

# Report

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

## Visiting Scientists From Russia and Syria Study Phosphate Rock

Two visiting scientists from Russia and Syria, presently conducting phosphate research at IFDC Headquarters, plan to return to their countries and apply the lessons learned in their home countries. Several developing countries have expressed interest in sending scientists to IFDC to learn ways of using their countries' phosphate rock resources to increase food production and save foreign exchange.

The current visiting scientists, Dr. Svetlana Iretskaya, Research Chemist with the Institute of Technology, Saint Petersburg, Russia, and Dr. Leila Ahmad Habib, Assistant Professor of Agriculture at Tishreen University, Lattakia, Syria, are both conducting research under the supervision of Dr. Sen H. Chien, IFDC Senior Soil Chemist.

The work of the Russian scientist is being sponsored by the Cooperation in Applied Science and Technology (CAST) Program, which is funded by the U.S. Agency for International Development and administered by the National Research Council. The CAST program provides incentive grants to American scientists and engineers to host colleagues from the Newly Indepen-

dent States (NIS) of the former Soviet Union for joint research in U.S. universities and research institutions. The program seeks to foster long-term collaboration on projects with a realistic potential for commercial application and potential to improve the quality of life in the U.S.A. and the NIS.

While she is at IFDC for a 1-year research program, Iretskaya is conducting research on the strategies for minimizing cadmium uptake from phosphate fertilizers by food crops. The primary test crops include upland rice, soybean, cowpea, wheat, flooded rice, and barley.

Particularly, she is concentrating her attention on wheat and barley since they are important crops in Russia.

In addition to the cadmium study, Iretskaya is also conducting research on the agronomic effectiveness of three phosphate rocks that are indigenous to Russia and Kazakhstan, which she brought with her to IFDC. Specifically, she is conducting research on the agronomic effectiveness of partially acidulated and unacidulated forms of the phosphate rocks for wheat, barley, and rape.

*SCIENTISTS continued on page 5*



*(Photo by Charles E. Butler)*

Dr. Svetlana Iretskaya (left), Research Chemist, Institute of Technology, Saint Petersburg, Russia, and Dr. Leila Ahmad Habib, Assistant Professor of Agriculture, Tishreen University, Lattakia, Syria, discuss their phosphate rock experiments with Gildardo Carmona, IFDC Coordinator of Greenhouse Services. The two visiting scientists are conducting research at IFDC that should help increase food production in their respective countries.

## IFDC Report

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## IFDC's Fertilizer Market Information Group Provides Worldwide Services

An IFDC Fertilizer Market Information group is providing information services to the world's fertilizer industry. The team produces a set of reports on fertilizer marketing data for a worldwide audience. In addition, the group prepares a series of proprietary reports for members of The Fertilizer Institute (TFI).

The IFDC working group meets monthly to review capacity changes that have taken place in the fertilizer industry during the previous month. The group includes Gene Harris, Senior Marketing/Economics Specialist; Curtis Brummitt, Marketing Specialist; Dr. Thomas Foster, Marketing/Economics Specialist; Linda Trousdale, Data Management Specialist; and Kristi Tays, Data Management Specialist.

The world fertilizer industry has historically been a very competitive and cyclical industry. When demand exceeds supply, prices rise and there is a rush to expand capacity. Since there are substantial lags between price increases, planning, and construction of new facilities, the difficulty of decisionmaking is intensified by these cyclical swings. To help improve the quality of decisionmaking, IFDC provides timely information on industry developments. Based upon industry demand for these publications, it is clear that they are valuable information sources for fertilizer producers, importers, traders, investors, and policymakers in developed and developing countries. One example is the publication entitled *Recent Fertilizer Project Announcements and Proposals (Worldwide)*, which summarizes all project announcements of new plants or expansions of existing plants.

Basic information about the economic, agronomic, and physical advantages and disadvantages of 13 of the most popular

fertilizer products is found in a new publication, *A Guide to Fertilizer Products for Traders (FSR-12)*. The products covered are anhydrous ammonia, ammonium nitrate, urea, ammonium sulfate, calcium ammonium nitrate, phosphate rock, single superphosphate, triple superphosphate, monoammonium phosphate, diammonium phosphate, nitrophosphates, potassium chloride, and potassium sulfate.

Two other market publications, *Worldwide Capacity Listing of Potash Fertilizer Manufacturers and Traders (FSR-9)* and *Worldwide DAP Capacity by Plant (FSR-8)*, cover 43 and 53 countries, respectively. The *Worldwide Directory of Fertilizer Traders, Importers, and Organizations (FSR-11)* lists most fertilizer traders worldwide by country, importing agencies by country, and fertilizer-related organizations and associations.

One publication entitled *Worldwide Urea Capacity by Plant (FSR-7)* is based on a survey sent to all known urea producers throughout the world. This report also lists contact information for the principal urea producers. Urea capacities are summarized by plant, by country, by region, and for the world for the next 5 years.

Another report, *Worldwide Ammonia Capacity by Plant (FSR-10)*, is based on a survey sent to all known ammonia producers throughout the world. For each of the 83 countries listed, contact information is included; also included is ammonia capacity in tonnes of nitrogen. Ammonia capacities by plant are summarized by company, by country, by region, and for the world for the next 5 years.

The *North America Fertilizer Capacity (FSR-5)* is a listing of all fertilizer producers in the United States, Canada, and their production capacities by plant for ammonia, nitric acid, urea, ammonium nitrate, ammonium sulfate, nitrogen solutions, phosphate rock, phosphoric acid, superphosphoric acid, ammonium phosphates, normal superphosphate, concentrated phosphates, upgraded phosphoric acid, elemental phosphorus, potassium chloride, potassium sulfate, and sulfate of potash/magnesia. Data on Mexico and Trinidad are included because of the importance to the North American industry. Data



(Photo by Charles E. Butler)

**IFDC's Fertilizer Market Information Group reviews recent capacity changes in the world fertilizer industry. The group includes (from left): Dr. Thomas Foster, Marketing/Economics Specialist; Linda Trousdale, Data Management Specialist; Kristi Tays, Data Management Specialist; Curtis Brummitt, Marketing Specialist; and Gene Harris, Senior Marketing/Economics Specialist.**

are obtained from an annual survey of all companies listed and updated regularly from published information and press releases. The publication includes announced capacities for the next 5 years.

Four additional publications—*Africa Fertilizer Situation* (FSR-1), *Asia Fertilizer Situation* (FSR-2), *Latin America Fertilizer Situation* (FSR-3), and *Eastern Europe Fertilizer Situation* (FSR-6)—contain data on fertilizer production, consumption, imports, exports, pricing, supply/demand, use by crop, and fertilizer trends for these regions.

The group also conducts price and consumption surveys twice a year. Company presidents, marketing managers, and import managers are surveyed to determine their views on potential price changes for the following 6-month period and the primary factors supporting these views. Similar information is obtained on fertilizer consumption changes in their countries and the responsible factors. The market information group also works with the International Fertilizer Industry Association (IFA) and the Food and Agriculture Organization of the United Nations (FAO) in the estimation of fertilizer use by crop in about 80 countries around the world.

These estimates are also obtained through surveys.

In 1994 TFI requested IFDC to begin preparing several statistical reports for the North American fertilizer industry. Included are the monthly *Fertilizer Record* and the annual *Fertilizer Record*, which contain information on current production, stocks, and disappearance by product during the previous month. The *Quarterly Producer Financial Report* and the *Quarterly Potash Financial Report* provide quarterly statistics relating to the companies' finances. The annual *Fertilizer Financial Facts* provides detailed annual financial information that can be compared with results for the previous year. The annual *Production Cost Survey* provides the cost of producing several products, including ammonia, phosphate rock, sulfuric acid, phosphoric acid, diammonium phosphate, monoammonium phosphate, and triple superphosphate. The *Production Survey* contains information on industry operating rates for various products during the previous 6 months. The annual *Toxic Release Inventory* provides a summary on emissions reported to the U.S. Environmental Protection Agency by the industry.

To gather the information for the *Fertilizer Record*, IFDC distributes questionnaires to obtain statistics on production and inventory by product every month to each of the 50+ major fertilizer companies in North America. Information that is gathered from the fertilizer companies for all of the reports is held strictly confidential, and the data cannot be identified by company in the summaries that IFDC produces. The monthly information is used to help companies anticipate shortages or surpluses that are developing. The production cost reports provide companies with a yardstick against which they can compare their operating costs with others in the industry.

The IFDC reports for general distribution have proven extremely popular and have been purchased by organizations in approximately 40 countries throughout the world. To order any of these reports, which are priced at US \$30 each, interested parties should address their orders to IFDC's Purchasing Department. Inquiries concerning the TFI reports should be addressed to The Fertilizer Institute, 501 Second Street, NE, Washington, D.C. 20002. ☉

## Helping Venezuela Enhance its Industrial/ Employment Base

Since September 1993 IFDC has been assisting Petroquímica de Venezuela S.A. (PEQUIVEN) in the design and implementation of its transition from a previously subsidized enterprise to one that is market driven. The overall goal of this project has been to help the company retain its leading position in the marketplace and become competitive in a free market environment. The main effort in this process has been to enhance PEQUIVEN's strengths, which include a fully integrated fertilizer processing infrastructure; a capable and experienced staff; access to indigenous raw materials; a prime geographic location for domestic and regional markets; a sound financial position; a recognized name in the industry, both domestically and internationally; and an existing network of agents, dealers, and distributors.

"This restructuring project is producing tangible results," says Jorge R. Polo, Project Manager and Coordinator of IFDC's Engineering and Technology Program. "For example, in the past 3 years PEQUIVEN's overall fertilizer production capacity has increased from 60% to more than 85% of rated capacity. The production rates of the ammonia and urea units are nearing 100% capacity. Improved production efficiencies in the phosphoric acid and NPK granulation plants have produced a saving of about US \$10,000 per day. IFDC is assisting in implementing a preventive maintenance program that has decreased unscheduled downtime by about 50% in some units. The control of credit to dealers, deal-



(Photo by Dirk Alexander Pust, PEQUIVEN)

Officials of Petroquímica de Venezuela S.A. (PEQUIVEN) discuss plans for a field-level profit center. Pictured here are (from left): César A. Aguilar P., Domestic Marketing Manager, Fertilizer Business Unit (FBU-PEQUIVEN); Alfredo Riera L., Business Manager (FBU-PEQUIVEN); Roberto Mantellini, Assistant Business Manager (FBU-PEQUIVEN); and John M. Maschoff, IFDC Counterpart Manager, Business/Marketing.

ers' inventory, and past due collections has improved PEQUIVEN's cash flow. The marketing train-the-trainer program introduced by IFDC has quickly expanded PEQUIVEN's capability to develop an entirely new customer-oriented sales force."

Since mid-1994 IFDC has had counterpart managers stationed in Venezuela to assist PEQUIVEN with the implementation of recommendations made in an IFDC study performed in 1993/94. IFDC's assistance has had a two-pronged focus: to assist PEQUIVEN in becoming market and customer oriented and to improve PEQUIVEN's fertilizer production operations.

"IFDC's assistance has been fruitful for PEQUIVEN," says Polo. "For example, during 1995 production of NPK fertilizers amounted to more than 294,000 tonnes or 107% of the planned production. Process losses in the production of nitrogen and phosphate fertilizers are being decreased through improved process control and equipment modification, thereby producing a considerable saving. The consumption of raw materials, particularly sulfuric acid and phosphate rock, per unit of production was markedly decreased. A change in the type of bags used

has improved the condition of the fertilizer at the warehouses, decreased losses due to bag breakage and leakage, and increased customer preference for PEQUIVEN products."

A new cost accounting system is being implemented at the complex with the assignment of cost accountants at each of the production units. The overall cost consciousness of the staff has improved considerably.

PEQUIVEN is credited for having achieved these successes as a result of an improved operation due to better trained operators, better plant control, improved maintenance through dedicated plant maintenance crews, and the implementation of scheduled weekly shutdowns for preventive and corrective maintenance.

The PEQUIVEN project is a classic example of the integrated application of IFDC's broad spectrum of practical market-oriented technical, financial, marketing, and management skills to meet a client's complex needs. IFDC looks forward to translating the successes realized in Venezuela to similar situations in other Latin American countries and, perhaps, to other regions. ☉

## Albania Project Update

Working with the Albanian Fertilizer and Agribusiness Dealers' Association (AFADA), IFDC has continued to focus on fertilizer importation and development of the markets for quality seed and crop protection chemicals. Privatization of these markets through AFADA dealer development is virtually completed. In collaboration with AFADA, IFDC sponsored dealer trade missions to Bulgaria, Germany, Greece, Italy, Turkey, United Kingdom, and the U.S.A. to meet with suppliers of agricultural inputs and agroprocessing equipment. These efforts have resulted in long-term relationships with suppliers and joint ventures for the dealers. As AFADA dealers diversify into agroprocessing and agricultural product marketing, IFDC has provided technical assistance in such diverse areas as milk processing, olive oil production, and vegetable exports to European markets. AFADA dealers have also begun to import U.S. protein concentrate, which over time is expected to develop into a market for balanced animal feed. This is consistent with Albania's comparative advantage in livestock production.

"Institutionalization of the agricultural input dealer network is critical to the sustainability of project activities," says Dr. Ray B. Diamond, IFDC Chief of Party—

Albania. "IFDC has thus placed a high priority on development of AFADA as an active trade association capable of lobbying the Albanian Government on issues impacting its members, liaising with the country's banking system, providing a quality control mechanism for agricultural inputs, and working effectively with international suppliers and organizations. Recently, AFADA held a general meeting during which members voted on a 2-year plan to achieve self-sufficiency."

IFDC and AFADA continue to work with the mass media. AFADA has broadcast several generic advertisements on national television and radio; these advertisements focused on quality seed, safety, and environmental issues connected with crop protection chemicals. IFDC presently publishes two publications; the first, *Biznesi Bujqesor* (Agricultural Business), has over a period of 3 years become Albania's primary agricultural magazine. In keeping with IFDC's priority on sustainability, *Biznesi Bujqesor* is being privatized. The second publication, *AFADA Nofton* (AFADA News), is to be institutionalized as AFADA's newsletter.

"IFDC also continues to develop AFADA dealers as technological change agents," Diamond says. "IFDC has cosponsored with AFADA dealer demonstration plots on fertilizer usage and seed varieties. It also has worked with AFADA dealers and their farmer clientele on farm management studies and computer crop modeling simulation. The change agent role of AFADA and its usefulness as a concept that might

be applied elsewhere was presented at a June workshop on alternative approaches to agricultural extension, sponsored by the International Bank for Reconstruction and Development. AFADA represents a private-sector extension approach that complements and strengthens the existing Albanian public extension effort that is in a formative stage."

Another important IFDC work in progress is its agribusiness training program. The subject matter for this in-country training program focuses on agricultural commodity systems and business planning and implementation. IFDC has developed these two modules in country according to the existing Albanian context and using sector-specific case studies to demonstrate basic economic and business concepts. A train-the-trainers seminar series of 28 topics has been presented to audiences comprised of entrepreneurs, Ministry personnel, bankers, nongovernmental staff, and others likely to impact the development of the agribusiness sector. All seminars are videotaped for use by trainers to ensure the effectiveness of the project. Additionally, IFDC materials are expected to be included in the curriculum of the national agricultural university. A third module on country and investment promotion is to be produced in the form of a series of videotapes to introduce potential investment opportunities. IFDC has also established a country and investment promotion internship program in New York, New York (U.S.A.), to facilitate trade and investment connections between the U.S.A. and Albania.⊕

### SCIENTISTS *continued from page 1*

The work of the Syrian scientist is being sponsored by the Fulbright Scholar Program. She is also studying the agronomic effectiveness of directly applied phosphate rock.

"I hope to learn new techniques at IFDC that will be useful for my students and in my research in Syria," says Habib. "In research at IFDC I am investigating the possibility of improving the agronomic

effectiveness of phosphate rock by mixing it with water-soluble phosphate fertilizer and by determining the most suitable crops, including cotton, cowpea, and rape, on which to use the mixtures of phosphate rock."

Besides investigating the direct application of Syrian phosphate rock, Habib is studying methods, such as the IFDC-developed Pi test,

for measuring available phosphorus in the soil. In addition, she is studying the role of root exudates in the dissolution of phosphate rock. Research has indicated that the addition of a small amount of water-soluble phosphate can improve root development so that it increases the root-phosphate rock contact areas.⊕

## Burkina Faso's Soil Fertility Management Unit: A Progress Report

The Soil Fertility Management Unit (SFMU) was created in Burkina Faso in response to the need for a small multidisciplinary structure that will serve as a "think tank" to promote an integrated approach to soil fertility management in that country. An ad-hoc committee was established in October 1995 as the management board for SFMU, consisting of representatives from research, extension, marketing, and development institutions; representatives from international organizations (FAO, CIRAD) and of the donor community have observer status. Several institutions in Burkina Faso undertake activities related to soil fertility management in Burkina Faso but cover partial aspects of the issue or operate in isolation. The SFMU will facilitate the coordination of ideas and initiatives from all those involved in rural development; it will emphasize an integrated

soil fertility management policy and a policy to develop agricultural input and output markets. The SFMU promotes linkages between farmers, researchers, extension officers, policymakers, and all parties concerned with rural development so as to work together toward the goal of promoting sustainable agriculture.

A summary of SFMU's activities and achievements follows.

### **1. Sensitization on the Needs and Conditions for Achieving Improved Soil Fertility**

The main achievements at this stage include the publication of the first two issues of the bimonthly *Bulletin on Sustainable Agriculture* and the organization of a sensitization workshop for the West Zone of Burkina Faso. This was the first of three regional workshops scheduled in the SFMU's workplan for 1996. The West Zone Workshop was held during March 27-29, 1996, and attracted 45 participants including men and women farmers, technicians, project officers, and traditional chiefs. The participants examined the constraints to a sound soil fertility management agenda in the context of the West Zone and identified ways of adding value to agricultural produce to support sustainable agriculture. In their resolutions women producers attempted to convince others to invest in soil management while the men pro-

ducers urged their colleagues to become organized to defend their interests.

### **2. Research on the Use of Burkina Phosphate Combined With Organic Manure**

Within the framework of this activity, steps were taken to conduct a survey on farmers' strategies for soil amendment and the use of Burkina phosphate. A paper was prepared for the Club du Sahel, at the request of the Dutch Embassy, dealing with key issues concerning the use of Burkina phosphate. In collaboration with the Dutch Embassy, a think tank (Comité de Réflexion) has been established to elaborate a long-term program on soil fertility restoration and maintenance in Burkina Faso. In addition to UGFS, the group consists of members from DIMA (President), INERA, BUNASOLS, the Secretary of the Six Presidential Engagements and the Coordination Unit of the Structural Adjustment Program for the Agricultural Sector.

### **3. Identification of Appropriate Soil Amendment Technologies**

A paper has been prepared on appropriate soil amendment technologies that will serve as a baseline document for a socioeconomic survey on this issue.

BURKINA FASO *continued on page 8*

## IFDC Conducts Two Training Programs in Fertilizer Marketing and Soil Fertility Management

At the request of the Ministry of Agriculture, Livestock Development and Marketing, Government of

Kenya, IFDC conducted two 1-week in-country training programs on fertilizer marketing and soil fertility management in that country during March. These programs were funded by the World Bank.

The IFDC faculty included J. H. Allgood, Director, Finance, Administration and Support Services; Dr. André Bationo, Senior Soil Fertility Scientist; and R. S. Giroti, Coordinator, Human Resource Development Unit.

The 33 participants attending the first program included entrepreneurs and officials of the Ministry of Agriculture and various cooperatives. The second program attracted 48 participants; included in this

group were senior managers of fertilizer companies, cooperative managers, nongovernmental organizations, and officials of the Ministry of Agriculture.

"Several timely topics were covered during the presentations," says Allgood. "Included on the agenda were sessions on the profitability at the retailer level, in which credit programs, marketing plans, market intelligence, financial management, the service factor, and sales management were discussed. A marketing case study was employed during the program to enhance the participants' knowledge of how to develop a private fertilizer sector and how to reach the small farmer."

Other topics that were included on the agenda were fertilizer inventory management at the retailer level and market analysis and sales forecasting, Giroti reports.

During field trips the participants visited a farm where they observed a maize demonstration, being conducted under the sponsorship of the Fertilizer Use Project of GTZ; on this diversified farm, vegetables, flowers, fruit trees, chickens, and cattle were raised. In addition, another visit was made to the Kambu Fertilizer Company, a progressive dealer that provides a comprehensive array of products and services to its customers.

According to the evaluations by the participants, these programs were very useful and enlightening. Some of the participants stated that the information they gained would "enable them to operate their businesses more effectively and to better advise farmers and retailers."🌐



*(Photo by John H. Allgood)*

**A Kenyan farmer discusses fertilizer use recommendations and application techniques with Ram S. Giroti, IFDC Coordinator, Human Resource Development.**

**Participants in the Fertilizer Study Tour for Managers from FERQUIMEX/FERTIMINA, Mexico, during June 23-29, 1996, at IFDC and various locations throughout the U.S.A. To assist these fertilizer companies as they make the transition toward privatization, IFDC organized and conducted the study tour to allow the participants the opportunity to enhance their knowledge of new technologies and issues confronting the fertilizer industry. Besides attending a formal lecture/discussion session at IFDC Headquarters, the group also toured a number of farmer cooperatives, agricultural dealer shops, and fertilizer industries.**

*(Photo by Charles E. Butler)*



International Fertilizer Development Center  
P.O. Box 2040  
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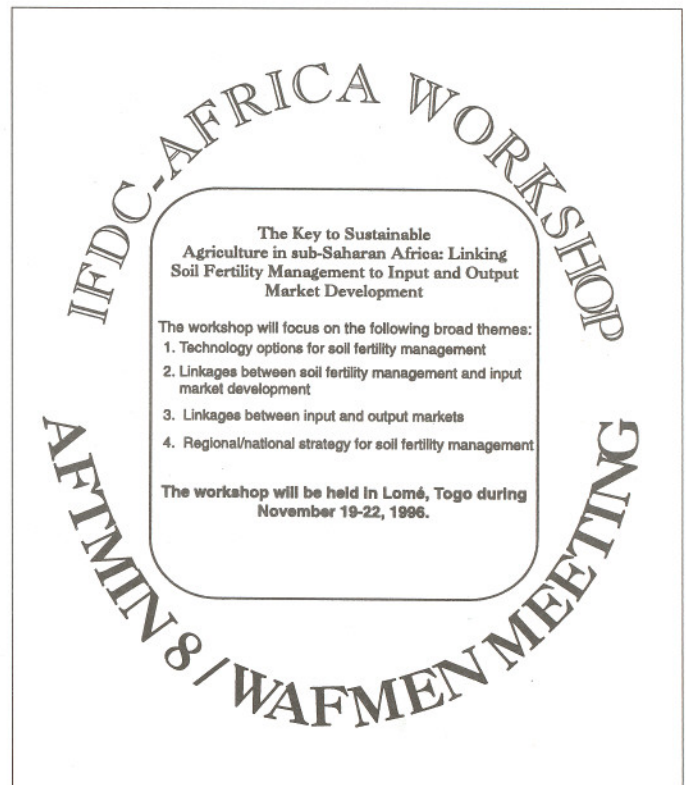
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#### 4. Development of Markets for Agricultural Inputs and Outputs

Among the tools that have been designed are a questionnaire for a rapid survey on the private sector's capacity to link fertilizer distribution and output marketing and the first draft of a proposed strategy and program to improve fertilizer distribution and develop output markets. Other activities include the formulation and pretest of a questionnaire on agroprocessing and the preparation of a survey on the evaluation of the efficiency of government agencies regarding the importation and distribution of inputs.🌐



**The Key to Sustainable  
Agriculture in sub-Saharan Africa: Linking  
Soil Fertility Management to Input and Output  
Market Development**

The workshop will focus on the following broad themes:

1. Technology options for soil fertility management
2. Linkages between soil fertility management and input market development
3. Linkages between input and output markets
4. Regional/national strategy for soil fertility management

The workshop will be held in Lomé, Togo during  
November 19-22, 1996.