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

Indonesia—

Small-Scale Briquetter for Producing USG Demonstrated

The highlight of the annual review meeting of the Indonesian Fertilizer Efficiency Program, held in Cipayung, Indonesia, November 16-17, 1987, was the demonstration of a small-scale briquetter to produce urea supergranules (USG).

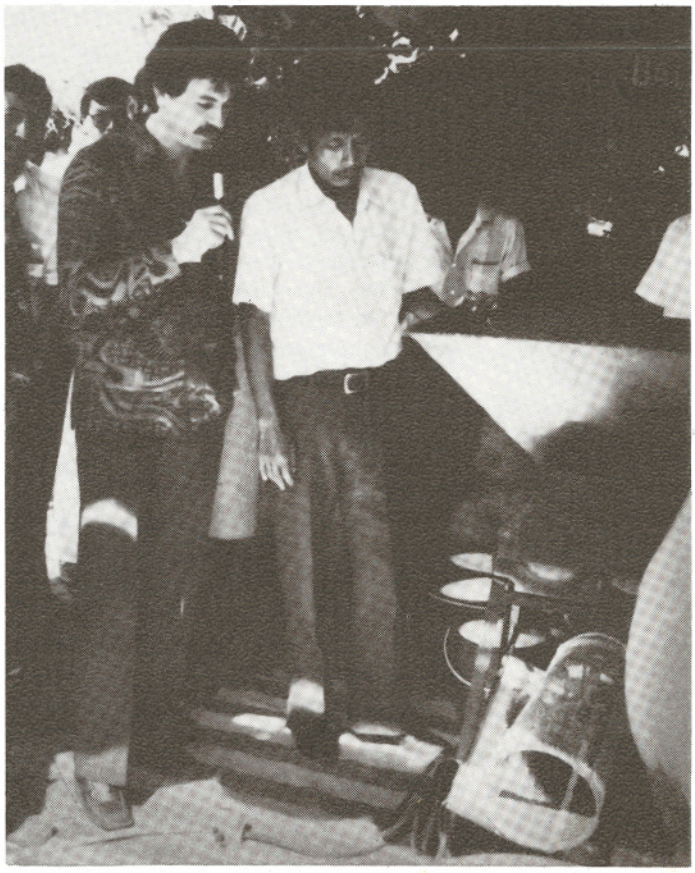
This fourth annual meeting, which was attended by engineers, agronomists, and soil scientists, was sponsored by the Centre for Soil Research (CSR) of the Agency for Agricultural Research and Development (AARD), Ministry of Agriculture; Fertilizer Producers' Association of Indonesia; and IFDC. The purpose of the meeting was to present the past year's results of the fertilizer efficiency program.

Three IFDC staff members, Dr. Paul J. Stangel, Deputy Managing Director; Jose R. Lazo de la Vega, Special Project Engineer; and Dr. Dennis R. Friesen, Soil Scientist, attended the annual meeting. They were pleased with the progress of the meeting and the acceptance of the briquetter by those present.

The briquetter demonstration generated much interest from the Indonesian Government and private industries. The USG briquetter holds significant interest for the Government of Indonesia because it represents a practical means of supplying USG, which can be deep placed in rice paddies and thereby reduce the amount of fertilizer actually used by the crop and thus lower the total cost of fertilizer used by the farmers.

"The briquetter project was a joint effort conducted by the Metal Industries Development Centre (MIDC) of the Indonesian Ministry of Industry, CSR, and IFDC," Lazo de la Vega says. "We modified and tested a village-level briquetter that was originally designed and fabricated by the Fujian Academy of Agricultural Sciences of Fuzhow, China. A study was then conducted on the technical and economic feasibility of fabricating this machine in Indonesia. The conversion costs of producing USG from either urea prills, crystals, fines, and dust were determined. The results of this study proved that the machine is quite affordable by Indonesian farmers, as well as those in other developing countries. Conversion costs of the USG were found to be less than 10% higher than the current cost of prilled urea."

There are several advantages to using the village-level briquetter. First, it is capable of using a relatively wide range of fertilizer



Ramon Lazo de la Vega, IFDC Special Project Engineer, and Encu Sumarta, MIDC Mechanical Engineer, observe the operation of the briquetter.

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products. Conversion takes place close to the user level, and thus requires no special distribution or storage procedures. It is sufficiently small to satisfy the demand in small and scattered markets (presently designed to produce 250 kg per hour). It is "user-friendly" or easy to handle, and it can operate on gasoline, diesel, or electricity. In addition, the machine is readily affordable to most villages since it costs less than US $1200 to mass produce.

Looking to the future of the project, Dr. Stangel says, "We plan to work with national institutions, including MIDC of Indonesia, to further tailor the machine to actual market conditions and set up a mechanism for mass production of the briquetter. During the meeting we were approached by a private company that was interested in starting mass production. In cooperation with CSR and the fertilizer industry, we will be testing the briquetter in pilot areas to familiarize small-scale farmers with the machine. Plans are also underway to test this machine with the Philippine Rice Research Institute of the Department of Agriculture and various other organizations in India and Bangladesh."

Several comments concerning the briquetter were made by the participants in the Annual Meeting. Dr. Sri Adiningsih, Coordinator of CSR's component of the Lowland Program of the Fertilizer Efficiency Program, was impressed with the speed in seeing results and quality of materials produced. "As compared to other machines, there were instant briquettes of high quality produced by this briquetter," she said.

The MIDC engineers summarized the overall impact of the machine. "We now have in our hands the possibility to design a machine that will actually benefit our farmers more than has been done in several decades," they said.

CSR's Director Dr. M. Sujadi sees the briquetter as being "timely, appropriate, and useful in lowering the cost of nitrogen fertilizer to the farmer and an effective means of minimizing the impact of the removal of the fertilizer subsidy."

In conclusion, Stangel believes that if this type of unit were "produced in sufficient numbers and accepted by farmers, this could result in the use of briquetting machines of increasing size, which will be placed at centralized locations either at a bagging station, regional warehouses, or fertilizer production centers."

Commenting on the overall significance of this project, Lazo de la Vega has this to say: "This project represents a real transfer of technology—the improvement of a technological development in a given country and the transfer to another country with IFDC serving as the catalyst but in partnership with key national institutions such as AARD and MIDC."■

Headquarters—

Blueprint Drafted for Center's Next Ten Years

"The 10-year plan stands as a vote of confidence regarding where the Center has been—the progress that has been made. There exists a sense of concern about the emerging trends (in the world food and fertilizer situation)—how we stay with them and how we use them."

These words (spoken at the conclusion of the Board Meeting in October 1987) represent an assessment of the significance of the recently completed 10-year plan and expressed the views of Dr. W. David Hopper, Senior Vice President for Policy, Planning, and Research, the World Bank, and a member of the IFDC Board of Directors.

During its 1986 meeting the Board of Directors recommended that a program plan be developed to identify priorities for the Center for the next 10 years—1988-97—in the areas of research, technology transfer, and information dissemination. That recommendation was made because it was felt that changes in the strategy of the Center were necessary to accommodate the changing needs and emphasis of the world agriculture and fertilizer environments.

To develop this program plan, Dr. Donald L. McCune, IFDC's Managing Director, appointed a committee that began the planning exercise in May 1987. Dr. Amitava H. Roy, Special Projects Engineer, was chosen to chair this committee. Members of the committee included the various disciplines represented on the IFDC staff—engineers, soil scientists, economists, marketing specialists, training specialists, etc.

"Before the basic concepts of the report were gelled together, we committee members sought ideas and suggestions from most IFDC staff members regarding the future direction of IFDC," Roy says.

The program plan includes recommendations for the future directions of the Center in (l) research and development covering production technology, agronomy, economic and social sciences, and development of database and information systems; (2) technology transfer covering technical assistance and training; (3) information dissemination; (4) organizational development; (5) linkages; and (6) funding.

These recommendations are based on IFDC's mandate, its accomplishments, and the influence that present world agriculture, fertilizer situations, and future expectations can have on the fertilizer technology needs of developing countries.

"The Plan should be viewed as a general guide to orient the future direction of IFDC's efforts in research, technology transfer, training, and related activities," Roy says. "Detailed plans involving an update of this document, based on expected funding, should be prepared every 2 years. Biennial internal and quinquennial external reviews of ongoing programs are recommended to ensure that IFDC is addressing the needs of target beneficiaries in developing countries."

The 10-year plan stands as a reminder that IFDC must shift its program emphases if it is to remain responsive to the needs of its client countries. In other words, as noted in the "Management Perspective" section of the Center's 1986 Annual Report, "IFDC must refocus its efforts to complement the changing needs of the countries in its mandate area and to address the new set of issues that they are currently confronting. Our goal must be to assist the developing countries in meeting and conquering the challenges of a changing fertilizer scene."■

Editor's Note: This report is an internal document, not intended for public distribution.

TVA's General Manager Doubles as IFDC 'Salesman'

Because the General Manager of the Tennessee Valley Authority has been aware of IFDC's mission for a number of years, he is especially pleased to be a member of the Center's Board of Directors.

In an interview during the October Board Meeting, TVA General Manager William F. Willis told of his impressions of IFDC. "I have always been in awe of the talent assembled by this organization and its capacity to render tremendous service to many parts of the world," he says.

According to Willis his respect for the Center has grown during his past year's service on the Board. "My respect and admiration for IFDC have grown even more," he says. "It is comforting to see that every staff member seems to have ownership in the organization. This feeling makes for an excellent organization."

Willis, who has served as General Manager of TVA since 1979, has a broad background in engineering and management. After graduating from Mississippi State University, he embarked on a career during which he has contributed toward the continuing evolution of the Tennessee Valley Authority for the past 27 years of his life.

Besides managing the concerns of his present position, Willis is also deeply involved in an effort to improve technical education and promote research and development in the Tennessee Valley. As his curriculum vitae attests, Willis serves on the boards and advisory committees of a wide array of organizations. Included among them are Mississippi State University's Engineering Advisory Committee; Board of Advisors, University of Tennessee's College of Engineering; and member of the board of directors of the following: American Welding Institute, Tennessee Technology Foundation, Tennessee Center for Research and Development, and the Knoxville Chamber of Commerce, as well as IFDC.

As a member of the IFDC Board of Directors, Willis has a clear concept of his mission. "I see myself as an IFDC 'salesman,' who is interested in marketing the Center's services and expertise in many sectors of the world," he says.

The recent Board meeting proved to be especially interesting for Willis since the Center's blueprint for the next 10 years' work was revealed.

"I have always wanted to have in my 'sales kit' a tool that I could use in marketing IFDC," Willis says. "In other words, I wanted to know 'IFDC's focus for the future.' We members of the Board of Directors now have in our hands a tool (the 10-year plan) to help us locate additional partners or donors for IFDC's work."

Willis has a suggestion to offer to the Center concerning its changing role in the world market. "New high technology will play an important role in helping IFDC accomplish its mission," he says. "The Center's scientists must stay abreast of high technology so that they can continue to effectively and efficiently transfer their knowledge—the most wanted product of IFDC. As a major international fertilizer research center, IFDC stands on the threshold of making major contributions to world nutrition."

Looking toward the future and his tenure on the Board, Willis had this to say, "I'm excited about being on a Board that deals in an arena like that of IFDC, and I pledge to the Board that I will be a fast learner. I want to participate in this exciting venture." ■

William F. Willis

IFDC Board Member, Now Chairman of CGIAR

Dr. David W. Hopper, Senior Vice President for Policy, Planning, and Research for the World Bank, recently assumed the chairmanship of the Consultative Group on International Agricultural Research (CGIAR). Hopper, a native of Ottawa, Canada, has been a member of the IFDC Board of Directors since 1980.

Under the World Bank's recent reorganization, support for the CGIAR falls under the responsibilities of the office that Hopper now holds. (For a profile of Hopper's illustrious career in international development, please see *IFDC Report*, Volume 6, No. 4.)

Zambia—

Geology Workshop Conducted

As a result of a workshop held in Lusaka, Zambia of east Africa, during December 8-10, 1987, a geology network was established that will identify agrominerals in the region. This network will ascertain the potential for local raw materials to complement or replace imported fertilizers and increase food production while saving foreign exchange," according to L. B. Williams, Workshop Coordinator.

Sixteen geologists from the 11 countries of East and Southeast Africa participated in the workshop conducted by IFDC-Africa. Besides the sixteen geologists participating, nine observers from the United Nations Development Programme, the U.S. Agency for International Development, the Zambia Industrial and Mining Corporation, Ltd. (ZIMCO), the Zambia Geological Survey, Preferential Trade Association, Federal Republic of Germany, and the Beira Chemical Group, Ltd., of Zimbabwe attended the workshop.

This workshop was an activity of the East and Southeast Africa Fertilizer Research Program coordinated by IFDC and funded by the World Bank and the United Nations Development Programme. This activity was cohosted by ZIMCO, the Zambia Ministry of Mines (Geology Department), and the University of Zambia School of Mines.

The objective of the workshop, as outlined by Williams, was to establish a regional network of geological scientists and institutions in the East and Southeast African region that will (1) identify and document the occurrence of indigenous materials, (2) identify indigenous resources that can be used where appropriate to complement and replace existing supplies of imported fertilizers, and (3) identify special geological skills required to find and use indigenous resources to increase food security in the region.

Participants in the Geology Workshop examine ore samples.

IFDC staff members conducting the workshop were L. B. Williams, Liaison Scientist, IFDC-Africa; Dr. Guerry H. McClellan, IFDC Research Coordinator; and Steven J. Van Kauwenbergh, IFDC Mineralogist/Petrographer. The Honorable P. S. Chitambala, Minister of Mines, welcomed the group to Zambia during the opening ceremonies.

The other members of the workshop faculty included: A. S. Sliwa, Exploration Supervisor, ZIMCO; N. J. Money, Director, Geological Survey Department, Zambia; Dr. W. C. Lombe, Head Meteorologist, Mineral Processing Department, School of Mines, University of Zambia; and L. Borsch, Chief Chemist, ZIMCO.

Some of the workshop topics included: (1) use of indigenous agrominerals for fertilizer production, (2) overview of phosphate deposits and development in east and southeast Africa, (3) nonmetallic minerals in Zambia, (4) geology survey work in Zambia, and (5) exploration of phosphate deposits in Zambia.

In addition, participants in the workshop presented country reports on the geological situation in their respective countries. Reports were given on the following countries: Burundi, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Somalia, Tanzania, Uganda, Zambia, and Zimbabwe.

A practical viewpoint was gained through field tours to ZIMCO laboratories and beneficiation facilities of the University of Zambia School of Mines. ■

Philippines—

Socioeconomic Assistance Provided to PHILRICE

At the request of the Philippine Rice Research Institute (PHILRICE), IFDC recently assisted that organization in planning a farm-level socioeconomic survey of the acceptability of deep placement-urea supergranule (DP-USG) technology by Filipino rice farmers.

During November 28-December 10, 1987, Dr. Thomas P. Thompson, Rural Sociologist, visited the Philippines to assist in the initial phase of this project. The project is partially supported by the Fertilizer and Pesticide Authority of the Philippines.

Thompson assisted personnel from PHILRICE, an institute under the umbrella of the Ministry of Agriculture, in identifying farmers in two Philippine provinces to participate in demonstrations of DP-USG technology during the 1988 dry season. Twelve farmers from each province agreed to participate in this phase of the project by using USG and responding to interviews during mid-1988 regarding the acceptance of the technology.

"The experimental design to be used in farmers' rice paddies to demonstrate USG involves a comparison between USG and prilled urea," Thompson says. "The areas treated with prilled urea will receive 50% as basal application and 50% topdressing. The quantity of urea will be equivalent to that applied in USG form."

Those plots receiving USG will be treated with USG of 1 g, 2 g, 2.2 g, and 4.4 g at 40-cm spacings at rates of 29, 58, 63, and 126 kg/ha, respectively.

"Because of the labor cost constraint of line transplanting, PHILRICE will demonstrate USG in paddies that are line transplanted, randomly transplanted, and broadcasted with seed," Thompson says. "The labor cost of deep placement of USG will probably be about US $30/hectare. Therefore, the availability of family labor is a critical factor in determining the acceptability of DP-USG technology."

The wet-season demonstrations and surveys to be conducted later will not only include those farmers participating in the present dry-season survey but also 12 farmers in each of two additional villages.

In preparing for the survey Thompson is assisting the PHILRICE staff by evaluating and revising a questionnaire to be used in obtaining socioeconomic data on the acceptability of DP-USG technology.

"The revised questionnaire will be used throughout the project," Thompson says. "The data obtained during the survey will be analyzed at IFDC; subsequently, a report of this analysis will be prepared for PHILRICE's use."

The activities in the Philippines are part of an overall program to determine farmer acceptance of DP-USG technology in a number of key countries in Asia.■

Togo—

IFDC-Africa Conducts Information Workshop

IFDC-Africa conducted a workshop on "Fertilizer Procurement, Information, and Communication Requirements in Sub-Saharan Africa," during November 24-26. This workshop resulted in the establishment of a African Fertilizer Trade and Marketing Information Network.

Sixteen representatives from 13 countries attended the workshop to assess their countries' information needs as related to fertilizer procurement. The countries represented included Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Ghana, Lesotho, Madagascar, Niger, Nigeria, Rwanda, Senegal, Tanzania, and Togo.

International organizations represented at the workshop included the Netherlands Agricultural Economic Research Institute (LEI), The Fertilizer Advisory Development and Information Network for Asia and the Pacific (FADINAP), International Food Policy Research Institute (IFPRI), and U.S. Agency for International Development (USAID). Representatives from private-sector organizations attended from Ghana, Côte d'Ivoire, and Cameroon.

M. T. Frederick, Training Specialist, IFDC-Africa, served as workshop coordinator. Other IFDC-Africa staff who served on the workshop faculty included: Dr. P.L.G. Vlek, Director; Dr. A. Bationo, Soil Scientist; R. Coster, Market Analyst; and L. B. Williams, Liaison Scientist. Two outside speakers who provided an added dimension to the workshop were Mr. Atsu, a representative of the Togolese Government, and W. Meeken, a consultant from Australia.

Some of the topics addressed during the workshop were: the importance of fertilizers in increasing crop yields in sub-Saharan Africa; fertilizer supply in sub-Saharan Africa; government efforts to increase fertilizer supply and improve crop yields (the Togolese experience); international center and donor agency projects for improving fertilizer use and agricultural production; the needs for information exchange in procurement, marketing, and use of fertilizers; and extension's role in getting information on fertilizer use to the farmer.

Workshop participants from selected countries made presentations on the problems encountered in their countries involving fertilizer procurement, information flow, and data requirements. In addition, four workgroups were assigned the following topics to examine and discuss: (1) the information gap: types of information needed and ways of obtaining it; (2) fertilizer supply: problems with imports of fertilizer products and raw materials and with distribution to areas of use; (3) improving information flow within and among countries of the region: methods for exchange of information; and (4) marketing surveys and the importance of such information in procurement, policy formulation, supply, and farmer recommendations.■

Training Program Highlights

Three training programs were held at IFDC Headquarters during the past quarter. Two of these programs concerned fertilizer marketing and one focused on fertilizer production.

Fertilizer Marketing Management Training Program

The eleventh annual fertilizer marketing management training program was held during August 10-September 18, 1987. Dr. L. E. Ahlrichs, Marketing Specialist, served as manager; R. S. Giroti, Training Administrator, served as Program Comanager.

Fifteen participants from eight countries attended this program. The countries represented included the Dominican Republic, Egypt, Ghana, India, Kenya, Nepal, Nigeria, and Zambia.

Three new subjects were included in the course curriculum this year: Maximum Economic Yield (presented by Dr. Harold Reetz of the Phosphate and Potash Institute), Innovation and Creativity (presented by Dr. John Wakefield of the University of North Alabama), and the Evolution of the World Bank's Lending Policies and Programs (presented by Dr. Balu Bumb).■

FMMTP participants on a field trip.

Fertilizer Maintenance Management and Production Technology

The next program in this series focused on fertilizer maintenance management and production technology. The course manager was N. D. Le, Chemical Engineer, and the comanager was R. S. Giroti, Training Administrator.

The program topics that were addressed ranged from basic management principles to fluid fertilizer technology to nitrophosphate production to bulk handling and packaging. In addition to the formal lecture sessions, the visiting fertilizer maintenance and production managers participated in a variety of workshops on such topics as goal setting and project management, maintenance organization, program evaluation and review technique/critical path method, and computer applications for maintenance management.

Since the program faculty included not only a number of IFDC speakers but also eighteen outside speakers, the participants were exposed to a wide range of views. The outside speakers came from a variety of organizations, including the National Fertilizer Development Center/Tennessee Valley Authority; Agro Chemical Company—Faustina Works; KATALCO; Norton Company; the Fertiliser Association of India; Urea Technology, Inc.; Davy

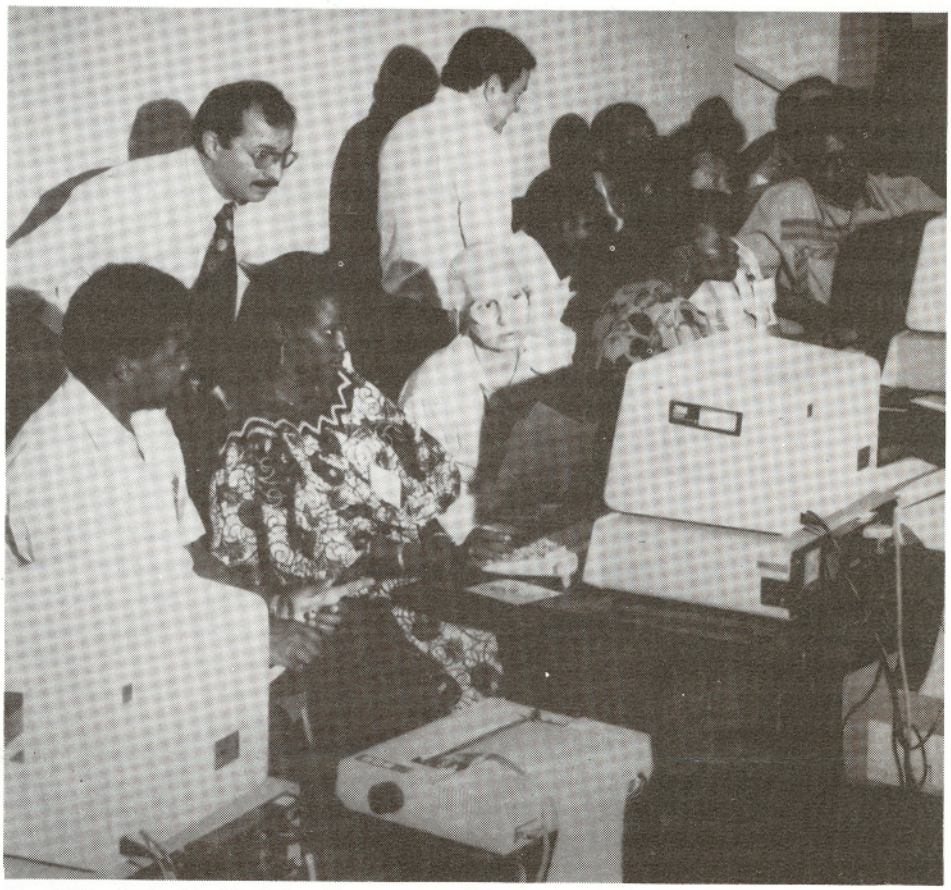
Statistical and Economic Analysis of Fertilizer Experimental Data

Subsequent to the Marketing Management Program, another training program was conducted on a related subject, statistical and economic analysis of fertilizer experimental data.

This program was held September 21-October 9, 1987. Thirteen participants from 10 countries attended. They came from Benin, Honduras, Mauritania, Niger, Nigeria, Philippines, Portugal, Senegal, Venezuela, and Zimbabwe.

Dr. Adolfo Martinez, Agricultural Economist, was the program manager; he was assisted by R. S. Giroti, Training Administrator.

This program has practical applications in that the participants increased their knowledge and understanding of the statistical and economic analysis of data related to fertilizer use. They used practice exercises to develop their skills in such procedures as analysis of variance, regression analysis, marginal analysis, production functions, and simulation models of crop growth. The participants learned principles of computer programming for data processing and analysis. ■



Participants in the Training Program on "Statistical and Economic Analysis of Fertilizer Experimental Data" complete an exercise in regression analysis using microcomputers. In the background are two members of the training faculty, Dr. Adolfo Martinez (left), Agricultural Economist, and Dr. Julio Henao, Biometrician.

(Continued from page 6.)

McKee Corporation; Arcadian Corporation; M. W. Kellogg; Toyo Engineering Corporation of Japan; the Industrial Technical Corporation; and the University of North Alabama.

As an added dimension to the program, the participants gained a practical insight by visiting a number of fertilizer production/maintenance facilities in the United States. ■

Participants in the Fertilizer Maintenance Management and Production Technology Training Program use a microcomputer for management planning.

Recent IFDC Publications

IFDC Annual Report, 1986

In October 1987 IFDC released its annual report for the year 1986. This edition of the report addresses the trends that are occurring in the world fertilizer sector; those trends in the African, Asian, and Latin American regions; and IFDC's response to the challenges of the changing fertilizer scene.

Complimentary copies may be obtained by ordering IFDC Circular S-10 from the IFDC Purchasing Department, P.O. Box 2040, Muscle Shoals, Alabama 35662.

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