

IFDC *Report*

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**an update on
the work & progress at
IFDC—An International Center for Soil
Fertility and Agricultural Development**

A Regional Input Market (MIR) Project Paves the Way for Regional Integration in West Africa

Photo by Vivica Williams



Mr. Moussa Toure, President of the UEMOA Commission, and Dr. Amit H. Roy, IFDC President and Chief Executive Officer, sign the Memorandum of Understanding between UEMOA and IFDC.

The spirit of integration permeated the Conference Room of the West African Economic and Monetary Union (UEMOA) in Ouagadougou, Burkina Faso, on November 4, 2003. It was the launching of MIR, a project aimed at promoting agricultural development through the creation of a favorable environment for a regional agricultural inputs market in West Africa. “Timely, relevant, and promising”—these were the words used to characterize this project, which in the opinion of all is a watershed for agricultural take-off and economic progress in West Africa.

MIR is a 5-year project implemented by IFDC and funded by the Netherlands Ministry for Development Cooperation. It supports the efforts of UEMOA and the Economic Community of West African States (ECOWAS) toward common

agricultural policies. Other partners include the following: the Network of Farmer Organizations and Agricultural Producers of West Africa (ROPPA), the Network of Chambers of Agriculture (RECAO), the Conference of Ministers of Agriculture of West and Central Africa (CMA/WCA), private input importers and dealers, and sector ministries. The project is being coordinated from the IFDC office in Burkina Faso. The project also has offices in Benin, Ghana, Mali, Nigeria, and Togo.

This project comes at a time when, under the pressure of globalization, African agriculture is more than ever grappling with the challenge to be more competitive both to feed a rapidly growing population and to sustain national economies.

During the project launching ceremonies, an ECOWAS official described the constraints facing agriculture in sub-Saharan Africa. ECOWAS’ Acting Deputy Executive Secretary, Dr. M. Afolabi, portrayed the situation in this way: “In spite of the strategic role of agriculture in the economies of our member states, the sector fails to satisfy local needs and remains poorly competitive on the international market. Inappropriate and obsolete farming practices, low use of production inputs and farm implements, and poor organization of actors result in stagnating and even decreasing yields and production. This results in promoting food insecurity and rural and urban poverty in the subregion.”

(Continued on page 2)

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IFDC is a public international organization (PIO), governed by an international board of directors with representation from developed and developing countries. The nonprofit Center is supported by various bilateral and multilateral aid agencies, private foundations, and national governments. IFDC focuses on increasing and sustaining food and agricultural productivity in developing countries through the development and transfer of effective and environmentally sound plant nutrient technology and agribusiness expertise.

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(Continued from page 1)

Dr. Amit Roy, President and Chief Executive Officer of IFDC, stressed the interlinked roles of the primary stakeholders. "At the upstream and downstream of the production chain, a well-functioning market is a determining factor," Roy said. "In this process, the private sector has a central role to play by their active involvement and their business acumen. Farmers also have a crucial role to play through their organization for advocacy and support. Governmental commitment to policy implementation and investment in basic distribution infrastructures are important requirements for success as are donor support and a fair and just international market system. But it is not and would not always be easy to bring public, private, and farmers' interests together as equal. What is critical is the parties' willingness to work together toward acceptable and sustainable solutions."

UEMOA has high aspirations for the MIR project, as outlined by that group's chief executive. "For UEMOA and for ECOWAS, MIR is a precious instrument that can reinforce both institutions' efforts," stated Moussa Toure, President of the UEMOA Commission. "Our ambition for this project is to give rise at the national and regional level to an economic environment capable of supporting the emergence of a dynamic private sector for the development of a sustainable regional market. This project will protect producers and consumers in the subregion through the harmonization of

policies, standards, and quality control systems for fertilizers, seeds and pesticides. We are pleased that IFDC and UEMOA have decided to join forces to develop the synergies necessary and exploit their respective comparative advantages."

Officials in the Burkina Faso Government fully understand the benefits to African agriculture that can be realized through the MIR project. The Minister of State for Agriculture, Fishery and Water Resources of Burkina Faso, Honorable Salif Diallo, had this to say: "To undo the bottlenecks that hamper efforts of our resource-poor farmers, a common policy is indispensable to exert a collective pressure on people, institutions, and circumstances. Building a regional economic integration requires concrete actions similar to those on MIR's agenda that are in line with the goals of the New Partnership for Africa's Development (NEPAD). The MIR project is an example of what we are expecting from NEPAD."

"Harmonized policies and regulations and effective information systems will set the stage for market transparency and competitiveness while imposing and facilitating free movement of goods," said Dr. Henk Berman, Director of the IFDC Africa Division. "MIR's success also depends on strengthening the weaker links in the production chain through training, information, and technical and institutional support. This will facilitate dialogue and strengthen linkages within the fertile triangle—farmers and their organizations, the pri-

vate sector, and the public sector."

The highlight of the ceremony was the signing of the Memorandum of Understanding by Dr. Amit Roy on behalf of IFDC and Moussa Toure on behalf of the UEMOA Commission.

Participants attended two presentations covering the following topics:

- *The Importance of Agricultural Inputs Supply for Cotton Producers: The Connection to the Present Cotton Crisis* by François Traore, President of the Union of Cotton Producers of Burkina Faso and President of the Farmer Confederation of Burkina Faso.
- *The Challenges of Setting up Legislation for the Control of Agricultural Inputs in West Africa: The Fertilizer Case*, by David W. Rutland, IFDC Senior Fertilizer Technology Specialist.

The MIR event attracted about 150 participants from 10 West African countries, representing ministries of agriculture/regional integration/cooperation, farmer organizations, trade associations, donors, research and development institutions, and subregional political and economic organizations.

In his closing remarks, Sylvain Roy, Coordinator of MIR, based in Burkina Faso, expressed the hope that "the dialogue platforms inaugurated this day will lead to concrete and measurable actions that will improve farmers' access to external agricultural inputs at the end of this 5-year project." ♦

An IFDC-Developed Decision Support System Analyzes Options for Direct Application of Phosphate Rock

Can indigenous phosphate rocks (PR) provide the phosphorus (P) requirements for P-depleted soils in sub-Saharan Africa and help eliminate hunger in Africa? The direct application of PR can be an effective alternative to the use of more expensive water-soluble phosphate fertilizers for crop production under certain soil, climate and crop conditions. The use of PR as direct application for P fertilization, however, depends on a host of factors including PR characteristics; agronomic effectiveness as influenced by soil, crop and climate; size of the PR deposit; cost of mining; grinding and distribution; social, economic and environmental impact; and governmental policy. PR should be promoted when (1) its use will be profitable enough to interest farmers as compared to the control and (2) its use will be at least as profitable as the use of soluble phosphates.

IFDC and the Joint Food and Agriculture Organization of the United Nations (FAO)/International Atomic Energy Agency (IAEA) Programme have collaborated on a project to provide users (farmers, extensionists, researchers, and policymakers) with a decision support system that integrates many of the above factors to predict the effectiveness of PR for direct application and provide answers to many of the above issues.

“The decision support system for direct application of PR (PRDSS) is based on our current understanding of PR response as influenced by PR sources, soil pH, soil texture, cation exchange capacity (CEC), organic matter, soil P fixation capacity, type of crop, and moisture/rainfall regime,” says Dr. Upendra Singh, IFDC Senior Systems Modeling Scientist. “The database on PR sources provides information on PR solubility, P content and lime equivalence. The current version of PRDSS predicts the relative agronomic effectiveness (RAE) of the PR source as compared with that of a soluble P fertilizer such as triple superphosphate (TSP) only for the initial application. Future versions of PRDSS will also predict PR performance for annual applications and residual effects.”

For example, a PR source with an RAE of 80% or higher, in general, may be considered for practical reasons as effective as soluble P fertilizer. The final decision by the farmer to use PR for direct application not only depends on RAE but on availability of PR, its farm-gate price as compared with that of soluble P fertilizers, and increased profitability. PRDSS also allows the user to determine the substitution value for PR at a given yield target. For example, to achieve the 50% of maximum yield obtained with TSP, a farmer needs to apply 2.25 times as much of a medium reactive phosphate rock such as Matam from Senegal. Given the prices of TSP and Matam PR, a farmer can then decide if direct application of PR will be profitable. Interested parties may register for a related training program (see program No. 3 on page 10). ♦

Integrated Soil Fertility Management Slated to be Focus of Training Program

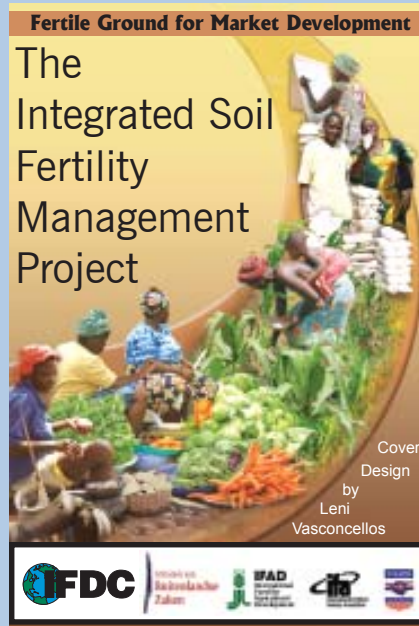
Haoua Hassane, a woman farmer from southern Niger, and her husband Soumana have benefited from the Integrated Soil Fertility Management (ISFM) technology promoted by IFDC in West Africa. They have learned about the management of soil fertility and the interaction between agriculture and animal husbandry. They have seen the effect of compost in combination with mineral fertilizer. Haoua's farmer group allows members to obtain credit for fertilizer and other inputs. Because of their application of the ISFM technology on their fields, the family's livelihood has been enhanced. They now have better clothing and shoes, school materials for their six children, and medicine in case of illness. “I want to teach my children that I have become what I am by being open minded to new innovations, managing well the funds I received, and acquiring financial means by saving,” says Haoua.

ISFM is an integrated approach to agricultural intensification that fosters both technical and institutional change. ISFM aims to increase the productivity, profitability, and sustainability of agricultural production of small-scale farmers in West Africa through fine-tuning and extension of ISFM technologies and facilitating institutional change to improve farmers' access to input and output markets and credit structures.

Participants in a training program to be conducted in Lomé, Togo, during April 19-23, 2004, will be presented a holistic view of ISFM through lectures conducted in French, computer-based decision support tools, and interaction with farmers and researchers during field visits. Specifically, the program will focus on:

- Identifying agro-ecological, socioeconomic, cultural, and political factors influencing agricultural intensification and sustainability.
- Examining ISFM strategies to maximize profit and agronomic use efficiency.
- The role of integrated soil fertility management in developing-country agriculture.
- Methodologies and tools to assess suitability, economic feasibility, and impacts of ISFM on agricultural production, soil fertility, and the environment.

Additional information about ISFM can be found in a new brochure entitled “The Integrated Soil Fertility Management Project: Fertile Ground for Market Development,” which can be downloaded for free from the IFDC web site at www.ifdc.org. Interested parties can also register for the ISFM training program via the web site. ♦



Voucher System Employed in Malawi

Following the successful use of the voucher system in Afghanistan, IFDC has now instituted a similar program in Malawi to assist resource-poor farmers and to develop private dealers whereby the participating farmers provide work on feeder roads as a prerequisite for being supplied with vouchers for fertilizer and seed. This effort, called Sustainable Productive Livelihoods through Inputs for Assets (SPLIFA), is being funded by the British Department for International Development (DfID).

In Malawi a slightly modified version of the Afghan program is being used. Because there was no existing extensive dealer network in Malawi, IFDC arranged to procure fertilizers through large importers and distributors that, in turn, supplied the fertilizer to selected dealers in the six selected districts. The dealers do not own the fertilizer supplied to them since they do not have the financial capability to purchase them but hold the product in custody for supply to the farmers against the voucher. The dealers are paid for this service.

“Vouchers were issued to the farmers after they had worked the required number of days in road building projects in their area,” says Dr. Herschel Weeks, Chief of Party, IFDC/Malawi. “The voucher was a kind of payment for the work completed by a farmer. The dealers provide 50 kg urea fertilizer and 10 kg high-yielding variety maize seed to the farmers in exchange for the vouchers. The farmers are also provided technical help through comic-book style leaflets instructing them in the best possible use of the fertilizer and seed. Since the farmer had already ‘paid’ in kind with labor, unlike the Afghanistan situation, no payments will be made at harvest time.”

Approximately 200 retailers are participating in SPLIFA. These dealers are also transferring knowledge on how to apply the inputs. The agricultural inputs dealers belong to the district dealer associations established and supported by the IFDC Agricultural Inputs Market Development project in Malawi. The participating dealers have received training in the handling, storage and use of agricultural inputs and how the project’s voucher system functions. ♦



Malawian women farmers repair a road to earn a voucher for fertilizer and seed.

Photos by Dr. Thomas P. Thompson



Women farmers in Malawi carry fertilizer and seed to their farms.

IFDC Kosovo Project Helps to Ensure Grain Crops for Winter 2004

Through a new USAID-sponsored project, entitled Kosovo Feed for Poultry Project (KFPP), IFDC has played an instrumental role in helping to demonstrate how new hybrid varieties of feed grains can increase yields and incomes for Kosovo's farmers and poultry producers. The purpose of the new project is to improve the adoption of new technologies by producers in the feed grain, milling, and poultry sub-sectors in order to increase marketed production of quality feed grains, poultry feed, and eggs. Dr. Raymond J. Clark is the Chief of Party of the IFDC Kosovo project.



Photo by Dr. Raymond J. Clark

To achieve its objective, IFDC will promote the consistent delivery of domestically produced high-quality animal feed ingredients by farmers to agri-processors

and by agri-processors to poultry producers. In 2003 the project aims to increase marketable surpluses of maize by 11,000 mt and soybean and sunflower by 700 mt each. These surpluses will reduce the cost of feed by 3%-6% and the production cost of eggs by 2%-5%. In doing so, IFDC will provide a cluster-based model that can be emulated by farmers, millers, and poultry producers throughout Kosovo.

This project builds on a previous IFDC project, the Kosovo Agribusiness Development Project, which promoted new technologies for increased production of wheat and maize and introduced new crop production technologies (e.g., soybeans). IFDC initially and later in collaboration with the Ministry of Agriculture, Forestry and Rural Development (MAFRD) conducted on-farm demonstrations of the maize and wheat technologies throughout Kosovo. In 2001-02 these activities significantly increased average yields of Kosovo's main crops (wheat by 29% and maize by 25%) and continue to contribute to increased crop production.

In terms of winter wheat production, according to the Kosovo Dealers of Agri-Inputs Association (KODAA)—an association formed in 2000 with the assistance of IFDC and USAID—approximately 1,200 tons of new varieties of improved wheat seed was subsequently imported for the 2003 crop season. During this first year of commercial use, the new varieties were planted on 4,000 ha—about 8% of Kosovo's total surface area—and resulted in yields that were 20% higher than traditional varieties.

The MAFRD has now released the 2003 results of the joint IFDC/MAFRD testing. The average yield this year for four winter wheat varieties was 3.79 tons/ha, or 45% higher than traditional varieties.

Due to poor growing conditions in the Balkans this year, there is a shortage of winter wheat seed for 2004. The USAID/IFDC project has played a key role in assisting KODAA dealers to source 650 tons of imported seed. In addition to introducing new varieties of winter wheat, the program has also helped to introduce new varieties of Pioneer maize. This year a KODAA member imported 75 tons of Pioneer maize seed valued at US \$135,000. The improved varieties yielded an average of 6.5 tons/ha, compared with 3.5 tons for traditional varieties. This translates to increased profits of approximately US \$540/ha for Kosovo farmers. ♦

IFDC Conducts Study on the Comparative Advantage of Agricultural Production in Southern Kyrgyzstan

Worldwide innovations in agricultural production technology and the gradual transformation of agriculture in the transitional economies of neighboring countries have raised concerns about the competitiveness and economic feasibility of some agricultural crops in southern Kyrgyzstan. Kyrgyz farmers are being confronted with the challenge of price volatility and tough competition in most agricultural products. Most vegetables are imported from neighboring Uzbekistan throughout the year, wheat production is becoming less profitable, and seed producers have lost a significant market share in neighboring countries.

Newly independent small countries such as Kyrgyzstan must overcome serious constraints and limitations in order to become effective participants in the world market. This goal is particularly more elusive and difficult to achieve if these countries try to compete with a wide range of commodities. Knowledge about comparative advantages can facilitate the identification and exploitation of the best opportunities for these countries to attain gains through improvements in exports and import substitution.

Reliable information about the economic efficiency, profitability, and competitiveness of agricultural production activities and enterprises and the factors and policies that constrain them is essential to design policies and development assistance projects that promote agricultural development and economic growth. Knowledge and information that is gained by conducting comparative economic advantage analysis for a country to produce and market agricultural products can be very useful for the design of policies to promote agricultural development and growth.

IFDC recently conducted a study to provide such knowledge and information by assessing the comparative economic advantage and competitiveness of the most important crop production enterprises in southern Kyrgyzstan using the Policy Analysis Matrix (PAM) methodology. The PAM methodology is a very useful tool to assess the comparative economic advantage of production enterprises and economic activity at a given point in time and for a given set of circumstances. However, this methodology has limitations to evaluate the dynamic nature of competition. It is important to note that for the design of effective policies, other factors such as technical innovation, improvements in education, skills of the work force, and returns to economies of scale should also be considered in conjunction with information about comparative advantages. Changes in the economic environment, technology, and skills of the work force can significantly affect the competitiveness of a product, sometimes drastically.

To conduct this study, alternative sources of information were examined, and farmers and representatives of related sectors were surveyed to obtain better quality data. Aggregate data on agricultural land use and crop yields were obtained from statistical records of three southern oblasts. Crop yields and input use coefficients for various crops were obtained from farmers interviewed in the survey of farmers conducted in the three oblasts, and the data primarily pertained to the 2002 production year.

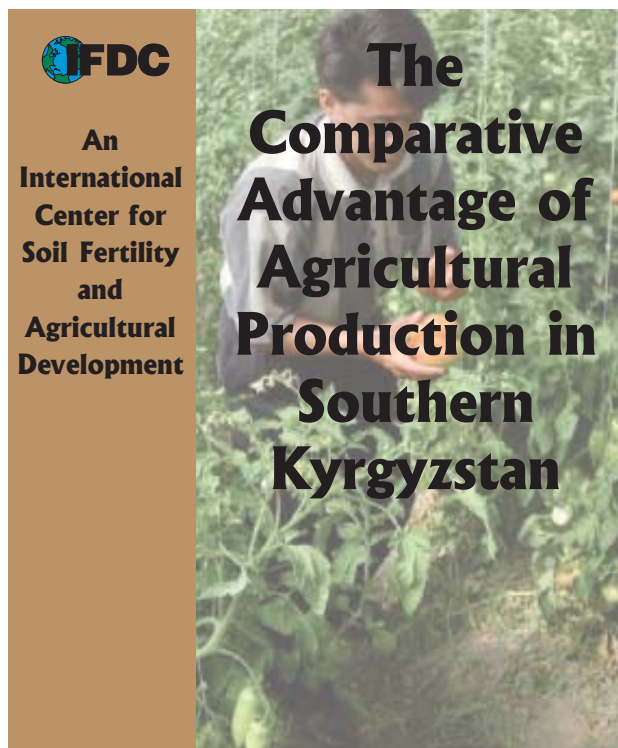
Five main conclusions on the comparative advantage and potential of crop production in southern Kyrgyzstan can be drawn from the results of this study. First, the resources of small- and average-scale farmers can be efficiently used for the production of vegetables to meet the demand of the domestic market and also potentially for the export market.

Second, if the benefits of increasing vegetable production to meet the demand of the domestic market and to boost exports are realized, the incomes of small-scale farmers and the rural labor force in southern Kyrgyzstan should increase significantly along with important gains in foreign exchange. Thus, increasing vegetable production on an economically sound and sustainable basis could have an important positive impact on poverty alleviation and the balance of trade in Kyrgyzstan.

Third, small-scale farmers also have good comparative advantages to produce (1) maize to substitute imports for the domestic market as a non-tradable commodity, and (2) sunflower to meet the domestic demand. Fourth, average-scale farmers have good comparative advantages to produce (1) rice, cotton, maize, and sunflowers for the domestic market and (2) cotton and maize for export and import substitution, respectively.

Fifth, large-scale farmers can use their resources more efficiently in the production of cotton for the export market, maize to substitute imports, and both crops in addition to sunflowers to satisfy the domestic demand.

Paperbacks or downloads of this publication (P-32) prepared by Dilshod Abdulhamidov and Carlos A. Baanante can be purchased online for US \$10 at <http://www.ifdc.org> ♦



Field trips to sugar plantations, pineapple farms, vegetable and flower farms, and fertilizer plants provided interesting insights for participants in IFDC's fertilizer marketing training program conducted in Mauritius during December 1-12, 2003. The Mauritius Sugar Industry Research Institute (MSIRI) was the cosponsor of the program and provided local support.

Seventeen participants from 11 countries—Argentina, Brazil, Ghana, Indonesia, Malawi, Mauritius, Nigeria, Pakistan, Saudi Arabia, Sri Lanka, and the United Arab Emirates—attended the program. The participants made country

presentations and participated in a case study. During the program the participants used a soil analysis kit and received hands-on training in analyzing soil samples obtained during the field visits. During a visit to a fertilizer plant of the Mauritius Chemical and Fertilizer Industry, Ltd., (MCFI) near Port Louis, the participants observed fertilizer manufacturing and granulation, bagging, and shipping operations. They also visited the MCFI soil, tissue, and fertilizer testing laboratories.

Dr. L.J.C. Autrey, Director of MSIRI, inaugurated the program; Harold Lai Chuck Choo, Technical Director of MCFI, delivered the keynote address that highlighted the Mauritian fertilizer situation.

The IFDC program leaders were M. Feisal Beig, Senior Marketing Specialist, and Dr. Upendra Singh, Senior Systems Modeling Specialist. Dr. H. B. Singh, IFDC Chief of Party/Nigeria, made two presentations. ♦

Mauritius Serves as Interesting Venue for Fertilizer Marketing Training Program

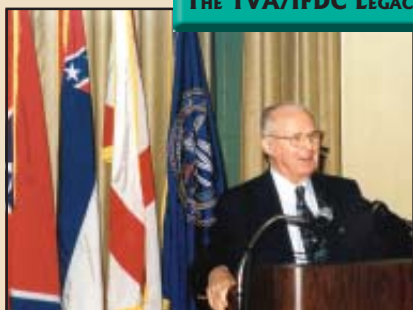


Photo by Dr. Upendra Singh



Feeding a World of 10 Billion People

An International Center for Soil Fertility and Agricultural Development



Borlaug's Paper, *Feeding a World of 10 Billion People: The TVA/IFDC Legacy*, Released by IFDC

IFDC recently published a paper entitled *Feeding a World of 10 Billion People: The TVA/IFDC Legacy*, by Dr. Norman E. Borlaug, the 1970 Nobel Peace Laureate and President of the Sasakawa Africa Association. The paper was also presented as the Third Annual Travis P. Hignett Memorial Lecture.

In the paper Borlaug highlighted the role that science and technology, especially fertilizer, has played in improving the quantity, quality, and availability of food for the world's people over the past 50 years and explored the challenges we face to feed a world of 10 billion people, which are likely to exist on the planet Earth by the end of the new century. Borlaug traces how the work of IFDC and the Tennessee Valley Authority (TVA) has benefited the world, especially with respect to fertilizer science and technology.

(Continued on page 8)

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In the publication, the renowned agriculturalist discusses these additional topics:

- Agriculture and Population
- Food Production and the Role of Science
- The Green Revolution
- Africa: the Greatest Challenge Today
- Future Increases in Food Demand
- Sources of Future Increases in Food Supplies
- Raising Maximum Genetic Potential
- Potential for Land Expansions
- Water Availability and Management
- Marginalized People and Lands
- Security in Land Tenure
- What to Expect from Biotechnology
- Agriculture and the Environment
- Agriculture and Peace

Borlaug states, “Today IFDC is the world’s only nonprofit, science-based organization with the mandate to address the integrated soil nutrient management needs associated with moving toward a sustainable global food system.”

In discussing the sources of future increases in food supplies, he says, “More than 85% of total growth in cereal production must come from increasing yields on land already in production. Such productivity improvements will require varieties with higher genetic yield potential and greater tolerance of drought, insects and diseases. To achieve these genetic gains, advances in both conventional and biotechnology research will be needed. In crop management, we can expect productivity improvements in soil and water conservation, tillage, fertilization, weed and pest control, and post-harvest handling.”

Interested parties can download Borlaug’s publication (LS-3) or order a free paperback copy via the IFDC web site. ♦

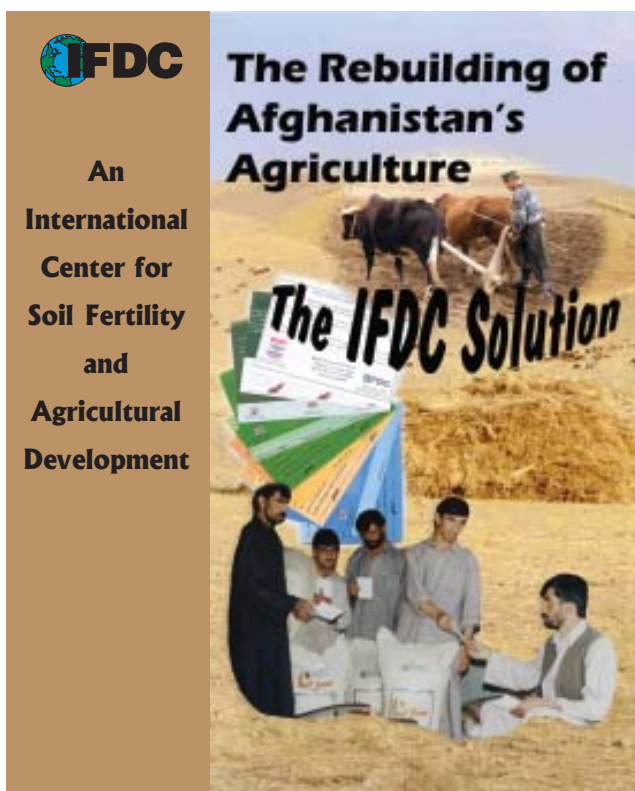
The Rebuilding of Afghanistan’s Agriculture: The IFDC Solution Outlines a Successful Venture

Ghulam Ishan is an old, experienced Afghan farmer who lives in the Bayazed village in the Bagram district of the Parwan province, 65 km north of Kabul. He lives with his wife and an extended family of 16 people on their 3.6-hectare farm. This year he received improved wheat seed and fertilizer from an IFDC project in his country. With this help he was able to produce 3.8 tons per hectare of wheat—his largest harvest in years. His grandchildren are now attending school. He was able to purchase a television and radio with his extra farm income. Ishan’s village is planning to use the funds generated by the project to improve their irrigation system.

IFDC played a significant role in helping Afghan farmers like Ghulam Ishan reap a bountiful harvest in 2003. Ishan and 200,000 more farmers received good seeds and fertilizers for their wheat crop. Because they received the right supplies and knowledge of modern farming methods, these Afghan farmers can now feed their families. IFDC and the International Center for Agricultural Research in the Dry Areas (ICARDA) are responsible for providing 436,000 Afghan citizens with enough bread for 1 year. The annual per-capita consumption of wheat in Afghanistan is 180 kilograms. Afghanistan recently harvested 78,000 additional tons of wheat produced with assistance from the U.S. Agency for International Development (USAID) and IFDC. Playing a key role were 800 Afghan private inputs shop owners who helped make this project successful. IFDC’s innovative credit system using vouchers avoided disrupting a fragile marketing system.

A paper entitled *The Rebuilding of Afghanistan’s Agriculture: The IFDC Solution* by Dr. Amit H. Roy, IFDC’s President and Chief Executive Officer, was recently published. Roy’s paper outlines the challenges to agricultural development in Afghanistan and the accomplishments of the recently completed emergency fertilizer supply project in that country. He also describes the IFDC-developed and instituted voucher program that arranged for a successful market-friendly system for providing a type of credit to poor farmers in Afghanistan.

Another feature of the IFDC project, which Roy describes, is the 30 dealer training programs that were conducted for agricultural inputs dealers in 22 of the 32 Afghan provinces. The project accomplishments clearly demonstrate that the IFDC emergency fertilizer distribution program helped revive the private input dealers’ network by stimulating demand for fertilizers through the voucher system. These dealers were instrumental in Afghanistan’s be-



(Continued on page 9)

(Continued from page 8)

coming self-sufficient in wheat production in 2003 by meeting a 50% increase in market demand for fertilizers.

“The IFDC program could be considered a model that would require continual innovation, flexibility, and commitment to the interests of the target group,” says Roy. “The private sector approach that was used in this program offers an example of what can be accomplished in a relatively short period of time, even in exceptionally challenging circumstances such as those encountered in Afghanistan. The activities demonstrate that the key to developing competitive inputs markets is integrated training, information, individual consultations, and encouragement.”

Interested parties may download a free copy of this publication (P-30) or request a paperback copy via the IFDC web site. A recently published brochure entitled “Bread for Peace in War-Torn Afghanistan” can also be downloaded for free via IFDC’s web site. ♦

Announcements

Dr. Fayez Khasawneh, President of Jordan’s Yarmouk University, attended his first IFDC Board meeting in October and was appointed to the Program Committee.

Dr. John B. Hardman, Atlanta, GA, was elected to the Board. Hardman is a medical doctor who is currently serving as Executive Director of the Carter Center and a member of the Board of Directors of the Sasakawa Africa Association.

Mr. Hiroyoshi Ihara, Tokyo, Japan, was elected to the Board. Currently serving as Auditor for the Japan International Cooperation Agency, Ihara was Japan’s past Ambassador to Ethiopia. ♦

Innovative Management Practices for Nitrogen Use Efficiency to be Presented in a Training Program

Bangladesh rice farmer—Abdul Jalil—has benefited from an IFDC innovative technology called urea deep placement. With the environmentally sound urea supergranule fertilizer, losses of nitrogen amount to only 30%, compared with 70% for the traditionally used prilled urea, which is broadcast over the fields. “Because of increased yields and profits, I was able to repair my house, buy clothing for my family, and pay for my children’s school costs,” Jalil says.

To further disseminate the technology from which Jalil and other Asian farmers have benefited, IFDC will conduct a training program that will address nitrogen management strategies and decision aids that can help to improve nitrogen use efficiency, to increase farmers’ incomes, and to reduce environmental and ecological problems. The Adapting Nutrient Management Technologies (ANMAT) project in Bangladesh, funded by the International Fund for Agricultural Development (IFAD), will illustrate for the training participants the impact of innovative nitrogen management practice on farmers, entrepreneurs, the national economy, and the environment.

Participants in the training program, to be conducted during April 26-30, 2004, in Dhaka, Bangladesh, will be exposed to a holistic view of integrated nitrogen and crop management through lectures, computer-based decision support tools, and direct interactions with farmers and researchers during field visits. Specifically, the program will focus on:

- Methodologies for assessing suitability, economic feasibility, and impacts of innovative and integrated nitrogen management on agricultural production, soil fertility, and the environment.
- Understanding plant nitrogen requirements, identifying nitrogen deficiency symptoms, and making timely and relevant nitrogen fertilizer recommendations.
- Fundamental aspects of improved deep placement as used by the ANMAT project.
- Application of precision technologies and decision support tools for nitrogen management.

More information on the innovative technology of urea deep placement can be found in a new IFDC brochure entitled “More Rice with Improved Nitrogen Efficiency,” which can be downloaded for free from the IFDC web site at www.ifdc.org. Interested parties can also register for the IFDC training program via the web site. ♦

An IFDC Innovation



**More Rice
With Improved
Nitrogen
Efficiency**

Deep Placement of Urea Supergranules

IFDC

2004 International Training Calendar

Training Program/Workshop	Dates	Location	Program Fee, US \$	Late Program Fee, US \$
1. Integrated Soil Fertility Management (in French)	April 19-23	Lomé, Togo	1,000	1,200
2. Innovative Management Practices for Nitrogen Use Efficiency	April 26-30	Dhaka, Bangladesh	1,000	1,200
3. Indigenous Resource Developments for the Fertilizer Sector	May 31 – June 4	Dakar, Senegal	1,000	1,200
4. Agricultural Input Regulatory Systems	August 16-20	Pretoria, South Africa	1,000	1,200
5. Market Information Systems	September 13-17	Accra, Ghana	1,000	1,200
6. Fertilizer Marketing Management	November 22 –December 3	Dubai, UAE	2,000	2,300

(Register online at www.ifdc.org)

Note: A non-refundable deposit of \$200 is required with each registration. The deposit will be credited towards the program fee which is due 4 weeks before the program is scheduled. Thereafter, a *late fee* will apply. The program fee, less the deposit, will be refunded for cancellations made 2 weeks before the commencement of the program; thereafter, 90% of the paid fee will be returned and 10%, in addition to the deposit, will be charged to cover administrative costs.

IFDC reserves the right to cancel any program or change the dates and/or venue of any program without liability for compensation.

Bulk-Blending of Phosphate and Potassium Fertilizers Reduces Cadmium Uptake by Crops

There is an increasing concern over the use of cadmium (Cd)-containing P fertilizers for crop production because its uptake by plants can be one possible avenue of Cd entry into the human food chain. Recently, field experiments conducted by the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia have shown that high chloride content in irrigation waters would have a high risk of producing crops with high Cd concentration. These researchers proposed that chloride forms relatively strong complexes with Cd in soil solution and results in an enhanced Cd uptake by plants.

One implication from the effect of chloride on Cd availability is that if granular potassium chloride (KCl) fertilizer is bulk-blended with granular P fertilizers containing high Cd levels, it may result in a lower Cd uptake by crops than that from the same but granulated PK fertilizers in the same granules because of less physical contact between P (and hence Cd) and potassium chloride granules when bulk blended.

(Continued on page 11)

With this in mind, Dr. S. H. Chien, Principal Scientist – Soil Chemistry of IFDC, conducted a preliminary greenhouse study to test this hypothesis. A single superphosphate (SSP) containing high cadmium content (150 mg Cd per kg of P₂O₅) was granulated by the compaction process with KCl at P:K ratio = 1:1. Granular KCl was also bulk-blended with granular SSP or Cd-free monocalcium phosphate, which is the main P compound in SSP at the same P:K ratio. An acid Ultisol (pH 5.2) was treated with PK fertilizers at a high rate (400 mg each for P and K) to simulate long-term applications of PK fertilizers. Upland rice and soybean were grown to maturity, and *Brachiaria* grass was cut four times during the study.

The results showed that crop yields were the same with SSP and monocalcium phosphate whether they were granulated or bulk-blended with KCl. Concentrations of Cd in plant tissue samples of all crops were much lower for monocalcium phosphate than for SSP. Concentrations of Cd in plant tissues obtained with bulk-blended PK fertilizers were significantly lower than those obtained with the same but granulated fertilizers. For example, a reduction of 35% of Cd concentration in soybean seed was observed with bulk-blended as compared with granulated PK fertilizers. The differences in Cd uptake by crops between the two processes for producing PK fertilizers are expected to widen for tuberous crops such as potato and cassava because Cd concentrations are generally much higher in tubers than those in grains. The results were recently published in the September-October (2003) issue of *Journal of Environmental Quality*.

“Because of the simplicity and flexibility of the bulk-blending process and its relatively low investment and operating cost, bulk blending has become popular worldwide,” Chien says. “The present study suggests that bulk blending of PK fertilizers may have another beneficial effect, that is, less Cd uptake by crops from Cd-containing P fertilizers as compared with the granulation process. However, more agronomic research work with different crops is needed to confirm this possibility, especially under field conditions.” ♦

A New Trade Association is Bringing Change to Azerbaijan

Since 1991 Azerbaijan's state-sponsored agricultural sector has experienced a dramatic decline. With 50% of the labor force engaged in agriculture and agribusiness, the decline in this single sector affected the largest segment of population in Azerbaijan. Today's main constraints to agricultural growth include an unreliable supply of agricultural inputs, outdated technology and practices, and the lack of organization and information exchange in key industries. IFDC activities in agricultural development are aimed at industry association building, technical assistance, and training for both dealers and producers and fostering new markets for agricultural produce.

The Agri-Inputs Market Development in Azerbaijan (AMDA) project has established an association of agricultural inputs dealers for the main agricultural production regions of Azerbaijan. Since its formation, the trade association has been very active in many areas such as training, introduction of new technologies, and business linkages with international suppliers. Through their association programs, inputs dealers provide training for their farmer customers and advice on new farming techniques and management. AMDA works to improve budgeting, financing, productivity, and output through assistance in three core areas: business development, technology transfer and private sector extension services. The project also supports the establishment of new associations and industry clusters. Through this effort more than 80 inputs dealers (importers, wholesalers, and retailers) have increased their turnover by \$1.8 million, invested \$230,000 in business infrastructure, and introduced six new products.

During 2003 potato production increased by 15% to 115,000 tons compared with the 2002 harvest. IFDC/AMDA training programs on production techniques for both dealers and farmers and the introduction of new high-yielding varieties contributed to this achievement. This work also results in increased income for rural families in Azerbaijan. The AMDA-supported association recently started working on developing a country-wide strategy for potato production and marketing.

AMDA has also assisted apple producers in northern Azerbaijan in upgrading production through the introduction of advanced management practices, micronutrient fertilizers, and environmentally sound crop protection products and improved winter preservation. As a result, the production and quality of apples improved dramatically. Progressive producers are exporting nearly 90% of their apples to the Russian market, and 100 tons of high-quality apples are being supplied by one producer to the domestic market. Producers sponsored by the AMDA program are sharing their experience with other farmers in Azerbaijan. The new association is helping to develop the business skills of these dealers and opening the doors to the markets. ♦



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