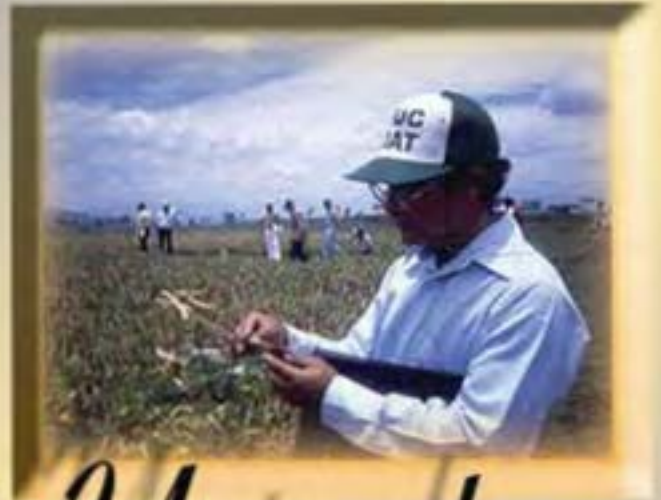


# IFDC Corporate Report, 2003/2004

## The Enduring Impact of IFDC--



*Yesterday*



*Today*

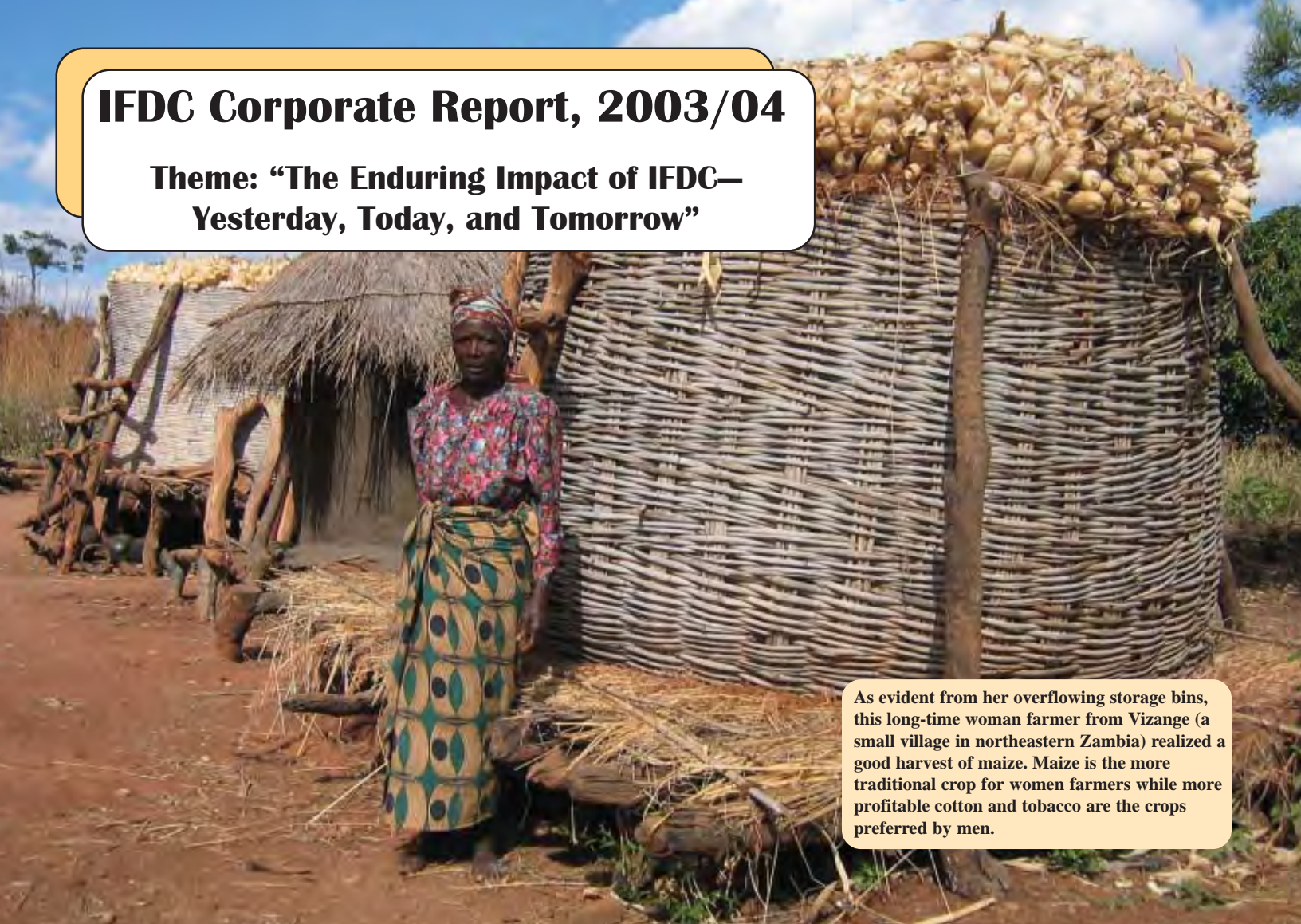


*Tomorrow*



# IFDC Corporate Report, 2003/04

Theme: “The Enduring Impact of IFDC—  
Yesterday, Today, and Tomorrow”




As evident from her overflowing storage bins, this long-time woman farmer from Vizange (a small village in northeastern Zambia) realized a good harvest of maize. Maize is the more traditional crop for women farmers while more profitable cotton and tobacco are the crops preferred by men.

Photo by Patrice Annequin

<b>A Letter From the Board Chair .....</b>	<b>1</b>
<b>A Message From the President and Chief Executive Officer .....</b>	<b>7</b>
<b>Yesterday: Highlights of Thirty Years of Achievements and Impact .....</b>	<b>17</b>
<b>Today: Stories From the Field .....</b>	<b>23</b>
<b>Tomorrow: A Vision for the Future .....</b>	<b>58</b>
<b>Project Portfolio .....</b>	<b>63</b>
<b>Publications, 2003/2004 .....</b>	<b>67</b>
<b>Financial Highlights .....</b>	<b>71</b>
<b>Revenue Sources .....</b>	<b>72</b>
<b>Staff .....</b>	<b>73</b>
<b>Board of Directors .....</b>	<b>76</b>
<b>Global Offices .....</b>	<b>78</b>
<b>Acronyms .....</b>	<b>79</b>
<b>IFDC Profile .....</b>	<b>80</b>

# IFDC's Vision

Photo by Willem-Albert Toose



**Contributing significantly to food security and economic progress by promoting sustainable agricultural development through efficient and environmentally sound management of plant nutrients with other agricultural inputs and natural resources**

# A Letter from the Board Chair

*In this, the “International Year of Rice,” it is appropriate to recognize that IFDC and many of its sister organizations have been contributing for many years to the increased production of this extremely important food commodity. Rice is a staple food crop for more than one-half of the world’s population. The crop is cultivated in about 110 countries on five continents. Almost a billion households in Asia, Africa, and the Americas depend on rice for their main source of employment, nutrition, and livelihood.*

*Rice growers and consumers constitute the bulk of the world’s population that still lives in poverty. More than 90% of the world’s rice is grown in Asia where one-half of the world’s population and 80% of the world’s poor are concentrated.*

*According to the Food and Agriculture Organization (FAO) of the United Nations, 840 million people are undernourished, including 200 million children in the developing countries. Malnourishment greatly limits development. Of the 840 million people suffering from chronic hunger, more than one-half live in areas dependent on rice production for food, income, and employment.*

*Demand for rice driven by population growth is such that about 80-100 million new consumers of rice are added to the world population annually. To satisfy the increasing demand for rice, production must increase by 70% to 907 million tons by the year 2027. To reach these production levels fertilizer, particularly nitrogen fertilizer, is the main driving force under irrigated and favorable rain-fed conditions.*

*Four-fifths of the world’s rice is produced by small-scale farmers and is locally consumed. Therefore, efficient and productive rice-based production systems are essential for economic development and an improved quality of life for much of the world’s population.*



A farmer in Bogra, Bangladesh transplants rice for a demonstration plot for urea deep placement.

ANMAT Photo

*In this “International Year of Rice,” IFDC is continuing to promote the adoption of a more efficient and productive rice-based production system—urea deep placement (UDP is an environmentally sound fertilizer technology to increase rice production). The IFDC-developed UDP technology package increases rice yield with reduced nitrogen fertilizer application and reduced nitrogen loss. Deep-placed urea super granules (USG) result in an average saving of urea fertilizer of about 35% and an average additional yield of 15%-25%.*

*This is just one example of the ways that IFDC is improving the livelihoods of disadvantaged people around the world. This corporate report contains several stories from the field that provide vignettes illustrating the impact of the Center’s work globally.*

*E. Travis York*

**ANMAT Photo**



**A cooperating rice farmer in Kishorganj, Bangladesh, threshes rice harvested from the demonstration plots for urea deep placement so that grain yield can be weighed and recorded.**

## Lettre du Président du Conseil d'administration

*En cette «Année internationale du riz », il convient de reconnaître que l'IFDC et plusieurs organisations sœurs contribuent depuis de nombreuses années à accroître la production de cette céréale extrêmement importante. Le riz constitue en effet l'aliment de base pour plus de la moitié de la population mondiale. Il est cultivé dans environ 110 pays sur cinq continents. Près d'un milliard de ménages en Asie, en Afrique et dans les Amériques dépendent du riz comme principale source d'emplois, de vivres et de moyens d'existence.*

*Les producteurs et les consommateurs de riz constituent la majeure partie de la population mondiale qui vit encore dans la pauvreté. Plus de 90% du riz mondial est cultivé en Asie où sont concentrés la moitié de la population mondiale et 80% des pauvres du monde.*

*Selon l'Organisation des Nations Unies pour l'Alimentation et l'Agriculture (FAO), 840 millions de personnes sont sous-alimentées dont 200 millions d'enfants dans les pays en développement. La sous-alimentation freine considérablement le développement. Des 840 millions de personnes souffrant de la faim chronique plus de la moitié vivent dans des régions qui dépendent de la production du riz comme source de nourriture, de revenu et d'emploi.*

*Du fait de la croissance démographique rapide, la demande en riz est telle qu'environ 80 à 100 millions de nouveaux consommateurs de riz s'ajoutent à la population mondiale chaque année. Pour satisfaire la demande croissante en riz, la production doit augmenter de 70% pour passer à 907 millions de tonnes vers l'an 2027. Pour atteindre ces niveaux de production les engrais, particulièrement les engrais azotés, constituent la force motrice dans les conditions de la culture du riz irrigué et du riz pluvial.*

*Les quatre cinquièmes du riz mondial sont produits par les petits agriculteurs et consommés localement. Par conséquent, des systèmes rizicoles efficaces et*



Un agriculteur de Bogra au Bangladesh transplante du riz sur une parcelle de démonstration du placement profond de l'urée.

Photo ANMAT

*productifs sont essentiels pour le développement économique et l'amélioration de la qualité de la vie pour une grande partie de la population mondiale.*

*En cette « Année internationale du riz », l'IFDC continue de promouvoir l'adoption d'un système de production du riz plus efficace et plus productif - le placement profond de l'urée (PPU). Le PPU est une technique d'accroissement de la production rizicole adaptée du point de vue environnemental. Cette technique augmente le rendement du riz en réduisant l'application des engrais azotés et les pertes d'azote. Le placement profond des super granules d'urée permet une économie moyenne d'engrais d'environ 35% et un rendement additionnel moyen de 15% à 25%.*

*Cela n'est qu'un exemple des diverses façons dont l'IFDC améliore les conditions de vie des populations défavorisées dans le monde. Ce rapport présente plusieurs histoires de succès sur le terrain, qui illustrent l'impact des activités du Centre dans le monde.*

*E Travis York*

Photo ANMAT



**Un agriculteur de Kishorganj au Bangladesh bat le riz récolté sur les parcelles de démonstration de placement profond de l'urée. Le rendement en grain sera ensuite évalué et enregistré.**



## na Carta del Presidente de la Junta Directiva

*En este, el “Año Internacional del Arroz,” es apropiado reconocer que el IFDC y muchas de sus organizaciones hermanas han estado contribuyendo por muchos años al aumento en la producción de este extremadamente importante producto de consumo. El arroz es una cosecha alimenticia básica para más de la mitad de la población del mundo. La cosecha es cultivada en aproximadamente 110 países en cinco continentes. Más de mil millones de lugares en Asia, África y las Américas dependen del arroz como fuente principal de empleo, nutrición y sustento.*

*Los cultivadores de arroz y sus consumidores constituyen la mayor parte de la población mundial que todavía vive en la pobreza. Más del 90% del arroz del mundo es cultivado en el Asia donde está concentrada más de la mitad de la población del mundo y el 80% de los pobres del mundo.*

*De acuerdo a la Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO) existen 840 millones de personas que están desnutridas incluyendo 200 millones de niños en los países en desarrollo. La malnutrición limita enormemente el desarrollo. De las 840 millones de personas que sufren de hambre crónica, más de la mitad viven en áreas dependientes de la producción de arroz para su alimento, sustento y empleo.*

*La demanda de arroz exigida por el crecimiento de población es tal que aproximadamente unos 80 a 100 millones de consumidores de arroz se añaden anualmente a la población del mundo. Para satisfacer la creciente demanda de arroz, la producción debe aumentar en un 70% a 907 millones de toneladas para el año 2007. Para lograr estos niveles de producción el fertilizante, particularmente el nitrógeno fertilizante, es la fuerza principal requerida bajo condiciones irrigadas o de lluvias favorables.*



Un agricultor en Bogra, Bangladesh transplanta arroz a un campo de demostración de urea de aplicación profunda.

Foto ANMAT

*Las cuatro quintas partes del arroz del mundo son producidas por los agricultores a pequeña escala y son consumidas localmente. Por lo tanto, es esencial que los sistemas de producción de arroz sean eficientes y productivos para lograr el desarrollo económico y una mejor calidad de vida para una gran parte de la población mundial.*

*En este “Año Internacional del Arroz,” el IFDC continúa fomentando la adopción de un sistema para arroz que es más eficiente y productivo—la urea de aplicación profunda (una tecnología ambientalmente segura y correcta que aumenta la producción de arroz). El paquete tecnológico de urea de aplicación profunda desarrollado por el IFDC aumenta los rendimientos del arroz con menos aplicaciones de nitrógeno fertilizante y menos pérdidas de nitrógeno. Los supergránulos de urea de aplicación profunda (USG) resultan en un ahorro promedio de urea fertilizante de un 35% y un rendimiento adicional promedio del 15% al 25%.*

*Esto es solo un ejemplo de las formas en las cuales el IFDC está mejorando el sustento de gentes desventajadas alrededor del mundo. Este informe de la Sede contiene varias historias de campo que esbozan casos que ilustran el impacto global que tienen los trabajos del Centro.*

*E. Travis York*

Foto ANMAT



**Un agricultor de arroz en Kishorganj, Bangladesh, trilla arroz cosechado en los lotes de demostración de urea de aplicación profunda para que su rendimiento de grano pueda ser medido y registrado.**



## Message From the President and Chief Executive Officer

*We are pleased to present this report entitled “The Enduring Impact of IFDC—Yesterday, Today, and Tomorrow.” The report includes highlights of our achievements and impact during the past 30 years, stories from the field covering some of our activities during the past 12 months, and a look toward tomorrow for our vision of the future.*

*Our focus must be on improving the livelihood of people where they live if we are to make a difference. We recognize that we must cooperate with many different organizations because no one organization can solve the complex problems of today’s world.*

### Thirty Years of Results and Impact

*Since IFDC was founded 30 years ago, it is fitting that we take a look back to see where we have been. IFDC was created in 1974 during a world food crisis. In a speech before the U.N. General Assembly, Dr. Henry Kissinger, then U.S. Secretary of State, urged the establishment of a center to focus on the development of fertilizers and fertilizer practices to meet the special needs of countries of the tropics and subtropics. As the world’s needs have changed, IFDC’s mission has changed. IFDC is now a multifaceted center focusing on both agricultural input and output marketing as well as research and development.*



**IFDC was created in 1974 during a world food crisis. In a speech before the U.N. General Assembly, Dr. Henry Kissinger, then U.S. Secretary of State, urged the establishment of a center to focus on the development of fertilizers and fertilizer practices to meet the special needs of countries of the tropics and subtropics.**

*Photo by Christopher R. Dowsell*

*The past 30 years have seen many milestones and impacts from IFDC’s work conducted in cooperation with its various partners. The Center’s scientists and technologists have developed agronomic products and practices that have produced larger, more reliable harvests, increased incomes, and helped to protect the environment. Marketing specialists have helped to increase food production by developing and nurturing a private sector responsible for the various functions necessary to enhance agricultural productivity. Through partnerships, we have designed programs that address development assistance needs and implemented development projects that create agricultural markets.*

## IFDC Today

*As we review the events of the past 30 years, we are reminded that a wide variety of issues—scientific, political, economic, environmental, etc.—affect our work today. IFDC’s mission has evolved to encompass a much broader scale than originally set and must continue to adapt to the many complex challenges in today’s world.*

*Because it is composed of an international, multidisciplinary, multilingual staff, IFDC offers a broad mix of skills, disciplines, and partners to provide continuing impact on farmers’ fields and entrepreneurs’ businesses. The staff can provide an unbiased opinion and can produce appropriate solutions to the multifaceted problems in today’s agricultural sector.*

*IFDC has demonstrated success in establishing effective private sector agricultural input and output marketing systems, trade associations, small and medium enterprises, and technology transfer in Albania, Bangladesh, and Kosovo. The Center is now transplanting those successes in Afghanistan,*

**Photo by Dr. Raymond J. Clark**



**This agricultural inputs supply store, Fitofarma, in Ferizaj, Kosovo, represents a valuable resource for farmers. These stores provide not only high-quality agricultural inputs but also up-to-date information on their proper use.**

*Azerbaijan, Ghana, Kyrgyzstan, Malawi, and Nigeria. These efforts are resulting in numerous homegrown entrepreneurial ideas that are taking root and spreading in the individual countries. The Center’s holistic approach is assisting budding entrepreneurs in developing private marketing systems to jumpstart more prosperous economies in their respective countries.*

*IFDC continues to promote the adoption of a modified form of urea fertilizer in Bangladesh, Nepal, and Vietnam. This fertilizer improves the standard of living of rice-growing farmers and reduces the environmental impact of fertilizer use. In this improved process, urea is converted to small briquettes or USG that are applied well below the soil surface near the plants’ roots. The use efficiency of the fertilizer is greatly improved because the nitrogen is trapped where it is needed.*

*This technology has resulted in a 15%-25% increase in rice farmers’ yields. The reduction in nitrogen gases lost to the atmosphere, compared with 70% losses of conventional application methods, is an additional positive benefit. Since less fertilizer is required and more food is produced, this practice has made a substantial contribution to poverty alleviation.*

*The IFDC-developed package of inputs and practices, called integrated soil fertility management (ISFM), being promoted in West Africa, raises the agricultural productivity level and maintains the natural resource base. This package includes the combined use of soil amendments, organic materials,*

*and mineral fertilizers to replenish the soil nutrients and improve the efficiency and cost-effectiveness of external inputs. The technology package produces yields that are 2-3 times higher than average yields. Return on invested capital exceeds 100%, with a value: cost ratio well above 2, and returns to family labor are 2-6 times higher than the average salary rate prevalent in sub-Saharan Africa. The ISFM project is now operating in Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo with more than 2,000 farmers in more than 100 villages participating.*

## **IFDC Tomorrow**

*IFDC recently developed a strategy to build on its core strengths to address the challenges that will confront international agricultural research in the future. These challenges include: poor agricultural production systems, rural poverty, soil nutrient depletion, low water use efficiency, spreading of HIV/AIDS, and accelerated degradation of natural resources.*

*During the past few years, IFDC has moved toward a holistic approach to agricultural development with an emphasis on natural resource management, improved food security, and economic growth grounded in agricultural related enterprises. IFDC's new strategy puts people first because it focuses on increasing substantially the incomes and nutritional status of the rural poor in developing countries, particularly in Africa. The new goal will be achieved through two objectives. The first objective is to increase sustainable agricultural productivity achieved via the development and adaptation of new ecologically sound integrated plant nutrient technologies. The second objective is to expand agricultural trade and markets via the refinement and promotion of IFDC's successful agribusiness and agricultural inputs technology model.*

*In this, IFDC's 30<sup>th</sup> year, we pause to reflect on the accomplishments of the past and look forward to meeting the challenges of the future.*

*Amit H. Roy*



*Photo by J. J. Robert Groot*

**IFDC's new strategy puts people first because it focuses on increasing substantially the incomes and nutritional status of the rural poor in developing countries, particularly in Africa.**



## Message du Président-Directeur général de l'IFDC

*Nous avons le plaisir de présenter ce rapport intitulé « L'impact durable de l'IFDC – hier, aujourd'hui et demain ». Ce rapport illustre les principales réalisations et l'impact de l'IFDC durant les trente dernières années et des histoires de succès glanées sur le terrain au cours des douze derniers mois. Il traduit également notre vision de l'avenir.*

*Si nous voulons faire la différence, nous devons concentrer nos efforts sur l'amélioration des conditions de vie des populations dans leur propre milieu. Nous sommes conscients de la nécessité de coopérer avec d'autres partenaires, car une seule organisation ne peut guère résoudre les problèmes complexes du monde d'aujourd'hui.*

### Les résultats et l'impact de trente ans d'action

*Après trente ans d'existence, il convient de nous pencher sur le chemin parcouru depuis la création de l'IFDC durant la crise alimentaire mondiale de 1974. Dans son discours devant l'Assemblée générale des Nations Unies, Dr Henry Kissinger, alors Secrétaire d'Etat, recommanda vivement l'établissement d'un Centre axé sur le développement des engrais et des pratiques de fertilisation en vue de satisfaire les besoins spécifiques des pays des régions tropicales et sub-tropicales. Depuis, la mission de l'IFDC évolue avec les besoins changeants du monde. Le Centre est devenu aujourd'hui une institution à multiples facettes qui met l'accent sur les intrants agricoles certes, mais aussi sur la commercialisation des produits, la recherche et le développement.*

*L'IFDC a engrangé de nombreuses réalisations durant les trente dernières années et son impact s'est renforcé avec les activités menées en coopération avec divers partenaires. Les scientifiques et techniciens du Centre ont mis au point des produits et des pratiques qui ont permis d'obtenir des récoltes plus importantes et plus régulières, d'augmenter les revenus agricoles et d'aider à la protection de l'environnement. Des spécialistes de la commercialisation ont aidé à accroître la production vivrière en appuyant le développement d'un secteur privé capable d'assumer les diverses fonctions nécessaires à l'amélioration de la productivité agricole. Sur la base du partenariat, nous avons conçu des programmes répondant aux besoins d'aide au développement et mis en œuvre des projets qui créent des marchés agricoles.*



L'IFDC fut créé en 1974 durant la crise alimentaire mondiale. Dans son discours devant l'Assemblée générale des Nations Unies, Dr Henry Kissinger, alors Secrétaire d'Etat des Etats-Unis recommanda vivement l'établissement d'un centre axé sur le développement des engrais et des pratiques de fertilisation pour répondre aux besoins spécifiques des régions tropicales et sub-tropicales.

Photo Christopher R. Dowsell

## L'IFDC aujourd'hui

*Un regard rétrospectif sur les événements des trente dernières années nous rappelle qu'un large éventail de questions scientifiques, politiques, économiques, environnementales, etc. affectent notre travail aujourd'hui. La mission de l'IFDC a pris de l'envergure et cela se poursuivra à mesure que le Centre devra s'adapter aux défis complexes du monde d'aujourd'hui.*

*Grâce à son personnel international, multidisciplinaire et plurilingue l'IFDC dispose d'un large éventail de compétences, de disciplines et de partenaires, qui lui assurent un impact continu dans les champs des agriculteurs et les entreprises commerciales. Ses cadres sont aptes à formuler des jugements objectifs et à susciter des initiatives adaptées aux problèmes multiformes du secteur agricole aujourd'hui.*

*L'IFDC a établi avec succès des systèmes de commercialisation des intrants et des produits agricoles gérés par le secteur privé, des associations professionnelles, des petites et moyennes entreprises et des activités de transfert de technologie en Albanie, au Bangladesh et au Kosovo. Le Centre s'applique à reproduire ces succès dans d'autres pays dont l'Afghanistan, l'Azerbaïdjan, le Ghana, le Kirghizstan, le Malawi et le Nigeria. Cet effort a favorisé l'éclosion de nombreuses idées entrepreneuriales endogènes*

*qui s'enracinent et se répandent dans les pays. L'approche holistique du Centre aide les entrepreneurs à mettre en place des systèmes de commercialisation qui favorisent des économies plus prospères dans leurs pays respectifs.*

Photo Dr Raymond J. Clark



**Fitopharma, une boutique d'intrants agricoles à Ferizaj au Kosovo, représente une importante ressource pour les agriculteurs. Elle fournit non seulement des intrants agricoles de qualité mais aussi des informations sur leur utilisation adéquate.**

*L'IFDC continue de promouvoir l'adoption d'une forme modifiée d'engrais azoté au Bangladesh, au Népal et au Vietnam. Ce produit améliore le niveau de vie des riziculteurs et réduit l'impact environnemental de l'utilisation des engrais. Selon ce procédé amélioré, l'urée est transformée en petites briquettes de super granules d'urée (SGU) qui sont placées en profondeur dans le sol, près des racines. L'efficacité de l'utilisation de l'engrais se trouve considérablement améliorée du fait que l'azote est retenu là où il le faut. Cette technologie a permis d'augmenter les rendements rizicoles de 15% à 25%. La réduction des pertes de gaz azotés dans l'atmosphère comparées aux pertes de 70% avec les méthodes d'application classiques est un des avantages positifs additionnels.*

*L'utilisation des briquettes d'urée est une importante contribution à la réduction de la pauvreté, car elle diminue la quantité d'engrais nécessaire et augmente la quantité de nourriture produite.*

*L'IFDC a élaboré un paquet de techniques de gestion intégrée de la fertilité des sols (GIFS) vulgarisé en Afrique de l'Ouest, qui permet d'accroître le niveau de la productivité agricole et de maintenir la base des ressources naturelles agricoles. Ce paquet inclut l'utilisation des amendements du sol com-*

*binés avec la matière organique et les engrais minéraux pour reconstituer les éléments nutritifs du sol et améliorer l'efficacité et la rentabilité des intrants externes. Ces techniques ont produit des résultats qui sont 2 à 3 fois supérieurs aux rendements moyens. Le retour sur le capital investi dépasse les 100% avec un rapport valeur-coût de 2 à 6 fois supérieur au salaire moyen dans la région subsaharienne. Le projet GIFS fonctionne actuellement au Bénin, au Burkina Faso, au Ghana, au Mali, au Niger, au Nigeria et au Togo avec la participation de plus de 2 000 agriculteurs dans plus d'une centaine de villages.*

## **L'IFDC demain**

*L'IFDC vient d'élaborer une stratégie basée sur ses principales forces pour relever les défis auxquels sera confrontée la recherche agricole internationale dans l'avenir. Ces défis concernent l'inefficacité des systèmes de production agricole, la pauvreté rurale, l'épuisement des éléments nutritifs, la faible efficacité de l'utilisation de l'eau, l'expansion du sida et la dégradation rapide des ressources naturelles.*

*Au cours des dernières années, l'IFDC a progressé vers une approche holistique du développement agricole mettant l'accent sur la gestion des ressources naturelles, l'amélioration de la sécurité alimentaire et la croissance économique en s'appuyant sur les entreprises agro-industrielles. La nouvelle stratégie de l'IFDC place les gens au centre de toute initiative de développement en mettant l'accent sur l'augmentation des revenus et l'amélioration du statut nutritionnel des populations rurales défavorisées dans les pays en développement, particulièrement en Afrique. Cette stratégie sera mise en œuvre à travers deux objectifs. Le premier objectif est d'accroître considérablement la productivité agricole par l'élaboration et l'adaptation de techniques de fertilisation des sols viables du point de vue écologique. Le second objectif est de développer les marchés et le commerce agricole par l'élaboration et la promotion de techniques d'intrants agricoles efficaces et d'agro-industries performantes.*

*Ainsi, en ce trentième anniversaire de l'IFDC, nous prenons le temps de réfléchir sur les réalisations du passé en fixant le regard sur les défis de l'avenir.*

*Amit H. Roy*



*Photo J. J. Robert Groot*

**La nouvelle stratégie de l'IFDC place les gens au centre de toute initiative de développement en mettant l'accent sur l'accroissement des revenus et l'amélioration de l'état nutritionnel des populations rurales pauvres dans les pays en développement, particulièrement en Afrique.**



## Mensaje Del Presidente y Jefe Ejecutivo

*Nos complace presentar este informe intitulado “El Impacto Perdurante del IFDC – Ayer, Hoy y Mañana.” El informe incluye los resaltes de nuestros logros e impactos durante los últimos 30 años, historias de campo que cubren algunas de nuestras actividades durante los últimos 12 meses, y una vista hacia el mañana para nuestra visión del futuro.*

*Nuestro enfoque debe ser el mejoramiento del sustento de la gente donde viven si vamos a lograr hacer un cambio. Reconocemos que debemos cooperar con muchas organizaciones diferentes porque ninguna organización puede por su cuenta resolver los problemas complejos del mundo actual.*

### Treinta Años de Resultados e Impactos

*Ya que el IFDC se fundó hace 30 años es importante que miremos al pasado para ver dónde hemos estado. El IFDC se creó en 1974 durante una crisis mundial de alimentos. En un discurso ante la Asamblea General de la ONU, el Dr. Henry Kissinger, en aquel entonces Secretario de Estado de los EEUU, urgió el establecimiento de un centro que hiciera enfoque en el desarrollo de fertilizantes y prácticas de fertilizantes para cubrir las necesidades especiales de los países tropicales y subtropicales. A medida que las necesidades mundiales han cambiado, la misión del IFDC ha cambiado. El IFDC es hoy en día un centro multifacético que se enfoca tanto en insumos agrícolas y el mercadeo de productos, como en la investigación y el desarrollo.*



El IFDC se creó en 1974 durante una crisis mundial de alimentos. En un discurso ante la Asamblea General de la ONU, el Dr. Henry Kissinger, en aquel entonces Secretario de Estado de los EEUU, urgió el establecimiento de un centro que hiciera enfoque en el desarrollo y el mejoramiento de fertilizantes para cubrir las necesidades especiales de los países en los trópicos y subtrópicos.

Foto por Christopher R. Dowsell

*Los últimos 30 años han visto muchos eventos significativos e impactos por los trabajos llevados a cabo por el IFDC en cooperación con sus varios socios. Los científicos y tecnólogos del Centro han desarrollado productos y prácticas agronómicas que han desarrollado cosechas mayores y predecibles, han aumentado ingresos, y han ayudado a proteger el medio ambiente. Los especialistas en mercadeo han ayudado a aumentar la producción de alimentos al desarrollar y fomentar un sector privado responsable de las varias funciones necesarias para promover la productividad agrícola. A través de asociaciones, hemos diseñado programas que están dirigidos hacia las necesidades en la asistencia del desarrollo, e implementado proyectos de desarrollo que crean mercados agrícolas.*

## El IFDC Hoy

*A medida que revisamos los eventos de los últimos 30 años, se nos recuerda que una amplia gama de factores—científicos, políticos, económicos, ambientales, etc. afectan nuestro trabajo hoy en día. La misión del IFDC ha evolucionado en tal forma que comprende una escala mucho más amplia que con la cual originalmente se creó, y debe continuar adaptándose a los múltiples retos del mundo actual.*

*Debido a que está compuesto por un personal internacional, multidisciplinario, y multilingüe, el IFDC ofrece una amplia combinación de experticias, disciplinas y socios que provéen un contínuo impacto en los campos de los agricultores y los negocios de empresarios. El personal también puede dar una opinión imparcial y producir soluciones apropiadas a los problemas multifacéticos en el sector agrícola de hoy en día.*

*El IFDC ha demostrado éxitos al establecer sistemas efectivos de insumos agrícolas y mercadeo de productos en el sector privado, asociaciones de comercio, empresas pequeñas e intermedias, y transferencia de tecnología en Albania, Bangladesh y Kosovo. El Centro ahora se encuentra transplantando estos éxitos en Afganistán, Azerbayán, Ghana, Kyrgyzstán, Malawi y Nigeria. Estos esfuerzos están dando resultados en numerosas ideas empresariales locales que están echando raiz y*

*se están diseminando a los países individuales. El enfoque holístico del Centro está prestando asistencia a los nuevos empresario al desarrollar sistemas privados de mercadeo para impulsar economías más prósperas en sus respectivos países.*

*El IFDC continúa promoviendo la adopción de una forma de urea fertilizante modificada en Bangladesh, Nepal y Vietnam. Este fertilizante mejora el nivel de vida de los agricultores de arroz y disminuye el impacto ambiental del uso de fertilizantes. En este proceso mejorado, la urea se convierte en pequeñas briquetas, o USG, que son aplicadas a profundidad en el suelo, cerca de las raíces de las plantas. La eficiencia en el uso del fertilizante es altamente mejorada ya que el nitrógeno está atrapado donde se necesita. Esta tecnología ha resultado en un aumento del 15% al 25% en los rendimientos de*

Foto por Dr. Raymond J. Clark



**Este almacén de suministro de insumos, Fitofarma, en Ferizaj, Kosovo, representa un valioso recurso para los agricultores. Estos almacenes ofrecen no sólo insumos agrícolas de alta calidad sino información actualizada sobre su uso adecuado.**

*los agricultores. La reducción en la pérdida de gases de nitrógeno a la atmósfera, comparada con un 70% de pérdidas en los métodos convencionales de aplicación, es un beneficio adicional positivo. Como se requiere menos fertilizante y se produce más alimento, esta práctica ha hecho una contribución sustancial al alivio de la pobreza.*

*El paquete de insumos y prácticas desarrollado por el IFDC, llamado manejo integrado de fertilidad de suelo (ISFM) que se está promoviendo en el África Occidental, eleva el nivel de productividad agrícola y mantiene la base de recursos naturales. Este paquete incluye el uso combinado de enmiendas de suelos, materiales orgánicos y fertilizantes minerales para reponer los nutrientes del suelo y mejorar la eficiencia y efectividad de costos de los insumos externos. El paquete de tecnología produce rendimientos que son de 2 a 3 veces mayores que los rendimientos promedio. La ganancia sobre el capital invertido excede el 100%, con una relación de valor:costo por encima de 2, y el retorno a la labor familiar es de 2 a 6 veces mayor que la tasa de salario promedio prevalente en el sub-Sahara africano. El proyecto ISFM está ahora operando en Benín, Burkina Faso, Ghana, Mali, Níger, Nigeria y Togo con participación de más de 2,000 agricultores y 100 aldeas.*

## **El IFDC del Mañana**

*El IFDC recientemente ha desarrollado una estrategia para reforzar aún más sus fuertes bases para afrontar en mejor forma los retos que tendrán que ser confrontados por las investigaciones agrícolas en el futuro. Estos retos incluyen: sistemas pobres de producción agrícola, pobreza rural, desgaste de nutrientes del suelo, baja eficiencia en el uso de aguas, difusión del VIH/SIDA, y la degradación acelerada de recursos naturales.*

*Durante los últimos años, el IFDC se ha inclinado hacia un enfoque holístico en el desarrollo agrícola haciendo énfasis en el manejo de recursos naturales, un mejoramiento en la seguridad de alimentos, y el crecimiento económico basado en empresas agrícolas. La nueva estrategia del IFDC ubica a la gente en primer plano porque se enfoca en aumentar sustancialmente los ingresos y el estado nutricional*



*Foto por J. J. Robert Groot*

**La nueva estrategia del IFDC ubica a la gente en el primer plano porque se enfoca en aumentar sustancialmente los ingresos y el estado nutricional de los pobres en zonas rurales de países en desarrollo, particularmente en el África.**

*de los pobres en las zonas rurales de países en desarrollo, particularmente en el Africa. La nueva meta se logrará a través de dos objetivos. El primer objetivo es el de aumentar la productividad agrícola sostenible a través del desarrollo y la adaptación de nuevas tecnologías integradas de nutrientes de plantas que sean ecológicamente correctas. El segundo objetivo es el de expandir el comercio y los mercados agrícolas a través del refinamiento y la promoción del exitoso modelo tecnológico de agronegocios e insumos agrícolas del IFDC.*

*En este, trigésimo año del IFDC, hacemos una pausa para pensar en los logros del pasado y mirar hacia adelante para afrontar los retos del futuro.*

*Amit H. Roy*

# Y

## esterday: Highlights of Thirty Years of Achievements and Impact

### Born of a Crisis

In the midst of the world food crisis of the 1970s, the international community recognized that the solution to hunger problems lay in the food-deficit countries themselves. They needed to produce more food. To help them achieve this goal, a global effort was needed to focus on the development of fertilizers and fertilizer practices to meet the special needs of countries of the tropics and subtropics. In a speech before the United Nations General Assembly in April 1974, then U.S. Secretary of State, Dr. Henry Kissinger, urged the establishment of a center for this purpose. The center that was created was called the International Fertilizer Development Center or IFDC. In October 1974, IFDC was established as a private, nonprofit corporation under Alabama law. In March 1977 President Jimmy Carter granted the Center the designation of a nonprofit public international organization.

### Initial Focus

In the early years our work focused on increasing food production through the development of new and improved fertilizer and fertilizer know-how for developing countries. Our goals also included the expansion of the use of existing or modified fertilizer materials. Our scientists and engineers placed special emphasis on developing more effective fertilizers for food crops grown under tropical and subtropical conditions.

From the beginning IFDC was created to become a fertilizer research and development center of excellence for the developing countries. Initial work of the Center focused on (1) improving the efficiency of fertilizer used in the tropics and subtropics; (2) assisting developing countries in making better use of indigenous fertilizer resources; (3) developing fertilizer technology appropriate to the constraints of developing countries; (4) assisting in the training of personnel needed in the developing countries to produce and market fertilizer; (5) making available, where appropriate, the transfer of technical information and technology on fertilizer production, marketing, and use to developing countries; and (6) assisting national and international agricultural development organizations by providing the necessary technical support to their programs.

### Funding Base

Initial funding came from the U.S. Agency for International Development (USAID) and the International Development Research Centre (IDRC) of Canada. Over the years the Center's funding sources have included

**In the midst of the world food crisis of the 1970s, the international community recognized that the solution to hunger problems lay in the food-deficit countries themselves. They needed to produce more food. To help them achieve this goal, a global effort was needed to focus on the development of fertilizers and fertilizer practices to meet the special needs of countries of the tropics and subtropics.**



Photo by Christopher R. Dowswell

**From the beginning IFDC was created to become a fertilizer research and development center of excellence for the developing countries.**

various bilateral and multilateral development agencies, host-government institutions, private enterprises, foundations, and other organizations.

## **Internationally and Technically Diverse Staff**

From its inception, IFDC recruited staff who were both internationally and technically diverse. Even in the early years, many of our staff members were posted in several developing countries of Africa, Asia, and Latin America. Because of three complementary factors, we were able to conduct unique fertilizer research and development. These factors include: (1) the multidisciplinary structure of its staff to participate in research, technical assistance, and training; (2) the ability to produce and test experimental fertilizers in laboratories, pilot plants, and greenhouses; and (3) linkages with key regional and national institutions having an interest in improving food production in the developing world.

## **Nitrogen Research Work**

From the beginning our nitrogen research followed a three-phase strategy. Using this strategy, the research determined the extent of nitrogen losses from the fertilizers being used; improved the use efficiency through modification of materials or management; and developed and tested new fertilizer products, processes, and management practices for low-land and upland cropping situations. In collaboration with scientists at the International Rice Research Institute (IRRI), and national agricultural research and extension systems, our researchers studied intensively the pathways of nitrogen loss. These scientists illustrated that the escape of ammonia to the atmosphere as a gas was the principal avenue of loss of nitrogen fertilizer broadcast into floodwater. Our scientists and engineers investigated three methods to keep the ammonium concentrations in the floodwater as low as possible. These methods included: (1) coating the fertilizer to prevent temporarily the fertilizer from dissolving, (2) treating the fertilizer with an inhibitor to slow the decomposition of urea, and (3) deep-point placing large particles of urea fertilizer. Of the three methods of reducing nitrogen losses, the scientists concluded that, over the short term, deep placement of urea has the greatest potential for rice farmers of the developing world.

Photo by Ms. Ellen Mauer (IRRI)



**Our researchers studied intensively the pathways of nitrogen loss. These scientists illustrated that the escape of ammonia to the atmosphere as a gas was the principal avenue of loss of nitrogen fertilizer broadcast into floodwater.**

## Advances in Phosphate Research

From its inception IFDC pioneered work on the characterization of ores from phosphate rock deposits, beneficiation of the ores to produce concentrates, and the development of ways to use the material directly as a fertilizer or through some chemical modification to enhance its suitability as a phosphate source for crops. Our fertilizer technologists worked on many of the so-called “problem ores” from several countries and found solutions that permit the use of many of them. The use of these indigenous materials provides an alternative to expensive imported raw materials or products. These technologies were developed first at Headquarters, subsequently tested at other international agricultural research centers, and eventually passed to institutions at the national level. Our efforts in phosphate research aimed at helping developing countries to use their own phosphate resources and to reduce the costs of producing phosphate fertilizers by the introduction of technology requiring less energy and capital. As a result of this emphasis, our geologists and soil chemists characterized dozens of phosphate deposits and developed data on their potential use in fertilizers. Our engineers and fertilizer technologists improved production processes for these fertilizers. One interesting development was partial acidulation, whereby only a portion of the acid normally used to make single super phosphate (SSP) or triple super phosphate (TSP) fertilizers is used to attack the rock. Agronomic tests on the resulting products indicated that even relatively unreactive rocks can be transformed into useful products, which often produced a yield response similar to that with SSP or TSP. In addition, our engineers developed a one-step process for partial acidulation and granulation, which eliminated dustiness and other difficulties associated with the application of finely ground materials. These granulated products are also compatible for mixing and blending with most other materials to make a multi-nutrient fertilizer.

On the Latin American continent, our research to find energy-efficient, cost-effective alternatives to the more expensive imported phosphate fertilizers by using natural and altered phosphates from countries like Colombia resulted in that country’s use of 25,000 tons per year of its Huila phosphate rock (approximately one-seventh of

IFDC Photo



**Our fertilizer technologists worked on many of the so-called “problem ores” from several countries and found solutions that permit the use of many of them.**

CIAT Photo



**On the Latin American continent, our researchers found energy-efficient, cost-effective alternatives to the more expensive imported phosphate fertilizers by using natural and altered phosphates from countries like Colombia.**

its annual consumption of phosphate fertilizers), which was sold and consumed on farmers' fields each year. Improved management of phosphate fertilizers caused the yields of maize and beans of small-scale farmers to increase by 20%-30%. The private sector has been actively involved in the processing and production of phosphate fertilizer based on Huila phosphate rock. By using this indigenous fertilizer, Colombia could realize an estimated saving in foreign exchange of approximately US \$1 million per year. Colombia is only one of the many developing countries that we have helped to find ways to use their indigenous phosphate resources as plant nutrients. Other examples include Brazil, India, Philippines, Tanzania, Venezuela, and Burkina Faso.

## Market Development Successes

We have been successful in promoting the development of effective private agricultural input and output marketing systems, which involve organizing trade associations, and small and medium enterprises, and the transfer of technology in Bangladesh and Albania. By using a holistic approach we have assisted entrepreneurs in establishing market economies to trigger economic development in their respective countries.

**By using a holistic approach IFDC has assisted entrepreneurs in establishing market economies to trigger economic development in their respective countries.**

**Bangladesh**—One of our most outstanding success stories occurred in Bangladesh, where a 15-year project completely restructured the fertilizer sector and instituted a freely competitive marketing system, which created a network of 170,000 private entrepreneurs. By eliminating fertilizer subsidies and other support costs and allowing the private sector to oversee all fertilizer marketing activities from importation to retail sales, the Government of Bangladesh saved more than US \$100 million during 1988-94. As a result of improved effectiveness in the market and intense competition, the retail price of fertilizers was reduced and fertilizer sales increased by approximately 8% per year during 1987-94. A prime result of this project was Bangladesh's achievement of self-sufficiency in rice in the early 1990s. We worked with local non-governmental organizations (NGOs) such as the Grameen Bank to introduce high-yielding varieties of maize on a large scale in Bangladesh. The impact on Bangladesh's human resources is also significant; more than 11,000 participants were trained in 238 domestic courses and workshops. In addition, 193 dealers, government officials, and bankers were trained in 33 programs in the United States and Europe.

**One of our most outstanding success stories occurred in Bangladesh, where a 15-year project completely restructured the fertilizer sector and instituted a freely competitive marketing system.**



Photo by Azizul Islam/BADC

In the mid-1990s we launched another project in Bangladesh, called the Agro-Based Industry and Technology Development Project (ATDP). The ATDP goal was to increase productive employment in agriculture and related enterprises in Bangladesh. The project created competitive markets for agriculture and agribusiness inputs, outputs, and technologies. Moreover, it stimulated a massive investment in value-added business activities. Agribusiness ventures were initiated and existing ones expanded with financing from a US \$26 million+ agribusiness credit fund. The amount of investments made in agribusiness totaled US \$257 million and included 12,700 loans. In addition, 70,000

new agribusiness employees were added in the private sector. During the project 700,000 farmers increased their incomes by using more productive, environmentally sound technologies such as UDP for rice production.

More recently work has concentrated on increasing paddy yields from less use of nitrogen fertilizers. The beneficiaries are resource-poor farmers in selected areas of Bangladesh, Nepal, and Vietnam. For paddy cultivation, losses of nitrogen are great. Typically about 30% plant recovery is obtained from the broadcast applications of urea, but research has proven that placement into submerged soils eliminates much of the gases and runoff losses. UDP using urea briquettes or USG, although labor intensive, provides high yields from less fertilizer, is environmentally friendly, and appears to be feasible for use by small-scale, resource-poor farmers. In general, during dry seasons, farmers obtain 1,000 kg/ha more paddy—an average 20% increase—from UDP than from their broadcast urea applications and use 20%-30% less urea.

**Albania**—In the early 1990s, we began assisting the Government of Albania in establishing a working and vibrant market economy in that country's agricultural sector. The Albania project created a fully privatized market for agricultural inputs, assisted Albania in developing an efficient national agricultural statistical system, developed a supporting institutional capability, and nurtured the development of the highly successful Albanian Fertilizer and Agricultural Inputs Dealers' Association (AFADA). Private enterprises are now supplying 100% of Albania's fertilizer requirements, 95% of crop protection products, and 80% of certified imported and domestic seed. Four-fifths of all farmers are using fertilizers, and nearly one-half are using improved seed. Yields of wheat and maize have increased 22%, and many farmers have shifted to more high-value horticultural crops. Better fertilizer and seed laws, reductions in tariffs, and the establishment of viable seed and soil institutes capable of serving farmers and agribusinesses enhanced these improvements. During the past few years, the Albania project has nurtured private sector-led growth in agriculture and business by successfully establishing eight democratic and functioning agricultural trade associations, a federation of 18 trade associations as an effective voice for advocating policy reform, and the partnership of eight of them in an Association Business and Management Center that aims to be effective and self-sufficient. During 1998-2003, farm income in Albania increased by 64%; exports of fresh vegetables increased by 247%. The project clients invested millions of dollars of their own money in agribusiness and increased their production and revenues by more than 60% and employment by 25%.

**The Albania project created a fully privatized market for agricultural inputs, assisted Albania in developing an efficient national agricultural statistical system, developed a supporting institutional capability, and nurtured the development of the highly successful Albanian Fertilizer and Agricultural Inputs Dealers' Association (AFADA).**



Photo by Dr. Thomas P. Thompson

## Technology Transfer Initiatives

Since 1974 we have conducted technology transfer activities in more than 130 countries. One example occurred in Venezuela. For a period of 5 years during the 1990s, our engineers and marketing specialists assisted 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. This restructuring project produced tangible results. For example, the company's energy consumption was reduced by 480 billion btu per year; a total saving of about US \$3 million per year was achieved. In 1998 PEQUIVEN produced twice as many tons of fertilizer as in 1994 when we began our involvement in Moron, Venezuela. The production rates of the ammonia/urea and phosphoric acid units are approximately 100% capacity. Improved production efficiency in the phosphoric acid and NPK granulation plants created a saving of about US \$10,000 per day. The saving from increased production of phosphoric acid has been in excess of US \$6 million per year. The project managers introduced a preventive maintenance program that decreased unscheduled downtime by about 50%. The control of credit to dealers, dealers' inventory, and past due collections improved PEQUIVEN's cash flow. The marketing train-the-trainer program, with the participation of 600+ persons from PEQUIVEN's management, quickly expanded the company's capability to develop an entirely new customer-oriented sales force. The project was 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.

## Establishment of Regional Divisions

In 1987 we established a regional presence in Africa and Asia, with the creation of the Africa Division in Lomé, Togo, and the Asia Division, in Dhaka, Bangladesh. Our mission in sub-Saharan Africa is to help countries of this region to increase agricultural production and farmers' revenues while improving the natural resource base. Thus, we help to create conditions that enable farmers to make lasting choices to meet the needs of the current and future generations. The Africa Division's activities are improving the prospects for sustainable agriculture in the region. Likewise, IFDC in Asia has made an outstanding impact on the agricultural situation in Bangladesh, India, Indonesia, Nepal, Philippines, and Vietnam during the past 30 years.

## Human Resource Development

Since 1974 we have contributed to the development of the human resources and institutional capacity building in 150 countries through more than 650 training programs for more than 8,500 participants. In addition to the international programs and study tours, we have conducted most of the training as part of the long-term agricultural development projects overseas. This training annually involves more than 8,000 agricultural input dealers, trade association members, progressive farmers, and others in hundreds of relevant technical, business, marketing, and management programs.

Photo by Charles E. Butler



Since 1974 we have contributed to the development of the human resources and institutional capacity building in 150 countries through 651 international training programs for 8,506 participants.

## **Today: Stories From the Field—Recent Advances in Market Development, Resource Development, Soil Fertility Management, and Training**

Born of a world food crisis in 1974, three decades later IFDC is mitigating crises of varying magnitudes and origins. The Center has rapidly become known as a problem solver in the area of agricultural development for emerging market economies and other countries in the throes of civil unrest.

During 2003/04 we have impacted the agricultural sectors in several countries including Afghanistan, Albania, Azerbaijan, Bangladesh, Burkina Faso, Ethiopia, Ghana, Kenya, Kosovo, Kyrgyzstan, Malawi, Mali, Morocco, Nepal, Nigeria, Tanzania, Togo, Vietnam, and Zambia. The following stories from the field illustrate how our work has impacted the lives of specific individuals. There are many more beneficiaries of our work besides those highlighted here.

**Born of a world food crisis in 1974, three decades later IFDC is mitigating crises of varying magnitudes and origins. The Center has rapidly become known as a problem solver for emerging market economies and other countries in the throes of civil unrest.**

Photo by J. J. Robert Groot



**Most of Africa did not benefit from the Green Revolution; thus, per capita cereal production declined between 1970 and 2000.**

## AFGHANISTAN—Project Brief

Following the conflict of 2002, we have helped the war-torn country of Afghanistan resurrect its critical agricultural sector. The project arranged for the purchase, donation, and delivery of fertilizer on an emergency basis. The funds were used to supply vouchers to 198,160 farmers so they could obtain fertilizer from dealers, who purchased it on a commercial basis. The objective of the work in Afghanistan was to help the farmers rejuvenate their country's agriculture and to lay the groundwork for a market-friendly and private sector system to supply fertilizer and other agricultural inputs. The project coordinated with the Ministry of Agriculture, International Center for Agricultural Research in the Dry Areas (ICARDA) on seed supply, and with nongovernmental organizations that worked in the main agricultural regions. Training was provided on the management and use of fertilizers, and field trials were conducted to demonstrate the effectiveness of properly applied fertilizers.

Since January 2004 we have been participating in the Rebuilding of Agricultural Markets of Afghanistan Program (RAMP) by providing dealer development expertise. Key accomplishments by IFDC are as follows:

- Regional coordinators have visited approximately 1,000 agricultural inputs dealers in 8 provinces.
- Dealer training material covering fertilizers, seed and agro-chemicals have been prepared and translated into Dari and Pushtu.
- Eight agricultural inputs dealer training programs were held in five provinces, where 364 agricultural inputs dealers participated.
- Information on international fertilizer prices is maintained regularly; a system is being developed to distribute these prices to the key players.

Photo by M. Feisal Beig



The objective of the work in Afghanistan is to help the farmers rejuvenate their country's agriculture and to lay the groundwork for a market-friendly and private sector system to supply fertilizer and other agricultural inputs.

# Afghanistan

In the village of Dy Malik, Afghanistan, lives a small farmer named Abdul with an extended family of 12. Abdul cultivates 25.5 jeribs (5.1 ha), of which he owns 3 jeribs (0.6 ha) and rents 22.5 jeribs (4.5 ha). The Afghan farmer grows wheat and fruit on his farm. During 2003 he tripled his income on wheat production (compared with that of 2001/02) with the assistance of IFDC's project in his country. Abdul received appropriate fertilizer, improved seeds, and useful advice from the project officials. With the money that was collected by the shura or civic organization (as reimbursement for the inputs), the village purchased a generator so the villagers now have electricity.

IFDC played a significant role in helping Afghan farmers like Abdul reap a bountiful harvest in 2003. Abdul 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 ICARDA were responsible for providing 436,000 Afghan citizens with enough bread for 1 year. The annual per-capita consumption of wheat in Afghanistan is 180 kg. Afghanistan harvested 78,000 additional tons of wheat produced with assistance from USAID. Playing a key role were 800 Afghan private inputs shop owners who helped make this project successful. In addition, an innovative credit system using vouchers avoided disrupting a fragile marketing system.

IFDC/Afghanistan Photo



Afghan Farmer Abdul

Photo by Dr. Thomas P. Thompson



An Afghan farmer harvests wheat. The annual per capita consumption of wheat in Afghanistan is 180 kg.

## ALBANIA—Project Brief

In January 2004 IFDC completed a 5-year project that built on its previous work in Albania aimed at nurturing private sector-led growth in agriculture and agribusiness. The Assistance to Albanian Agricultural Trade Associations (AAATA) project helped establish seven trade associations and worked through them and individual progressive member enterprises to develop industry clusters and improve backward and forward linkages. Using their own resources and bank credit, project clients invested US \$26.9 million in agribusiness, including poultry operations, flour mills, state-of-the-art greenhouses, and edible oil, meat, and fish processing equipment. The hundreds of members in the eight project-supported associations increased their production and revenues by over 60% and employment by 25%, while replacing imported food products and exploring niche export markets.

Photo by Peter Furth



Albanian workers clean sage in preparation for processing and exporting. With the right efforts, an impact of US \$30-\$50 million yearly can be realized from the spice industry for the Albanian economy.

The project focused on labor-intensive, high-value food products with comparative advantages in the region, such as rejuvenation of the herbs and spices industry. The project established an effective federation of 18 agricultural trade associations to advocate policy reform and a business and management center to ensure sustainability of the institutions and business services to support the AAATA platforms for agribusiness growth. Technical assistance to public institutions aimed to improve food quality and regulations and the availability of reliable agricultural survey and statistics information for decision makers.

Further impacts of the AAATA project include:

- The Albanian National Farmers' Union, which now has 5,000 dues-paying members, was revitalized.
- Access to credit for more than US \$13 million by agribusiness enterprises was facilitated.
- The direct export of sage valued at more than US \$300,000 was arranged for a client.
- Since 1998, farm income has increased by 64%, and exports of fresh vegetables have increased by 247%.
- During the past 3 years, agribusiness capital investments amounted to approximately US \$22 million.
- Sales revenues induced by the project are estimated at US \$106 million and profits, US \$23 million.

## ALBANIA—Project Brief (continued)

**Food for Progress Program (FFP) in Albania**—The purpose of this project was to monetize commodities and create a fund that could be used as an agribusiness credit fund. IFDC monetized 10,000 tons of maize and 6,000 tons of soybean meal in 2003/04 in Albania. The objectives of the project are two-fold. First, the project is supporting private sector development of agribusiness enterprises engaged in feed milling, meat, dairy, and egg production by providing technical assistance and linkages to world market sources and by promoting market development programs. Second, the project is establishing agribusiness credit guarantees by providing an escrow account at financially sound institutions that will be used as a guarantee for loans to the target sectors and to other selected agribusiness activities.

In a relatively short period of time, the FFP project has succeeded in accomplishing the following:

- Successfully monetized 10,000 tons of maize and 6,000 tons of soybean meal; generated funds exceeding US \$4 million.
- Generated net proceeds of approximately US \$3 million, which is now being invested in technical assistance, market development and credit enhancement for agribusiness activities within the livestock sector of Albania.
- Introduced high-quality soybean meal (48% protein) to the Albanian livestock feed industry.
- Provided maize to the livestock industry (which relies on grain imports) at a critical time when regional maize production was significantly reduced due to drought.
- Provided livestock producers with access to improved livestock feed formulations.

Photo by Blerta Xhomo



Soybean meal (48% protein) is offloaded at Durres Port in Albania. This represents the first time that the higher quality feed component has been shipped directly to Albania from the United States.

# A lbania

Albanian spice trader, Mehmet Guga, is not as famous as his counterpart Marco Polo, but the Albanian entrepreneur has a similar enterprising spirit as that of the famed Venetian spice trader. While Albania was under Communism, Guga worked as an accountant for a state trading organization. After privatization he started his own commercial firm, Gurra Sh.p.k., to collect, process, and trade spices, especially sage. Guga has benefited from a USAID-sponsored project conducted by IFDC in his country.

Since he is from Tepelene, Albania, an area that is lush with sage and other herbs and spices, Guga was a natural to enter the spice-trading business as a small entrepreneur. The Albanian businessman worked hard and did a good job in spite of the fact that his capital was scarce and transporting his product was problematic because of difficult road conditions. Guga was determined to sell his products—especially sage—on the U.S. market.

Photo by Peter Furth



Albanian Entrepreneur  
Mehmet Guga

## A Lifetime Dream Comes True

Guga's dream came true last fall when he succeeded in selling 12 containers of sage (worth US \$300,000) on the U.S. market. Traveling with his daughter, who served as his interpreter, Guga was introduced to U.S. spice importers by FFF Associates, Inc., of Stamford, CT., a subcontractor to the AAATA project in Albania. With the help of the U.S. firm, he made his first direct sales on the U.S. market, learned how to execute his sales properly, followed through on the sales, and worked through some difficult Albanian transportation problems.

Guga comes from a long line of Albanian spice traders. In fact, the herb and spice industry is a traditional one in Albania, dating back at least 50 years. In the late 1980s, at the end of the Communist era, exports of all herbs, spices, and essential oils from Albania exceeded US \$30 million per year. The sector was very well organized. A cooperative structure utilized gatherers in several regions, with regional collection centers and warehouses. A state-owned and operated export trading organization—AgroExport—handled the sales of all herbs and spices.

With their long tradition in this sector and some infrastructure in place, the herb and spice industry was an area of great activity during the early 1990s. However, by 2000, the exports of these products had dropped below US \$10 million. Nevertheless, several young and growing companies in the industry have enormous potential.

The herb and spice supply chain is generally organized as follows:

- Gatherers or harvesters—those who harvest the products, usually from the wild or in the mountains—sometimes from cultivated land.
- Accumulators—those who buy the products from the smaller gatherers or harvesters and accumulate enough quantity to sell to the processors or dealers.
- Processors or dealers—those who take possession of the products and clean the products
- Exporters—those who actually export the products from Albania.

# **A**lbania (continued)

## **A Promise of Increased Incomes**

The spice industry offers a tremendous opportunity for Albania to improve its economy since it provides a large source of employment, particularly for rural women. Rural women are heavily involved in the gathering and initial cleaning and processing of herbs and spices. In total, some 15,000 Albanian incomes are derived from this business.

Sage represents the largest volume of the Albanian spice business—it accounts for at least one-third of the total exports of herbs and spices. Albania is currently exporting approximately 2,500 tons of sage (with a US import value of over \$4 million) per year. Most of this sage is ultimately used in the United States, primarily for poultry and pork sausage seasoning. However, most of the Albanian industry is not realizing the value of direct sales of their products to international buyers. Currently most of the herbs and spices collected in Albania are sold to middlemen in Turkey, Germany or other European nations where the value of the herbs and spices is increased considerably, often through final processing prior to export to the United States or other nations.

## **The Environment is a Winner Too**

Guga is only one beneficiary of the project. Working with partners such as the U.S. Department of Agriculture (USDA) Forest Service and FFF Associates, IFDC promoted the environmental aspects of harvesting native herbs and spices to ensure the sustainability of the sector and maintenance of biodiversity in forest areas. With funding from USAID and USDA, the AAATA project and FFF Associates, Inc., were able to implement environmental protection activities including training on endangered species in collaboration with Albafor. Albafor is an existing trade association composed of collectors and smaller dealers with a significant interest in herbal and medicinal plants.

The AAATA project and its collaborator FFF Associates, Inc., also established the Albanian Spice and Herbal Trade Association (ASHTA). ASHTA's activities have included training and educational seminars and the development of conservation-oriented educational materials for widespread distribution in Albania. In support of conservation and overall sustainability, the project successfully tested the economic feasibility of domestically cultivating four important herbs and spices as a means to supplement and, in some cases, substitute for collection from the wild.

## **The Future Looks Bright**

As for the next steps in revitalizing the Albanian spice industry, the focus will be on the continued education on cleanliness and quality control issues from the grower/harvester to the exporter. A certification and testing system will likely be instituted. The issues of quality control, pricing and marketing, and endangered species will be considered.

“The future looks bright for the Albanian spice industry,” says Peter Furth of FFF Associates, Inc. “With improved collection, processing and marketing methods implemented, a flourishing business can exist there. We have every reason to believe that over time and with the right efforts, a meaningful impact of US \$30-50+ million annually can be realized for the Albanian economy.”

Furth sees the road to this success paved with hard work, sufficient capital, and doing the job right.

## AZERBAIJAN—Project Brief

Since early 2002, we have been conducting a 3-year project to improve agricultural input marketing and accessibility in Azerbaijan. The project is providing business and technical training and access to credit and has helped form a trade association of agricultural inputs dealers. Through this association, members are working to improve agricultural inputs policy, laws and regulations and provide information and other support services for members and their farmer clients. In addition, field demonstrations and technology transfer programs are being offered to dealers and their farmer clients.

The Agro-Input Market Development in Azerbaijan (AMDA) project has accomplished the following:

- The Azerbaijan Agri-Input Dealers Association was created with a membership of 79 dealers providing inputs for more than 12,000 farmers.
- The Association members stopped the incorrect levy of customs duty for imported potatoes.
- Six dealers were granted loans amounting to US \$54,000.
- One Association member supplied 100 tons of first-quality apples to an international catering company.
- Continuous project efforts resulted in increasing potato production by 15% for a total of 115,000 tons.
- Three greenhouses have been set up and are operating.
- Approximately 6,650 publications on various topics were produced and distributed.
- During 22 events, 479 dealers and farmers received training on various topics.
- Technical extension information and advice on potato production led to a 15% increase in the main producing regions in southern and western Azerbaijan.
- A mix of improved agronomic practices such as new seed potato varieties, appropriate disease control, and fertilizer application rates have had positive impacts on yields and production increase.

Photo by Nizami Garayev, IFDC/AMDA



Azeri dealer Agagulu Huseynov checks his potato crop being grown under plastic tunnels.

# Azerbaijan

Photo by Nazakat Asadova

A potato demonstration program carried out in Jalilabad, Azerbaijan, by the AMDA project was aimed at developing packages of best farmers' practices and distributing the results to the farming community via dealers of Azerbaijan's agricultural inputs trade association, progressive farmers, and the news media. A survey indicated that individual farmers who participated in the demonstration on potato production increased productivity by applying the agronomic services that were recommended by IFDC.

One of the participating farmers is Matlab Mamedov, who lives on a farm in Jalilabad. On his 15-ha farm he grows primarily potato. Before the demonstration program was implemented in Jalilabad, Mamedov realized yields of 23 tons of potato per hectare, and the quality of his products was low. He used to confront problems such as potato diseases, low quality, and low response to fertilizers. By following the recommendations of project specialists, Mamedov increased his productivity of potatoes to 35 tons/ha—12 tons/ha more than previous yields—and he improved the quality of his product. To achieve the productivity increase and improvement in quality, the potato farmer implemented project recommendations.



Azerbaijani Farmer  
Matlab Mamedov

## Storing the Planting Material Properly

Before benefiting from the demonstration program in Jalilabad, Mamedov stored the potato planting material (potato tubers) in heaps; this practice resulted in unequal pre-sprouting. Now, following the recommendations, he sorts the planting potato tubers according to their size and stores them in boxes. Thus, he gives them an equal opportunity for pre-sprouting.

## Implementing Disease Control Program to Reduce Pressure on Potato Production

Before the demonstration program, Mamedov did not implement fungi disease control for planting materials, and naturally even one pathogenic tuber often caused the spread of disease in the field after planting. Now he sprinkles the potato tubers with chemicals before planting and, thus, reduces fungi diseases and increases the tubers' resistance to other diseases.

## Applying Agronomic Practices

The best agronomic practice requires increasing the distance between plants and rows. Accordingly, Mamedov increased the distance between the rows from the traditional 55-60 cm up to 70 cm and between the plants from 18-20 cm up to 25-30 cm. As a result he harvested larger potato tubers, as preferred by the markets.

## Applying TSP Rather Than SSP

Prior to the demonstration program, Mamedov applied SSP fertilizer, which contained heavy metals and usually contaminated the soil and product. Because the available phosphorus in SSP was 2%-3%, he applied 3 tons of the fertilizer per hectare, and it naturally affected his product quality negatively. Moreover, the transportation costs were also very high. During the demonstration program Mamedov was introduced to TSP fertilizer. Most of the farmers in the southern region were unfamiliar with TSP prior to the demonstration. Because this fertilizer contains 47%  $P_2O_5$ , its application rate is 100 kg/ha, which is 1/30 of that of

## Azerbaijan (continued)

SSP. Consequently, the transportation costs decreased tremendously compared with 3 tons of SSP. By applying TSP, Mamedov harvested a less contaminated and better quality product.

Mamedov is very pleased with the recommendations given by AMDA specialists because he was introduced to modern agronomic practices, disease control programs, effective use of fertilizers and chemicals, and training to apply properly the knowledge he had gained during the demonstration program. By applying the information gained, he increased his output productivity and improved the quality of his potatoes.

Photo by Ylli Bicoku



AMDA field coordinator Adalet Nehmahtov (right) and dealer Agagulu Huseynov check the germination of potato.

## BANGLADESH, NEPAL, AND VIETNAM—Project Brief

In Bangladesh, Nepal, and Vietnam, the Adapting Nutrient Management Technologies (ANMAT) project is promoting the adoption of balanced fertilizer use and improved efficiency of fertilization. The project works with NGOs and extension services to demonstrate the benefits of deep-placed USG for rice production. In addition to increasing the incomes of poor farmers, the improved practices are more protective of the environment. The project uses baseline and impact surveys to determine the social and economic benefit of USG. The methodology for participatory evaluation and monitoring was characterized as innovative by a recent International Fund for Agricultural Development (IFAD) review team, as it departed from traditional baseline surveys by collecting data on the concept of farmers' "standard of living" and "life wishes." The baseline and impact surveys are designed to follow investment flows and document improvements in standards of living that result from improved rice production and household income. Hundreds of thousands of small-scale rice producers in Bangladesh are using the improved techniques.

ANMAT Photo



Field staff from the partnering NGO, International Development Enterprises (IDE), prepare to harvest an on-farm demonstration plot showing the yield benefits of UDP for irrigated rice in Bogra, Bangladesh.

Recent accomplishments of the project in Bangladesh include:

- A total of 1,019 briquette-producing machines have been sold by 10 machine manufacturers.
- An estimated 77,000 tons of briquettes were sold during the year and used on about 340,000 ha.
- Yield results of demonstrations were 20%-30% greater from deep placement.
- Deep placement during the dry season produced a US \$112/ha marginal net benefit.
- Deep placement during the wet season produced a US \$96/ha marginal net benefit.
- Deep placement has the potential to increase income by 12%.

Recent achievements in Vietnam include:

- Where farmers were completely unaware of fertilizer deep placement technology, 2,560 households have adopted the practice.
- Paddy yield increases from placement versus farmer practices where farmers are using reasonable rates of fertilizer have been similar to those in Bangladesh (from 600 to more than 1,000 kg/ha).
- In less-developed areas where farmers are using lower rates of fertilizer, mean yields from placement are increased by 1,200-2,000 kg/ha (30%-80%).

# Bangladesh, Nepal, and Vietnam

In the village of Malebagar, Nepal, Rajan Ale is a well-known farmer. Besides being a rice farmer, Ale teaches in a nearby secondary school. He owns 15 ropani (0.75 ha) of irrigated and 22 ropani (1.1 ha) of unirrigated land.

## More Rice With Improved Fertilizer Efficiency

He used to apply urea three times per rice crop at the rate of 3 kg/ropani (0.05 ha), 2 kg of diammonium phosphate (DAP)/ropani (0.05 ha), and the required amount of compost fertilizer. After he learned of the amazing results of a USG trial conducted by the NGOs—International Development Enterprises (IDE) and Regard Nepal—he decided to use USG on part of his land.

## How Green is My Paddy

Ale was extremely pleased with the result; his paddy yield increased by 20%-35%. “I am amazed that the paddy in the USG trial stays green for such a long time, and it is easy to differentiate even from a long distance,” says Ale. “How green is the paddy in my hills.”



Nepalese Farmer  
Rajan Ale

ANMAT Photos

In the Thua Thien Hue province in Vietnam, happy voices of farmers can be heard when they see their golden rice fields at harvest time. They are pleased because they have another high-yielding crop as a result of applying the UDP technique.

## Empty Rice Bowls Abound

Possibly one of the happiest farmers is Mrs. Kien Thi Yeu. Only 2 years ago her family was a typical poor farming family, composed of 9 members. Because they did not use inorganic fertilizer, their rice yield was very low—an average of 80 kg/sao (a traditional unit of land area in Vietnam equal to approximately .04 ha) for irrigated rice and 40 kg/sao for rain-fed rice. She harvested two rice crops per year, but her yield was only enough to feed her family for 5 months.

Her life improved dramatically after she attended a field day conducted by the ANMAT project where she saw the UDP technology demonstrated. She heard about the economic effectiveness of the technology from agricultural extension workers and farmers who had used it.

## Now Our Bowls Runneth Over

Now her family is seeing a wonderful change—no longer are they worried about having enough rice to eat. Her yield has almost doubled and her income has increased. She is happy to encourage other farmers to adopt UDP technology because it is so easy to use.



Vietnamese Farmer  
Mrs. Kien Thi Yeu

## BENIN, BURKINA FASO, GHANA, MALI, NIGER, NIGERIA, AND TOGO—Project Brief

IFDC and its partners have facilitated work on improved and sustainable land management through a number of projects since 1998 in seven West African countries—Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo. This work has emphasized the improvement of land productivity by enhancing farmer access to improved technology and inputs, especially credit and mineral fertilizers. The technologies used involve combinations of locally available organic resources and the judicious use of mineral fertilizers to build up soil fertility and to improve fertilizer use efficiency. The individual projects are located in 16 target regions that have potential for agricultural intensification with, among other factors, reasonably well-functioning input and output markets. The projects involve over 30 governmental and nongovernmental partners as facilitating institutions. Extensive training has been given to staff from the partner organizations to strengthen their capacities in participatory approaches, organizational strengthening, and facilitation of social learning processes and institutional change. About 3,000 farmers actively participate in learning activities and have formed farmer groups to develop, validate, and disseminate ISFM technologies. They also develop and lobby for alternative organizational and institutional arrangements that may spur agricultural intensification through improved access to input and output markets. The collaborative activities are usually referred to as the ISFM project.

ISFM has enhanced soil fertility, fertilizer use efficiency, productivity, and farmer income. Maize yields, for instance, can increase by 1,000-2,000 kg/ha through ISFM practices, with value-cost ratios well above 2 and returns to labor 2-6 times higher than average returns to family labor. In several regions farm-level incomes have increased by 20%-50%, depending on the degree of adoption. ISFM is considered a key technology to increase agricultural productivity and to make fertilizer more affordable.

Photo by Ankou Kokou



Participatory evaluation by a farmer group involved in ISFM activities (left: A happy face portrays increased yields on improved plot; right: A not-so-happy face depicts yields on the control plot).

# Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo

Haoua Hassane, a woman farmer from southern Niger, and her husband Soumana have benefited from ISFM technology.

Photo by Mariette Gross

## Opening the Door to Learning

A crucial moment in Haoua's life occurred when she decided that it was time to learn to read and write. During the literacy course, she became aware of issues related to agricultural production and environmental concerns. She learned how to manage her animals' feeding and health. She also learned how to conserve trees, reduce soil erosion, and improve soil fertility.



Nigerien Farmer  
Haoua Hassane

The Nigerien farmer started to cultivate her first field about 12 years ago when her husband gave her 3 ha of his land to cultivate. Since the area was severely eroded, she asked the agricultural extension officer how she could grow a crop on such poor soil. With his assistance she tried the zai technique on her field. Using this technique, she planted the seeds in holes of 20- to 30-cm diameter and at a depth of about 10-20 cm. She added a handful of manure to each hole.

## Leading by Example

The field's harvest impressed many villagers since the area had not been cultivated recently. By cultivating her field, Haoua inspired other women in the village, and they followed her example. After 8 years Haoua inherited a field from her father. She cultivated the field over the years and produced pearl millet, cowpea, and peanuts. Occasionally, she applied mineral fertilizers when they were available to her. Yields were still relatively low; plants suffered from weed problems, especially the parasitic weed *Striga hermonthica*.

## Realizing the Power in Numbers

The women farmers in the village formed a female association with Haoua serving as the president. The association started a small revolving savings fund from which its members could obtain loans to purchase mineral fertilizers. Because of its location along a main road not far from several regional markets, Haoua's village was chosen to be one of the pilot villages of the ISFM project. The group decided to experiment with the zai technique on pearl millet. The results of the first year were promising. The women farmers also experimented with small amounts—a Coca Cola bottle capful—of different mineral fertilizers.

## Better Lives Rooted in the Land

Haoua and Soumana 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. Because they applied 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.

## **B**enin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo (continued)

Seated on a stool, Adjoa, a young woman farmer, shucks a few ears of maize into a basket. Again this year the ears are so small! But what can she do? At this moment two other women stop by to greet her. They have been trying to convince Adjoa to join their farmer group, but she refused to be swayed. She has better things to do than spend her time in countless meetings and endless discussions, as she would say. But when her visitors showed off some of the healthy-looking ears of maize that were harvested on their farms, Adjoa was speechless. She knew what she had to do. The audience applauds the actors who performed in this skit directed by a farmer group called Agbe-Yeye, which means “New Life.”

### **The Only Way Out of Poverty**

This skit is performed in the village of Djaka-Kopé, which is southeast of the maritime region of Togo. This densely populated region is characterized by degraded “terre de barre” or Ferralsols, which have very low agricultural production potential. With the combination of these two conditions, the people of this village are trapped in a vicious circle of poverty. The only way out is to improve the soils, intensify crop production, and increase farmers’ incomes. The ISFM project aims to enable Djaka-Kopé farmers to transcend the challenge. This project, which is funded by IFAD, conducts activities in seven West African countries.

The ISFM project has developed an agribusiness-oriented approach to agricultural development that hinges on both institutional and technical innovation. Established in Djaka-Kopé in 1997, in collaboration with the Project for Village Organization and Development (PODV), the project initially focused on women who are the most vulnerable farmers in the area. They do not inherit land; they must work on their husbands’ farms. Financially, they are entirely dependent upon the good will of men who usually have to provide for many wives.

### **Women Assume a Leading Role**

The project had set as primary conditions that the participatory learning plots should be installed on the women-managed fields. In 1998, under the ISFM project, the Agbe-Yeye farmer group emerged with 13 members—8 women and 5 men. At first the women could not or would not speak their mind; they would simply abide by the men’s decisions. With time and experience, they assumed a leading role. They can make their voices heard, secure a source of revenue, and thereby improve their position within the household.

Initially, Agbe-Yeye was viewed in the village as an “association for laziness.” Its members were often ironically referred to as the “people who meet under the “palabra tree.” Indeed the group meets once a week, and once every 2 weeks its members participate in ISFM meetings. Because many farmers are reaping the benefits of their involvement in ISFM activities, this negative perception is rapidly disappearing. It has become increasingly obvious that the time spent under the “palabra tree” is not wasted but rather invested in learning and sharing.

Photo by Willem-Albert Toose



Togolese Farmer  
Ames Gounhossou

## **B**enin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo (continued)

### **Story of a Transformed Life**

This has transformed the life of Amessouho Gounhossou. Ames is a determined young woman with plenty of drive. She lives with her five children, her husband, his two other wives, and their children—a household of 15 people. She used to think that she could not afford to attend meetings when there was so much work to do on her farm.

Through the ISFM project Ames has learned about the advantages of combining fertilizers with organic matter to improve the quality and productivity of the soil. She started sheep rearing to obtain manure that she spread on her farms. In 2000, she agreed to allow a plot of 1/8 ha to serve as a control plot for a 3-year ISFM experiment with mucuna. Mucuna is a cover crop that provides much-needed nitrogen for a maize crop and much organic matter. It also controls weeds and conserves moisture in the soil. After seeing the effects of the mucuna fallow on maize yield on the farm improved with mucuna, Ames was so impressed that she could not resist trying it immediately on her plot, which was the control plot.

Thus, without informing the project staff, she planted mucuna when the maize was flowering. This short mucuna fallow during the second rainy season would prepare the soil for the main cropping season “They scolded me for doing that,” she said. “But in the end, I am glad I did. Before growing mucuna, I hardly produced one bag (100 kg) of maize here. The first year after using mucuna alone, I produced 4 bags of maize. The second year, I combined NPK, urea and organic matter after the mucuna treatment, and my yield was 8 bags.” Therefore, the project had to find another control plot.

The third year, she decided to divide the plot again for a rotation trial, having maize-mucuna on one half and maize-cassava on the other half, as recommended by the project. Meanwhile, some farmer-managed trials showed that potassium deficiency was the most limiting factor for crop production in the Djaka-Kope area. However, the compound fertilizers available on the market contain a limited quantity of potassium. Ames was the first to volunteer to participate in an experiment with potassium fertilizers. She has her own research plan; she wants to establish two trials—one with potassium + urea and one with NPK + urea. “Just to compare!” she explains with confidence.

Like many other farmers involved in ISFM activities, she is eager to explore the possibilities and find solutions on her own. This is one of the most outstanding accomplishments of the ISFM project—empowering farmers to take responsibility for their own destiny. In the process they become venturesome researchers. Through demonstration trials, they learn how to examine their land and how to meet its needs. Now, they know the types and roles of the various plant nutrients. They set up a diagnosis plot, observe and assess the quality of their soils, and determine the performance of their crops. They plan and manage their cropping activities to optimize investments in time, labor and money. Above all, they have learned the importance of working together and supporting each other through participatory learning.

### **Farmer Group Offers Many Advantages**

The Agbe-Yeye farmer group also facilitates linkages between research, credit, and the market. The group makes available to the farmers a storage facility that can accommodate 10 tons of grains. After harvest, each member withholds the quantity needed for family consumption and stores production surpluses. Through this system, they are entitled to credit for inputs and some cash for small income-generating activities and health and schooling expenses. The bag of maize, which is worth about 3,000 – 5,000 CFA francs (US \$6-\$9) immediately after harvest can be sold later for 13,000-15,000 CFA francs (US \$24-\$28).

## **B**enin, Burkina Faso, Ghana, Mali, Niger, Nigeria, and Togo (continued)

Regardless of the timing of the sale, a profit is guaranteed. Thus, farmers who could not afford to save previously can now enter the market economy and sustain their activities.

Agbe-Yeye is now part of a union, which has 34 member groups. Djapa-Kopé has become a real knowledge center on soil fertility management, which attracts many farmers from neighboring villages during exchange visits and field days. They follow the lead of Djaka-Kope farmers.

Photo by Willem-Albert Toose



Women farmers perform a dramatic skit illustrating the benefits of ISFM technology. In the skit “crossing a river” is used to symbolize “learning improved farming methods.” When someone carries you across a river, you do not learn how to cross the next time. If you travel by boat, you must pay. But if someone takes you by the hand and explains where the stepping stones are, you are prepared for traveling alone. So it is with ISFM, farmers learn from others and are prepared to increase their yields themselves.

## BURKINA FASO, BENIN, GHANA, MALI, NIGERIA, SENEGAL, AND TOGO—Project Brief

IFDC is implementing a 5-year project, MIR—Marketing Inputs Regionally—which is essentially strengthening the private sector and facilitating dialogue among stakeholders with the aim of creating a regional market in West Africa. The project is setting the stage for improved market efficiency and increased competition to reduce transaction costs of fertilizer and other inputs. The reform and harmonization of policies, regulations, and practices that are related to seeds, fertilizers, and phytosanitary products for the region are some of the key activities. The project is also establishing national and regional trade associations and training and supporting the emerging input businesses while reinforcing the market information systems, both at the national and regional level. Special attention is being given to the cotton sector inputs for increased competitiveness in the global market. Project offices are located in Ghana, Mali, Nigeria, Senegal, Togo, Benin, and Burkina Faso.

Since its inception in mid-2003, the MIR project has accomplished the following:

- Conducted more than 10 training workshops for dealers and farmer-based organizations in partnership with other projects.
- Assisted the Government of Mali in analyzing its capacity and needs for regulating fertilizer marketing (including the drafting of laws).
- Collaborated with FAO/UEMOA/GTZ/AFSTA in a regional workshop to develop a road map for the establishment of regional regulations for seeds.
- Conducted a rapid assessment of the state of the agricultural inputs market in Benin, Togo, and Senegal.
- Organized a regional preparatory meeting for the creation of the Federation of African Agricultural Input Trade Associations (FACIA).
- Organized the third regional meeting of the agricultural input trade associations.
- Organized and led a regional stakeholders' validation workshop to strengthen the cotton input market.
- Organized the first MIR advisory committee meeting.

Photo by Raphael Vogelsperger



An agricultural inputs retailer in Ross Bethio, Senegal. The MIR project focuses attention on supporting input businesses and helps establish national and regional agricultural input trade associations.

In collaboration with the International Maize and Wheat Improvement Center (CIMMYT), IFDC is conducting strategic crop and soil management research in eastern and central Africa. This research is focused on on-farm evaluation and dissemination of stress-tolerant maize varieties from CIMMYT's regional germ plasm improvement projects. Additionally, the research involves the development, evaluation, and dissemination of agronomic practices that enhance the productivity of this germ plasm including integrated management of inorganic and organic nutrients in maize-based cropping systems and soil moisture conservation technologies for maize-cropping systems in dry areas. This research is funded by the Federal Ministry for Economic Cooperation and Development (BMZ) and the Rockefeller Foundation.

Moisture stress affected most agronomic and on-farm trials in most agro-ecologies in Eastern and Central Africa to some degree during 2003. The season in the moist mid-altitude zone in Ethiopia began late and was shorter than normal. Rainfall was below average in the dry mid-altitude ecologies in the Rift Valley of Ethiopia, the eastern province of Kenya, and especially in the eastern and northern zones of Tanzania and the coastal zones of Kenya and eastern Tanzania. A discussion of the results from the regional trials follows.

### **Nitrogen Requirements of Quality Protein Maize (QPM) and Nitrogen Use-Efficient (NUE) Maize Varieties**

Ten national agricultural research system (NARS) centers in Ethiopia, Kenya, and Tanzania implemented regional trials at 12 on-station sites and 28 on-farm sites to determine nitrogen response of NUE and QPM varieties. Trials in Ethiopia found that the earlier maturing, shorter-statured QPM hybrid yielded as much as the popular later maturing hybrid when planted at higher densities (up to 66,666/ha); however, a foreshortened season and moisture stress likely favored the earlier hybrid. Consequently, the trials will be repeated in 2004. The earlier maturing QPM hybrid responded to nitrogen rates up to 69-96 kg/ha depending on the site. Trials in the lowlands, coastal Kenya and Tanzania, and northern Tanzania were severely limited by drought. Trials in Kenya, comparing NUE and "normal" maize variety response to nitrogen, found no significant nitrogen rate  $\times$  variety interactions. Drought-tolerant early hybrids yielded more than the commercial checks whereas the results from extra early open-pollinated varieties (OPV)—drought tolerant and checks—were similar.

### **Evaluation of Legumes as Nitrogen Sources for NUE – Maize in Systems**

Trials established in 2002 using a common design (maize in monoculture or intercropped with three legumes) were continued in 2003. These included 11 researcher-managed trials on station or on farm

Photo by Dr. Dennis K. Friesen



A Tanzanian farmer explains how striga damages maize to Rufini Assenga, Maize Agronomist, Agricultural Research Institute (ARI)-Mlingano, Tanzania

## ETHIOPIA, KENYA, TANZANIA, AND UGANDA—Project Brief (continued)

and 50 farmer-managed trials on farms in eastern and northern Tanzania, Ethiopia, and Uganda. Significant benefits of legumes planted in the previous season were observed at most sites where maize crops were not severely affected by drought. Suppression of weeds by legumes was a common desirable feature identified by farmers in Ethiopia, Uganda, and Tanzania. In general, intercropped legumes did not compete with and reduce maize yield. In some cases, they had a significant positive effect on yield as in Tanzania where maize yields were doubled without nitrogen fertilization but were not affected when nitrogen fertilizer was applied. Legumes were also found to reduce soil moisture loss in Tanzania. In Ethiopia the farmer practice of “Shilshallo” (interrow weeding with oxen) was not compatible with legumes intercropped between maize rows; in 2004 legumes will be planted in the maize row. In Uganda, legumes produced inconsistent results on farmers’ fields.

### **Increasing Yields of Stress-Tolerant Varieties by Increasing Plant Densities**

A regional trial to evaluate the effect of increasing plant density on “normal” and drought-tolerant cultivars was repeated at seven sites in the dry mid-altitude ecology in Ethiopia, Kenya, Tanzania, and at a new site in Uganda. In general, maize response to increasing plant densities depended on variety (maturity), rainfall received, and soil fertility status. In Ethiopia, an extra early OPV produced 40% more yield when density was doubled from 44,444/ha. Later maturing varieties were not affected or yielded less at higher densities under limited rainfall conditions. During two contrasting seasons in eastern Kenya, maize yields were not affected by increasing density during the 2002/03 short rains when moisture was limiting but increased with density during the 2003 long rains when moisture deficits were corrected with supplementary irrigation. In a high rainfall environment in Uganda, yields increased with density under high soil fertility but declined under low soil fertility conditions. In Tanzania, very poor yields due to drought conditions were not significantly affected by increasing plant density above 44,444/ha. In general, extra early varieties in dry environments seem to respond to higher densities in favorable seasons and may not be adversely affected in poor seasons. In moist environments with adequate fertilization, increasing densities of shorter statured varieties could potentially increase yields.

### **Improving Yields Using Soil Moisture-Conserving Technologies with Drought-Tolerant Varieties**

Trials comparing tied ridges or conservation agriculture methods of moisture conservation with farmers’ practices were planted on 34 farmers’ fields in Ethiopia, Kenya, and Tanzania using drought-tolerant extra early OPVs and early hybrids. Trials on farmers’ fields continue to give variable and unimpressive responses to tied ridging. In Ethiopia tied ridging increased yields by an average of 31%; in eastern Kenya they had no effect; and in northern Tanzania they increased yields by about 50%. Differences among varieties were not significant. Despite the availability of an implement to form ridges, farmers were reluctant to adopt it due to the added labor requirements. Yield gains would have to be substantially greater and more consistent to stimulate adoption of the technology. Initial trials with conservation agriculture methods including sub-soiling and legume cover crops with drought-tolerant maize varieties showed substantial benefits extending the season for later maturing, higher yielding varieties.

## KOSOVO—Project Brief

In cooperation with the NGO—Save the Children—IFDC is working in Kosovo to improve the adoption of new technologies by producers in the feed grain, milling, and poultry sub-sector to increase marketed production of quality feed grains, poultry feed, and eggs. To achieve this objective, the Kosovo Feed for Poultry Project (KFPP) is promoting the consistent delivery of high-quality animal feed ingredients by farmers to agricultural processors and by agricultural processors to poultry producers. In so doing, IFDC is providing a cluster-based model that can be emulated by farmers, millers, and poultry producers in Kosovo.

Recent accomplishments of the Kosovo project during 2003/04 include:

- The project assisted local agri-input dealers with the direct import of new improved high-yielding varieties of maize (75 tons) and winter wheat seed (1,500 tons) previously tested by IFDC in Kosovo. Total acreage planted with the hybrids was approximately 9,100 ha and more than 3,000 farmers had access to improved high-yielding seed varieties for the first time.
- The average maize yield on irrigated land where farmers followed project recommendations (improved seed varieties, high-analysis fertilizers and crop protection products) was 8.8 tons/ha; the highest yield was 13 tons/ha. This compares with an average yield of 4.5 tons/ha on irrigated land where farmers continued to use traditional varieties and practices.
- The average maize yield on non-irrigated land following project recommendations was 5.5 tons/ha, compared with 3.5 tons/ha for farmers using traditional practices.
- Comparisons of the yields from the maize package with the average yield across Kosovo during the past 3 years indicate Kosovo could theoretically increase its yields by 57% on non-irrigated and 151% on irrigated maize lands simply by adopting the new improved technology packages and inputs.
- Soybeans were introduced to Kosovar farmers as a new commercial crop for use in livestock feed by the feed millers.



Local agricultural inputs dealer shops represent an important link with farmers to provide improved agricultural inputs and information to increase crop production.

Photos by  
Dr. Raymond J.  
Clark

Sunflowers—one of the focus crops of the project to provide a component of livestock feed.



## **KOSOVO—Project Brief (Continued)**

- Dependence of feed millers on imports of livestock feed raw materials (maize, soybeans, sunflower) was reduced by increasing domestic production on local farms. This translated into an additional US \$400,000 in income for the project's 62 farmer clients.
- Poultry producers assisted by the project increased egg production by 200,000 eggs/day. This increased production had a monetary value of US \$8,300/day.
- Project clients made US \$2.1 million of self investments to expand or improve current business operations (farms, feed mills and poultry/egg production facilities).
- According to Development Associates, Inc., the KFPP Project increased the usage of fertilizer by 1,500 tons, quality seed by 200 tons, and farm chemicals by 11,000 liters. The increase in input sales also boosted profits for the suppliers, along with an increase in additional labor.

New or refurbished poultry laying cages have been adopted in Kosovo under guidance from the previously completed Kosovo Agribusiness Development Program (KADP) and KFPP. Many of the cages were imported from the European Union countries that have adopted more modern technology. However, this was not the situation until recently at a farm owned by Isak Jonuzi, near the town of Vushtrri in northern Kosovo.

## Best Practices in Poultry Production

According to Jonuzi, there were several advantages for choosing to use the single-tier flat cages recommended by KFPP staff. The advantages include higher production potential, minimum chicken mortality, easier management of the manure, automated feed system, automated egg handling, and improved ventilation.

Improved production efficiencies are very important for Kosovo's poultry producers because of the strong competition from imported eggs. "The system used by Jonuzi has some advantages compared with that used by other producers of the same size farm in Kosovo," says Beke Zahiti, KFPP Milling and Poultry Specialist. "Pullets (young chickens) come into production at 18 weeks of age as compared with the usual 22 weeks; by 22 weeks 50% production is expected and full production by 26 weeks."

"Management of the manure is another advantage of this farm because removal of the manure is done on a yearly basis at the end of the production cycle," says Zahiti. "This is possible because the manure remains very dry due to the improved ventilation system."

## Automation is Key

As a result of the automated system, feed is provided uniformly on command, and there is very little feed loss from this type of cage construction. The same can be said for the automated egg collection system. One command brings eggs from the port tables to the collection center with low losses compared with the other traditional cage systems currently used throughout Kosovo.

"I have been very happy with my new system because I have experienced very low mortality of chickens during the first 4 months (0.36 %)," says Jonuzi. "I am achieving approximately 90% production, of which 70% are large eggs."

## Cluster Concept Creates Valuable Links

Dr. Raymond Clark, KFPP Chief of Party, appreciates the progress that has been made in Kosovo's agriculture since IFDC's intervention there. "The KFPP project is based upon a cluster concept that links crop producers (maize, soybeans and sunflowers) with participating feed mills, which in turn are linked with Kosovo's poultry producers. Jonuzi's farm is a perfect working example of the cluster concept. He purchased his pullets from the Cermjani farm, a KFPP partner and a member of the Miller and Poultry Association (SHPUK), which was formed during the previous KADP project. In addition, the processed chicken feed is purchased from the Sazli feed mill, which is another client of the KFPP program and a member of SHPUK. Sazli provides Jonuzi with tested quality feed grains from domestically produced feeds and imports of grain, soybean meal, vitamins, and premixes."

Jonuzi also grows cereal crops and produces grain that can be used in his poultry operation. In 2003, Jonuzi produced and sold 20 tons of maize to the Sazli feed mill for processing. In 2004, using the technology package recommended by KFPP extension specialists, he plans to produce 80 tons of maize from the 10 ha of land that was prepared in late 2003.

Photo by Dr. Raymond J. Clark



Kosovar Farmer  
Isak Jonuzi

## KYRGYZSTAN—Project Brief

Since late 2002 the Kyrgyz Agro-Input Enterprise Development (KAED) project has been improving agribusiness prospects in the Ferghana Valley of Kyrgyzstan. The project is providing critical know-how to the agricultural input sector through the support of a trade association. The activities of the project are contributing to the expansion of a private sector-led economy and the growth of successful small and medium enterprises. The 3-year project extension (granted in September 2003) focuses strictly on the institutional development of the Association of Agribusinessmen of Kyrgyzstan (AAK) trade association and the capabilities of its member businesses to deliver inputs of seed, fertilizer, crop protection products, and other farm supplies to their farmer customers. The project is assisting in developing market linkages with international suppliers and demonstrating and disseminating information on “best management practices,” which can be transferred by Association members to their farmer customers.

Photo by Nodir Badalov

During 2003/04 the project accomplished the following:

- Encouraged the expansion of the leading agricultural association in the country with more than 150 dues-paying members, including large and small agricultural inputs dealers.
- Conducted 30 training programs on the development of retail farm stores, covering issues such as location, product diversity, store size, necessary legal documents, input sourcing, business plan development, and inventory management.
- Assisted with the creation of 7 retail farm stores. The project has a goal of opening 21 retail farm stores in southern Kyrgyzstan by 2006; plans include the opening of 8 more stores in 2005.
- Assisted with the increased importation of fertilizers, improved seeds, and crop protection products (CPPs).
- Facilitated the removal of the value-added tax (VAT) on fertilizer and CPPs. The removal of this tax translates into millions of dollars saved for small and large farmers, fertilizer dealers, and CPP suppliers. Ultimately this saving will result in increased production of food for the Kyrgyz consumer at lower prices while at the same time discouraging the supply of low-quality contraband products.



The grand opening of the Oshkrastex farm store marked a milestone for the successful company, which is the highest quality farm store in Central Asia. The company has increased legal fertilizer imports in southern Kyrgyzstan by 1,545% over the past 2 years. It is the first distributor in the south for a major international vegetable seed company. Pictured on the left is the Honorable Osh Governor Kasiev.

Photo by Nodir Badalov

The city of Otuz-Adyr of Kyrgyzstan is famous for its watermelons since the farmers in this village have a reputation for producing sweet melons. However, in recent times production has decreased. Because they lacked high-quality seeds, farmers have relied on outdated seeds saved from the previous year's harvest or purchased from a local bazaar.

## Good Seeds Make the Difference

High-quality hybrid and open-pollinated seeds from the Netherlands were recently introduced through the demonstration plots of the KAED project. Yield data from these demonstration plots showed a 600%+ increase in profitability compared with state statistical data for the region and more than 230% increase compared with profitability of local seed varieties using best practices. International companies provided the seeds.



Kyrgyz Farmer  
Avilov Sabir

## Field Day Opens Eyes

At harvest time, the project staff invited local growers to the KAED demonstration field day. The field day was conducted 80 days after sowing, and the observers were very surprised to see that all watermelon varieties except the local variety were ready for harvest. The local varieties require 90-95 days to reach maturity. Profitability of watermelon production primarily depends on terms of maturing. Early maturity allows the farmer to sell the product at a much higher price.

For example, model farmer Avilov Sabir, a member of the trade association of Kyrgyz agribusinesses—AAK—sold his watermelons from his greenhouse operation for 150 soms (US \$3.75) per fruit in June; the normal market price in the high season (August) is 20 soms (US \$.50) per fruit.

## Learning New Tricks of the Trade

Field day participants learned methods of increasing profitability in watermelon production using hybrid varieties. Some of the knowledge that they gained about these new varieties include:

- Increased profitability from early-maturing varieties;
- Uniform shape and size, large watermelons of 6-12 kg with thin skin;
- Disease resistance;
- High yields for a short period of growth.

Knowledge gained during field days and training programs will help farmers increase their profits. This will also be reflected in the consumer market the following year by early-maturing sweet watermelons with fewer seeds.

Photo by Nodir Badalov



Kyrgyz farmers display their produce during a melon field day.

## MALAWI—Project Brief

In mid-2002 IFDC began a 3-year project, Agro-Input Market (AIMS) Development in Malawi, to strengthen the agricultural inputs markets in Malawi by deepening policy reform, establishing regulatory systems, developing the capacities of private sector dealers, and expanding market information systems. The project supports the objective of achieving sustainable increases in agricultural productivity by improving the access of small-holder farmers to quality inputs in a commercial, market-based manner. The project has helped establish an agricultural inputs trade association. The Malawi project's significant accomplishments are as follows:

- Encouraged the growth of an agricultural inputs dealers' association, with the potential for more than 1,000 members.
  - Dealer outlet shops increased regionally from 191 in 2002 to 800 in 2004, substantially increasing farmers' access to inputs; 30% of these members are women.
- Conducted more than 20 training seminars and workshops on technical agricultural topics involving more than 800 agricultural dealers and public-sector officials.
  - Training provided improved quality of service to customers, improved organization of the shops, and motivated the dealers to open more outlets.
- Conducted in-depth and specific study tours to Albania, Mozambique, Kenya, and Togo.
  - These tours explored regional and international opportunities to study the structure and functioning of other associations, which encouraged business networking and enhanced an understanding of association development and business opportunities.
- Established a high level of private dealer involvement in the Sustainable Livelihoods Through Inputs for Assets (SPLIFA) program initiated in collaboration with an NGO consortium.
  - This program has endowed poor farmers with purchasing power (through the redeemable vouchers they receive from doing public works). They can now easily participate in the marketplace; otherwise, they would remain excluded. The establishment of private dealer involvement in the SPLIFA program in collaboration with the NGO consortium has created confidence by the donor/government community in the use of dealers in safety net programs.

Photo by David W. Rutland



The AIMS project is encouraging the growth of an agricultural inputs dealers' association that has a possible membership of 1,000 members.

## MALAWI—Project Brief (Continued)

- Initiated linkages with financial institutions.
  - Access to credit remains the critical constraint in the development of agricultural inputs dealers largely due to prohibitive collateral requirements. The condition has prompted trade associations to emphasize linkages with local inputs importers.
    - \* During the 2003/04 season, 356 tons of fertilizer worth US \$109,000 was transacted in group purchases on a cash basis.
    - \* During the 2004/05 season, 35 tons of fertilizer worth US \$11,300 has already been transacted and is in progress.
    - \* A cash purchase program is intended to cultivate trust and develop a credit supply relationship in the future.
    - \* Large fertilizer suppliers and seed companies have established linkages with dealers.
- Provided short-term consultancy on importation and procurement of fertilizers.
  - This consultancy impacted greatly on the prominence of the IFDC/AIMS project as a neutral forum and conduit between the private fertilizer sector and the Government of Malawi in paving the way forward for the current Government's wish to subsidize fertilizer. Both parties have seen the project's usefulness in this respect and are now liaising frequently with the project for assistance on this important issue.
- Performed biotechnology and bio-safety policy consultancy.
  - This consultancy resulted in a report, which was presented at a national workshop attended by stakeholders from various sectors. It was unanimously agreed to increase public awareness efforts and start the process of reviewing the Biotechnology Act and regulatory framework. The development of a policy encompassing all sectors was identified as an area that would need strengthening. Also recommended at the workshop was the establishment of a National Biosafety Steering Committee.
- Analyzed and drafted regulatory legislation for fertilizers, seed quality and purity, CPPs, and genetically modified organisms (GMOs).
  - Policy and regulatory activities of the project for these inputs have been strong, with breakthrough activities setting the stage for the Government to enact regionally significant legislation. Submission to parliament is expected in 2004.
- Developed and distributed monthly newsletter to more than 1,500 recipients.
  - Through the newsletters the recipients learn information on local fertilizer prices, useful agronomic information, technology updates, and the schedule for field days.
- Produced weekly radio broadcasts on agronomic and market information.
  - Weekly radio broadcasts have increased awareness of farmers in the rural areas on quality market and technical information, for example, field preparation and processing of manure for use. The programs were heard by more than 4 million people, and feedback was received from more than 400 people.
- Established 17 data collection points and disseminated monthly pricing data.
  - The establishment of 17 data collection points has enabled farmers to purchase fertilizer at a more favorable time by becoming aware of possible price increases.
- Created awareness of the importance of using potassium.

## MALAWI—Project Brief (Continued)

- The benefits of potassium have been proven through demonstration plots that show farmers that crop yield is increased, drought stress is reduced, and plant diseases are retarded. Sales of fertilizers containing potassium have increased since IFDC started promoting its use, and private sector companies are starting to introduce new blends with potassium.
- Established 78 demonstration field trials across the country to show improved field results.
  - Field days have enabled farmers to learn from fellow farmers about plant spacing, ridge spacing, and the importance of timely fertilizer application. Manure application was also demonstrated to show farmers its advantages.

Malawi is shifting from the tradition of applying only NPK and urea fertilizers to crops to incorporating potassium in the application regimes, particularly to maize, the country's staple food crop. The AIMS project is promoting the use of potassium as a separate application to ensure maximum crop production.

## The Proof is in the Plots

The AIMS project has established 27 demonstration plots throughout Malawi and trained agricultural inputs dealers in balanced plant nutrition to manage the plots. During a dry 2003/04 growing season, the IFDC plots have survived the soil moisture stress and produced a healthy crop, whereas other maize crops have suffered severe wilting and adversely affected cobbing. The favorable results of the plots results from the inclusion of potassium, which was not the case on the farmers' control plots.

In March 2004 project organized and conducted a field day in Mangochi, Malawi, to provide various clients information about the technology. About 400 people, primarily women farmers, attended the field day.

## Seeing is Believing

Local leaders, including Chief Mponda, were overwhelmed with the maize crop. "If all our villagers could adopt this technology, there would be no question of food security," Mponda said. He requested the AIMS project to consider expanding the area covered by the demonstrations.

## It's a Miracle: The Power of Potash

Cuthbert Naweta, a Malawian farmer, is pleased with the results on his demonstration farm. "It is a miracle—the power of potash," he says. "By using this technology, maize production may never be the same; it is sustainable because it is cost effective."

Overwhelmingly positive results have been noticed in terms of maize crop tolerance to dry weather, thicker stems, faster growth rate, greener plant color, more ears of maize, and well-formed grain than the traditional farmers' practice.

Photo by Aldwin Mtembezeka



Malawian Farmer  
Cuthbert Naweta

## NIGERIA—Project Brief

Since early 2002, IFDC has been undertaking a USAID-funded Developing Agri-Input Markets in Nigeria (DAIMINA) project. This project is being conducted in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD). Project activities include dialogue on policy reforms and regulations, private sector capacity building in agricultural input marketing, and strengthening of market information services. Private sector capacity building was initiated in 20 selected markets in Kano and Oyo states and was later extended to another 20 markets in Bauchi and Abuja.

The efforts of DAIMINA have resulted in the development of a strong input supply chain, revision and amendment of fertilizer and seed laws, and strengthening of the market information services. A significant improvement in input supply and fertilizer retail prices has shown a downward trend through competitive business practices of trained agricultural input dealers. An assessment of the project's impact follows:

Photo by Sabiu Auwal



A Nigerian agricultural inputs dealer explains to farmers the correct methods of using crop protection products.

- DAIMINA assisted FMARD in the revision and amendment of fertilizer and seed laws. The amendments proposed by IFDC in the Fertilizer Board Act of 1977 were accepted by FMARD in 2003 and the National Council of Agriculture in June 2004.
- An input supply chain including 300 retail dealers, 50 wholesale dealers, and 35 importers/blenders has been instituted. The retail agricultural input dealers are the main links of the input supply chain; they have been given intensive training to enhance their product knowledge and skills in business management and linked with related stakeholders.
- To develop business linkages and capabilities in negotiations and policy dialogue, the agricultural input dealers were encouraged to form trade associations. As of July 2004, 22 market-level and 4 state-level associations have been established in the project area. Emergence of the Fertilizer Producers and Suppliers' Association (FEPSAN) at the national level, including 35 importers, manufacturers, and blending plants, was facilitated by the project in early 2004.

## NIGERIA—Project Brief (Continued)

- As a result of the market development activities, fertilizer supply in Nigeria has shown a steady increase. During the first half of 2004, 485,000 tons of fertilizer has been imported, compared with 185,250 tons in the same period of 2003.
- Through heightened business skills, effective credit mobilization, and improved services to farmers, the trained agricultural inputs dealers have registered a 30%-40% increase in business turnover during 2004, compared with that of 2003.
- The agricultural inputs dealers have been encouraged to diversify their businesses by adding crop marketing and food processing. Eight small-scale processing mills have been established as demonstration centers, and 120 agricultural enterprises have been trained in commodity marketing.
- Trade associations, through dialogue with the Federal and State Governments, have succeeded in convincing the Government of the need for policy reforms. FMARD announced in August 2004 the Government policy of promotion of the private sector as a key player in input supply and crop marketing in Nigeria.
- The expansion of the input supply chain and improved business practices have led to increased availability and reduction in fertilizer retail prices. The price of urea (50-kg bag) has declined from US \$18.93 per bag in 2003 to US \$15.90 in 2004. Some fertilizer importers have opened field delivery points to supply fertilizer close to the consumption centers in the project area.
- As a market-friendly alternative to direct subsidy, IFDC—in collaboration with FAO's Federal Government of Nigeria (FGN) Special Programme on Food Security Project (SPFS)—launched the fertilizer voucher scheme in May 2004 in seven SPFS sites. Initial response is encouraging and shows potential for expansion.
- IFDC is a leading partner in the rice alliance (a USAID-sponsored collaborative program) to promote production, processing, and marketing of rice in Nigeria.
- The project has facilitated the establishment of Nigeria Agri-Market Information Services (NAMIS) jointly with FAO, FGN, SPFS, and the Project Coordinating Unit of FMARD. Product availability and price information relating to agricultural inputs and crop produce is being collected and disseminated through print, electronic, and mass media to all stakeholders.
- Encouraged by an improved fertilizer marketing system and demand potentials, USAID has asked IFDC to conduct a pre-feasibility study for establishing a urea fertilizer production unit in Nigeria.

Sale of loose fertilizers in an open environment, through traditional weighing measures of “Mudu” is quite common in Nigerian rural markets. This practice not only leads to the supply of inaccurate weights but also deteriorates the quality of fertilizers particularly nitrogen fertilizers such as urea, thus making the products substandard.

## Great Results Come From Small Packages

To improve the practice, the DAIMINA project promoted the use of 1-, 2-, and 5-kg bags. The Federal Ministry of Agriculture approved re-packaging of fertilizer bags by DAIMINA-trained agricultural inputs dealers. The dealers have been trained by DAIMINA project staff in weighing, packaging and sealing of the small bags.

Alh. Sule Haruna, one of the trained dealers located in Kasuwa Dare, Gwagwalada, happily reported that his sales have increased by 25% in 2 months. According to the dealer, “The handling of fertilizer in small bags is more convenient.” The small bags are not only purchased by home gardeners but also by small-holder farmers, particularly women farmers, who grow vegetables for sale. The dealer also distributes a one-page brochure describing the correct application method.

## More Sales in Small Bags

The agricultural inputs dealer reported that 60% of his fertilizer sales are now sold in small bags. He appreciates the assistance from the DAIMINA staff, who have supported him in this activity that greatly benefits smallholder farmers.

Alh. Sule is proud that he can now supply fertilizers in good quality and attractive packages. He is also happy that his sales are increasing steadily because of the growing confidence of farmers in his business. This is one of several activities that the DAIMINA project is undertaking to develop the agricultural inputs business in rural markets in Nigeria.

Photo by Bola Ajadi



Nigerian Entrepreneur Alh. Sule Haruna

Photo by Ian Gregory



Workers harvest peppers from the Fadama fields (lowlands or flash flood plains of northern Nigeria) in Dass, Bauchi State, Nigeria.

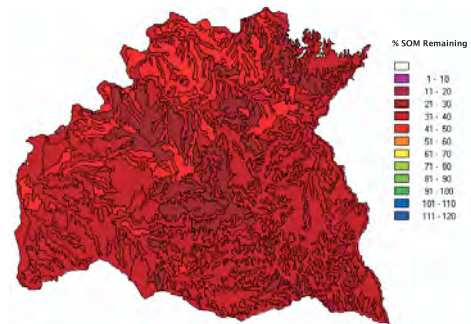
## URUGUAY—Project Brief

Throughout the 1990s, IFDC developed and established an Information Decision Support System (IDSS) in Uruguay in collaboration with the National Agricultural Research Institute (INIA). The main purpose was to use current and advanced techniques in information technology to process agricultural data in such a way that it could be easily interpreted and used by officers in the agricultural sector for the purposes of planning and decision making. This work, done in parallel with the development and testing of dynamic simulation models, was implemented in Uruguay (with a wealth of good data) and implemented in practical terms on the INIA website. The data generated and encapsulated on this site was used by the Uruguayan Ministry of Agriculture as a policy and decision support tool.

The IDSS-Uruguay is a geographic information system (GIS)-based system and links: (1) national and regional statistics (yields, areas, prices); (2) existing databases of experimental results and surveys; (3) crop/pasture/soil simulation models—decision support system for agrotechnology transfer (DSSAT), agricultural production systems simulator (APSIM), and CENTURY; (4) remotely sensed information—Landsat, advanced very high resolution radiometer (AVHRR), and moderate resolution imaging spectro-radiometer (MODIS); and (5) probabilistic seasonal climate forecasts. Data from the most recent NASA instrument (MODIS) were used to monitor vegetation state and its temporal and spatial variability. The analysis aims at detecting the signal of large-scale effects such as El Nino and vegetation responses to intra-annual variability of key parameters like precipitation and surface temperature.

The success in developing and implementing a working system in Uruguay is now expanding to work beginning in the Near East North Africa (NENA) project in Morocco to be used to improve agricultural input use efficiency and reduce cereal production risks in the region. Collection of empirical and historical data, in collaboration with the National Institute of Agronomic Research (INRA—Morocco) and the International Center for Agricultural Research in the Dry Areas (ICARDA), will allow us to recreate the model of activities to Morocco to implement a similar decision support toolkit.

Uruguay IDSS  
CENTURY Model Run 1:  
Crop-Crop, No fertilizer, Conventional Tillage (60 yrs)



Uruguay IDSS  
CENTURY Model Run 2:  
Crop-Pasture, N fertilizer, No Till (60 yrs)



Uruguay IDSS  
CENTURY Model Run 3:  
Crop-Crop, N fertilizer, No Till (12 yrs)



## TRAINING ACTIVITIES DURING 2003/04

From its Headquarters, IFDC organizes annually an average of six short-term international and regional workshops, mainly overseas, in addition to specialized training programs and U.S. study tours. While traditional courses on fertilizer technology continue in accord with demand, there has been more emphasis in recent years on such topics as ISFM, agricultural-input policy and regulatory reform, and institutional development, competitive agricultural input marketing, decision support systems, and environmental issues. IFDC international training programs have focused more on sub-Saharan Africa to reflect the focus on agricultural problems facing the region. As a result, 42% of all participants came from Africa in the 1999-2003 period, compared with 27% in the previous 5-year period. One fact that remains consistent is the high mark accorded IFDC global and specialized training programs. Participants ranked the programs 3.9 on a scale of 5 in each of the past 5 years.

Photo by Willem-Albert Toose



Participants in the 2004 ISFM training program—extension officers, researchers, and decision makers from various ministries—tour a phosphate mine in Togo.

# Training Activities During 2003/2004

Photo by M. Feisal Beig

## Testimonials From Past Participants

“I found the training program that was held in Mauritius very interesting, and I would welcome the opportunity to have IFDC conducting a similar program for our commercial organization.”

**Fernando Mata,**  
Domestic Sales Manager,  
Profertil S.A., Argentina.



Fertilizer marketing training participants visit a pineapple plantation in Mauritius.

“Thank you for the excellent training program. I have already recommended to my colleagues that they attend your programs. Thanks for your efforts to improve agricultural output all over the world.”

**Ismaiel Al-Hosayen,**  
Urea Sales,  
SABIC (Saudi Arabia)



Togolese woman farmer charts information regarding soil nutrient deficiencies that she learned about in the Farmer Field School—Participatory Learning and Action Research.

Photo by Willem-Albert Toose

## Tomorrow: A Vision for the Future

After IFDC's creation in 1974, the primary focus was on fertilizer materials research and development. As experience was gained, IFDC's mandate became more holistic. Specifically, attention shifted from fertilizers to agricultural inputs and was eventually expanded to include all inputs, including water. Furthermore, this holistic approach includes significant efforts to ensure market-driven development linkages among farm inputs, farm production, and outputs, and sustainability of project results and agricultural production.

### Basis for the New Strategy

A new look at IFDC's future direction is timely because developing-country conditions have changed considerably during the past 5 years. Specifically, the global health crises – namely the HIV/AIDS pandemic and malaria – pose significant threats to food security and have led to a new problem—labor shortages.

Photo by Ankou Kokou



Kodjo Agbegna is not an ISFM farmer but after seeing the results on the ISFM farms, he decided to use ISFM practices on his own farm. His crops now look promising.

## Development Constraints for Priority Attention

During 2004-08, the following key constraints to increased smallholder agriculture production will receive priority consideration:

- **Primary Constraint in Developing Countries—Poor Agricultural Production Systems**

Poor agriculture increases the cost of food, capital and other commodities and has a disproportionate adverse impact on women and children. Competition for land, water and natural resources leads to not only poverty but also injustice, conflict and migration. Further, poor and hungry people do not make good trading partners. Sustainable agriculture increases production, raises incomes, replenishes depleted resources, improves the role of women and permits rural families to take charge of their lives – a powerful instrument in promoting peace. Further, ecologically sound agricultural practices increase yields and improve water quality and management while preventing the destruction of forests and wildlife. The biggest killers – HIV/AIDS, malaria, diarrhea and respiratory infections – are exacerbated by malnutrition.

- **Soil Nutrient Depletion and Environmental Degradation—Severe Constraints, Particularly in Africa**

During the past 50 years, about 2 billion of the world's 8.7 billion ha of agricultural land, pastures, and forests have been degraded. Two-thirds of the degraded land is in Africa and Asia; however, the most severe human-induced degradation is in Sub-Saharan Africa, where 30% of the land is degraded. In Asia, 27% of the

Photo by Nizami Garayev



Field coordinator Namik Aliyev and an Azeri farmer inspect a wheat demonstration field. The market development projects in Eurasia are providing valuable technology transfer to assist these countries to increase their food production.

land has been degraded and in Latin America, 18%. Degradation of natural resources – soils, forests, marine fisheries and water – determines production capacity, while availability of and access to agricultural inputs such as water, fertilizer, CPPs, energy and technology influence productivity levels.

- **Low Water Use Efficiency—A Significant, Often Overlooked Problem**

The efficiency of water use in agriculture, industry and urban areas is low. Pressures that degrade land and water resources through water logging, salinization and groundwater mining are mounting. Furthermore, only a small portion of the rising demand for water can be met from new sources. Therefore, growing demands can only be met through more efficient use of water in agriculture, industry, and urban areas. Comprehensive water policy reforms are urgently needed to improve incentives for users to save water, improve water allocation procedures, and develop and use better water supply and delivery technology.

- **Rural Poverty—Primary Fuel Spreading HIV/AIDS in Developing Countries**

More than two-thirds of the population of the 25 most affected African countries live in rural areas. Furthermore, HIV/AIDS has spread faster than expected among the rural poor, and they are, therefore, carrying most of the burden of the disease worldwide. Household spending on food by the poor declines by nearly one-third in the 6 months following the death of a young, productive male adult. Finally, female-headed households afflicted by AIDS become entrenched in poverty. In addition to losing cash income upon the death of the spouse, women have fewer legal rights, are less literate, and have restricted access to support services and markets.

## **Four Thematic Programs**

According to IFDC's new strategic plan, its efforts will be organized around four thematic programs during 2004-08. These programs are as follows:

- **Soil and Nutrient Dynamics**

The thrust of this program area is to identify and apply mechanisms to foster the adoption of nutrient use by crop, nutrient recycling, and soil fertility improvement. Improved fertilizer use recommendations, risk assessment, sustainability indices and environmental impact assessments are developed through the use of analytical methods—geographic information systems (GIS) and decision support systems—which are designed to account for interactions of soil properties, climate change, crops, nutrient management, available inputs, and socioeconomic factors. A significant sub-program under Soil and Nutrient Dynamics is Fertilizer Materials. The main function of this sub-program is to carry out research and development to determine the most efficient use of fertilizer materials and develop processes to use these materials in fertilizer production to improve soil fertility and nutrient management.

- **Natural Resource Management**

The poor quality of African soils is the key constraint limiting African agriculture. Not only are the soils poor but also rainfall is low, irregular and erratic or too high and intense. Furthermore, low organic matter in the soils contributes to the lack of nutrient storage capacity and low water retention. This program is tailored specifically to be responsive to those African conditions. Specifically, the program focuses on ISFM technologies to improve the economic feasibility of fertilizer use and decrease environmental risks by increased use efficiency. These technologies integrate the use of soil amendments and inorganic fertilizer and lead to increased availability and accessibility of plant nutrients.

- **Agribusiness Development**

This holistic program focuses on participatory development of technological packages with measures to facilitate institutional change and, in particular, improve the linkages between smallholders and input markets (including water and credit) and output markets in sub-Saharan Africa. This program has demonstrated the importance of a comprehensive input marketing approach (seeds + fertilizer + crop protection products + management) even in post-conflict countries. In brief, this comprehensive program is very cost-effective in quickly moving affected families from an emergency situation to self-sufficiency and eventually on to surplus household status.

- **Enabling Market and Trade Policy Environment**

Reforms in agriculture have generally been focused on market privatization and liberalization and were implemented abruptly, without a transition period for private sector development. As a result, privatization occurred in an unpredictable environment and with mixed results. Therefore, IFDC's market and trade development efforts will focus on activities that support a complete transition of input markets to the private sector. Furthermore, appropriate policies and incentives are essential for sound management of natural resources and agricultural inputs. IFDC's successes in developing and implementing holistic, sustainable agricultural practices make it well-suited to be a significant player in carrying out agricultural and trade policy analyses and educating senior policy makers regarding the consequences of various policy applications. The market and trade development focus includes all inputs (e.g., seeds, fertilizer, crop protection products, credit, labor, transportation, etc.) and sound natural resources management.

Efforts in both Human Capacity Building and Institutional Development are important cross-cutting areas that will be incorporated in all programs, rather than serve as stand-alone programs.

## **New Cross-Cutting Themes**

To ensure that human capacity building, nutrition, HIV/AIDS and gender issues are integrated fully into future IFDC agricultural projects, these key areas will become cross-cutting themes during 2004-08 as follows:

- **Human Capacity Building**

IFDC will continue to expand its public-private partnerships; facilitate the exchange of knowledge and technology across borders; and increase research on and training of women in agriculture, particularly in sub-Saharan Africa.

- **Nutrition, HIV/AIDS, and Gender**

It has become increasingly obvious that all "development bets will be off" unless scaled-up interventions are launched to prevent and/or control the HIV/AIDS epidemic, particularly in Africa. In view of this, IFDC will develop ways to incorporate HIV/AIDS interventions within agricultural development projects. In particular, IFDC will carry out research on more nutritious crops, minimum tillage crops, and cropping techniques that require less labor by HIV/AIDS affected families.

## **A Strategy That Builds on Past Successes**

IFDC is a unique non-profit Center with a demonstrated capability to work with both the public and private sectors in applying the best plant nutrient management and agribusiness development practices around the world. IFDC is unique for a number of reasons, including its:

- **Holistic approach** to problems, an approach which is broad-based, interdisciplinary, participatory, demand driven and results oriented;
- **Ability to develop fertilizer materials and technology** from manufacture and marketing to privatization of input supplies and agribusiness development;
- **Ability to produce international public goods** through research and development to produce knowledge, technology or methods by working with the private sector;
- **A state of readiness** that allows IFDC to play the role of honest broker between the public and private sectors;
- Ability to work along the continuum of supplying and using plant nutrients wisely by identifying and **analyzing problems and presenting options**, including the sequencing of actions; and
- **Ability to develop public and private partnerships on a wide array of problems.**

IFDC's new strategy reinforces the Center's evolved mandate and builds on past successes. Specifically, IFDC will build on its core strength in the market-driven agricultural inputs technology and plant nutrient management areas. These focus areas will be supported by the Center's policy work in linking smallholders to domestic, regional and international markets.

IFDC's goal for the foreseeable future is to increase sustainable smallholder incomes rapidly and substantially, largely through increased access to agricultural input and output markets and through greater use of improved technology and practices. This goal will be achieved through two main strategic objectives:

- Enhance agricultural markets and trade for smallholders via the refinement, promotion and expansion of IFDC's successful agribusiness development model; and
- Increase sustainable smallholder agricultural productivity via the development and adaptation of ecologically sound, integrated plant nutrient technologies.

### **Areas of Geographic Concentration**

IFDC's regional priorities for 2004-08 are as follows:

- **Central and West Africa** – Enhancement of activities
- **East and Southern Africa** – Expansion of activities
- **Central Asia** – Expansion of activities
- **South and South East Asia** –Expansion of activities

In conclusion, better agriculture not only promotes economic growth and increases trade but also leads to improved health and nutrition and improved governance. Improved nutrition is a key factor in increasing the productivity of HIV/AIDS and malaria-affected populations. IFDC's new strategy focuses on these important linkages.

## Project Portfolio

Project	Objective	Collaborators	Location
AAATA	To nurture private sector-led growth in agriculture and agri-business in Albania	Entrepreneurs, decision makers	Albania
AAATA Development of Agricultural Statistics	Support the Ministry of Agriculture of Albania in development of sustainable services in agricultural statistics	Public and private sector offices and NGOs	Albania
AMDA	To improve agro-input marketing and accessibility in Azerbaijan	Agro-input dealers, farmers	Azerbaijan
ANMAT Project	To promote the adoption of balanced fertilizer use and improved efficiency of fertilization in Bangladesh, Nepal, and Vietnam	NGOs, extension services	Bangladesh, Nepal, Vietnam
Uganda Agricultural Productivity Enhancement Program (APEP)	To expand economic opportunities in the Ugandan agricultural sector by increasing agricultural productivity and marketing of key food and cash crop systems.	Input suppliers, distributors, and users Chemonics	Uganda
The Agricultural Production Initiative in Mali (APIM)	To exploit and expand irrigated agriculture throughout Mali with the intention of increasing producers' incomes to foster economic growth and substantially reduce poverty.	agronomists, NARS CLUSA	Mali
Café Project	To develop a framework using remote-sensing observations and climate and biophysical models for predicting seasonal-to-interannual climate fluctuations	Columbia University	Uruguay
Desert Margins Project	To mitigate the effect of drought and to combat desertification in Sub-Saharan Africa	NARES, NGOs decision makers, ICRISAT	Sahelian countries
Developing Agro-Input Markets in Nigeria	To improve policies and regulatory regimes related to agri-inputs and to develop systems for providing market information and access to credit	IITA, farmers	Nigeria
Developing ISFM Options for Basil Production Around Lomé (Darégal Study)	To conduct a study on improved and integrated soil fertility management for peri-urban agriculture with emphasis on basil cultivation around Lomé, Togo, at two sites: Adétikopé (Darégal farm) and Baguida (vegetable growers)	Darégal, vegetable farmers	Lomé – peri-urban agriculture farmers
Development and Dissemination of Sustainable Integrated Soil Fertility Management Practices for Small-holder Farms in SSA	To improve plant nutrient management in resource-poor areas of SSA	TSBF CIAT national partners	West Africa
Development/ Implementation of an Information and	To initiate an applied research program to reduce farmer poverty through increased income, greater food availability, and reduced risks by improving	Farmers, policymakers NARS	Morocco

## Project Portfolio (continued)

Project	Objective	Collaborators	Location
Decision Support System for Cereal Production in the NENA Region	agricultural planning and decision making		
East and Central Africa Maize and Wheat Network Project	On-farm evaluation of maize varieties; soil fertility enhancement; soil moisture conservation; agronomic methods to control Striga	CIMMYT NARS scientists	Kenya, Ethiopia, Tanzania, Uganda,
Emergency Supply of Fertilizer	To assist Afghanistan in resurrecting its critical agricultural sector	Ministry of Agriculture, ICARDA, NGOs	Afghanistan
Enterprise Development Project (EDP)	To improve agribusiness prospects in the Ferghana Valley in Central Asia	Pragma	Kyrgyzstan
FASEPE Project	To promote sustainable agricultural production and market development by improving necessary socio-economic and policy conditions	Farmer-based organizations, public and private sector	West Africa
Fertilizer Micro-Dosing Project for Small Farmer Prosperity in the Sahel	To improve crop production and increase farm incomes through the uptake of fertilizer through micro-dosing and better farmer-based cooperative organizations	ICRISAT FBOs	West Africa
Food for Progress Program	To support private sector development of agribusiness enterprises engaged in feed milling, meat, dairy, and egg production by providing technical assistance and linkages to world market sources and by promoting market development programs	Agricultural input dealers USDA	Albania
Ghana Agro-Input Market Strengthening (GAIMS)	To develop technical and business training programs for agricultural input dealers and importers in Ghana	Dealers, importers Technoserve, GTZ	Ghana
GISD	To increase access to geo-spatial data and tools that can help increase agricultural production and food security	USGS, AfriCover, Open GIS Consortium	Headquarters
IDSS for Uruguay	Land feasibility studies; national/regional crop yield forecasts; drought/flood alert systems; agronomic recommendations	INIA, IAPAR, INTA, NASA	Uruguay
Institutional Capacity Building Agro-Input Market Development in Malawi	To strengthen agro-input markets by deepening policy reform, establishing regulatory systems, developing capacities of private sector dealers, and expanding market information systems	Agri-input dealers	Malawi
Integrated Natural Resource Management in Mountain Agroecosystems	To increase and improve productive and sustainable natural resources management in selected mountain areas	CIP, CIAT, CONDESAN	Ecuador, Peru, Bolivia, Colombia, Venezuela

## Project Portfolio (continued)

Project	Objective	Collaborators	Location
ISFM Project (which combines the F&SAD and FfF projects)	To promote ISFM strategies at the village and regional levels and to develop sustainable linkages of farmers to input/output markets	NGOs, NARES, farmers, bankers, traders, and policymakers	Benin, Burkina Faso, Ghana, Mali, Niger, Nigeria, Togo
ISFM Technical Assistance (Projet de Developpement Rural du Sud-Ouest (PDRSO), Le Projet de Developpement Rural Decentralise et Participatif des Provinces du Bazega et du Kadiogo (PDRDP)	Introduce integrated soil fertility management options in large investment projects in Burkina Faso	NARS and national NGOs	West Africa
KAED	To support the development of agro-input dealers and increase agricultural production through use of improved technologies	Agro-input dealers, decision makers	Kyrgyz Republic
Kosovo Feed for Poultry Project (KFPP)	To improve the adoption of new technologies by producers in the feed-grain, milling, and poultry subsector	Save the Children, agricultural processors, farmers, poultry producers	Kosovo
Mali Agricultural Production Initiative (MAPI/PRODEPAM)	Increase agricultural productivity (irrigated agriculture, access to improved animal feeds, natural resources and environment, increased availability to inputs and technologies)	CLUSA, Cheladia, Land O' Lakes, Appro TEC	Mali
Strengthening Networks of Regional Market Information Systems and Trader Organizations in West Africa (MISTOWA)	To improve the collection and dissemination of market information and traders' organization networks	AMEX International, Inc. Agriterra, Geekcorps, several West African regional organizations	West Africa
MOS Andes Project	To develop soil management practices to enhance productivity of Andean soils	CIP, CIAT, and universities, NARIs, and NGOs in Bolivia, Peru, Ecuador, Colombia and Venezuela	Bolivia, Colombia, Ecuador, Peru, Venezuela
Livestock Development Project in the Soum Province (PDES Project)	To enhance crop and animal production through integrated soil fertility management	NARES, NGOs in Burkina Faso	Soum Province, Burkina Faso
Promoting Agricultural Development Through the Creation of a Regional Agricultural Inputs Market in West Africa (MIR)	To strengthen the private sector and create a regional market in West Africa	UEMOA, ECOWAS, ROPPA, RECAO, CMA/WCA, private input importers and dealers, Sector Ministries	Burkina Faso, Benin, Ghana, Mali, Nigeria, Togo

## Project Portfolio (continued)

Project	Objective	Collaborators	Location
Promoting Sustainable Agricultural Inputs Markets in SSA	To produce practical guide for fostering open, private sector, competitive, and reliable distribution networks for agri-inputs	Agri-input dealers	Nigeria, Malawi, Ghana, Mali, Uganda, Zambia, Tanzania
Rebuilding of Agricultural Markets of Afghanistan Program (RAMP)	To provide agricultural dealer development expertise in a project designed to rebuild the agricultural markets of Afghanistan	Chemonics, agricultural inputs dealers	Afghanistan
Tradeoffs Project	To develop decision support system for assessing tradeoffs between agricultural production and impact on environment and human health	Montana State University, CIP, CIAT, Wageningen University, INIAP, PRONAMACHS	Peru Ecuador

## Publications, 2003/04

- FSR1 *Africa Fertilizer Situation.*
- FSR2 *Asia Fertilizer Situation.*
- FSR3 *Latin America Fertilizer Situation.*
- FSR-5 *North America Fertilizer Capacity.*
- FSR-6 *Eastern Europe Fertilizer Situation.*
- FSR-7 *Worldwide Urea Capacity Listing by Plant.*
- FSR-8 *Worldwide DAP and MAP Capacity Listing by Plant.*
- FSR-9 *Worldwide Potash Capacity Listing by Plant.*
- FSR-10 *Worldwide Ammonia Capacity Listing by Plant.*
- FSR-11 *Worldwide Directory of Fertilizer Traders, Importers, and Organizations.*
- FSR-14 *Worldwide Ammonium Nitrate and Calcium Ammonium Nitrate Capacity Listing by Plant.*
- FSR-15 *Recent Fertilizer Project Announcements: Worldwide.*
- FSR-16 *Global and Regional Data on Fertilizer Production and Consumption, 1961/62-2001/02.*
- FSR-18 *Western Europe Fertilizer Situation.*
- FSR-19 *Former Soviet Union (FSU) Fertilizer Situation.*
- FSR-20 *North America Fertilizer Situation.*
- FSR-21 *China Fertilizer Situation.*
- FSR-22 *Worldwide NPK Capacity Listing by Plant.*
- FSR-23 *Worldwide Phosphoric Acid Capacity Listing by Plant.*
- G-1 *IFDC Publications Catalog (2004).*
- LS-3 *Feeding a World of 10 Billion People: The TVA/IFDC Legacy (2003) Third Travis P. Hignett Memorial Lecture.*
- P-28 *An Action Plan for Developing Agricultural Input Markets in Uganda (2003).*
- P-29 *Input Subsidies and Agricultural Development: Issues and Options for Developing and Transitional Economies (2003).*
- P-30 *The Rebuilding of Afghanistan's Agriculture (2003).*
- P-31 *Improving African Food Security (2004).*
- P-32 *The Comparative Advantage of Agricultural Production in Southern Kyrgyzstan (2003).*
- PCD-26 *Fertilizer Regulatory Systems (2003) (CD-ROM).*
- PCD-27 *An Assessment of Fertilizer Prices in Kenya and Uganda: Domestic Prices vis-à-vis International Market Prices (2003) (CD-ROM).*
- R-13 *Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa: A Practical Guide (2003).*
- R-14 *Outils d'aide à la décision pour l'agriculture en Afrique sub-saharienne : un guide pratique (2004) French version of R-13.*
- S-26 *IFDC Corporate Report 2002-2003 (2003)*
- SP-37 *Direct Application of Phosphate Rock and Related Appropriate Technology—Latest Developments and Practical Experiences, Proceedings of an International Meeting, Kuala Lumpur, Malaysia, July 16-20, 2001, S.S.S. Rajan and S. H. Chien (Eds.) (2003).*

- Al-Merey, R., M. Al-Hameish, S. H. Chien, and A. F. Asfary. 2004. "Pi-Paper as an Evaluation Method of Available Phosphorus in Gypsum-Calcareous Soils," *Communications in Soil Science and Plant Analysis*, 35:1357-1367.
- Bayala, J., A. Mando, S. J. Ouedraogo, and Z. Teklehaimanot. 2003. "Managing *Parkia biglobosa* and *Vitellaria paradoxa* Prunings for Crop Production and Improved Soil Properties in the Sub-Sudanian Zone of Burkina Faso," *Arid Land Research and Management*, 17:283-296.
- Becker, M., D. E. Johnson, M.C.S. Wopereis, and A. Sow. 2003. "Rice Yield Gaps in Irrigated Systems Along an Agro-Ecological Gradient in West Africa," *J. Plant Nutr. Soil Sci.*, 166:61-67.
- Bowen, W. T. 2003. "Water Productivity and Potato Cultivation," IN *Water Productivity in Agriculture: Limits and Opportunities for Improvement*, pp. 229-238, J. W. Kline, R. Barker and D. Molden (Eds.), CAB International.

## Publications, 2003/04

(Continued)

- Bremen, H. 2003. "IFDC Launches MIR to Support Agriculture in West Africa," *Fertilizers & Agriculture*, May, p. 1.
- Breman, H. 2003. "Position Paper on the Role of Soil Improvement, Markets and Governments," IN *Proceedings of the Program Formulating Meeting*, March 10-14, 2003, Accra, Ghana. Challenge Program on Improving Livelihoods and Natural Resource Management in Sub-Saharan Africa, Forum for Agricultural Research in Africa, Accra.
- Breman, H. 2003. "West African Subsistence Farming," IN *Proceedings of the IFA-FAO Agricultural Conference on Global Food Security and the Role of Sustainable Fertilization*, March 26-28, 2003, Rome, Italy. CD-ROM, IFA, Paris.
- Breman, H., and S. K. Debrah. 2003. "Improving African Food Security," *SAIS Review*, Vol. XXIII No. 1, pp. 153-170.
- Breman, H., and J.J. Robert Groot. 2004. "The Role of Fertilizers in Agricultural Development in Sub-Saharan Africa," *Fertilizer Focus*, May/June.
- Bühler S., A. Oberson, S. Sinaj, D. K. Friesen, and E. Frossard. 2003. "Isotope Methods for Assessing the Plant-Available Phosphorus in Acid Tropical Soils," *European J. Soil Sci.*, 54(3):605-616.
- Bumb, B. L., D. I. Gregory, and U. Singh. 2003. "Globalization and Fertilizer Use: Policy and Efficiency Issues," IN *Feed the Soil to Feed the People, The Role of Potash in Sustainable Agriculture*, pp. 109-128, Proceedings of the IPI Golden Jubilee Congress 1952-2002, A. E. Johnston (Ed.), International Potash Institute, Basel, Switzerland.
- Chien, S. H. 2003. "Characterization and Agronomic Evaluation of Single Superphosphate Varying in Iron Phosphate Impurities," *Agronomy Journal*, 95:293-302.
- Chien, S. H. 2004. "Soil Testing for Phosphate Rock Application," IN *Use of Phosphate Rocks for Sustainable Agriculture*, F. Zapata and R. N. Roy (Eds.), pp. 59-68, FAO Fertilizer and Plant Nutrition Bulletin 13, FAO, Rome, Italy.
- Chien, S. H. 2004. "Secondary Nutrients, Micronutrients, Liming Effect, and Hazardous Elements Associated With Phosphate Rock Use," IN *Use of Phosphate Rocks for Sustainable Agriculture*, F. Zapata and R. N. Roy (Eds.), pp. 77-83, FAO Fertilizer and Plant Nutrition Bulletin 13, FAO, Rome, Italy.
- Chien, S. H. 2004. "Legislation and Quality Control of Phosphate Rock for Direct Application," IN *Use of Phosphate Rocks for Sustainable Agriculture*, F. Zapata and R. N. Roy (Eds.), pp. 117-123, FAO Fertilizer and Plant Nutrition Bulletin 13, FAO, Rome, Italy.
- Chien, S. H., G. Carmona, J. Henao, and L. I. Prochnow. 2003. "Evaluation of Rape Response to Different Sources of Phosphate Rock in an Alkaline Soil," *Communications in Soil Science & Plant Analysis*, 34:1825-1835.
- Chien, S. H., G. Carmona, L. I. Prochnow, and E. R. Austin. 2003. "Cadmium Availability from Granulated and Bulk-Blended Phosphate-Potassium Fertilizers," *J. Environmental Quality*, 32:1911-1914.
- Craswell, E. T., U. Grote, J. Henao, and P.L.G. Vlek. 2004. *Nutrient Flows in Agricultural Production and International Trade: Ecological and Policy Issues*, ZEF – Discussion Papers on Development Policy No. 78, Center for Development Research, Bonn, pp. 62.
- Crissman, C., D. Yanggen, J. Antle, D. Cole, J. Stoorvogel, V. Barrera, P. Espinosa, and W. Bowen. 2003. "Relaciones de intercambio existentes entre agricultura, medio ambiente y salud humana con el uso de plaguicidas" (in Spanish), IN *Los Plaguicidas Impactos en Producción, Salud y Medio Ambiente en Carchi, Ecuador*, p. 147-162, D. Yanggen, C. Crissman, and P. Espinosa (Eds.), International Potato Center (CIP) and Instituto Nacional Autonomo de Investigaciones Agropecuarias, Ediciones Abya-Yala, Quito, Ecuador.
- Daroub S. H., A. Gerakis, J. T. Ritchie, D. K. Friesen, and J. Ryan. 2003. "Development of a Soil-Plant Phosphorus Simulation Model for Calcareous and Weathered Tropical Soils," *Agricultural Systems*, 76:1157-1181.
- Debrah, S. K. 2003. "Market Information – A New Network," IN AGFAX, *Communicating Science for Sustainable Development*, CD and tape, Wrenmedia.
- de Ridder, N., H. Breman, H. van Keulen, and T. J. Stomph. 2004. "Revisiting a 'Cure Against Hunger': Soil Fertility Management and Farming Systems Dynamics in the West African Sahel," *Agricultural Systems*, 80(2004):109-131.

## Publications, 2003/04

(Continued)

- Dohmen, Manon Mireille (Ed.). 2003. *The Rejuvenation of the Ghana Agri-Input Dealers' Association: Proceedings of the Workshop for Agri-Input Dealers of Ghana*, Accra, Ghana, June 20, 2003.
- Dohmen, Manon Mireille, and S. Kofi Debrah (Eds.). 2003. *Empowering the Seed Industry to Guarantee Quality Seed Production and Management: Proceedings of the Training Workshop for Members of the Seed Growers' Association and Seed Inspectors in the Volta Region*, Hohoe, Ghana, May 14-16, 2003.
- Faria, R. T., and W. T. Bowen. 2003. "Evaluation of DSSAT Soil-Water Balance Module Under Cropped and Bare Soil Conditions," *Brazilian Archives of Biology and Technology*, 46(4):489-498.
- Fofana, B., H. Breman, R. J. Carsky, H. Van Reuler, A. F. Tamelokpo and K. D. Gnakpenou, 2004. "Using Mucuna and P Fertilizer to Increase Maize Grain Yield and N Fertilizer Use Efficiency in the Coastal Savanna of Togo," *Nutrient Cycling in Agroecosystems*, 68:213-222.
- Fofana, B., M.C.S. Wopereis, R. Zougmore, H. Breman, and A. Mando. 2004. "Integrated Soil Fertility Management, An Effective Water Conservation Technology for Sustainable Dryland Agriculture in Sub-Saharan Africa," *WCT Symposium Proceedings*, South Africa, pp. 109-117.
- Haefele, S. M., M.C.S. Wopereis, M. K. Ndiaye, S. E. Barro, and M. Ould Isselmou. 2003. "Internal Nutrient Efficiencies, Fertilizer Recovery Rates and Indigenous Nutrient Supply of Irrigated Lowland Rice in Sahelian West Africa," *Field Crops Research*, 80:19-32.
- Haefele, S. M., D. E. Johnson, D. M'Bodj, M.C.S. Wopereis, and K. M. Miézan. 2004. "Field Screening of Diverse Rice Genotypes for Weak Competitiveness in Irrigated Lowland Eco-systems," *Field Crops Research*, 88:29-46.
- Haefele, S. M., M.C.S. Wopereis, A.-M. Schloebom, and H. Wiechmann. 2004. "Long-Term Fertility Experiments for Irrigated Rice in the West African Sahel: Effect on Soil Characteristics," *Field Crops Research*, 85:61-77.
- Hoogenboom, G., J. W. Jones, P. W. Wilkens, and G. Y. Tsuji. 2004. "Experiences With the Decision Support System for Agrotechnology Transfer," IN *Proceedings, International Workshop on Applications, Enhancements, and Collaborations of ARS RZWQM and GP Farm Models*, pp. 56-57, USDA-ARS-GPSR, Fort Collins, Colorado.
- Jiménez J. J., A. Cepeda, T. Decaëns, A. Oberson, and D. K. Friesen. 2003. "Phosphorus Fractions and Dynamics in Surface Earthworm Casts Under Native and Improved Grasslands in a Colombian Savanna Oxisol," *Soil Biol. Biochem.*, 35:715-727.
- Johnson, D. E., M.C.S. Wopereis, D. Mbodj, S. Diallo, S. Powers, and S. M. Haefele. 2004. "Timing of Weed Management and Yield Losses Due to Weeds in Irrigated Rice in the Sahel," *Field Crops Research*, 85(2004):31-42.
- Jones, J. W., G. Hoogenboom, C. H. Porter, K. J. Boote, W. D. Batchelor, L. A. Hunt, P. W. Wilkens, U. Singh, A. J. Gijsman, and J. T. Ritchie. 2003. "The DSSAT Cropping System Model," *European Journal of Agronomy*, 18:235-265.
- Kanampiu F., D. K. Friesen, and J. Gressel. 2003. "A New Approach to *Striga* Control," *Pesticide Outlook*, April 2003, pp. 51-53.
- Kanampiu F. K., V. Kabambe, C. Massawe, L. Jasi, D. K. Friesen, J. K. Ransom, and J. Gressel. 2003. "Multi-Site, Multi-Season Field Tests Demonstrate That Herbicide Seed-Coating Herbicide-Resistance Maize Controls *Striga* spp. and Increases Yields in Several African Countries," *Crop Protection*, 22(5):697-706.
- Kuyvenhoven, A., S. H. Chien, and E. Casanova. 2004. "Economic Factors in the Adoption and Utilization of Phosphate Rock," IN *Use of Phosphate Rocks for Sustainable Agriculture*, F. Zapata and R. N. Roy (Eds.), pp. 99-116, FAO Fertilizer and Plant Nutrition Bulletin 13, FAO, Rome, Italy.
- Meertens, H.C.C. 2003. "The Prospects for Integrated Nutrient Management for Sustainable Rainfed Lowland Rice Production in Sukumaland, Tanzania," *Nutrient Cycling in Agroecosystems*, 65:163-171.
- Ouédraogo, E., A. Mando, and L. Brussaard. 2003. "Effect of Organic Resources Management on Soil Biodiversity and Crop Performance Under Semi-Arid Conditions in West Africa," IN F. Waliyar, L. Colette, and P. E. Kenmore (Eds.), *Proceedings of the Workshop "Sustaining Agricultural Productivity and Enhancing Livelihoods Through Optimization of Crop and Crop-Associated Biodiversity With Emphasis on Semi-Arid Tropical Agroecosystems"*, September 23-25, 2002, Patancheru, Andhra Pradesh, India, ICRISAT/FAO, pp. 89-101.

## Publications, 2003/04

(Continued)

- Pathak, H., J. Timsina, E. Humphreys, D. C. Godwin, U. Singh, and R. B. Mathews. 2004. *Simulation of Rice Crop Performance and Water and N Dynamics and Methane Emissions for Rice in Northwest India Using CERES Rice Model*, 111 pp., CSIRO Land and Water Technical Report No. 23/04, CSIRO Land and Water, Griffith, NSW 2680, Australia.
- Prochnow, L. I., S. H. Chien, E. F. Dillard, E. R. Austin, G. Carmona, J. Henao, U. Singh, and R. W. Taylor. 2003. "Synthesis, Characterization, and Agronomic Evaluation of Iron Phosphate Impurities in Superphosphates," *Soil Sci. Soc. Am. J.*, 67:1551-1563.
- Prochnow, L. I., E. F. Dillard, E. R. Austin, S. H. Chien, and C. G. Calvo. 2003. "Modal Analysis to Estimate the Composition of Single Superphosphate," *Communications in Soil Science & Plant Analysis*, 34:2131-2147.
- Prochnow, L. I., S. H. Chien, G. Carmona, and J. Henao. 2004. "Greenhouse Evaluation of Phosphorus Sources Produced from a Low-Reactive Brazilian Phosphate Rock," *Agronomy Journal*, 96:761-768.
- Roy, A. H. 2003. "Fertilizers," IN *Riegel's Handbook of Industrial Chemistry, Tenth Edition*, pp. 386-428, James A. Kent (Ed.), Kluwer Academic/Plenum Publishers, New York.
- Stoorvogel, J. J., J. M. Antle, C. C. Crissman, and W. Bowen. 2004. "The Tradeoff Analysis Model: Integrated Bio-Physical and Economic Modeling of Agricultural Production Systems," *Agricultural Systems*, 80:43-66.
- Struif Bontkes, T. E., and M.C.S., Wopereis. 2003. "Opportunities for the Use of Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa," IN T. E. Struif-Bontkes and M.C.S. Wopereis (Eds.), *Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa: A Practical Guide*, IFDC, Muscle Shoals, Alabama 35662, U.S.A. and ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA), 6700 AJ Wageningen, The Netherlands, pp. 1-23.
- Struif Bontkes, T. E., and M.C.S. Wopereis. 2003. "Perspectives for the Use of Decision Support Tools in Agricultural Research and Development in Sub-Saharan Africa," IN T. E. Struif-Bontkes and M.C.S. Wopereis (Eds.), *Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa: A Practical Guide*, IFDC, Muscle Shoals, Alabama, U.S.A. and CTA, Wageningen, The Netherlands, pp. 150-158.
- Struif Bontkes, T. E., M.C.S. Wopereis, A. Tamelokpo, K.A. Ankou, and D. Lamboni. 2003. "The Use of QUEFTS in Search of Balanced Fertilizer Recommendations for Maize in Togo," IN T. E. Struif-Bontkes and M.C.S. Wopereis (Eds.), *Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa: A Practical Guide*, IFDC, Muscle Shoals, Alabama, U.S.A. and CTA, Wageningen, The Netherlands, pp. 68-84.
- Thompson, T. P. 2004. "Module 6: Investment in Agribusiness and Market Development. Promoting Private Sector Fertilizer Distribution Systems," *Agriculture Investment Sourcebook*, pp. 285-289, World Bank. <[http://www.esd.worldbank.org/ais/Module06/pdf/mod\\_06\\_04.pdf](http://www.esd.worldbank.org/ais/Module06/pdf/mod_06_04.pdf)> (accessed May 21, 2004).
- Van Asten, P.J.A., S.E. Barro, M.C.S. Wopereis, and T. Defoer. 2004. "Using Farmer Knowledge to Combat Low Productive Spots in Rice Fields of a Sahelian Irrigation Scheme" *Land Degradation & Development*, 15:383-396. Published online June 15, 2004, in Wiley InterScience ([www.interscience.wiley.com](http://www.interscience.wiley.com)).
- Van Asten, P.J.A., M.C.S. Wopereis, S. Haefele, M. Ould Isselmou, and M. J. Kropff. 2003. "Explaining Yield Gaps in Farmer-Identified Degraded and Non-Degraded Soils in a Sahelian Irrigated Rice Scheme," *Netherlands Journal of Agricultural Science*, 50:277-296.
- Wopereis, M.C.S., S. M. Haefele, M. Dingkuhn, and A. Sow. 2003. "Decision Support Tools for Irrigated Rice-Based Systems in the Sahel," IN T. E. Struif-Bontkes and M.C.S. Wopereis (Eds.), *Decision Support Tools for Smallholder Agriculture in Sub-Saharan Africa: A Practical Guide*, IFDC, Muscle Shoals, Alabama, U.S.A. and CTA, Wageningen, The Netherlands, pp. 114-126.
- Zougmore, R., A. Mando, and L. Stroosnijder. 2004. "Effect of Soil and Water Conservation and Nutrient Management on the Soil-Plant Water Balance in Semi-Arid Burkina Faso," *Agricultural Water Management*, 65:103-120.
- Zougmore, R., A. Mando, J. Ringersma, and L. Stroosnijder. 2003. "Effect of Combined Water and Nutrient Management on Runoff and Sorghum Yield in Semiarid Burkina Faso," *Soil Use and Management*, 19:257-264.

## Financial Highlights

The following is a summary of financial information for the year ended December 31, 2003. The full financial statements and the independent auditors' reports are available from IFDC upon request.

<b>Balance Sheet</b>		<b>Statement of Revenue and Expenses</b>	
<b>For the year ended December 31, 2003</b>		<b>For the year ended December 31, 2003</b>	
	<u>US \$'000</u>		<u>US \$'000</u>
<b>Assets:</b>		<b>Revenue and Support:</b>	
Cash and cash equivalents	1,321	Care International	808
Restricted cash	1,655	Chemonics International Inc.	161
Contributions receivable	1,414	International Fertilizer Industry Association	200
Contracts receivable, net of allowance for doubtful accounts	928	International Fund for Agricultural Development	616
Other receivables	203	Netherlands Ministry for Development Cooperation (DGIS)	2,779
Supplies inventory	108	Save the Children Federation, Inc.	370
Prepaid expenses	142	Shell Canada Ltd.	101
Total current assets	<u>5,771</u>	The Fertilizer Institute	136
Buildings and equipment, net	<u>1,070</u>	The Pragma Corporation	124
Contributions receivable, noncurrent		The World Bank	56
Total assets	<u>6,841</u>	U.S. Agency for International Development	14,023
		U.S. Department of Agriculture Training Programs	89
<b>Liability and Net Assets:</b>		Others	<u>1,139</u>
Accounts payable	519	Total revenues and support	<u>20,878</u>
Accrued annual and sick leave	444		
Deferred revenue	876	<b>Expenses:</b>	
Other liabilities	<u>1,655</u>	Field programs	4,557
Total current liabilities	<u>3,494</u>	Research	2,568
Unrestricted net assets	3,154	Market development	11,252
Temporarily restricted net assets	185	Support activities	2,348
Permanently restricted net assets	<u>8</u>	Total expenses	<u>20,725</u>
Total liabilities and net assets	<u>6,841</u>		
		<b>Increase in unrestricted net assets</b>	<u><u>153</u></u>

## **Revenue Sources**

**(as of June 30, 2004)**

African Development Bank (AfDB)  
The Federal Ministry for Economic Cooperation and Development (Germany) (BMZ)  
CARE International  
International Center for Tropical Agriculture (CIAT)  
International Maize and Wheat Improvement Center (CIMMYT)  
Chemonics International Inc.  
Darégal  
DCM Shriram Consolidated Ltd. (DSCL)  
Ecoregional Fund  
Global Environment Facility  
Global Mechanism  
Government of Burkina Faso  
Government of Togo  
Chemical Industries of Senegal (ICS)  
Indian Farmers' Fertiliser Cooperative Ltd. (IFFCO)  
National Agricultural Research Institute (INIA)  
International Atomic Energy Agency (IAEA)  
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)  
International Fertilizer Industry Association (IFA)  
International Fund for Agricultural Development (IFAD)  
Jacobs Engineering Inc.  
Mississippi State University  
Netherlands Ministry for Development Cooperation (DGIS)  
Petrobras Energia S.A.  
Sasakawa Global 2000  
Save the Children Federation, Inc.  
Shell Canada Limited  
Sociedade Productora de Adubos Compositos S.A. (SOPAC)  
The Fertilizer Institute (TFI)  
The Pragma Corporation  
The World Bank  
United States Agency for International Development (USAID)  
United States Department of Agriculture (USDA)  
U.S. Borax, Inc.  
ZEF Universitat Bonn

# Staff

(as of June 30, 2004)

## Office of the President

Amitava H. Roy, President and Chief Executive Officer  
Hendrik Berman, Resident Representative and Principal Scientist  
David J. Garms, Development Officer  
Alicia K. Hall, Senior Secretary  
Debra E. Rutland, Executive Secretary

## Information and Communications Unit

Marie K. Thompson, Coordinator  
Lindsay E. McGuire, UNA Student Intern<sup>3</sup>  
Alicia V. Polo, Spanish/English Translation and Editing<sup>3</sup>  
Jean S. Riley, Senior Librarian  
Lisa L. Thigpen, Editor

## Finance and Administration Department

John H. Allgood, Director  
Kaye F. Barker, Senior Budget/Procurement Officer  
Charles E. Butler, Technician – Maintenance Services  
Glenda T. Carter, Senior Clerk – Accounting  
Doyce E. Couch, Coordinator – Maintenance Services  
C. David Edwards, Senior Personnel Officer  
Ronnie L. Faires, Purchasing Officer  
Janice C. Gautney, Senior Word Processor  
Jane L. Goss, Senior Word Processor  
Amber N. Hammock, Senior Secretary/Associate Personnel Officer  
Regina S. Harris, Accountant  
Vickie J. Hollandsworth, Electronic Document Processor<sup>3</sup>  
Brenda G. Peden, Receptionist  
Debra S. Shedd, Supervisor – Accounting Services  
Carol S. Slaton, Senior Word Processor  
Joy M. Thompson, Senior Accountant  
Michael O. Thompson, Senior Visitor Relations Officer  
Marcus O. Turner, Technician – Maintenance Services  
Donna W. Venable, Senior Word Processor/Graphics Illustrator  
Xia Wan, Coordinator – Computer Services  
David B. Wright, Senior Technician  
Lynda F. Young, Coordinator– Word Processing/Graphics

## Resource Development Division

Lawrence L. Hammond, Director  
E. Rick Austin, Coordinator – Analytical Services  
Walter E. Baethgen, Senior Scientist – Soil Fertility/Biometrics<sup>1</sup>  
A. Brooke Battles, Northwest-Shoals Community College Chemistry Student Intern<sup>3</sup>  
Wendie D. Bible, Analyst – Laboratory  
Bobby W. Biggers, Senior Technician – Pilot Plant Services/Physical Properties  
Seth W. Broadfoot, Associate GIS Specialist<sup>1</sup>  
Robert C. Bosheers, Coordinator – Greenhouse and Pilot Plant Services  
Walter T. Bowen, Resident Project Coordinator – ANMAT II, Bangladesh  
Celia J. Calvo, Senior Analyst – Laboratory  
Sen H. Chien, Principal Scientist – Soil Chemistry  
Lykesha S. Crum, Secretary<sup>1</sup>  
Luisa M. De Faria, Specialist – Engineering  
Ray B. Diamond, Resident Project Coordinator – ANMAT II, Bangladesh<sup>1</sup>  
Elijah G. Evans, Associate GIS Specialist

## Resource Development Division (Continued)

Thomas E. Evers, Senior Technician – Pilot Plant Services  
Dennis K. Friesen, Regional Maize Systems Specialist for East Africa  
Deborah T. Hellums, Scientist – Soil Fertility  
Julio Henao, Senior Scientist – Biometrics  
Vaughn K. Henry, Senior Technician – Greenhouse Services  
R. Gary Howard, Senior Analyst – Laboratory<sup>3</sup>  
Amanda C. Lambert, Analyst – Laboratory  
J. Ramón Lazo de la Vega, Specialist – Engineering  
Robert G. Lee, Engineering/Fertilizer Production Specialist<sup>3</sup>  
Benjamin C. Malone Jr., Senior Analyst – Laboratory<sup>4</sup>  
Mustapha Naimi, Agricultural Systems Modeler – Decision Support Systems  
Soo Jin Park, Scientist – Soil Fertility<sup>1</sup>  
Nancy B. Potter, Senior Secretary  
Upendra Singh, Senior Scientist – Systems Modeling (Soil Fertility)  
Suzette A. Smalberger, Associate Expert Soil-System Modeler – Phosphorus Dynamics  
G. Ronald Smith, Technician – Greenhouse Services  
Allen L. Turner, Cadmium Waste Disposal Specialist<sup>3</sup>  
Steven J. Van Kauenbergh, Program Leader – Fertilizer Materials Program  
Donald R. Waggoner, Ammonia/Urea Production Specialist<sup>3</sup>  
Paul W. Wilkens, Scientist – Programmer

## Market Development Division

D. Ian Gregory, Director  
Dilshod Abdulhamidov, Associate Expert Agricultural Economist  
Vas D. Aggarwal, Market Information Systems Specialist<sup>3</sup>  
Aggrey J.D. Ambali, Biotechnology and Biosafety Specialist<sup>3</sup>  
Carlos A. Baanante, Economist<sup>3</sup>  
Ed A. Beaman, Association Development Specialist<sup>3</sup>  
M. Feisal Beig, Chief of Party, Dealer Development, RAMP – Afghanistan  
Janice T. Berry, Coordinator – Market Information Unit  
Ylli Biçoku, Association and Business Development Advisor – AMDA, Azerbaijan  
R. Perry Bosshart, Product and Input Market Systems Analyst<sup>1</sup>  
Michael S. Brewin, Project Director<sup>3</sup>  
W. Curtis Brummitt, Agribusiness Specialist<sup>3</sup>  
Balu L. Bumb, Program Leader and Principal Scientist – Economics, Economic & Policy Development Program  
William K. Burger, Agriculture Market Information System Design Specialist<sup>3</sup>  
Raymond J. Clark, Resident Advisor – KFPP, Kosovo  
Hiqmet Demiri, Specialist – Agribusiness  
Joseph F. Dorsey, Jr., Credit Specialist<sup>3</sup>  
K. Makbul Elahi, Distribution Specialist<sup>3</sup>  
James B.R. Findlay, Crop Protection Products Specialist<sup>3</sup>  
Jeffrey D. Firman, Poultry Waste Management/Composting and Feed/Nutrition Specialist  
Claude C. Freeman, III, Technical and Management Advisor – FFP, Albania  
Teodor Gadeshi, Project Manager<sup>3</sup>  
Joseph Galon, Drip Irrigation Specialist<sup>3</sup>  
Thomas R. Hargrove, Agricultural Communications Specialist<sup>3</sup>  
David P. Keetch, Biotechnology and Biosafety Specialist<sup>3</sup>  
Andrew M. Lambert, Market Information Systems Specialist<sup>3</sup>

## Staff (Continued)

### (as of June 30, 2004)

#### Market Development Division (Continued)

Syed Afzal Mahmood Hossain, Data Analyst<sup>3</sup>  
 Md. Mofizul Islam, Dealer Development Specialist<sup>3</sup>  
 Ishrat Jahan, Acting ANMAT Project Coordinator/Economist<sup>3</sup>  
 Deborah B. King, Senior Secretary  
 Itzhak Kosto, Stone Fruit Packing Specialist<sup>3</sup>  
 Paul K. Makepeace, Dealer Development Specialist<sup>3</sup>  
 Penny L. Martin, Training and Development Specialist<sup>3</sup>  
 Fred M. Muhhuku, Seed Specialist<sup>3</sup>  
 Michael Murray, Tomato Production and Processing Specialist<sup>3</sup>  
 Baris Muskara, UNA Student Intern<sup>3</sup>  
 Gil Nir, Retail Farm Store Development Specialist<sup>3</sup>  
 Henry A. Penner, Processed Foods Technologist<sup>3</sup>  
 Jorge R. Polo, Senior Technical Specialist  
 Abdur Rab, Agricultural Trade Specialist<sup>3</sup>  
 David W. Rutland, Senior Specialist – Fertilizer Technology  
 Ludwig G.F. Schatz, Dealer Development/Training/MIS Specialist –  
 MAIMD, Malawi<sup>1</sup>  
 Meir M. Shany, Field Management Specialist<sup>3</sup>  
 Channing A. Sieben, Chief of Party – KAED, Kyrgyzstan<sup>1</sup>  
 Har Bhajan Singh, Chief of Party – DAIMINA, Nigeria  
 Manfred J. Smotzok, Chief of Party – AMDA, Azerbaijan  
 Sandra A. Stajka, Monitoring Advisor<sup>3</sup>  
 James R. Stanelle, Seed Certification and Association Building  
 Specialist<sup>3</sup>  
 Zydi Teqja, Association Development Specialist<sup>3</sup>  
 Thomas P. Thompson, Senior Scientist – Sociology  
 Lisa A. Tripodi, Organization Development Specialist<sup>3</sup>  
 Gerald W. Turnbull, Senior Specialist – Agribusiness (Livestock)  
 Rezika Velica, Association Development Specialist<sup>3</sup>  
 Scott J. Wallace, Chief of Party – KAED, Kyrgyzstan  
 Linda D. Walsh, Specialist – Data Management  
 Maria N. Wanzala, Scientist - Economics  
 Jocelyn R. Webster, Biotechnology and Biosafety Specialist<sup>3</sup>  
 Herschel P. Weeks, Chief of Party – MAIMD, Malawi

#### Training and Workshop Coordination Department

Daniel F. Waterman, Director  
 Daris H. Belew, Senior Secretary  
 Philippe P. Bequet, Agricultural Consultant<sup>3</sup>  
 M. Patricia Stowe, Senior Secretary  
 Kelly A. Woodley, UNA Student Intern<sup>3</sup>

#### Africa Division

J.J. Robert Groot, Director  
 Tchilalou E. Abissi, Assistant Secretary  
 Kossi Agnitoufeyi Adakoum, Computer-Aided Designer, Desktop  
 Publisher  
 David Adamu, Driver, MIR – IFDC Nigeria  
 Ketline M. Adodo, Coordinator, Information and Communication Unit  
 Mavis Adofo, Secretary, IFDC Ghana<sup>3</sup>  
 Messan Agbedinou, Driver  
 Kwame Senyo Agbotame, Administrative Assistant  
 Ibrahim Aguisa, Driver, IFDC Mali  
 Kodjo M. Alognikou, Project Assistant  
 Kouassi Amegnido, Driver  
 Patrice H.P. Annequin, Specialist, Institutional and Private Sector  
 Development  
 Kossi E. Apedo, Driver

#### Africa Division (Continued)

Ayayi Apedo-Amah, Librarian  
 Emmanuel Asiamah, Driver, IFDC Ghana  
 Anke Assouroko, Agronomist, Technical Assistant  
 Yawa Eméfa Atri, Senior Secretary  
 Alhassan Awuni, Gardener, IFDC Ghana  
 Adedayo Ayeni, Project Assistant and Secretary; MIR – IFDC Nigeria  
 Fogan Ayikpe-Konou, Driver  
 Gbolagade Ayoola, National Expert MIR, IFDC Nigeria  
 Komi Kadé Azorbly, Electrician/Maintenance Technician  
 Florence Esi Banson, Secretary, IFDC Ghana  
 Ablassé Serge Barry, Driver, IFDC Burkina Faso  
 Assani Bello Lawani, Administrator – Head of Personnel  
 Dodzi Biakou, Janitor/Receptionist  
 Saliou Mamadou Camara-Boubacar, Janitor  
 Kokou Combey, Electrical Assistant  
 Mawintome Bienvenu Francis Dabiré, Coordinator, Communication,  
 Information and Promotion, IFDC Burkina  
 Constant Dangbégnon, Socio-Economist, Extension Specialist  
 Siegfried K. Debrah, Program Leader, Policy and Market Program  
 Yachina Dété, Website Manager  
 Néné Fatoumata Diakité, Coordinator, Administration and Finance,  
 IFDC Mali  
 Issa Diarra, Driver, IFDC Mali  
 Georges Dimithè, Policy Economist Expert/MIR Burkina  
 Manon M. Dohmen, Associate Expert Sociologist/Communications  
 Specialist, Farmer-Based Organizations  
 Nicaise M. Dossouhoui, Driver, MIR Benin  
 Dodji Dovi, Secretary  
 Kofikuma Dzotsi, Agronomist<sup>3</sup>  
 Eunice Ekor, Janitor, IFDC Ghana  
 Kodjovi Séna Ezui, Agronomist – Secretary/Research Assistant  
 Yawovi Fiany, Mechanic  
 Bidjokazo Fofana, Agronomist Researcher, Project Leader  
 Akossiwagan Freitas, Coordinator of Administration  
 Christian Gaborel, Cotton Agronomist/MIR IFDC Mali  
 N'Taré Kokouvi Gaglo, Computer Maintenance  
 Amadou Gakou, Soil Fertility Initiative Activity Coordinator, Mali  
 Kokou Gayi, Assistant Accountant  
 Koffivi Gnakpenou, Extension Agronomist  
 Mariëtte S. Gross, Associate Expert Sociologist/Economist, Institu-  
 tional Development  
 Gregoire C. Houngnibo, Cotton Local Expert, Representative IFDC in  
 Benin  
 Marie Laurentine Ilboubou, Institutional Development Specialist, Farmer-  
 Based Organizations in Burkina Faso  
 Gustave Kabore, Driver/MIR, Burkina  
 Marie Angele Katary, Coordinator, Administration and Finance, IFDC  
 Benin  
 Seydou Keita, Janitor, IFDC Mali  
 Amatevi R. Klutse, Specialist, Data Management  
 Lamine Konfe, Agricultural Observer  
 Kodjo Kondo, Agronomist, Research Assistant  
 Matièyèdou Konlambigue, Agroeconomist<sup>3</sup>  
 Kossi Koudjega, Student on Attachment  
 Kossivi Koukoudé, Field Technician  
 Kossi Kounoudji, Driver  
 Adjua Kpadjouda, Officer Administrator, IFDC Ghana<sup>3</sup>

## Staff (Continued) (as of June 30, 2004)

### Africa Division (Continued)

Adjowa Lassou, Coordinator, Administration and Finance Unit  
 Sibi Egnonam Lawson, Secretary  
 Joël Le Turioner, Cotton Inputs Marketing Specialist/Representative  
 IFDC Mali/MIR  
 Arnoldus J. Maatman, Program Leader, Input Accessibility Program  
 Abdoulaye Mando, Project Leader, Sustainable Integrated Soil Fertility Management Project  
 Rufine Meda, Secretary, IFDC Burkina  
 Jerome Nassa, Janitor, IFDC Burkina  
 Boukari Nebie, Driver, MIR Burkina  
 Aissatou Nobre, Gender Specialist  
 Palobde E. Nonguierma, Secretary/Accountant Burkina Faso  
 Philomena Nouwoga, Bilingual Secretary, IFDC Ghana<sup>3</sup>  
 Bruno Ouedraogo, Cotton Input Marketing/MIR, IFDC Benin  
 Tahirou Ouedraogo, Field Technician, Burkina  
 Mark Owusuansah, Resident Advisor, Acting COP, IFDC Ghana  
 Ekow Daniel Pasos, Manager Administration and Finance, IFDC Ghana  
 Sylvain Roy, Project Coordinator, MIR, IFDC Representative in Burkina

### Africa Division (Continued)

Courtney C. Snelling, Junior Technical Specialist and Liaison Officer<sup>3</sup>  
 Ousmane Tamboura, Agricultural Observer, Burkina  
 Adonko Tamelokpo, Scientist – Agronomy  
 Bonaventure Y. Tapsoba, Driver, Burkina  
 Musa Salifu Taylor, Assistant, Marketing Service, IFDC Ghana  
 Witta Alassane Tchamssi, Janitor  
 Wisdom Tenge, Translator  
 Willem-Albert Toose, Associate Expert – Agronomist, Integrated Soil Fertility Management  
 Adotè A. Tounou-Akué, Network Administrator  
 Mamadou Touré, Assistant Coordinator, SFI Representative, IFDC-Africa in Mali  
 Amivi M. Tsikplonou, Assistant Librarian/Receptionist  
 Raphaël Vogelsperger, Inputs Marketing Expert/MIR, Burkina  
 Komlan Wogomebu, Accountant  
 Marco C.S. Wopereis, Program Leader, Integrated Intensification Program  
 Zacharie Zida, Research Assistant in Burkina Faso

1. Left during 2003/04.
2. Retired during 2003/04.
3. Short-term staff, 2003/04.
4. On extended leave.
5. Deceased, 2003/04.
6. Student Attachment.

## Board of Directors (as of June 30, 2004)



**Chair**  
Dr. E. Travis York (U.S.A.)  
Chancellor Emeritus  
Florida's State University System  
U.S.A.



Dr. John B. Hardman  
Executive Director  
The Carter Center  
U.S.A.



**Vice Chair**  
Dr. Ann P. Hamblin (Australia)  
Program Leader  
Agricultural Food and Social  
Sciences Division  
Bureau of Rural Sciences  
Australia



Mr. Hiroyoshi Ihara  
Auditor  
Japan International Cooperation  
Agency  
Japan



Mr. Baba Dioum (Senegal)  
Coordinator General  
Conference of West and Central  
African Ministers of Agriculture  
Senegal



Professor Fayez E. Khasawneh  
President, Yarmouk University  
Irbid  
Jordan



Mr. Al Giese (U.S.A.)  
Vice President  
Land O'Lakes, Inc.  
U.S.A.



Ruth Khasaya Oniang'o  
Professor of Food Science and  
Nutrition,  
Jomo Kenyatta University of  
Agriculture and Technology  
Kenya

## Board of Directors (continued)



Professor Roelof Rabbinge  
(Netherlands)  
Professor  
Department of Plant Production  
Systems  
Wageningen Agricultural University  
The Netherlands



Mr. Abdelmajid Slama (Tunisia)  
Director, Near East, North Africa,  
and Eastern Europe Division  
International Fund for Agricultural  
Development  
Italy



Roberto Rodrigues  
Minister of Agriculture  
Government of Brazil  
Brazil



Ex Officio Member  
Dr. Amit H. Roy  
President and Chief Executive  
Officer  
IFDC



Dr. Edward C.A. Runge (U.S.A.)  
Professor and Billie B. Turner  
Chair in Production Agronomy  
Soil & Crop Sciences  
College of Agriculture and Life Sci-  
ences  
Texas A&M University  
U.S.A.



Ex Officio Member  
Mr. Vincent McAlister  
Secretary to the Board  
IFDC Legal Counsel  
IFDC

# Global Offices

(as of June 30, 2004)

## U.S.A.

### IFDC Headquarters

P.O. Box 2040  
Muscle Shoals, Alabama 35662  
U.S.A.

Telephone: +1 (256) 381 6600  
Telefax: +1 (256) 381 7408  
E-Mail: general@ifdc.org

### IFDC/Washington

Dr. David Garms, Development  
Officer  
12920 Wheatland Road  
Fairfax, Virginia 22033

## U.S.A.

Telephone: +1 (800) 935 0962  
Telefax: +1 (703) 476 6400  
E-Mail: dgarms@ifdc.org

## Africa

### IFDC/Benin

10 BP 1200 - Cotonou

## BENIN

Telephone: (229) 30 59 90 or  
(229) 30 59 91  
E-Mail: ifdcbenin@ifdc.org

### IFDC/Burkina Faso

11 BP 82

Ouagadougou 11

## BURKINA FASO

Telephone: (+226) 50 38 58 45  
Telefax: (+226) 50 38 58 46  
E-Mail: ifdcburkina@ifdc.org

### IFDC/Ethiopia

ILRI/CIMMYT

Attention: Dennis K. Friesen

ILRI Sholla Campus

P.O. Box 5689

Addis Ababa

## ETHIOPIA

Telephone: (251-1) 462324/26/27

Telefax: (251-1) 461252

E-Mail: d.friesen@cgiar.org

### IFDC/Ghana

c/o USAID

P.O. Box 1630

Accra

## GHANA

Telephone: (233) 21 763 890

Telefax: (233) 21 780 829

E-Mail: ifdcghana@ifdc.org

### IFDC/Malawi

P/Bag 353, Capital City  
13/14, ARWA House, 2nd Floor, Section B  
Lilongwe 3

## MALAWI

Telephone: +265 (0)1 773 901/109  
E-Mail: hweeks@ifdc.org

### IFDC/Mali

S/C SG2000

BP E 3541 Bamako

## MALI

Telephone: (223 490 01 22

Telefax: (223) 490 01 21

E-Mail: ifdc mali@ifdc.org

### IFDC/Morocco

Institut National de la Recherche

Agronomique (INRA)

Centre Régional de la Recherche

Agronomique

B.P. 589, 26000 Serrat

## MOROCCO

Telephone: +212 23 40 26 80

Telefax: +212 23 40 27 56

E-Mail: mnaimi@ifdc.org

### IFDC/Nigeria

P.O. Box 10948

Abuja

## NIGERIA

Telephone: 234-9-413 0037 or 413 0873

E-Mail: ifdcnigeria@ifdc.org

### IFDC Africa Division

B.P. 4483

Lomé

## TOGO

Telephone: (228) 221 7971

Telefax: (228) 221 7817

E-Mail: ifdctogo@ifdc.org

## Asia

### IFDC/Afghanistan

Agri-Input Dealer Training and  
Development Project (AIDTDP)

House No: 133, St. No: 1

Part II, Karte Parwan

Kabul

## AFGHANISTAN

Telephone: 93-079 220 0761

E-Mail: gturnbull@ifdc.org

### IFDC Asia Division

Road 54A, House #2, Apt #6  
Gulshan 2

Dhaka 1212

## BANGLADESH

Telephone: 88 (02) 882 6109

88 (02) 881 7617

Telefax: 88 (02) 881 7617

E-Mail: anmat@bdmail.net

## Europe

### IFDC/Albania

Rruga "Mine Peza"

Pallati 87/3, Shkalla 2, Kati 1

Tirana

## ALBANIA

Telephone/Fax: 355 42 29445

E-Mail: dori@ifdc albania.org

### IFDC/Belgium

Dr. Henk Breman

Resident Representative and

Principal Scientist

c/o Africa Museum

Leuvensesteenweg 17

3080 Tervuren

## BELGIUM

Telephone: (+32) 2-769-56-07

Telefax: (+32) 2-769-56-42

E-Mail: hbremman@ifdc.org

### IFDC/Kosovo

Bel Popova, No. 10

Qytetza Pejton

Pristina

## KOSOVO

Telephone: 381 38 249 699

Telefax: 381 38 249 699

E-Mail: clarkr@ifdc.ipko.org

## Eurasia

### IFDC/Azerbaijan

18 U. Hajibeyov Street,

Apt. 86/93

Baku AZ1000

## AZERBAIJAN

Telephone: 994 12 498 3273

994 12 498 1528

Telefax: 994 12 498 4136

E-Mail: office@ifdc-az.org

### IFDC/Kyrgyz Republic

323 Lenin Street, 2nd Floor

Osh 724000

## KYRGYZ REPUBLIC

Telephone/Telefax: 996 3222 55394

996 3222 71722

E-Mail: ifdcosh@ktnet.kg

## Acronyms

AAATA	Assistance to Albanian Agricultural Trade Associations	ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
AAK	Association of Agribusinessmen of Kyrgyzstan	IDE	International Development Enterprises
AFADA	Albanian Fertilizer and Agricultural Inputs Dealers' Association	IDRC	International Development Research Centre information and decision support systems
AfDB	African Development Bank	IDSS	Inputs for Assets
AFSTA	African Seed Trade Association	IFA	International Fund for Agricultural Development
AIMS	Agro-Input Market Development in Malawi	IFAD	International Institute for Tropical Agriculture
AMDA	Agro-Input Market Development in Azerbaijan	IITA	National Agricultural Research Institute
ANMAT	Adapting Nutrient Management Technologies	INIA	National Agricultural Research System
APEP	Agricultural Productivity Enhancement Program	INIAP	National Institute of Agricultural Technology
APIM	Agricultural Production Initiative in Mali	INTA	International Rice Research Institute
ARI	Agricultural Research Institute	IRRI	integrated soil fertility management
ASHTA	Albanian Spice and Herbal Trade Association	ISFM	Kosovo Agribusiness Development Program
ASTA	American Seed Trade Association	KADP	Kyrgyz Agro-Input Enterprise Development
ATDP	Agro-Based Industry and Technology Development Project	KAED	Kano State Agri-Input Dealers' Association
CIAT	International Center for Tropical Agriculture	KASAIDA	Kosovo Feed for Poultry Project
CIMMYT	International Maize and Wheat Improvement Center	KFPP	Marketing Inputs Regionally
CIP	International Potato Center	MIR	Market Information Systems and Traders' Organizations in West Africa
CLUSA	Cooperative League of the USA	MISTOWA	Nigeria Agri-Market Information Services
CMA/WCA	Conference of Ministers of Agriculture of West and Central Africa	NAMIS	National Agricultural Research and Extension Systems
CNDC	Combating Nutrient Depletion Consortium	NARES	national agricultural research institutes
CONDESAN	Consortium for the Sustainable Development of the Andean Ecoregion	NARIS	national agricultural research systems
COSTBOX	Client-Oriented Systems Toolbox	NARS	National Aeronautics and Space Administration
CPPs	crop protection products	NASA	non-governmental organizations
DAIMINA	Developing Agri-Input Markets in Nigeria	NGOs	Petroquímica de Venezuela S.A.
DAP	diammonium phosphate	PEQUIVEN	Project for Village Organization and Development
ECOWAS	Economic Community of West African States	PODV	National Program of Watershed Management and Soil Conservation, Peru
FACIA	Federation of African Agricultural Input Trade Associations	PRONAMACHS	Rebuilding of Agricultural Markets of Afghanistan Program
FAO	Food and Agriculture Organization of the United Nations	RAMP	Network of Chambers of Agriculture
FASEPE	Favorable Socioeconomic and Policy Environments for Soil Fertility Improvement	RECAO	Network of Farmer Organizations and Agricultural Producers of West Africa
FBOs	farmer-based organizations	ROPPA	Miller and Poultry Association (Kosovo)
FEPSAN	Fertilizer Producers' and Suppliers' Association of Nigeria	SHPUK	Special Programme on Food Security
FFP	Food for Progress	SPFS	Sustainable Livelihoods Through Inputs for Assets
FGN	Federal Government of Nigeria	SPLIFA	sub-Saharan Africa
FMARD	Federal Ministry of Agriculture and Rural Development	SSA	single super phosphate
GAIMS	Ghana Agri-Input Market Strengthening	SSP	Tropical Soil Biology and Fertility Programme
GDP	gross domestic product	TSBF	triple super phosphate
GIS	geographic information systems	TSP	urea deep placement
GISD	Geographic Information for Sustainable Development	UDP	West African Economic and Monetary Union
GMOs	genetically modified organisms	UEMOA	U.S. Agency for International Development
GTZ	German Agency for Technical Cooperation	USAID	U.S. Department of Agriculture
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome	USDA	urea supergranules
IAPAR	Agronomy Institute of Paraná	USG	U.S. Geological Survey
ICARDA	International Center for Agricultural Research in the Dry Areas	USGS	value-added tax
		VAT	

# IFDC Profile

## What Is IFDC?

- An international center for soil fertility and agricultural development
- A nonprofit, public international organization—combining state-of-the-art research and development to address global issues such as
  - Alleviation of global poverty
  - Promotion of economic development
  - Reduction of hunger
  - Protection of the environment
- Collaborative programs and partnerships that enrich and sustain lives and livelihoods of poor people globally
- Unique research capabilities and market development and training skills, which enable IFDC to develop incentive-based programs customized for local needs and problems

## Mission

**To increase agricultural productivity in a sustainable manner through the development and transfer of effective and environmentally sound plant nutrient technology and agricultural marketing expertise.**

## Staff and Facilities

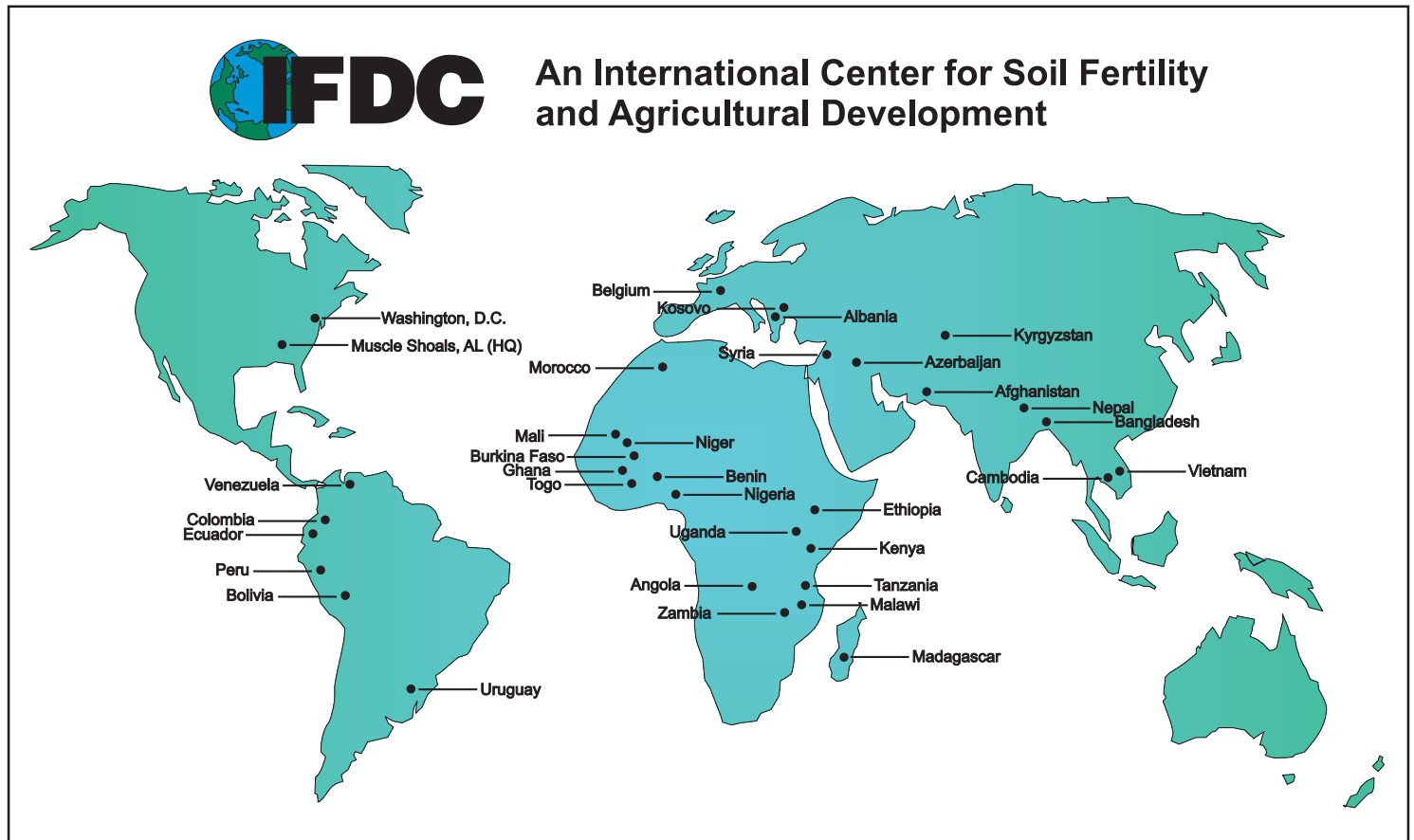
- International, multidisciplinary staff and physical facilities uniquely suited for conducting a broad range of research and development activities in sustainable food systems.
- Scientists and professionals that provide a unique mix of applied research, technology transfer, and market development capabilities.
- Activities conducted in collaboration with national and international organizations.
- Access to a wide variety of facilities worldwide.
- Specialized research laboratories, greenhouses, growth chambers, specialized instruments essential for laboratory research, bench-scale and pilot-plant units, training facilities, technical library, scientific information services, and a word processing center.

## Capabilities

- A problem-solving, results-oriented organization with a 30-year track record of providing a broad range of services in technical assistance, research, and training to more than 130 countries.
- Broad range of projects.
  - Engineering and technology
  - Management information systems
  - Nutrient management
  - Policy reform
  - Market development
- Practical, unbiased solutions to challenges confronting decision makers of the world's public and private agricultural sectors in the most cost-effective and efficient manner.

# Locations and Funding

- Collaborative work with IARCs, numerous national organizations, private sector, NGOs
- Partners and clients
  - Bilateral and multilateral development agencies
  - Host-government institutions
  - Private enterprises
- Funding sources include bilateral and multilateral development agencies, private enterprises, foundations, and other organizations. Additional revenue is generated from long-term, donor-funded, market development projects involving transfer of policy and technology improvements in emerging economies



**IFDC**  
**P.O. Box 2040**  
**Muscle Shoals, Alabama 35662, U.S.A.**

**Telephone: +1 (256) 381-6600**  
**Telefax: +1 (256) 381-7408**  
**E-Mail: [general@ifdc.org](mailto:general@ifdc.org)**  
**Web Site: [www.ifdc.org](http://www.ifdc.org)**  
**ISSN-1536-0660**

**Copy/Editing by Marie K. Thompson**

**Graphic Layout by Donna Venable**

**Translation to Spanish and French: Alicia Polo and Ketline Adodo, respectively.**

**IFDC—An International Center for Soil  
Fertility and Agricultural Development  
Circular IFDC S-27  
ISSN-1536-0660  
3M**