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INFORMATION ON THE  
FEDERAL UNIVERSITY OF CEARA

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UNIVERSITY OF ARIZONA  
CONTRACT

COORDINATING OFFICE FOR THE AGRICULTURAL EDUCATION PROGRAM

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(Translated by:  
ARMSilva, NEPO)

1/1/68

FEDERAL UNIVERSITY OF CEARA  
AGRICULTURE SCHOOL

INFORMATION ON THE

FEDERAL UNIVERSITY OF CEARA - UNIVERSITY OF ARIZONA

CONTRACT

A N T E C E D E N T S

1. As a result of the first trip of Brazilian Agricultural School Directors to the United States, the idea arose for establishing agreements between Brazilian Agricultural Schools and their American counterparts, which have Agriculture Schools within the land-grant system and, thanks to the combination - teaching, research, and extension - may be considered by its operation and efficiency, the major factor for the highly satisfactory development of American agriculture.

The agreement between these Agriculture Schools would contemplate the cooperation of institutions located in areas with similar climate in Brazil and in the United States.

2. At the assembly of the representatives from American Republics held in Punta del Este, goals to achieve were identified through the "large scale expansion of opportunities in secondary, technical and higher level education." Pursuant to the terms of the declaration emanating from that meeting, "the land will become for the man who works it the basis of his economic stability, the foundation of his increasing welfare, and the guarantee of his freedom and dignity."

3. Aiming at increasing its efficiency and to better serving agriculturists in this region, which is the purpose of this Agriculture School, which receives due support from the Federal University of Ceará, the initiative was taken for making inquiries which would instigate, through the use of a contract Alliance for Progress funds, with an American university for a cooperative program that would meet the mutually agreed-upon objectives.

4. Agreements of similar nature already existed for the Rural University of Minas Gerais (Viçosa) and the University of São Paulo ("Luiz de Queiroz Superior Agriculture School," Piracicaba) and, at the same time while contacts were being made for the signing of an agreement with the Federal University of Ceará, other Agriculture Schools in Brazil were trying to obtain the same benefit but only the Rio Grande do Sul Superior School of Agriculture and Veterinary was contemplated.

5. A group of professors from the University of Arizona visited several Agriculture Schools in Brazil. After the survey was completed the group decided to select our Agriculture School as its choice for a contract negotiation, not only because of its location in a zone which presented a certain ecological similarity to its own back home, but mainly because of its potentials and its desire to progress.

6. Subsequently, after a careful study of all clauses of the agreement, with the direct intervention of the Superintendency for the Development of the Northeast (SUDENE) and a clear definition of our interest and of the priority items for joint action, an agreement was finally signed on April 5, 1963, by SUDENE, the Ministry of Education and Culture (MEC), the Federal University of Ceará (UFC), and by the United States Agency for International Development (USAID), from which resulted in the cooperative contract with the University of Arizona, to be executed by the Federal University of Ceará through the Agriculture School and the Institutes of Zootechnic and Rural Technology, under the "Agricultural Education Program."

#### PURPOSE

7. The economic development of any country is intimately related to the progress of its agriculture and livestock. These activities furnish raw material to the industrial sector, and staples for an increasing population such as ours.

8. It is, therefore, beyond doubt that the need exists to provide adequate technical and material conditions to the Agriculture School of the Federal University of Ceará, so that it will be able to fulfill the mission which is assigned to it; - ei, to render technical assistance to agriculturists in the Region, either through the formation of agronomists qualified to do their job, or through the development of a research and extension program which permits a greater agricultural diversification and increased production, essential to the economic and social development of Brazil.

9. As specified in the agreement, the following will be necessary in order to achieve the desired goals:

- a) The existence or acquisition of skilled manpower;
- b) A provision for up-to-date technical knowledge for all sectors affecting agriculture;

c) That farmers and interested individuals from other sectors involved in problems of adequate utilization of agricultural products, be given information on agricultural and livestock production, based on accurate statistical data.

10. Within this spirit, and for the purpose of providing students with the desired teaching conditions adapted to the Northeast, the referred-to agreement established the following priorities:

- a) Utilization and management of lands, preservation and fertilization of soils;
- b) Regional crops of economic importance in irrigated and non-irrigated areas;
- c) Use of water;
- d) Food and fiber technology;
- e) Cattle-breeding and pasture production in semi-arid regions;
- f) Agricultural machinery, its use and maintenance;
- g) Agricultural economies and farm management;
- h) Agricultural extension:
  - I) Research on extension methods applicable to the Northeast;
  - II) Training of personnel.

#### RESOURCES

11. As mentioned above, the "Agricultural Education Program" established a line of activities which, in the final analysis, stipulates priorities within the plans of the Agriculture School proper, to add funds to others already existing, thereby permitting a greater impact on sectors that, under no circumstances, could bring about improvements in the short term with only the University's available funds.

12. The amount estimated in the agreement as the University contribution, should not be understood as specific funds which were added to the budgetary resources, but it represents a part of the budgetary resources proper which are used directly or indirectly within its objectives.

13. The dollar resources, derived from the other party, cover the costs of:

1) Payment of American professors (serving as advisors to the school), visiting consultants and professors from the University of Arizona, which are concerned with the Program in the UFC.

2) Scholarships granted to our Brazilian professors for cost of travel and post-graduate courses abroad;

3) Purchase of equipment;

4) Purchase of books.

14. In view of the valuable operation of this Agricultural Education Program, which has been indicated by the rapid development of the Agriculture School, the improvement of teaching facilities after the installation of new laboratories, and by the promising development of a research program intended to identify, study and solve agricultural problems of the region, it became necessary to sign an amendment in order to extend the agreement to December 31, 1968, and incorporate additional resources to permit the continuation of technical advisory services by the University of Arizona, and increase the material assistance in support of the several planned activities.

15. So, on March 8, 1968, in the city of Recife an amendment to the agreement in force was signed, whereby USAID pledged to provide a not-to-exceed amount of US\$400,000 (FOUR HUNDRED THOUSAND DOLLARS) to finance the extension of the contract with the University of Arizona, to the end of this year.

16. Also in the city of Recife, on January 17, 1967, an agreement was signed to provide funds to increase and improve curriculum and research activities, as a contribution emanating from the Technical Cooperation Council of the Alliance for Progress (CONTAP).

17. According to the above agreement, SUDENE agrees to make available to the Federal University of Ceará funds committed by CONTAP totalling RCr\$300,000 (Three Hundred Thousand New Cruzeiros). In 1968, CONTAP's contribution was increased to RCr\$400,000, for the same purposes.

## TRAINING OF PERSONNEL

18. The "Agricultural Education Program" has been providing, at an increasing rate, post-graduate training to professors in the Agriculture School and technicians in the Zootechnic and Rural Technology Institutes, at the Master of Science degree level, either in Brazilian universities or in American universities. Thus, the possibility is created of meeting 1970's plans to initiate post-graduate courses in our Agriculture School, which will require, as a basic condition, personnel with Master's or Ph.D. degrees for the formation of its teaching staff.

19. The results of this training program have proven highly satisfactory, which indicates the soundness of this initiative. The Brazilian staff under training in American universities, is maintained by funds deriving from the Contract between USAID and the University of Arizona, while the group participating in training programs in Brazilian universities, receive scholarships granted through CONTAP funds.

20. Up to date, the following technicians from the Agriculture School, the Rural Technology Institute and the Zootechnic Institute have completed their training or are undergoing training:

### I - Agricultural Economy Department

#### Economics Group

Mário Rocha	Professor	Training in UREMG, Viçosa, (1965) and training in the USA in October/1967.
Nilo Barroso	Asst. Professor	M.S. at the UREMG (1968).
Izairton Martins do Carmo	Teaching Assistant	Taking M.S. course in Piracicaba, until June 1969.
José Aluísio Pereira	Teaching Assistant	On-the-job training in the M.S. course planned Agriculture Secretariat of for 1969 in Viçosa. São Paulo, February 1968.

#### Rural Extension Group

Faustino de Albuquerque Sobrinho	Professor	Taking M.S. course in Arizona, until June 1969.
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Rural Extension Group

Rdo. Gladstone Monte Aragão	Teaching Assistant	Training in Associação Brasileira de Crédito e Assist. Rural (ABCAR), July 1968.
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Course in Domestic Sciences

Iracema Sá	Under contract	Bachelor in Domestic Sciences by the Uni- versity of Arizona in 1967.
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Fátima Lina Sanpaio	Under contract	Bachelor in Domestic Sciences by the Uni- versity of Arizona in 1967.
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II - AGRICULTURAL ENGINEERING DEPARTMENT

Mathematics and Design Group

José Jackson Lima de Albuquerque	Assist. Professor	Taking course (M.S.) in Arizona, until June, 1969.
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José Leopoldino da Silva Neto	Professor	Taking course in aero- photogrammetry in Rio until December 1969.
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Climatology Group

José Luciano Domingues Campos	Assist. Professor	Refresher course in Climatology in Piraci- caba, 1965. Course in M.S., in Arizona planned for 1969.
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Agricultural Machinery Group

Milton Botelho	Professor	Training in the USA in October 1967.
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Normando de Vasconcelos	Assistant Professor	Refresher course in DEMA, São Paulo, 1967.
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### Irrigation and Drainage Group

José Dário Soares	Professor	Training in the USA in October 1967.
Carlos Escóssia Barbosa	Assistant Professor	Taking M.S. course in Piracicaba until June 1969.
José Matias Filho	Assistant Professor	M.S. by the University of Arizona, 1968.
Moisés Custódio Saraiva Leão	Assistant Professor	Taking M.S. course in Arizona until June 1969.

### III - PHYTOTECHNOLOGY DEPARTMENT

#### Botany Group

José Gorardo Bozorra de Oliveira	Assistant Professor	M.S. by the University of Arizona, 1968.
José Tarquínio Prisco	Assistant Professor	Taking M.S. course in Arizona until June 1969.

#### Cotton Group

José do Alencar Nunes Moreira	Professor	Taking M.S. course in Piracicaba until Dec. 1968.
Manuel Pereira da Silva	Teaching Assistant	Training in São Paulo in July 1968; M.S. in Arizona planned for 1969.
Jonas Paes de Oliveira	Assistant Researcher	Training in the Agron. Institute of Campinas, 1967.

#### Horticulture Group

Vicente Lopes Gondim	Professor	Training in the United States in 1965; Training in Arizona, 1968.
Diógenes Cabral do Vale	Assistant Professor	Taking M.S. course in Arizona until June 1969.

### Horticulture Group

Erimá Cabral do Vale	Assistant Professor	Taking M.S. course in Piracicaba until June 1969.
Raimundo Ferdinando Pinheiro Maciel	Assistant Professor	M.S. by the UREMG, in 1967.

### Foodstuffs and other Crops Group

Flávio da Cunha Prata	Professor	Training in the USA in October 1966.
Raimundo de Pontes Nunes	Assistant Professor	M.S. by the University of Arizona, 1967.
José Braga Paiva	Assistant Professor	M.S. by the UREMG
José Ferreira Alvos	Teaching Assistant	Taking M.S. course in Piracicaba until June 1969.
Clairton Martins do Carmo	Assistant Professor	Taking course (M.S.) in Piracicaba until June 1969.

## IV - PHYTOSANITATION DEPARTMENT

### Phytopathology Group

José Júlio da Ponte Filho	Assistant Professor	Taking M.S. course in Piracicaba until Dec. 1968.
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### Entomology Group

Américo Gomes da Silva	Professor	Training in the United States during Oct. 1966.
José Alberto Magalhães Bastos	Assistant Professor	Training in the Biological Inst. of São Paulo, 1965.

V - DEPARTMENT OF CHEMISTRY & TECHNOLOGY  
AND INSTITUTE OF RURAL TECHNOLOGY

Soils Group

Mardônio Aguiar Coelho	Assistant Professor	Refresher course in Agricultural Climatology in Piracicaba, 1965. Taking M.S. course in the Rural University, until June 1968.
Francisco de Assis Maia Lira	Teaching Assistant	Taking course leading to M.S. in Piracicaba, until June 1969.
Lindberg Araujo Crisóstomo	Assistant Professor	M.S. by the Rural University in 1967.
José Nelson Espíndola Frota	Teaching Assistant	Course in soils in the University of North Carolina, 1967.
Francisco José Martins Holanda	Teaching Assistant	Training in Piracicaba, 1967.

Food Technology Group

José de Anchieta Moura Fé	Assistant Professor	Taking M.S. course in Arizona, until June 1969.
Francisco Franco Feitosa Telos	Assistant Researcher	Training in the Biological Institute, 1968.
Elder Gurgel Souza Moureira	Assistant Researcher	Training in Centro Tropical de Pesquisas Tecnológicas de Alimentos of the Agric. Institute of Campinas, S.P.

VI - ZOOTECNOLOGY DEPARTMENT AND ZOOTECNIC INSTITUTE

Forage Crops and Animal Nutrition Group

Raymundo Mauro de Araripe Pereira	Assistant Researcher	M.S. by the UREMG, in Viçosa, 1966.
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Forage Crops and Animal Nutrition Group

Obed Jerônimo Viana	Assistant Researcher	Taking M.S. course in Piracicaba until June 1969.
João Anbrósio de Araujo Filho	Under contract	M.S. by the University of Arizona, in 1968.
José Adalberto Gadelha	Assistant Researcher	M.S. by the UREMG, Viçosa, thesis not yet submitted.

Animal Management Group

Otávio de Almeida Braga	Assistant Professor	M.S. by the University of Arizona, 1967.
Francisco Alves de Andrade e Castro	Professor	Training in the USA in 1967.

FOR THE YEAR OF 1968, THE FOLLOWING TECHNICAL PERSONNEL ARE PROGRAMMED TO RECEIVE TRAINING

Omar Jesus Pereira	Teaching Assistant	University of Arizona
Pedro Henrique Ferreira Paula	Assistant Professor	University of Arizona
Francisco José A. Fernandes Tábara	Teaching Assistant	University of Arizona
José Nelson Espíndola Frota	Teaching Assistant	University of Arizona

21. Also as a part of the training program, Professors José Ilo Pontes de Vasconcelos, Agenor Maia Ferreira and Hugo Lopes de Mendonça will travel to the US in October, 1968, to spend a period of 55 days in several American Universities.

EQUIPMENT

22. The "Agricultural Training Program" has greatly contributed to a reform and improvement of the existing laboratories in the Agriculture School.

In addition to laboratories for animal nutrition, botany, soils and fertilizers, substantial funds have been provided under the Agricultural Education Program, to cover the costs of a mechanics and agricultural machinery shop, an electricity and basic electronics laboratory, an agricultural entomology laboratory, a laboratory for seed analyses and a greenhouse for research in propagation of fruit tree seedlings. The installation of a new laboratory for anatomy and physiology of domestic animals has been completed, while the one for microbiology and phytopathology has recently received a battery of 40 microscopes.

23. In relation to the Research and Training Center located in Pentecoste, two tractors have been purchased under the program, at a cost of approximately NCr\$64,000.00, for the systematization of irrigation areas and opening of canals, in addition to other equipment and installations.

It should also be noted that a small plant for the processing of seeds is at the completion phase, with cold chambers, analysis laboratory and storage area, which has been constructed and equipped entirely at the program's expense. During December 1968, another facility is to be inaugurated, under agreement with the University of Mississippi, which will also serve in processing of seeds.

24. It is almost unnecessary to describe herein all the material received, since it has been distributed to all Departments of the School and may be seen by the students in their respective classrooms. But it should be stressed that more than 1,100 items have been donated under the program for the improvement of curricula and facilities.

#### LIBRARY

25. An important contribution of the Program has been the support to the development of the School Library, through the purchase of approximately 3,200 books, in addition to subscriptions for scientific magazines. The program also provided funds for the expansion of the area occupied by the library.

#### TECHNICAL SERVICES

26. In Part III - Responsibilities, item "D" of the Agreement, AID expressed its pledge to sign a contract with an American university for the rendering of technical assistance

to the Agriculture School as related to the Agricultural Education Program within the same Agreement. The choice fell upon the University of Arizona because it is located in an area whose climatological characteristics are very similar to the existing conditions in Brazilian semi-arid Northeast.

27. The procedure for the selection of American professors who have come to work as advisors to the Agriculture School and the Institutes, follows certain criteria. The University of Arizona receives and reviews the qualifications of those applying for a position in the Program, and makes an initial selection. The "curriculum vitae" of technicians selected is sent to the Agriculture School and jointly reviewed by the Brazilian personnel: Directors of the Agricultural School, the Zootechnic and Rural Technology Institutes and the Coordinator for the Agricultural Education Program. After the Federal University of Ceará has approved the appointment of the technician, he is sent to Brazil at the entire expense of the dollar portion obligated in the Agreement, for a two-year contract, which may be extended for 2 additional years, according to the program needs.

28. It is also important to note the system under which American technicians work at the School and the Institutes:

a) The general coordination of the program is carried out by a Brazilian professor appointed by the Federal University of Ceará, who is responsible for the Program execution (Item III, "C", 7);

b) Each American technician works as the counterpart of at least one Brazilian professor, full-time (Item III, "C", 1);

c) In case the work of a consultant in a specific field is needed for a short period, the requisition is made through SUDENE (Item III, "A", 4);

d) Presentation of semi-annual reports to the Rector of the Federal University of Ceará, with copies to SUDENE and USAID.

29. As it can be seen, the Program has operated under the criterion that the personnel from the University of Arizona plays an advisory or counseling role, working always in cooperation with their Brazilian counterparts who are concerned with directing the preparation and implementation of any project, never departing from the orientation and program of the School involving the activities of the Agricultural Education Program.

30. The American team is presently composed by 13 members, and in July 1969 it must be reduced to 9 (nine). The last position will be filled in September 1969 with the coming of a Food Technologist. Thenceforth, the technical assistance will be rendered through consultants who will be requisitioned as necessary, for an approximate stay of 3 (three) months.

31. Among the activities heretofore carried out by Brazilian technicians, with advisory and counseling services of American technicians, the following may be summarized:

- a) Survey of the marketing of broilers and beef cattle;
- b) Survey of milk production;
- c) Effects of irrigation and management on elephant grass;
- d) Effects of herbicides on the control of caatinga shrubs in areas planned for the formation of pastures;
- e) Systematization of the irrigated area in the Training and Experimentation Center;
- f) Lining of irrigation canals;
- g) Organization of a Domestic Sciences Department;
- h) Studies of sweet potato;
- i) Studies for the improvement of papaya trees;
- j) Studies of pumpkin;
- k) Studies on the introduction of peanut varieties;
- l) Construction of facilities for processing and storing seeds;
- m) Mapping of soils in the Research and Training Center;
- n) Experiments with the use of fertilizers in all the State of Ceará, in cooperation with the M.A., S.A.I.C., ANCAR and DNOCS;
- o) Hydrology of hydrological watersheds;
- p) Study of the design of new drains for the irrigated areas, at the Research and Training Center.

32. The progress of the Agricultural Education Program has been satisfactory, which can be seen from the above exposé. Coincidentally with its activity, the Agriculture School has been experiencing rapid progress. For example, the enrollment for 1966 was 270 students; in 1967 it increased to 546 and, from 1968 on, the School will graduate approximately 140 agronomists annually.

33. The expansion of the existing laboratories and the installation of new ones, permitted an increase in the number of vacancies (for students). The training of technical personnel, either in Brazilian or in American universities,

contributes greatly to the improvement of curricula administered, not only in relation to the upgrading of teaching methods, but for the revisions of the curricula that have been carried out.

We hope that by 1970, the entire teaching staff will have been duly trained for the initiation of post-graduate courses, aiming at a Master's Degree level in its first phase.

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Translated by:  
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