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SOIL FERTILITY IN THE HUMID TROPICS

Final Administrative Report
for the period
August 1, 1977 to April 30, 1979

Submitted to the
Agency for International Development

Contract AID/ta-c-1441
Cornell University
Ithaca, New York 14853

I. Administration of the Project

The project was administered through the normal administrative structure and by the regular operating procedures of Cornell University. The project director is responsible for operations and reports to the Chairman, Department of Agronomy, who has fiscal responsibility at the operating level. The Department Head reports administratively to the Dean of the College of Agriculture, with functional lines of authority through the Directors of Research, International Agriculture, and Resident Instruction. The Dean reports to the President of Cornell who is responsible to the Cornell University Board of Trustees.

A subcontract was maintained with the University of Puerto Rico to perform a portion of the work under the contract 1 August 1977 through 31 July 1978. Agreements for cooperative on-site experimental work were maintained with EMBRAPA, the national agricultural research organization of Brazil, and with the Soil Research Institute of Ghana.

II. Objectives:

The objectives of the project follow:

- to transfer ongoing field research programs to the host-institutions;
- to complete laboratory analyses of soil and plant samples that were collected under the previous contract (AID/ta-c-1104);
- to disseminate research results to selected L.D.C.'s by conducting workshops and seminars;
- to summarize the research results and to recommend soil management practices in appropriate subject areas (i.e. those in which sufficient progress has been made to warrant such recommendations), and to publish and distribute the results and recommendations.

III. Accomplishments

Field experiments that had formerly been maintained by Cornell were continued by the Centro de Pesquisa Agropecuária dos Cerrados (CPAC), Planaltina, Brazil. CPAC had a staff of a few scientists when Cornell began work there in 1971. The current staff is made up of approximately eighty scientists. CPAC has employed Dr. K. Dale Ritchey, former field project leader of the Cornell studies in Brazil, to continue these experiments.

The results of the Brazilian studies have been disseminated through the Brazilian extension service. CPAC publishes an annual report and CPAC recommendations have been cited in regional publications (e.g. Informe Agropecuario. Janeiro 78, Ano 4, no. 37. Empresa de Pesquisa Agropecuária de Minas Gerais).

The Soil Research Institute (SRI), Kwadaso, Kumasi, Ghana continued many of the studies that were initiated by Cornell. Field experiments on phosphorus, lime, and nitrogen were performed during 1978-79. Dr. Peter Kwakye of SRI is managing these studies and he has been very cooperative in supplying Cornell with the results.

Laboratory analyses of soils and plant tissue from the potassium experiments in Brazil were completed. The results will appear in Ritchey, K. D. 1979. Potassium Fertility in Oxisols and Ultisols of the Humid Tropics. Cornell International Agricultural Bulletin 37. Nitrogen analyses of soils and plant tissues from Brazil were also completed. The results will be reported in Grove, T. L., et al. 1979. Nitrogen Fertilization of Maize on an Oxisol of the Cerrado of Brazil. Agron. Jour. (submitted for publication).

A conference was held at CPAC during February 1978. The purpose of this meeting was to define the current state of knowledge of soil fertility management on Oxisols and Ultisols of the humid tropics. Attendance included the staff of CPAC and representatives from Cornell University, North Carolina State University, University of Puerto Rico, Soil Research Institute of Ghana, USDA, Paraguay, Peru, England, and Nicaragua. Most of the participants had been directly involved in the cooperative soil fertility programs that were sponsored by AID. This meeting served as a basis for preparation of Cornell International Agricultural Bulletins 33-37 (reported below).

During the week of 2 April 1978, a workshop was held in Kingston, Jamaica to disseminate the research results. The program was co-sponsored by Cornell, University of Puerto Rico, University of the West Indies, CARDI, and IICA. Participants included representatives from nine territories in the English-speaking Caribbean, Puerto Rico, Haiti, Brazil, and the continental United States.

A similar workshop was held at Santo Domingo, Dominican Republic during the week of 18 June 1978, co-sponsored by the Ministry of Agriculture of the Dominican Republic, University of Puerto Rico, and Cornell. This workshop was conducted in Spanish. Participants were largely from Dominican Republic, although there were representatives from Panama, Columbia, Haiti, Jamaica, Puerto Rico, and the continental United States.

Plans were made to conduct a workshop in Ghana. It was scheduled twice, but internal conditions in Ghana necessitated postponement for both dates. It was not possible to find a third date within the contract period that was mutually agreeable to SRI and Cornell. Consequently, the

workshop was cancelled.

Five Cornell International Agricultural Bulletins, numbers 33-37, were prepared. These bulletins represent state-of-the-art in their respective subject areas. The bulletins summarized research results and recommended soil management practices for Oxisols and Ultisols of the humid tropics. Approximately 3,500 copies of each bulletin were distributed throughout the world. Copies of these bulletins are enclosed.

IV. Personnel Involved in the Project

A. Professional

Dr. Douglas J. Lathwell - Professor of Soil Science
August 1, 1977 to April 30, 1979. Project Director.
(10 percent salary charged to project through
December 31, 1978).

Dr. David R. Bouldin - Professor of Soil Science
August 1, 1977 to April 30, 1979. (10 percent of
salary charged to project through December 31, 1978).

Dr. Thomas W. Scott - Professor of Soil Science
August 1, 1977 to April 30, 1979 (10 percent of salary
charged to project through December 31, 1978).

Dr. K. Dale Ritchey - Research Associate. Field
Project Leader in Brazil. August 1, 1977 to July 31,
1978 and January 1, 1979 to March 30, 1979.

Dr. Amos Ngongi - Research Associate. Field Project
Leader in Ghana. August 1, 1977 to February 8, 1978.

Mr. James Rundle. Research Assistant. August 1, 1977
to December 14, 1977.

Mr. John Keng - Research Assistant. August 1, 1977 to
October 20, 1977.

Mr. Thurman L. Grove. Project Manager. August 1, 1977
to April 30, 1979.

B. Support Staff

Ms. M. Dethier - Administrative Aid. August 1, 1977 to
October 18, 1978.

Ms. C. Quinette - Secretary. August 1, 1977 to December 27, 1978 (50 percent salary charged to project).

C. Consultants

Dr. Miguel A. Lugo-Lopez - Professor of Soil Science, Retired. University of Puerto Rico. August 1, 1977 to July 31, 1978.

V. Actual and Estimated Expenditures August 1, 1977 to April 30, 1979.

Salaries, Wages and Employee Benefits	\$105,500
Indirect Costs	51,000
Consultants	18,000
Subcontract - Puerto Rico	10,000
Equipment and Supplies	5,200
Travel and Transportation	40,000
Publications	14,500
Other direct costs	<u>51,520</u>
TOTAL-----	\$295,720