IFDC report

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an update on the work & progress at the International Fertilizer Development Center

Phosphorus Research

A major thrust of IFDC's Phosphorus Research Program is to find the best use for indigenous ores located in selected countries.

Phosphorus is a key nutrient in strategies to increase food production in many regions of Africa and Latin America, and to a lesser extent in Asia.

Although replaced by a current surplus, the 1973-74 world shortage of phosphate rock and ensuing rise in the price of phosphorus fertilizers spurred many developing countries with phosphate deposits to develop their own indigenous sources.

Many of these previously unexploited deposits present technical problems in mining, beneficiation, and use, either for direct application or in conventional fertilizer processes.

Fertilizer Raw Materials Package

IFDC has begun working on a raw materials data package with information on raw material reserves (particularly phosphate rock) used in the production of fertilizers. This data package, being developed under the direction of Dr. Guerry H. McClellan, IFDC geologist, will contain information on the location of fertilizer mineral resources; detailed mineralogical information on the extent and quality of these deposits; current exploitation methods and uses; published literature references; and, where possible, a technical evaluation of the deposit.

Rock Characterization

Other than differences attributed to physical properties, phosphate rocks, until recently, were considered to be the same. Research in the last 10 years has identified systematic variations in most phosphate rocks. Methods have been developed to evaluate the relative reactivity and potential utilization of a particular ore, either for direct application or use in fertilizer processes. These

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NEW BOARD MEMBERS

The IFDC Board of Directors is being expanded to include nominations made by the Consultative Group for International Agricultural Research (CGIAR) and by the United States Government.

The CGIAR nominations to the Board are Sir John Crawford from Australia and former head of the TAC (Technical Advisory Committee to CGIAR); Dr. George Cook, Chief Scientific Officer of the Agricultural Research Council of the United Kingdom; and Mr. Moise Mensah, Vice Chairman and Executive Secretary of the Consultative Group on Food Production and Investment (Mr. Mensah has served on the IFDC Board for the past two years).

The United States has nominated Dr. Webster Pendergrass, Vice President for Agriculture of the University of Tennessee (presently serving as Vice Chairman of the IFDC Board); and Dr. Robert Wagner, President of the Potash Institute of North America.

A ninth Board member is still being sought. The new Board members will be officially confirmed at the January meeting of the Executive Committee.

Dr. John Hannah continues to serve as Chairman of the IFDC Board. Dr. Fernando Cardoso from Brazil and Dr. S. K. Mukherjee from India also continue their terms.

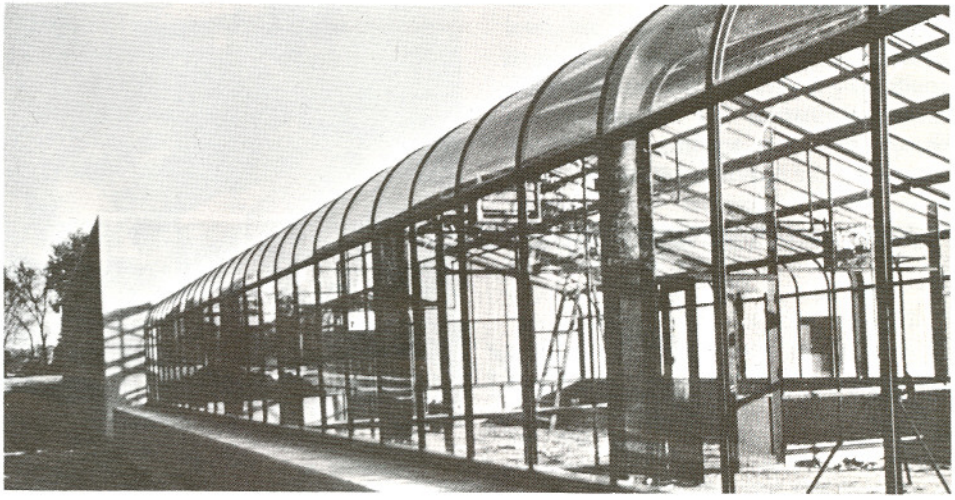
Building Program — 8 Months Ahead of Schedule

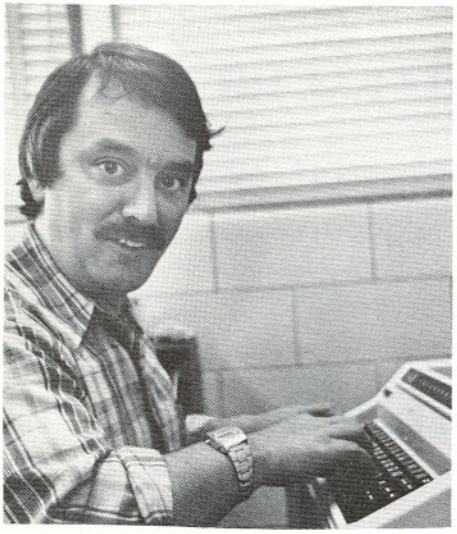
The contract for Phase C of the IFDC building program was awarded on October 18. This last phase in the construction of IFDC's new "home" is scheduled for completion in June 1977 and will contain the main block of research laboratories, training facility, as well as Outreach and administrative offices.

Phase A of the building program, containing the greenhouse/headhouse facility, along with associated laboratories and offices, was occupied by Agro-Economic Division personnel in November.

Phase B, the engineering research facility containing pilot plants and offices, is nearing completion and should be ready for occupancy in February 1977.

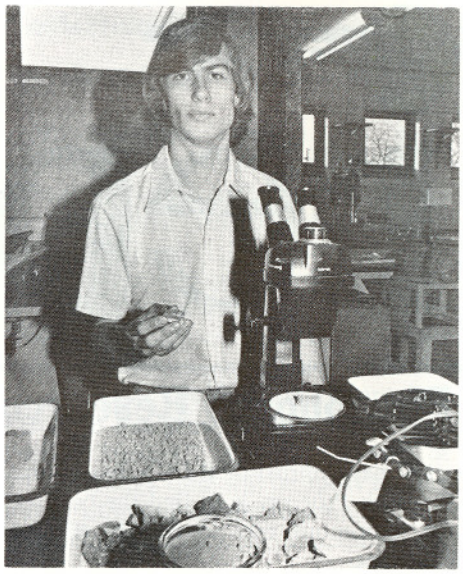
USAID funding in the amount of $5.8 million, has made the construction of these facilities possible. The IFDC Board of Directors and staff express their appreciation to USAID for providing these excellent facilities.





Dr. Guerry McClellan, Geologist, is at work developing IFDC's data package on raw materials.

Paul Fakunle, Chemical Laboratory Analyst, carries out bench-scale studies in beneficiation of ores.



Russell Dittrich, Metallurgical Engineer, is evaluating various phosphate rocks for use in the production of concentrated fertilizer products.

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characterization studies include detailed chemical analyses, X-ray diffraction studies, petrographic analyses, and, in some cases, infrared studies.

Once the mineral phases present have been identified and their quantitative and textural relationships to each other made explicit, preliminary recommendations can be made to guide research on the enrichment and utilization of a particular ore.

Evaluation of Phosphate Rock For Direct Application

In view of accumulating evidence that highly reactive fine-ground rock may approach the effectiveness of soluble phosphate fertilizers in certain acidic tropical soils, a portion of IFDC research is directed toward evaluating phosphate rock for direct application.

Where agronomically and economically suited, the utilization of phosphate rock for direct application offers several potential production advantages, as investment costs, technical skill levels, and energy requirements can be relatively low.

Dr. S. H. Chien, IFDC soil chemist, is conducting laboratory studies to provide basic information on the reaction of phosphate rocks in soils. Dr. Chien is comparing the reactivity of selected rocks from various deposits in Colombia, Brazil, Peru, Tunisia, Upper Volta, and the United States in an effort to identify the basic factors affecting the solubility of different rocks in tropical soils.

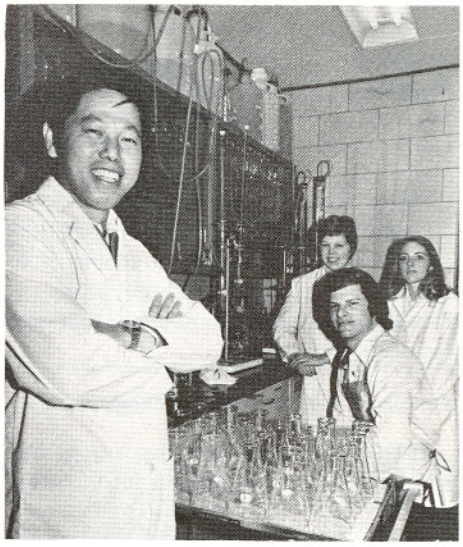
These rocks, plus others, are also being tested in field experiments over a range of climatic, soil management, and cropping conditions to determine the full value of different rocks as phosphorus sources.

Methods of Upgrading Problem Ores

In some cases, the phosphate ore deposits found in developing countries and domestic fertilizer demand may justify more sophisticated fertilizer processing. Further, some ore deposits are less suitable for direct application and should be chemically or thermally altered if they are to be used as fertilizers.

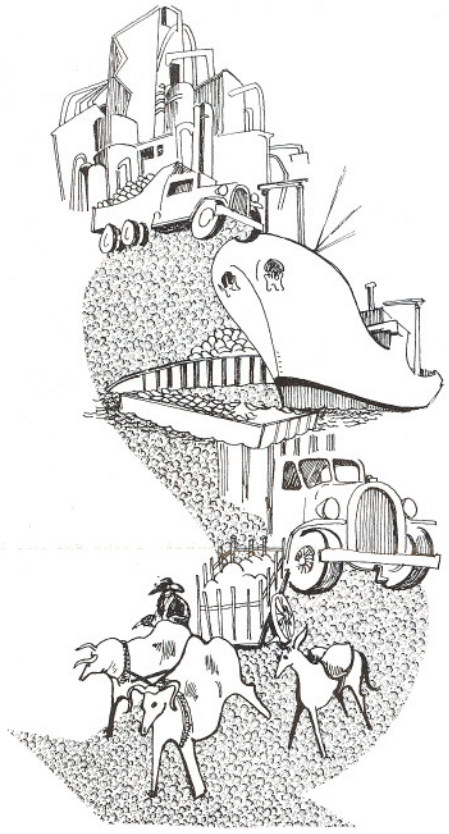
IFDC researchers are planning to experiment with intermediate and advanced technology to chemically and thermally alter ores found in developing countries. Work on physical separations to upgrade ores to make them amenable to conventional processing is already underway.

IFDC has laboratory facilities to do bench-scale studies in beneficiation by washing, sizing, flotation, and calcination. Beneficiated ores are then evaluated for use in production of concentrated fertilizer products such as TSP, SSP, DAP, and MAP.



Dr. S. H. Chien, Soil Scientist, is working with Chemical Laboratory Analysts Billy Biggers, Debra Allen, and Gail Jarnigan to identify the basic factors affecting the solubility of phosphate rocks in tropical soils.

Phosphate rocks for direct application are being field tested over a range of conditions to determine their full value as phosphorus sources.



Fertilizer Distribution Seminar

Two identical seminars on fertilizer distribution systems have been scheduled for 1977. Both seminars will be held at IFDC headquarters and at TVA's adjacent National Fertilizer Development Center, located in Muscle Shoals, Alabama.

Who Should Attend

The seminar is designed to assist managers and planners responsible for the distribution of fertilizers from factory or receiving location to the farmer.

Seminar Subjects

The main thrust (5 weeks) of the seminar will be in the specifics of transportation methods and distribution systems. In addition, an introduction to the world fertilizer situation (1 week), principles of organizational development (1 week), and field trips to pertinent facilities (2 weeks) are included in the seminar.

Who to Contact

For further information, write Mr. Carl Amstrup, IFDC Training Coordinator.

Seated from left to right are: Dr. Per Pinstrup-Andersen; Mr. Richard D. Kapocsi; Dr. Paul J. Stangel; Dr. Donald L. McCune; Mrs. Marjorie R. Engel; Mr. Owen W. Livingston; and Mr. Donald R. Waggoner.

New Administrative Appointments

Dr. Donald L. McCune, IFDC Managing Director, has recently announced promotions that augment IFDC's management team.

Dr. Paul J. Stangel, formerly the Director of the Outreach Division, has been promoted to the position of Deputy Managing Director for Programs. Dr. Stangel has the responsibility of coordinating program activities in the Fertilizer Technology, Agro-Economic, and Outreach Divisions to ensure that IFDC develops and maintains an integrated program of fertilizer research, development, and education.

Mrs. Marjorie R. Engel has been promoted to Administrative Director. Mrs. Engel has been the Administrative Officer since IFDC's inception in late 1974, and her new position recognizes her key role in IFDC. In her new position, Mrs. Engel is responsible for monitoring administrative activities, including IFDC's Word Processing Center.

Mr. Richard D. Kapocsi has been appointed Comptroller of IFDC. Mr. Kapocsi has been with IFDC since December 1974. His appointment as comptroller is indicative of IFDC's growth and Mr. Kapocsi's important role and contribution to the organization.

Waggoner—New Outreach Director

Mr. Donald Waggoner, IFDC Chemical Engineer, has been promoted to Director of the Outreach Division. Mr. Waggoner has 17 years' experience in the development of fertilizer products and processes and in the operation of pilot- and production-scale fertilizer plants. Mr. Waggoner has also been involved in international assistance projects to Colombia, Ecuador, India, South Vietnam, Korea, Ghana, and Sahelian west Africa. As Director of Outreach, Mr. Waggoner will coordinate IFDC technical assistance and training programs in fertilizer production, distribution, and use.

Staff Continues to Grow

IFDC total staff will exceed 50 by January 1, 1977. The staff has been internationally recruited and now represents 13 countries. Forty additional staff members, with 23-30 at the professional level, are expected to be added by 1978 to the Agro-Economic, Fertilizer Technology, and Outreach Divisions, headed by Dr. Per Pinstrup-Andersen, Mr. Owen W. Livingston, and Mr. Donald R. Waggoner, respectively.

Happy Holiday Season

REGIONAL COORIDNATORS–

ASIA, AFRICA AND LATIN AMERICA

Regional Coordinators for Asia, Africa, and Latin America have recently been established to develop and coordinate IFDC programs related to fertilizer production, marketing, and use.

Dr. Dennis Parish, formerly the Regional Leader of FAO fertilizer programs in the Far East and Asia, has been assigned to the Asian region. Dr. Ray Diamond, formerly with TVA, and recently IFDC team leader for a west African study, assumes program responsibilities in Africa. Dr. Robert Smith, formerly with Exxon and with extensive experience in Central and South America, will coordinate activities in Latin America.

All three Coordinators have previously carried out successful fertilizer development programs in their respective regions that resulted in more effective fertilizer use at the farm level. All have academic training in soils/agronomy and broad experience in private and public educational programs to improve agronomic practices.

Each was selected for his ability to identify constraints impeding fertilizer production, marketing, and use; and for his ability to assemble the appropriate expertise to solve fertilizer-related problems as quickly and effectively as possible.

Technical Assistance To FERTISA, Ecuador

Mr. D. R. Waggoner, Chemical Engineer and Director of the Outreach Division, and Dr. R. T. Smith, Soil Scientist and Regional Coordinator for Latin America, traveled to Guayaquil, Ecuador, in November at the request of Fertilizantes Ecuatorianos S.A. (FERTISA) to provide engineering and market development assistance.

Currently, FERTISA has small production capacities for sulfuric acid, phosphoric acid, and NPK fertilizers. Surplus capacity, however, is a problem, especially for sulfuric acid and NPK fertilizers. FERTISA is considering modifications to the present production units to increase efficiency and to make fertilizer grades that they now are unable to produce. Prior to making major additions to production capacity, FERTISA wants to assess fertilizer market potential.

FERTISA's sulfuric acid unit is specially designed to use volcanic sulfur found in Ecuador. Thus, an assessment of the extent and future availability of indigenous volcanic sulfur must be coupled with any expansion plans for sulfuric acid.

IFDC has agreed to provide market development and mining and chemical engineering assistance to help determine fertilizer market potential and, if necessary, help plan modifications and additions to production facilities.

IFDC

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Postdoctoral Fellow

Adoption and Demand Studies

Ms. Christina Gladwin has been awarded a 2-year Rockefeller Foundation fellowship to work with IFDC in developing and testing fertilizer adoption and demand models. Ms. Gladwin has previous international research experience in Ghana and Mexico. Her dissertation, done for Stanford University's Food Research Institute, is entitled "A Model of Farmers' Decisions to Adopt the Fertilizer Recommendations of the Plan Puebla, Mexico." A large portion of Ms. Gladwin's time will be spent in field testing adoption and demand models.

PUBLICATIONS AVAILABLE FROM IFDC

"Granular Urea–Advantages and Processes," published by IFDC.

"The Potential for Regional Cooperation in Fertilizer–A Methodology Study of the ASEAN Group," published by IFDC.

"Supplying Fertilizers for Zaire's Agricultural Development," published by TVA.

"IFDC World Fertilizer Information System" brochure, published by IFDC.

CONTACT BY TWX

IFDC has a TWX teletype machine. You can contact us directly as follows:

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(IFDEC FLOE)