis for programs designed to bring teachers up to a specified level for professionalization. It does appear that too much emphasis is being placed on educational psychology in these courses. This consultant had the opportunity to observe an in-service program presented on "Objectives and Evaluation for Teachers." This short course was conducted by a teacher who is an orientador. Participants in the class were agriculture teachers who were either delegados or orientadores in their school or zone. The class material was well organized and documented with references that are current in education. This consultant commends Sr. Adriano Sousa from Regua for his efforts to provide this kind of training. He discussed the class at great lengths and then gave teachers an opportunity to become involved in learning activities.

Other course materials used for in-service training were also examined -- "Evaluation, "Writing Tests," "Evaluating Classroom Teaching," and others. The impression of this consultant is that material is well organized and specified in great detail; however, very little reference is made to real life situations. In other words, a very heavy dose of theory, educational psychology, and not related to classroom situations in agriculture. For example, in the paper on writing classroom tests, the writers should have gone one step further with examples of specific test questions in agriculture. This would have been of great help to new teachers who have no experience in test writing. Another impression of the consultant is that delegados and/or orientadores who will be teaching these courses/information in their local schools or zone are insufficiently trained in pedagogy and in technical material to teach. Therefore, it becomes important that the material be practical in nature and the delegados and/or orientadores be trained to carry out their duties.

RECOMMENDATIONS FOR PROGRAM IMPROVEMENT

The improvement of agricultural education can be viewed in terms of meeting immediate and short-term needs. The Ministry of Education has undertaken a massive program to improve education on the secondary level. With the implementation of these activities combined with the initiation of a Faculty of Education to provide pre-service teacher training, the long-term needs of agricultural education should eventually be met. Therefore, an urgent need exists for immediate assistance. For the most part, this help can come from within the country. The Office of Agricultural Education and agriculture teachers can provide this self-help to the extent manpower is available. Other short-term assistance could come from a future US AID project(s).

The following recommendations are based upon the consultant's observations of Portugal's agricultural education in schools, discussions with officials in the Office of Agricultural Education and teachers, reading course outlines and other materials, data gathered from agricultural schools' directors and teachers, previous experience in developing countries, and a life-time of experience in agricultural education as a high school vocational agriculture teacher and in higher education in teacher training.

IMMEDIATE IMPROVEMENT

Improvement of this nature can be made or initiated by agricultural education personnel in Portugal. The following recommendations are offered in no particular order of priority:

1. The content and organization of courses offered to students at the 10th, 11th, and 12th grade level should be re-examined and modified according to recommendations made by the consultant following a detailed examination of 27 courses of study in agriculture. Appendix G contains the curriculum review and subsequent recommendations.

2. A system of follow-up for students completing programs in agricultural education must be initiated. At the present time, such a system does not exist. If agricultural education is to initiate program changes within the Ministry of Education, a current up-to-date data base must be available. An annual report by the school directors of the number of students graduating in different programs and their status by an occupational category after graduation, would be helpful in compiling these kind of data. A long-term (three to five years) follow-up of students would also be useful. These data will also be helpful to local school directors and agriculture teachers in the country.

3. Specific guidelines and a handbook of instructions must be developed for the delegados in agriculture. Training for the delegado is also a must if this in-service person is to function effectively. The delegado handbook should contain the following sections:

- A. A policy statement regarding the purpose and responsibilities of the delegado;
- B. How to assess the needs of local teachers;
- C. How to use resource persons;
- D. How to plan a lesson;
- E. How to evaluate students and instruction;
- F. How to meet the needs of local teachers;
- G. An up-to-date list of references and visual aid materials available;
- H. A schedule of conference periods to meet with teachers; and
- I. How to meet the technical agriculture in-service needs of teachers.

The handbook sections suggested above would be the beginning of a reference manual that would be useful to delegados in effectively carrying out their duties.

4. A workshop for delegados in agriculture should be planned and conducted by the Office of Agricultural Education in the Ministry of Education. The purpose of this workshop would be to further define the responsibilities of the delegado and to train them in how to fulfill these responsibilities. The primary purpose of this meeting would be to "in-service" the Delegado Handbook suggested in the foregoing recommendations.

5. All in-service programs offered in agriculture (state, zone, and local levels) must be based on the assessed needs of teachers. Reference should be made to the Performance-Based Teacher Education Modules developed by the Center for Vocational Education at Ohio State University when developing teacher needs assessment instruments. If instruction is based on expressed teacher needs, the outcome will be a greater motivation on the part of teachers and in-service instruction that is sensitive to teacher needs.

6. In conducting in-service programs, the expertise of experienced agriculture teachers should be utilized whenever possible. This is being done at the present time to a limited extent. These resource people are familiar with teacher needs and interest.

7. The Office of Agricultural Education in the Ministry of Education should purchase the complete set of "Performance-Based Teacher Education Modules" from the National Center for Vocational Education at Ohio State University, Columbus, Ohio 43210, USA. These modules are the most up-to-date references available for planning a complete program in vocational education. Selected modules were made available by the consultant to the Office of Agricultural Education. See Appendix A for a listing.

8. The Office of Agricultural Education should contact Mr. Tennie Gamage, Director of International Programs, Future Farmers of America, Box 15160, Alexandria, Virginia 22309, USA, about the possibility of developing an exchange program with that organization. This exchange would allow vocational agriculture students in the United States to work for an extended period on a farm or school farm in Portugal and for agriculture students from Portugal to work on a farm in the United States. An exchange of this nature can have considerable influence on affecting changes in education and agricultural practices.

9. The Office of Agricultural Education should establish a contact with Mr. Sam Stenzel, Executive Director of the National Vocational Agriculture Teachers Association, 5600 Mt. Vernon Memorial Highway, Alexandria, Virginia 22309, USA. The NVATA in the United States has provided strong leadership for vocational agriculture teachers in each state and on the national level. Some direction could be solicited from the NVATA to assist the agriculture teachers in Portugal in leadership and perhaps assist them in presenting a more united front.

10. The Office of Agricultural Education must establish a means of providing agriculture teachers with materials that will enhance teaching. These materials could be provided by establishing a Teaching Materials Service. Appendix I contains a document entitled "Guidelines for the Development of a Teaching Materials Service in Agricultural Education" that fully explains a service of this nature. The absence of teaching materials in schools visited by this consultant was obvious. A definite need exists in Portugal. The rationale for teaching materials might best be expressed by the following:

The work of the agriculture teacher is becoming more complex and demanding. Access to adequate instructional material resources is therefore

increasingly important. The supply should be organized in such a way that a minimum of time and effort is required from teachers themselves. Their heavy teaching load does not permit them to devote the necessary attention to digesting the relevant literature and preparing therefrom the material in such a form that it will be most useful for teaching.³

The teaching materials that should be prepared by this service would include: a) resources units; b) class units; c) approved practices; d) job operation skills; and e) specialized audio-visual materials. A description of each of the above is provided in Appendix I. An example of a class unit, approved practices, and a job operation sheet were made available to the Office of Agricultural Education. The titles to these documents are included in Appendix J.

11. Efforts must be made by the Office of Agricultural Education to explore ways of utilizing teaching materials prepared by the Rural Extension Service in Portugal. At the present time, an Agricultural Information Center in the Ministry of Agriculture and Fisheries in Lisbon is being developed with funds from the World Bank. Audio-visual and printed materials will be prepared by Ministry subject matter specialists and illustrators. The Information Center is scheduled to be operational by the end of 1981.

Industry and agricultural resource materials should be solicited and made available to agricultural schools.

12. The Office of Agricultural Education should contact the following curriculum materials services:

³ Welton, Richard F., "A Teaching Materials Service for Agricultural Education," Training for Agricultural and Rural Development, Food and Agriculture Organization of the United Nations, 1979.

- a. Vocational Agriculture Services
College of Agriculture
University of Illinois
Champaign - Urbana, Illinois, USA
- b. Curriculum Materials Center
Department of Agricultural Education
College of Agriculture
Ohio State University
Columbus, Ohio 43210, USA

These services can provide catalogs of teaching materials. These materials will be in English; however, it is possible they may be utilized in the agricultural classrooms of the secondary schools in the country.

13. The Office of Agricultural Education should utilize the "instructional package" developed by the consultant to improve teacher competency in classroom teaching. This package consists of a teaching unit on using various teaching methods. See Appendix K for a description of the complete unit. These materials are not appended. This material will be sent under separate cover to US AID Portugal. Materials included in this package should be incorporated into a workshop for delegados. They should be taught how to use these methods and then return to their schools for in-service teaching of their colleagues.

14. The school farms on the agricultural schools must be more fully integrated into the instructional program. With the extensive facilities available on the school farms, students should have the opportunity to develop a range of skills from the doing through management. One way to assure better utilization of the school farms would be to develop a list of skills needed by a worker in the various occupied agricultural areas served by agriculture schools. For example, what are the skills needed by a manager of a vineyard or skills needed by a worker raising poultry. In this way, a record would be established and become a training guide for the student and teachers. This list of skills would also attach accountability into teaching students on a school farm.

SHORT-TERM US AID ASSISTANCE

A number of improvements in agricultural education can and are being made by Portuguese officials and teachers. These improvements; however, will need to be complimented by assistance from US AID. If agricultural education is to have any impact on helping the country meet its growing agricultural needs, the agricultural program at the secondary level must be strengthened. Particularly the teaching skills of agricultural instructors. The following recommendations are proposed with this premise in mind. These recommendations are presented in order of priority.

1. A consultant should be contracted to teach an intensive two-week workshop, "Improving Teaching Skills." See Appendix L for a description of the workshop. This consultant should have extensive experience in teaching at both the high school and university levels. At the university, the consultant should be presently teaching a course on teaching methods in agricultural education. Prior experience in Portugal would be desirable with knowledge of Portuguese essential. The consultant hired for this project should be contacted at least six months prior to the beginning of the assignment. This would allow time to begin making preparations for the workshop (e.g., teaching plans, reference materials, and audio-visual aids). At the time of the contact to teach the workshop, an assessment of teaching competence of teachers attending the workshop should be delivered to the consultant. In this way, the workshop will express the needs and interests of participants.

Actual in-country time needed for this assignment should be four weeks. Two weeks for the workshop, one week in-country for familiarization and orientation before the workshop begins and one week of follow-up to evaluate the outcome of the workshop.

This workshop should be offered in the period just prior to school beginning in October.

The maximum number of participants should be limited to 20. For the kind of workshop proposed, most effective involvement and learning will occur at this level. The Office of Agricultural Education would make the selection; however, it seems most practical to include selected agricultural delegados.

An alternate to the recommendation presented in the foregoing would be to provide a series of two-week workshops in the various zones of the country. This plan would provide training for all agricultural teachers in the country. The maximum number of participants, however, would remain at 20. The consultant would be at an excellent position to assist in developing the handbook for delegados recommended earlier. This responsibility should be a part of the consultant contract.

2. A number of key agricultural education teachers delegados, directors, and orientadores should be selected to observe first-hand the operations of vocational agriculture programs in the United States. An experience of this nature has the potential to encourage each participant to become a change agent in his/her area of responsibility. A scheme is proposed in Appendix M that would maximize their experience. These experiences should cover four basic areas: a) observation of curriculum materials services; b) observe pre-service teacher training classes; c) visit in-service education programs; and d) visit and observe high school programs of vocational agriculture. A period of four weeks is recommended for the tour. This consultant recommended the agricultural education program at Kansas State University for the visitation. A rationale for this recommendation is included in Appendix N.

3. A consultant should be contracted to assist the Office of Agricultural Education develop a "Teaching Materials Service" or a system to develop, acquire, and distribute teaching materials for the agricultural classrooms. A description of what is needed and how it can

be developed was reported earlier in this report and Appendix I reports in detail the organization of a service to provide teaching materials. The recommended time for this activity is four weeks. The consultant proposed may have the expertise teaching materials.

4. A consultant should be contracted to identify and develop a list of skills needed in the various occupational areas offered in the schools with agriculture programs. This listing of needed skills would be developed to indicate the level of competency need. The development of a list of skills would be a tool to integrate classroom theory with practicums with emphasis on hands-on application. The recommended time for this activity is four weeks. It should be noted here that a complete assessment of all occupational skills would not be possible during this time period. A model to be used in determining skills would be developed with training of agricultural education personnel on how to use the model for future determination of occupational skills.

APPENDICES

APPENDIX A

HIGH SCHOOLS IN PORTUGAL OFFERING AGRICULTURE

1. Abrantes
2. Alcobaça
3. Arganil
4. Fermil de Basto
- *5. Grândola
6. Melgaço
7. Merandela
- *8. Paiã
9. Ponte de Tenia
10. Quinto da Tagueose
11. Rêgua
12. Serpa
- *13. St. Tirso

* Schools visited by consultant.

APPENDIX B

MEIOS DE FORMAÇÃO

A concretização dos objectivos gerais e específicos pressupõe:

1. a definição dos intervenientes e respectivas competências;
2. o estabelecimento de um conjunto de estratégias a desenvolver de forma articulada, a nível individual ou grupal;
3. a inventariação dos recursos disponíveis e a criação ou de terminação dos recursos necessários.

Intervenientes e competências

A extensão e complexidade do processo de formação exige a intervenção de diversos órgãos e entidades cujas competências e modo de articulação devem ser genericamente definidas, sem prejuízo de uma caracterização mais pormenorizada de que se tratará em regulamento próprio.

a. Conselho Orientador

É o órgão de concepção, acompanhamento e avaliação do projecto de profissionalização em exercício, competindo-lhe igualmente a definição dos apoios a fornecer bem como a elaboração de sugestões de esquemas de concretização desses apoios.

b. Direcções-Gerais de Ensino

Como serviços executivos no sector do ensino, cabe-lhes a coordenação directa da programação e realização das acções de formação contínua, garantindo, igualmente, a articulação da informação e orientação pedagógicas entre a formação contínua e a profissionalização em exercício.

c. Conselho Orientador e Direcções-Gerais de Ensino

A extensão de processo de formação a todos os professores, as características dos serviços atrás referidos e a necessidade de uma correcta articulação entre a formação contínua e a profissionalização em exercício determinam a existência de uma

zona de intervenção comum ao Conselho Orientador e às Direcções-Gerais de Ensino, nomeadamente no que se refere à colaboração das Equipas de Apoio Pedagógico quanto à concretização dos objectivos específicos e à definição dos objectivos por disciplina, à unificação dos critérios de acompanhamento e avaliação e ao apoio a prestar aos conselhos pedagógicos e respectivos delegados.

d. Equipas de Apoio Pedagógico

A nível de intervenção regional, a actuação das Equipas de Apoio Pedagógico incide na implementação de todo o processo de formação pela sua posição de dinamizadoras da ligação dos órgãos e entidades nacionais com os órgãos e entidades locais, nomeadamente na programação, acompanhamento e avaliação das acções de apoio e formação, na concretização dos objectivos específicos e disciplinares e no apoio a prestar à elaboração do plano individual de trabalho.

e. Orientador pedagógico

Na concretização das orientações definidas para as Equipas de Apoio Pedagógico entendidas colectivamente, caberá ao Orientador Pedagógico uma acção permanente de apoio dinâmico aos delegados e aos professores em formação, tendo em particular atenção a diversidade de situações de uns e outros, de concertação na actuação regional e respectivo intercâmbio de experiências.

f. Conselho Pedagógico

A nível local, cabe ao Conselho Pedagógico criar as condições que facilitem a prossecução dos objectivos gerais e específicos definidos para a formação, a coordenação das respectivas actividades, uma intervenção activa na atribuição da classificação final aos professores em formação e o fomento do intercâmbio com os conselhos pedagógicos da zona ou subzona.

g. Delegado

Como representante do Conselho Pedagógico nas acções de formação, o Delegado desempenha um papel fundamental no processo de formação através do apoio diversificado a prestar

na elaboração do plano individual de trabalho, na sua execução, acompanhamento e avaliação, na criação de condições que, respeitando a individualização dos métodos e processos de trabalho, favoreça a reflexão e contribuição do grupo, e na colaboração a prestar às ações a realizar a nível local e regional.

h. Conselho de Grupo

Como apoio ao trabalho do delegado, espera-se a contribuição do Conselho de Grupo nas diversas áreas de formação pela reflexão crítica e intercâmbio de experiência.

i. Professor em Formação

Apoiado na reflexão pessoal e no seu enriquecimento pela contribuição dos diversos apoios a nível local, regional e nacional, o Professor em formação elaborará o seu plano individual de trabalho como instrumento pessoal susceptível de ajustamentos.

APPENDIX C

ITINERARY FOR RICHARD WELTON

<u>DAY (1981)</u>	<u>PLACE</u>	<u>TIME</u>	<u>ACTIVITY</u>
September 11	Manhattan, Kansas	6:32 a.m.	TWA flight to Kansas City, MO
	Kansas City, MO	8:55 a.m.	TWA flight to Washington, DC
	Washington, DC	4:00 p.m.	Briefing with PSI Associate officials
September 12	Washington, DC	3:35 p.m.	TWA flight to New York
	New York	6:50 p.m.	TWA flight to Lisbon, Portugal
September 13	Lisbon, Portugal	6:15 a.m.	Arrive Lisbon
September 14	Lisbon, Portugal	8-10 a.m.	Briefing with US AID Lukomski
		10:00 a.m.- 5:00 p.m.	Develop assessment instrument for teachers in agricultural high schools
September 15	Lisbon, Portugal	8:00 a.m.- 3:00 p.m.	Develop assessment instrument
		3:00 p.m.- 5:30 p.m.	Meeting with MEC officials Peixinho and Ceroueiro
September 16	Paia	8:00 a.m.- 5:00 p.m.	Visited agricultural high school at Paia
September 17	Grandola	7:30 a.m.- 5:00 p.m.	Visited agricultural school with Peixinho

September 18	Lisbon, Portugal	8:00 a.m.- 5:00 p.m.	Reading background material and orientation.
September 21	Lisbon, Portugal	8:00 a.m.- 10:00 a.m. 10:00 a.m.- 11:00 a.m. 11:00 a.m.- 2:00 p.m. 2:00 p.m.- 7:00 p.m.	Project work Meeting with Lukomski at US AID office Background reading and project work. Meeting with MEC -7 Orientadores Explained Agricultural Education in U.S.
September 22	Lisbon, Portugal	8:00 a.m.- 9:00 a.m. 9:00 a.m.- 5:00 p.m.	AID office - work for secretary (questionnaires) Meeting with MEC and Orientadores Escola Makquesa de Alorna
September 23	Lisbon, Portugal	9:30 a.m.- 5:00 p.m.	Meeting with MEC Orientadores and inservice teacher about evaluation.
September 24	Lisbon, Portugal	8:00 a.m.- 5:00 p.m.	Picked up questionnaires at AID office. Then went to meeting of inservice teachers at MEC. In the afternoon met with Orientadores from all disciplines at Eugenio Dos Santos School in Lisbon
September 25	Lisbon, Portugal	8:00 a.m.- 5:00 p.m.	Read MEC information on formation of new programs and inservice scheme. Developed outline of final report. Developing and organizing instructional package.

September 28	Lisbon to Regua	8:55 a.m.- 4:10 p.m.	Leave Lisbon (8:55) Arrive Porto (13:00) Arrive Regua (16:10)
September 29	Regua		Visited agricultural school at Regua-- buildings, classrooms, school farm, new student dormitory, director of school and professor's son.
September 30	St. Tirso	9:30 a.m.- Ar 2:00 p.m.	Traveled by car to St. Tirso. Visit school and farm.
October 1	St. Tirso		Visit school and farm in morning; leave for Porto at 2:30 p.m.
October 2	Travel Day	7:00 p.m.- 12:00 p.m.	Porto to Lisbon by train
		4:00 p.m.	Meeting with Mike Lukumski, US AID.
October 5	Lisbon, Portugal	8:00 a.m.- 5:00 p.m.	Summarizing questionnaires and preparing for final report.
		3:00 p.m.	Meeting with Sr. Cerqueiro. Discuss questionnaires and plans for week.
October 6	Lisbon, Portugal	8:00 a.m.- 5:00 p.m.	Summarizing questionnaires, developing tables to report data, and final report.
October 7	Paia	8:30 a.m.- 3:00 p.m.	Visited school at Paia with Sr. Cerqueiro.
	Lisbon	3:00 p.m.	Meeting with Mike Lukomski at US AID.
October 8	Lisbon	8:00 a.m.- 5:00 p.m.	Summarizing questionnaires and final report.

October 9	Lisbon, Portugal	9:00 a.m.- 12:00 p.m.	Meeting with Srs. Peisinka and Cuquiera to summarize project.
		3:00 p.m.- 5:00 p.m.	Exit meeting with Mike Lukomski at US AID.
October 10	Lisbon, Portugal	12:25 p.m.	TWA flight to New York
		7:00 p.m.	TWA flight to Washington, DC
October 11	Washington, DC	10:00 a.m.	Meeting with PSI Associates
	Washington, D.C.	2:15 p.m.	Depart TWA flight to Kansas City
		6:00 p.m.	Capital Air flight to Manhattan, Kansas
		7:00 p.m.	Arrive home.

Category	Competencies										
Program Planning, Development, and Evaluation (11 modules)	A 1 Prepare for a Community Survey	A 2 Conduct a Community Survey	A 3 Report the Findings of a Community Survey	A 4 Organize an Occupational Advisory Committee	A 5 Maintain an Occupational Advisory Committee	A 6 Develop Program Goals and Objectives	A 7 Conduct an Occupational Analysis	A 8 Develop a Course of Study	A 9 Develop Long Range Program Plans	A 10 Conduct a Student Follow Up Study	A 11 Evaluate Your Vocational Program
Instructional Planning (8 modules)	B 1 Determine Needs and Interests of Students	B 2 Develop Student Performance Objectives	B 3 Develop a Unit of Instruction	B 4 Develop a Lesson Plan	B 5 Select Student Instructional Materials	B 6 Prepare Teacher-Made Instructional Materials					
Instructional Execution (79 modules)	C 1 Direct Field Trips	C 2 Conduct Group Discussions, Panel Discussions, and Symposiums	C 3 Employ Direct Instruction, Staff Group, and Question Box Techniques	C 4 Indirect Students in Instructing Other Students	C 5 Employ Simulation Techniques	C 6 Guide Student Study	C 7 Direct Student Laboratory Experience	C 8 Direct Students in Applying Problem-Solving Techniques	C 9 Employ the Project Method	C 10 Introduce a Lesson	C 11 Summarize a Lesson
Instructional Execution (Cont'd)	C 12 Employ Oral Questioning Techniques	C 13 Employ Handout Techniques	C 14 Provide Instruction for Slower and High Capable Learners	C 15 Present an Illustrated Talk	C 16 Demonstrate a Manipulative Skill	C 17 Demonstrate a Concept or Principle	C 18 Individualize Instruction	C 19 Employ the Team Teaching Approach	C 20 Use Subject Matter Experts to Present Information	C 21 Prepare Bulletin Boards and Exhibits	C 22 Prepare Instruction with Real Objects and Parts of Bodies
Instructional Execution (Cont'd)	C 23 Present Information with Overhead and Opaque Materials	C 24 Present Information with Filmstrips and Slides	C 25 Present Information with Films	C 26 Present Information with Audio Recordings	C 27 Present Information with Television and Videotaped Materials	C 28 Employ Programmed Instruction	C 29 Present Information with a Chalkboard and Flip Chart				
Instructional Evaluation (8 modules)	D 1 Establish Student Performance Criteria	D 2 Assess Student Performance, Knowledge	D 3 Assess Student Performance Attitudes	D 4 Assess Student Performance Skills	D 5 Determine Student Grades	D 6 Evaluate Your Instructional Effectiveness					
Instructional Management (8 modules)	E 1 Project Instructional Resource Needs	E 2 Manage Your Budgeting and Reporting Responsibilities	E 3 Arrange for Improvement of Your Vocational Facilities	E 4 Maintain a Filing System	E 5 Provide for Student Safety	E 6 Provide for the First Aid Needs of Students	E 7 Assist Students in Developing Self-Discipline	E 8 Organize the Vocational Laboratory	E 9 Manage the Vocational Laboratory		
Guidance (3 modules)	F 1 Gather Student Data Using Formal Data Collection Techniques	F 2 Gather Student Data Through Personal Contacts	F 3 Use Conferences to Help Meet Student Needs	F 4 Provide Information on Educational and Career Opportunities	F 5 Assist Students in Applying for Employment or Further Education						
School Community Relations (10 modules)	G 1 Develop a School Community Relations Plan for Your Vocational Program	G 2 Give Presentations to Promote Your Vocational Program	G 3 Develop Brochures to Promote Your Vocational Program	G 4 Prepare Displays to Promote Your Vocational Program	G 5 Prepare News Releases and Articles Concerning Your Vocational Program	G 6 Arrange for Television and Radio Presentations Concerning Your Vocational Program	G 7 Conduct an Open House	G 8 Work with Members of the Community	G 9 Work with State and Local Educators	G 10 Obtain Feedback about Your Vocational Program	
Student Vocational Organization (8 modules)	H 1 Develop a Personal Philosophy Concerning Student Vocational Organization	H 2 Establish a Student Vocational Organization	H 3 Prepare Student Vocational Organization Members for Leadership Roles	H 4 Assist Students in Developing and Financing a Yearly Program of Activities	H 5 Supervise Activities of the Student Vocational Organization	H 6 Guide Participation in Student Vocational Organization Contests					
Professional Role and Development (8 modules)	I 1 Keep Up to Date Professionally	I 2 Serve Your Teaching Profession	I 3 Develop an Active Personal Philosophy of Education	I 4 Serve the School and Community	I 5 Obtain a Suitable Teaching Position	I 6 Provide Laboratory Experiences for Prospective Teachers	I 7 Plan the Student Teaching Experience	I 8 Supervise Student Teachers			
Cooperative Education (10 Modules)	J 1 Establish Guide Lines for Your Cooperative Vocational Program	J 2 Manage the Attendance, Transfer, and Terminations of Co-Op Students	J 3 Enroll Students in Your Co-Op Program	J 4 Secure Training Stations for Your Co-Op Program	J 5 Place Co-Op Students on the Job	J 6 Develop the Teaching Ability of On the Job Instructors	J 7 Coordinate On the Job Instruction	J 8 Evaluate Co-Op Students on the Job Performance	J 9 Prepare for Students' Related Instruction	J 10 Supervise an Employer Employee Appreciation Event	

APPENDIX E

QUESTIONÁRIO DESTINADO

AOS

DIRECTORES

Leia cuidadosamente todas as perguntas e instruções à medida que for preenchendo este questionário.

ESCOLA AGRÍCOLA DE _____

NOME _____

1. Há quanto tempo é Director desta Escola? _____

2. Há quanto tempo lecciona Agricultura? _____

3. Qual é o seu grau de instrução mais elevado? (Assinale com um X).

- a) Curso Universitário incompleto;
- b) Curso Universitário completo;
- c) Frequência de cursos de pós-graduação;

4. Durante o actual ano escolar (1981-82), quantos professores estão a leccionar Agricultura nessa Escola? (Indique separadamente para cada um dos casos).

_____ Professores em tempo inteiro

_____ Professores em tempo parcial

5. No caso de se manter a actual tendência nas matrículas, quantos professores acha que serão necessários para leccionar Agricultura nessa Escola para o ano escolar de 1984-85? (Indique separadamente para cada um dos casos).

_____ Professores em tempo inteiro

_____ Professores em tempo parcial

6. Quantos alunos irão estar matriculados nessa Escola durante o próximo ano escolar de 1981-82? (Indique separadamente para cada um dos casos),

_____ Alunos do sexo feminino

_____ Alunos do sexo masculino

7. No caso de se manter a actual tendência nas matrículas, quantos alunos se formarão ou completarão o curso em 1984-85? (Indique o número).

_____ Alunos

8. Do número total de alunos que se formaram ou completaram o curso de Agricultura na sua Escola nos anos de 1981, 1980 e 1979, quantos estão actualmente: (Indique os números em cada ano).

	1981 (Ano passado)	1980	1979
a) Nas Forças Armadas	_____	_____	_____
b) Continuaram a estudar Agricultura	_____	_____	_____
c) Continuaram a estudar, mas não em Agricultura	_____	_____	_____
d) Empregados em actividades agrícolas	_____	_____	_____
e) Empregados noutras actividades ..	_____	_____	_____
f) Estão desempregados	_____	_____	_____
g) Não se sabe	_____	_____	_____
TOTAL DE FORMADOS	_____	_____	_____

QUESTIONÁRIO DESTINADO

AOS

PROFESSORES

Leia cuidadosamente todas as perguntas e instruções à medida que for preenchendo este questionário.

ESCOLA AGRÍCOLA DE _____

NOME _____

1. Há quanto tempo lecciona Agricultura? (Indique separadamente para cada um dos casos).

_____ Nesta Escola

_____ Noutras Escolas

2. Qual é o seu grau de instrução mais elevado? (Assinale com um X).

a) Curso Complementar de Agricultura incompleto;

b) Curso Complementar de Agricultura completo;

c) Curso Universitário incompleto;

d) Curso Universitário completo;

e) Frequência de cursos de pós-graduação.

3. Qual é a sua área de especialização? _____

4. Participou em algum(s) curso(s) destinado(s) ao aperfeiçoamento da sua carreira como professor de Agricultura? (Indique por favor).

_____ (Quando)

_____ (Nome do Curso)

_____ (Quando)

_____ (Nome do Curso)

_____ (Quando)

_____ (Nome do Curso)

NOME: _____

ESCOLA: _____

AVALIAÇÃO DE COMPETÊNCIA DE ENSINO

INSTRUÇÕES:

1. Algumas das capacidades consideradas necessárias para os professores estão relacionadas nesta parte. À direita de cada capacidade há duas colunas.

Na Coluna I - Classifique, para a capacidade em questão, o nível de competência que possui actualmente.

Na Coluna II - Classifique, para a capacidade em questão, o nível de competência que considera necessário possuir para ser um professor de Agricultura eficiente.

2. Use a escala seguinte para a avaliação do nível que possui actualmente e o nível de competência que pensa ser o necessário possuir:

- 3 - De considerável competência (acima da média);
- 2 - De competência moderada (mediana);
- 1 - Alguma falta de competência (abaixo da média);
- 0 - Sem competência;
- N - Sem opinião.

3. Segue um exemplo de avaliação do nível de competência:

	<u>COLUNA I</u>					<u>COLUNA II</u>				
	Nível de Competência									
<u>Área de Capacidades</u>	<u>Grau que possui ACTUALMENTE</u>					<u>Grau que considera NECESSÁRIO POSSUIR</u>				
Organização de uma aula no 1º dia escolar	3	2	1	0	N	3	2	1	0	N

PARTE A - Área de Instrução: SALA DE AULA

Abaixo poderá encontrar uma relação das capacidades necessárias para os professores de Agricultura na área de INSTRUÇÃO NA SALA DE AULA. Para cada capacidade, indique (1) o nível que possui actualmente e (2) o nível que acha necessário possuir. (Esta parte deve ser completada por todas as pessoas que responderem a este questionário).

Área de Capacidades	COLUNA I					COLUNA II				
	Nível de Competência									
	Grau que possui ACTUALMENTE					Grau que considera NECESSÁRIO POSSUIR				
. Desenvolvimento do Plano do Curso.....	3	2	1	0	N	3	2	1	0	N
. Desenvolvimento de Objectivos do Curso	3	2	1	0	N	3	2	1	0	N
. Avaliação de Faltas e Interesses dos Alunos ...	3	2	1	0	N	3	2	1	0	N
. Desenvolvimento de Planos de Lições	3	2	1	0	N	3	2	1	0	N
. Desenvolvimento de Objectivos para aproveitamento dos Alunos	3	2	1	0	N	3	2	1	0	N
. Escolha dos Processos Eficazes de Ensino (Por exemplo: método de discussão, conferência, demonstração, viagem ao campo e recitação)	3	2	1	0	N	3	2	1	0	N
. Utilização dos Processos Eficazes de Ensino (Por exemplo: método de discussão, conferência, demonstração, viagem ao campo e recitação)	3	2	1	0	N	3	2	1	0	N
. Introdução da Aula	3	2	1	0	N	3	2	1	0	N
. Sumário da Aula	3	2	1	0	N	3	2	1	0	N
. Selecção de Auxiliares Visuais para a Aula	3	2	1	0	N	3	2	1	0	N

Área de Capacidades	COLUNA I					COLUNA II				
	Nível de Competência									
	Grau que possui ACTUALMENTE					Grau que considera NECESSÁRIO POSSUIR				
. Preparação de Auxiliares Visuais para a Aula	3	2	1	0	N	3	2	1	0	N
. Uso de Auxiliares-Visuais para a Aula	3	2	1	0	N	3	2	1	0	N
. Arquivo e Armazenamento de Auxiliares Visuais e Outros Materiais de Aula	3	2	1	0	N	3	2	1	0	N
. Utilização do Equipamento Auxiliar Visual	3	2	1	0	N	3	2	1	0	N
. Equipamento e Utilização da Sala de Aula	3	2	1	0	N	3	2	1	0	N
. Criação, Direcção e Manutenção duma Associação de Educação Agrícola	3	2	1	0	N	3	2	1	0	N
. Recolha de Informações Sobre os Alunos Usando Métodos Formais	3	2	1	0	N	3	2	1	0	N
. Estabelecer, Supervisionar e Acompanhar Projectos para os Alunos Executarem em Casa	3	2	1	0	N	3	2	1	0	N
. Coordenação de Instrução na Aula Através dos Projectos de Casa	3	2	1	0	N	3	2	1	0	N
. Acompanhar Registos dos Projectos de Casa	3	2	1	0	N	3	2	1	0	N
. Avaliação do Progresso dos Alunos	3	2	1	0	N	3	2	1	0	N
. Avaliação dos Resultados das Suas Lições	3	2	1	0	N	3	2	1	0	N
. Capacidade Global Nesta Área de Instrução	3	2	1	0	N	3	2	1	0	N

PARTE B - Área de Instrução; EXPLORAÇÃO ESCOLA

Abaixo poderá encontrar uma relação das capacidades necessárias para os professores de Agricultura na área de INSTRUÇÃO DE EXPLORAÇÃO DA ESCOLA. Para cada capacidade, indique (1) o nível que possui actualmente e (2) o nível que acha necessário possuir.

Área de Capacidades	<u>COLUNA I</u>					<u>COLUNA II</u>				
	<u>Nível de Competência</u>									
	<u>Grau que possui ACTUALMENTE</u>					<u>Grau que considera NECESSÁRIO POSSUIR</u>				
. Desenvolvimento de uma Política e de Objectivos para a Operação da Exploração Escolar	3	2	1	0	N	3	2	1	0	N
. Coordenação de Actividades na Exploração Escolar com Aulas Teóricas	3	2	1	0	N	3	2	1	0	N
. Desenvolvimento de Demonstrações de Exploração Escolar com os Alunos Participando em Demonstrações Individuais	3	2	1	0	N	3	2	1	0	N
. Desenvolvimento de Demonstrações de Exploração Escolar com Alunos Participando em Demonstrações em Grupo	3	2	1	0	N	3	2	1	0	N
. Registo Filmado das Demonstrações	3	2	1	0	N	3	2	1	0	N
. Sumário e Revisão das Demonstrações	3	2	1	0	N	3	2	1	0	N
. Leccionar Novas Técnicas na Exploração Escolar	3	2	1	0	N	3	2	1	0	N
. Manutenção da Disciplina dos Alunos na Exploração Escolar	3	2	1	0	N	3	2	1	0	N
. Manutenção de Registos da Exploração Escolar	3	2	1	0	N	3	2	1	0	N
. Avaliação dos Resultados da Instrução na Exploração Escolar	3	2	1	0	N	3	2	1	0	N

APPENDIX F

Tables

TABLE 1

TEACHING AND ADMINISTRATIVE EXPERIENCE
OF DIRECTORS IN THE AGRICULTURAL SCHOOLS, 1981

School	Total Teaching Experience	Administrative Experience in Present School
St. Tirso	25	2
Paia	25	3
Regua	17	7
Grandola	21	5

TABLE 2

HIGHEST LEVEL OF EDUCATION ATTAINED BY
DIRECTORS IN AGRICULTURAL SCHOOLS, 1981

Level of Education	Number	Percent
Curso universitário incompleto	0	0
Curso universitário completo	3	75
Frequência de cursos de pos-graduação	0	0
Other ^a	<u>1</u>	<u>25</u>
Totals	4	100

^aCurso superior, não universitário

TABLE 3

NUMBER OF STUDENTS ENROLLED IN
THE AGRICULTURAL SCHOOLS, 1981-82

Sex	Number	Percent
Alunos do sexo feminino	319	31.8
Alunos do sexo masculino	<u>683</u>	<u>68.2</u>
Totals	1,002	100.0

TABLE 4

NUMBER OF AGRICULTURE TEACHERS
EMPLOYED IN THE SCHOOLS, 1981-82

School	Teachers in Each School By %		Total %
	Full-Time	Part-Time	
St. Tirso (N=12)	100	0	27
Paia (N=18)	85	17	41
Regua (N= 9)	100	0	20
Grândola (N= 5)	100	0	11

TABLE 5

NUMBER OF AGRICULTURAL TEACHERS NEEDED
 BY 1984-85 IF PRESENT TRENDS CONTINUE AS
 INDICATED BY DIRECTORS

Professors	Number	Percent
Em tempo inteiro	51	91
Em tempo parcial	<u>5</u>	<u>9</u>
	56	100

TABLE 6

HIGHEST LEVEL OF EDUCATION ATTAINED BY
TEACHERS IN THE AGRICULTURAL SCHOOLS, 1981

	Number	Percent
Curso Complementar de Agricultura incompleto	0	0
Curso Complementar de Agricultura completo	0	0
Curso Universitário incompleto	2	7
Curso Universitário completo	20	71
Frequenciz de cursos de pos-graduação	1	4
Outro ^a	<u>5</u>	<u>18</u>
Totals	28	100

^aCurso superior não universitário

TABLE 7

TEACHER TRAINING COURSES ATTENDED BY
TEACHERS DURING PAST YEARS, 1981

Attendance	St. Tirso N=7	Paia N=8	Regua N=8	Grandola N=5	Total %
Have not attended	3	4	4	0	39
Have attended	4	4	4	5	61
Mean number ^a of courses attended	2.5	2	2.5	1	—
Total					100

^aTotal mean number attended = 1.9.

TABLE 8

AN EVALUATION BY PORTUGUESE AGRICULTURE TEACHERS
AND DIRECTORS OF CLASSROOM TEACHING COMPETENCIES
ACTUALLY POSSESS AND CONSIDER NEEDED

Area de Capacidades	Weighted Mean Evaluation ^a	
	Possuri Actualmente	Necessario Possuir
Desenvolvimento do Plano do Curso	1.88	2.94
Desenvolvimento de Objectivos do Curso	1.9	3.0
Avaliação de Faltas e Interesses dos Alunos	2.06	2.81
Desenvolvimento de Planos de Lições	2.06	3.0
Desenvolvimento de Objectivos para aproveitamento dos Alunos	1.94	2.97
Escolha dos Processos Eficazes de Ensino (Por exemplo: método de discussão, conferência, demonstração, viagem ao campo e recitação)	2.06	2.96
Utilização dos Processos Eficazes de Ensino (Por exemplo: método de discussão, conferência, demonstração, viagem ao campo e recitação)	2.0	2.97
Introdução da Aula	2.06	2.9
Sumário da Aula	1.9	2.9
Seleção de Auxiliares Visuais para a Aula	1.9	2.87

Table 8 (Continued)

Area de Capacidades	Weighted Mean Evaluation ^a	
	Possuri Atualmente	Necessario Possuir
Preparação de Auxiliares Visuais para a Aula	1.84	2.9
Uso de Auxiliares Visuais para a Aula	2.0	2.0
Arquivo e Armazenamento de Auxiliares Visuais e Outros Materiais de Aula	1.81	2.72
Utilização do Equipamento Auxiliar Visual	2.0	2.94
Equipamento e Utilização da Sala de Aula	2.0	2.94
Criação, Direcção e Manutenção duma Associação de Educação Agrícola	1.57	2.92
Recolha de Informações Sobre os Alunos Usando Métodos Formais	1.9	2.79
Estabelecer, Supervisionar e Acompanhar Projectos para os Alunos Executarem em Casa	1.73	2.87
Coordenação de Instrução na Aula Através dos Projectos de Casa	1.53	2.8
Acompanhar Registos dos Projectos de Casa	1.5	2.91
Avaliação do Progresso dos Alunos	2.3	2.9
Avaliação dos Resultados das Suas Lições	2.06	2.94

^aWeighted mean evaluation was based upon a numerical value rating for each level of capacities (3=considerable; 2=moderate; 1=some-what lacking; 0=decidedly lacking) and determined by dividing the total weighted score by the total number of respondents. The highest possible weighted mean evaluation was 3.0.

TABLE 9

AN EVALUATION BY PORTUGUESE AGRICULTURE TEACHERS
AND DIRECTORS OF SCHOOL EXPLORATION COMPETENCIES
ACTUALLY POSSESSED AND CONSIDERED NEEDED

Area de Capacidades	Weighted Mean Evaluation ^a	
	Possui Actualmente	Necessario Possuir
Desenvolvimento de uma Politica e de Objectivos para a Operaçao da Exploraçao Escolar	2.03	2.93
Coordenaçao de Actividades na Exploraçao Escolar com Aulas Teóricas	2.1	2.93
Desenvolvimento de Demonstraçoes de Exploraçao Escolar com os Alunos Participando em Demonstraçoes Individuais	1.87	2.9
Desenvolvimento de Demonstraçoes de Exploraçao Escolar com Alunos Participando em Demonstraçoes em Grupo	1.97	2.97
Registo Filmado das Demonstraçoes	1.14	2.79
Sumario e Revisao das Demonstraçoes	1.61	2.9
Leccionar Novas Técnicas na Exploraçao Escolar	1.8	2.93
Manutençao da Disciplina dos Alunos na Exploraçao Escolar	2.26	2.83
Manutençao de Registos da Exploraçao Escolar	1.83	2.86
Avaliaçao dos Resultados da Instruçao na Exploraçao Escolar	2.0	2.93

^aRefer to Table 8 footnote for definition of weighted mean evaluation.

APPENDIX G

REVIEW OF CURRICULUM IN AGRICULTURE AT SECONDARY LEVEL

Agriculture is available to students during the 10th and 11th grades in 13 schools throughout the country in technical agriculture. The plan of studies for these two years is attachment 1. In the 1980-81 school year a plan of study was initiated in 5 of the 13 agricultural high schools for students in grade 12 (attachment 2). Two additional schools will offer 12th grade agriculture during 1981-82. Course work in the last year is designed to prepare students for agricultural studies in the university or for a job in farming. These two tracks are identified by "via de ensino" (university) and "via profissionalizante (farming) do 12º ano da escolaridade." After completing one of the courses of study during the 11th year, a student may elect to move from the university to the farming track or vice versa. Thus, some crossing over may occur.

A number of plans for individual courses within each of the three years of study were made available for examination and evaluation. Each was read individually. Before reviewing each of the courses of study presented to the consultant, a number of observations regarding planning a course of study are in order.

The course of study is a vital guide to instruction. It is the foundation for all that goes on in the instructional program. The course of study is in fact an official guide or outline which describes in broad terms a specific course, its general objectives, the subject matter of the course, and the resources necessary for the achievement of the objectives. Generally speaking, there are six basic components of a course study:

1. Course Description. A course description indicates the general instructional areas of concern and the general goals and purposes of the course. The course descriptions should include (a) who is to be taught, (b) what they are to be taught, (c) what degree of skill is to be attained, (d) where the training is to be used, and (e) general employment conditions.

2. Course Content. The content may be presented as topics, as units, as jobs or tasks to be completed, as competencies, or as instructional areas. Regardless of specific

terminology used, the course content section should clearly indicate the specific knowledge and skills to be acquired by students.

3. Course Objectives. General course objectives or learning outcomes should be indicated. These general objectives should focus on the overall abilities and knowledge students should acquire. This type of objective is intended as a guide for the teacher. Specific objectives which identify in detail what is to occur are developed by the teacher as part of the daily lesson plan.

4. Time Allocation. These allocations suggest the amount of time that should be spent in each instructional area.

5. References and Audio-visual Materials. A list related printed references and audiovisual materials are provided here. The teacher has an opportunity to select from the list.

6. Tools, Equipment, Supplies and Facilities. Items included here provide the teacher with a list to aid in planning for instruction.

COURSES PROVIDED FOR REVIEW

A. Courses for Tenth Grade

(Reviewer comments following where appropriate)

1. Indústrias Alimentares de origem vegetal ou animal;
2. Matemática;
3. Solos e Climats - The teaching material suggested here looks excellent. A list of resources was omitted. Include practical activities for students such as examine soil profile, take soil sample, etc.;
4. Solos e Climats;
5. Produção Vegetal;
6. Português, Língua Estrangeira;
7. Trabalhos de Campo e Oficina;

8. Iniciação a Mecanização Agrícola;
9. Agricultura Geral e Máquinas Agrícolas;
10. Agrimensura;
11. Ciências Biológicas, Química Agrícola.

B. Courses for Eleventh Grade
(Reviewer comments following where appropriate)

1. Indústrias Alimentares de Origem Vegetal ou Animal;
2. Laticínios - Bibliography appears to be thorough. Use of bulletins is to be commended.
3. Tecnologia do Frio - No course objectives were shown; bibliography looks good.
4. Zootecnia - Bibliography looks good.

C. Courses for Twelfth Grade
(Reviewer comments following where appropriate)

1. Economia e Sociologia Agrícola;
2. Administração e Contabilidade Agrícola - The format for teaching content is excellent. Will help to systematize planning and teaching. Provide practical experience for students on school farm through management decisions.
3. Noções de Indústrias Agrícolas;
4. Culturas Arbóreas-Arbustivas;
5. Equipamento Rural;
6. Hortofloricultura;
7. Sanidade - Did not use format used in other courses examined to this point.
8. Exploração de Grandes Animais;
9. Exploração de Pequenos Animais;

10. Óleos e Conservas - This course outline seems to be quite extensive. The student activities shown in column "Finalidades A Atingir" are very good;
11. Associativismo;
12. Legislação e Normas - Did not follow format used in 12th year.

CURRICULUM RECOMMENDATIONS

1. Develop a standard format for courses. This will systematize planning. Courses will be more complete and thorough. Also easier for teachers to follow and use. The format used in 12th year courses shows promise. The parts of this format include:

- a. Introduction;
- b. General objectives. These would be presented by numbering 1, 2, 3, etc.;
- c. Methodology indications. Specific activities for the teacher could be indicated here. Student activities could also be indicated. Should stress the practical aspects of all student learning activities by utilizing the school farm (crops and animals);
- d. Course content. This is an excellent scheme for indicating what needs to be accomplished by teacher and student. Column "Finalidades A Atingir" shows specific objectives of teaching. The column "Indicacoes Metodologicas Especificas" provides ideas for the teacher. Emphasis is again made to make student learning activities practical and useful. An additional column might be added to key by number the reference listed in a later section. This would aid teachers in selecting reference materials for instruction;
- e. References. This section serves a useful purpose. Should add to this section films, slides, and bulletins available.

2. Provide transparency masters of tables, charts, drawings, etc., that relate to subject matter. These aids will assist teachers and improve teaching effectiveness.

3. Whenever possible, classroom instruction should be integrated into practical experiences on the school farm. Hands-on experiences are practical and will enhance the learning of the students. Students should be learning approved

agricultural practices in the classroom and demonstrate these skills in a realistic situation (school farm).

4. Additional hours must be allowed in the curriculum of those students in "profissionalizante" for practical work on the school farm. If the curriculum is to prepare students for employment in agriculture, they need to work under an employment-like situation. Here emphasis is placed on learning by doing. Conditions here are similar to those found in agriculture, problems are similar, and even motivation for successful completion of a skill is similar. This provision is critical for successful learning and application of teaching. Classroom theory should be minimized in this curriculum.

5. In agricultural mechanization, students should be provided an opportunity to apply skills learned by building construction projects on the school farm and maintenance of school farm equipment.

6. Course work in "Administration and Accounting in Agriculture" should be included in the 10th and 11th year. Management and accounting techniques are essential in agriculture. Students will also learn accounting for personal financing. This may be their only opportunity to learn management and accounting.

7. The sequence of course objectives specified in the course outline should be reflected in a similar sequencing of course content.

8. A scheme should be developed to utilize the expertise of agriculture teachers in planning and developing course curriculums in the future. This would be an excellent in-service activity. The in-service activity could include background on what is a course of study, how it is developed, what is included, etc. An excellent follow-up and application of the background study would be to have a teacher workshop to actually develop a course(s) of study.