

IFA and FAO Agree that Fertilizers Are Vital to Meet Global Food Needs

During a discussion on good agricultural practices, a number of governments attending the late March session of the Committee on Agriculture (COAG) of the Food and Agriculture Organization of the United Nations (FAO) in Rome emphasized the importance of fertilizers to improve global food security.

The FAO Secretariat repeated the need for greater fertilizer use in many developing countries, a recurring theme at the IFA-FAO joint Agriculture Conference "Global Food Security and the Role of Sustainable

Fertilization", which was jointly organized by FAO and the International Fertilizer Industry Association (IFA) in Rome just prior to the COAG meeting.

The depletion of nutrient stocks in the soil, which is occurring in many developing countries, is a major, but often hidden, form of land degradation, making agricultural production unsustainable. This problem was highlighted at last year's *World Summit on Sustainable Development* in Johannesburg, South Africa.

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Bukar Shaib (FAO) and William Doyle (PotashCorp) during the session "Future Actions for Fertilizers and Farming"

IFDC Launches MIR to Support Agriculture in West Africa

Henk Breman, Director of the IFDC Africa Division

The word "MIR" evokes images of Russian spaceships. Just as a Russian poet imagined cosmonaut Yuri Gagarin, the first human to orbit our planet, dreaming of world peace while gazing at the Earth, I dream of IFDC's new Marketing Inputs Regionally (MIR) project as an instrument for peace in West Africa. I believe that by stimulating dialogue and building partnerships among stakeholders, MIR will consolidate efforts towards food security and therefore contribute to peace in the region.

Agriculture does not yet fulfil its vital role as the driving force of economic development and social progress in Africa. Most African governments and development agencies have come to realize that there will not and cannot be any agricultural progress without a reliable supply of agricultural inputs. An effective market for external agricultural inputs and a vibrant private sector are crucial to trigger intensification of agriculture on a sustainable and economically viable basis.

However, many constraints

impede the development of input markets such as: undisclosed private and public interests, inappropriate socio-economic policies, undeveloped transport infrastructure, limited access to finance, lack of information and poor business and organizational capacities. As a result, markets are thin and ineffective with high transaction costs. These constraints, among others, also help explain why Africa has not fully benefited from the Green Revolution.

By creating a regional inputs market, MIR aims to support the efforts of both the West African Economic and Monetary Union (UEMOA) and the Economic Community of West African States (ECOWAS) to move towards common agricultural policies. UEMOA with 8 countries and 67 million people and ECOWAS with 15 countries and 200 million people represent large regional markets, which offer conditions for greater competitiveness and lower costs for the inputs market.

Other partners include the Network of Farmer Organizations and



Togbe Sodjedo, Togolese rice farmer

Agricultural Producers of West Africa (ROPPA), the Network of Chambers of Agriculture (RECAO), the Conference of Ministers of Agriculture of West and Central Africa (CMA/WCA), private input importers and dealers as well as sector ministries.

The project comes at a time when most West African governments are seeking ways to make much needed agricultural inputs accessible to smallholders at affordable prices. MIR will use regionalization as an instrument to provide economies of scale, to fight monopolies, to tackle hidden agendas, as well as to facilitate cross border transactions and free movement of inputs within the region.

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IFA participates in the International Agri-Food Network (IAFN)

- www.agrifood.net -
which represents all sectors in the food chain

The World Phosphate Institute

Taib Mrabet, Secretary General

Thirty Years of Service

As an association representing some of the main phosphate producers at global level, the World Phosphate Institute serves the industry with research and development projects, as well as information and advocacy programmes.



Since its creation in December 1973 in Florida, the Institute has supported research on phosphates and helped develop phosphate fertilizer use on an international scale. It has initiated agronomic research projects in South and South-east Asia, West Asia and North Africa (WANA), sub-Saharan Africa (SSA) and Europe. Its agronomic research pursuits must be understood as part of the international effort to increase food production economically and to meet the challenge of the escalating food demand of the world's growing population.

International Research Network

With sharply higher nitrogen use in many countries in Asia, better varieties and other improved production technologies, it is apparent that the use of phosphorus (P) and other nutrients must likewise increase if the momentum of higher yields is to be maintained. IMPHOS projects conducted on the lowlands of China, India, Pakistan and Thailand have focused for many years on balanced fertilizer practices and intensive cropping. Likewise, for the reclamation of the large untapped uplands that can potentially produce more diversified food crops, IMPHOS supported agronomic research in China, Indonesia, Malaysia and Vietnam. The research led to appropriate technology for the development of the acid upland soils, based on direct application of reactive phosphate rock.

The WANA region faces water shortages that often compromise crop yield, and the work of IMPHOS has helped develop phosphate fertilizer management approaches that improve plant root growth, hence enabling crops to increase their water use efficiency under the dryland conditions of the Mediterranean region.

Africa is a striking case. SSA has suffered, and is still suffering, from declining per capita food production. IMPHOS has carried out several on-farm trials to assist small-holder farmers, who lack capital and knowledge, to build up soil fertility and grow more food crops. Similarly, mineral deficiencies are a serious constraint to animal growth and livestock productivity. Good mineral supplements are often not available at animal production sites. Rock phosphate, a commercially available mineral source, was investigated as a potential source for supplementing calcium and phosphorus levels for dairy cows raised on the Sahel rangelands of Senegal. The cows showed good tolerance to rock phosphate for a daily consumption of up to 50 g, with no harmful secondary effects.

In contrast to SSA, West Europe is in a more comfortable food situation but has become increasingly concerned since the mid-eighties with the environmental impact of phosphate fertilizer management strategies. The Institute has supported surveys, laboratory work, and more importantly, a field experiment network for six years, involving five countries of West Europe. The findings from the network enabled researchers to assess how withholding phosphatic fertilizer affects crop yield and plant-available P in the soil, as well as to advise farmers on maintaining optimal soil P fertility and crop productivity to minimize damage to the environment.

In contrast to the long-standing experiment in West Europe, relatively recent field work has been undertaken in East Europe, namely in Poland, where there is a need to reverse the trend of declining crop production by employing a balanced and better supply of plant



IMPHOS/AARD Project on the "Recapitalization of the Soil Fertility with Phosphate Rock-Village level Approach", South Kalimantan, Indonesia, February 2003

nutrients. In short, IMPHOS international projects have assisted in the development and adaptation of technologies appropriate to each region.

Stating the Facts

The mandate of IMPHOS is to generate and disseminate information on phosphate use. In recent years, the Institute has much improved its outreach through the development of a web site, the regular issue of the IMPHOS *Phosphate* Newsletter (published every four months), and the organization of several seminars and workshops with extensive proceedings. Central to this objective is the publication of a number of project reports, the Institute's annual report, conference proceedings and, for the first time, the translation and publication of Arabic and French editions of the handbook on fertilizers and their use that was jointly produced by the Food and Agriculture Organization of the United Nations (FAO) and the International Fertilizer Industry Association (IFA).

Care for the Environment

There are strong incentives nowadays to implement responsible fertilization practices that protect the environment and provide for diverse and safe food products. IMPHOS has documented extensively the possible negative effect of cadmium in phosphate fertilizers and has conducted work on the development of a cost-effective technology for the removal of cadmium from phosphoric acid, in order to produce low-cadmium fertilizers. In addition to cadmium, the Institute has supported an extensive review of published literature on naturally occurring radioactive materials (NORM). In its investigation of the European regulation on radiological protection from NORM and the potential implications for the phosphate industry, IMPHOS commissioned a study by the French Centre d'Études et de Protection Nucléaire.



IMPHOS/IFFCO Farmers Meeting in Tamil Nadu State, India, December 2002

Advocacy Programmes

IMPHOS and other associations have done much to enhance the positive image of the phosphate industry, which today is frequently but unjustly challenged. For example, a confusion in the minds of people has prevailed for a long time between pesticides, which are used to protect plants but have a biocidal effect, and fertilizers, which are a source of nutrients that are vital to plant growth. In 1992 and again this year, IMPHOS contracted two communication agencies to wage educational campaigns in West Europe, one targeting the European public and the other, European Union officials.

Cooperation for Future Progress

The issues facing the fertilizer industry in general are more and more challenging as new concerns emerge. These developments call for more cooperation and synergies among fertilizer industry associations and international organizations. The Institute has pursued international cooperation and has forged strategic alliances with the Arab Fertilizer Association (AFA), the Fertiliser Association of India (FAI), FAO, IFA, IFDC, the International Potash Institute (IPI) and the Potash and Phosphate Institute (PPI). All of them are actively involved in the promotion of a better understanding of fertilizer's role in plant nutrition and fertilizer requirements for world food security.

In its lifetime, IMPHOS is proud to have been an affiliate member of IFA and a partner in many IFA initiatives on an ongoing basis.

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IFA and FAO Agree that Fertilizers Are Vital to Meet Global Food Needs



A number of policy recommendations and considerations emerged from the joint conference.

Partnerships Are Vital to End Hunger

- The campaign to eradicate poverty and hunger is a joint effort shared by public and private institutions: no one can do it alone. This presents a new challenge for the international community: how to work effectively in public-private partnerships.
- For some 30 years, the FAO and the fertilizer industry worked together to improve farmers' access to and knowledge about agricultural inputs. Unfortunately, the agricultural community in developing countries no longer enjoys this same level of support. Now is the time to complete this unfinished work.
- Farmers should have the opportunity to formulate their own needs for academic research, product development and extension services, as well as participating in evaluation and priority-setting in these areas. The academic, R&D and extension communities, in turn, need to cooperate more closely.
- In Africa, governments should create an enabling environment for farmers to invest in their soils and for the private sector to invest in market development. Greater regional cooperation would facilitate this process.

Opportunities to Improve Human Nutrition

- Government policies should move beyond productivity to look at nutrient output as a key goal if malnutrition is to be eliminated as well as hunger. This includes agricultural policies to foster the production of crops rich in a wide variety of nutrients as well as the effect of other policies, such as trade, on the nutrient content of available foods.

Soil Mining Threatens Food Security

- Ongoing soil mining and expansion into fragile ecosystems continue to degrade soils and reduce agricultural productivity in many developing countries, especially in Africa. To help farmers access the necessary plant nutrients, investments in rural infrastructure and institutional innovation are paramount.

- Proper management of nutrients and land resources is essential for meeting the *World Food Summit* goals and for promoting sustainable soil fertility practices, as mentioned in the Plan of Implementation of the *World Summit on Sustainable Development*.

Knowledge and Technology for Food Security

- Improving both access to fertilizers and crop response to fertilizers is imperative for food insecure farmers in many developing countries. The challenge is to help farmers get the maximum benefit possible from fertilizers through improved management practices that include all sources of nutrients and innovative technologies.
- In order to achieve food security, farmers - in particular women farmers in Africa - need secure access to natural resources, appropriate inputs and support services and markets.
- To increase opportunities for sustainable food development, a greater investment is needed in effective research attuned to the education and economic reality of farmers. The public and private sectors both have an important role to play, but it is essential that information be shared between these two research streams to make each more effective.
- The efficient management of plant nutrients and nutrient cycling, soil conservation practices, restoration of nutrient-depleted soils and the identification of plant genotypes that tolerate abiotic stresses, including nutrient deficiencies, toxicities or drought, warrant greater research efforts.

FAO and IFA held this conference from 26 to 28 March as a practical follow-up to recent key political meetings, including the *World Food Summit* (1996), the *Millennium Summit* (2000), the *World Food Summit: five years later* (2002) and the *World Summit on Sustainable Development* (2002).

Key speakers included FAO Deputy Director-General David Harcharik; Wladimir Puggina, President of IFA and President of Fertibras SA; Per Pinstrup-Andersen, 2001 World Food Prize Laureate; Henk Mathot, President, Cargill Crop Nutrition; Louise Fresco, Assistant Director-General, FAO; Christian Bonte-Friedheim, Humboldt University, formerly FAO and International Service for National Agricultural Research (ISNAR); William Doyle, President and CEO, PotashCorp.

Conference papers will be available on IFA's web site. To order the cd-rom of the proceedings, see order form page 12.



Photo: IMPHOS


perspective

International Agricultural Development and Trade: Implications for the Fertilizer Industry

Robert L. Thompson, Chairman, International Food and Agricultural Trade Policy Council



This article is based on a keynote speech delivered at IFA's 28th Enlarged Council Meeting in Cairo, Egypt in December 2002. IFA members can consult the full text of the speech in the "Members Only" section of IFA's web site at www.fertilizer.org.

Four basic factors are likely to influence the future of the fertilizer industry after the Doha round of World Trade Organization (WTO) negotiations: the area of agricultural land in production; the availability of fertilizer-responsive varieties; the price of cereals relative to fertilizer and of fertilizer relative to land; and how developing countries respond to international trading opportunities that may open up to them.

Full implementation of the outcome of the Doha Development Agenda negotiations will not occur for about 15 years. The talks, scheduled to conclude in four or five years, are likely to overrun that deadline for a number of reasons. The ensuing period of implementation could extend for about a decade for developing countries.

Land

Food demand is likely to double by 2050 due to both population growth and changing dietary patterns as incomes in developing countries rise on at most 10 per cent more land. This will strengthen the imperative for greater yields per hectare on a global scale. There will be keen competition between urbanization and agriculture for water, the real constraint on the system.

However, a modest increase in the area planted would likely follow the conclusion of a successful negotiating round, boding well for fertilizer use.

Fertilizer-responsive varieties

Investment in agricultural research in the public and private sectors is the major influence on the availability of fertilizer-responsive varieties that are adapted to local agroecological conditions. Science, not trade, policy is the key public policy that may restrict the availability of such improved varieties, specifically whether we are able to apply genetic engineering or biotechnology or whether the regulatory environment prevents that.

Relative prices

The long-term price of agricultural commodities, after adjusting for inflation, has been declining for more than 150 years. Now clearly there is variability of price around that long-term downward trend. However, at the local level, price supports have raised the price of crops relative to fertilizer and other inputs, stimulating higher applications of inputs and greater intensification per hectare of agricultural production. If governments reach an agreement in the current negotiations, there is likely to be a modest increase in the international prices of agricultural commodities.

Domestic price supports have also artificially inflated the price of land, sending the signal that it is scarcer than otherwise would be, giving farmers in those countries a further incentive to increase the use of inputs, including fertilizers, per hectare.

At the same time, the higher production of the most protected commodities in each of the high-income countries has ended up getting dumped in international markets through direct export subsidies or indirect measures, such as food aid, export credits or so-called marketing loans as used in the United States. All of these practices, not only distort agricultural production, but also agricultural trade, often hurting developing countries in the sense of not allowing them to export the products in which they may have a comparative advantage. Some of the most affected commodities in international agriculture are dairy products, sugar, rice and cotton.

If developing countries and donors invest in so-called green-box measures—those government functions, such as rural roads, telecommunications, agricultural research, honest weights and measures, market information services and so on, that are necessary for an efficient functioning and development of the agricultural sector—the incentive to use more fertilizer per hectare will increase in developing countries. Fertilizer use will also be encouraged if farmers are allowed to receive the world price (instead of an artificially low price as discussed below) for products. Policy measures, such as investments in transport infrastructure, will assist in bringing domestic fertilizer prices

back toward world prices, thus further encouraging developing country farmers to use fertilizers.

Lower price supports in a post-Doha world—reinforced by continuing strong environmental measures or environmental regulations—would somewhat reduce fertilizer use incentives in high-income countries.

Government policies

The effect of government policy in high-income countries is to raise the terms of trade, stimulating greater production of those most protected goods and in developing countries to turn the terms of trade against farmers, reducing the incentive to produce and therefore to apply inputs, such as fertilizers.

The balance of political power in most developing countries lies with the urban consumers more than with their farmers. As a result, there is an urban bias in both agricultural policy as well as in public investment. There is a tendency then for developing country governments to try to keep the price of food as low as possible for urban consumers. This is often facilitated by high-income country agricultural export subsidies and food aid that gets dumped into those low-income country markets. Retail price ceilings on staple foods ripple back through the marketing system, reducing the price received by farmers, who are generally among the poorest members of society, and often poorer than the urban residents the government is trying to protect.

The result is that the terms of trade are turned against low-income country farmers by the urban bias in food price controls, but also by the under-investment in many developing countries' rural infrastructures. With the serious deficiencies in rural roads, transport costs are extremely high. In the absence of good telecommunications, markets do not work very well. Yet investing in infrastructures is an acceptable form of support for agriculture under current and likely future WTO rules, and such development would enhance the positive impacts of agri-

cultural trade liberalization in developing countries.

Among relevant emerging country policies that impede agricultural progress are the legal and public policy environment that hinders the development of the private sector. These include contract sanctity; a judiciary that fairly and expeditiously adjudicates contract disputes; the need to have secure property rights and the ability to register and transfer those property rights and to pledge them as collateral against loans; honest weights and measures; consumer protection measures for farmers as the buyers of fertilizers to ensure that they get as much nitrogen, phosphorus, potassium and micronutrients as the bag of fertilizers says that they should; and reducing corruption in general.

Conclusion

Therefore, much of what will determine the impact of current agricultural trade negotiations stems from the non-trade policy framework. Changes in the international trade framework might stimulate positive domestic policy evolutions in developing countries, which, among other impacts, could reduce the implicit taxation to which agriculture is often subject in those nations. This would create a more favourable climate for fertilizer use.

An overall trade deal is unlikely unless developing countries are satisfied with the result in agriculture. There is reason to be at least somewhat optimistic in the longer-term, especially if negotiations outlast some of the negative factors that are currently impeding progress. For example, international commodity prices are extremely low at this time, even against the historical trend, thus making it politically difficult for any government to open its markets further.

For the fertilizer industry, successful agricultural negotiations would have a small, but positive, net effect, especially if developing countries implement policies that enable their farmers to fully benefit from greater market opportunities. ●

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IFDC Launches MIR to Support Agriculture in West Africa

The project's strategy also includes:

- Promoting the integrated use of locally available soil amendments and inorganic fertilizers as a way of increasing efficiency and cost effectiveness of mineral fertilizer use and to ensure profitability for farmers while reducing environmental risks;
- Strengthening the weakest links of the supply and distribution chains and building ties among stakeholders from the public and private sectors;
- Using the cotton sector as an entry point for the establishment of an integrated, self-supporting and effective inputs market for the entire agricultural sector.

MIR aims specifically to:

- Provide platforms to create awareness and facilitate dialogue, consultation and knowledge sharing among stakeholders;
- Facilitate the formulation and implementation of policies that (i) enable free movement of inputs across borders, (ii) are conducive to private sector inputs marketing at national and regional levels, and (iii) protect farmers' rights, public health and the environment;
- Strengthen private sector technical and business capabilities in inputs marketing;
- Establish a regional inputs market information system to promote market transparency and competitiveness and develop business linkages;
- Develop and implement an emergency plan for cotton inputs market and promote the introduction of an integrated cotton-based production system.

Expected outputs of the project include:

- A policy environment that enables greater private sector investment and cooperation in agricultural inputs marketing at national and regional levels;
- Empowered and reinforced inputs dealers and organizations;

- Effective systems for inputs quality control with norms and standards as well as required legislation;
- A well-functioning regional market information system.

Partners embark on MIR

The MIR project has entered the operational phase with the first consultative meeting of its partners held in Lomé in early March 2003. The meeting assembled twenty-four participants representing UEMOA and ECOWAS as well as public and private sector organizations from Benin, Burkina Faso, Ghana, Kenya, Mali, Nigeria and Togo.

The participants called for all stakeholders to make regional integration both a reality and a success, as it is desirable for African countries to close their ranks in order to accelerate agricultural development. They applauded IFDC for linking MIR to development initiatives of UEMOA and ECOWAS, the two institutions positioned to develop regional policies. However, the difficulties in implementing regional policy measures at country level call for realism and proactive approaches.

"When you experience the trouble our people still go through at many borders, while a well-framed inscription affixed on the wall claims free movement for ECOWAS citizens, you understand that regional integration has a long way to go," noted a participant. This raised the crucial role of information and communications in increasing people's awareness of their rights and promoting the translation of regional policy measures into their every day life.

Presently around 30 per cent of the inputs used in cotton-producing areas go on food crops, notably cereals. The challenge for MIR will be to facilitate the development of a cereal sector that can support its own inputs consumption. This refers to a central and very sensitive issue: how to finance the development of the inputs sector since commercial banks are generally reluctant to support farm-related activities? This is one of the priority areas for the project.

The outcomes of the MIR consultative meeting confirm the project's pertinence in view of current national and regional development priorities. They also reflect a high level of individual and institutional commitments, an invaluable asset for the success of this initiative. ●





Information resources

Web Links

Increasing Agricultural Market Information in Africa

The African Agricultural Market Information Network (www.afamin.net) was launched in December 2002. AFAMIN provides a platform for locating, collecting, and sharing agricultural information – with an emphasis on fertilizers, seeds and crop protection products – in the African context. Highlights include monthly retail prices for agricultural inputs in West Africa and a directory of wholesalers, importers and retailers for agri-inputs from across the continent.

Integrated Soil Fertility Management in the Tropics Now Online

Integrated soil fertility management (ISFM) is key for raising productivity levels while maintaining the natural resource base. ISFM aims to replenish soil nutrient pools, maximize on-farm recycling of nutrients, reduce nutrient losses to the environment and improve the efficiency of external inputs.

A new online course in the agLe@rn series from the Asia-Pacific Regional Technology Center (APRTC) is designed to improve participants' understanding of the strategies and tools needed to manage soils in Asia and make recommendations to farmers. The first pilot course, scheduled from 23 June to 1 August will be offered free-of-charge. Subsequent sessions, the next scheduled from 3 November to 12 December, will be on a tuition basis (The typical fee is about USD 225), with some participants being eligible for scholarship assistance.

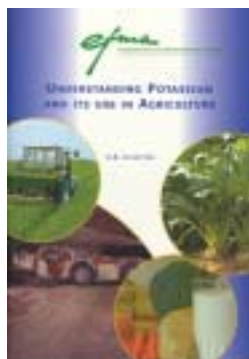
In this course, particular attention is given to approaches for adapting ISFM options to the agronomic and socio-economic needs and interests of farmers. Systems analysis tools and data needed for potential impact analyses of ISFM options will also be discussed.

For more information, visit www.aprtc.org/aglearn/aglearn.asp

Understanding Potassium and its Use in Agriculture

A.E. Johnston. EFMA, Brussels, Belgium, 2003. 40 pp.

This book stresses the importance of potassium for healthy plants, animals and humans and the vital role played by potash fertilizers in maintaining soil fertility and ensuring adequate levels of potassium. It explains the role of the nutrient in improving food quality, and, due to its essential role in the human metabolic processes, its importance in the human diet.



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World Agriculture: Towards 2015/2030

An FAO Perspective

Ed. J. Bruinsma. FAO, Earthscan Publications, London, UK, 2003. 432 pp.

ISBN 92 5 104835 5
 This report updates the 1995 study "Towards 2010". It assesses the prospects, worldwide,



for food and agriculture, including fisheries and forestry, from now on until 2015 and 2030. It presents the global long-term prospects for trade and sustainable development and discusses the issues at stake in these areas over the next 30 years.

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International Fertiliser Society Proceedings

The International Fertiliser Society (IFS) Proceedings are one of the major publicly available sources of information on fertilizer production, nutrient use, and crop nutrition.

The IFS Proceedings are published papers of presentations made at Meetings of the Society.

Some interesting titles released in the past months were:



Energy Consumption and Greenhouse Gas Emissions in Fertilizer Production

T.K. Jenssen and G. Kongshaug, April 2003

Product Stewardship Applied to Fertilizers

H. Kiiski and R.J. Milborne, April 2003

Sources of Sulphur, the Processing and Use in Fertilizer Manufacture

D.L. Messick, C. de Brey and M.X. Fan. December 2002

Organic Manures as Sources of Fertilizer Sulphur

J. Eriksen, December 2002

Urea Production Technology: Recent Developments

M. Brouwer, October 2002

Ammonium Nitrate: Toxic Fume Risk from Fires in Storage

G. Atkinson and W.D. Adams, October 2002

Integrated Pollution Prevention and Control (IPPC) and its Impact on the Fertilizer Industry

P.D. Rees, October 2002

Safety Legislation and the Fertilizer Industry

K.D. Shah, April 2002

An exhaustive list of IFS publications can be viewed at www.fertiliser-society.org/Content/Publications.asp

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Ecoagriculture

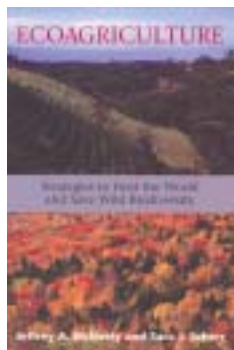
Strategies to Feed the World and Save Wild Biodiversity

J. A. McNeely and Sara J. Scherr. Future Harvest and World Conservation Union, Island Press, Washington D.C., USA, 2003. 324 pp. ISBN 1 55963 645 9

In *Ecoagriculture*, two leading experts on conservation and development examine the idea that agricultural landscapes can be designed more creatively to take the needs of human populations into account while also protecting, or even enhancing, biodiversity, focusing on tropical regions of the developing world. The book features real-world case studies that demonstrate the applicability of the ideas discussed.

Contact:

Future Harvest
www.futureharvest.org
 World Conservation Union, IUCN
www.iucn.org
 Island Press
 Washington DC, USA
www.islandpress.org



IFA Publications

Fertilizer Use by Crop in Taiwan, Province of China

Lin Mu-Lien. FAO, IFA, Rome, Italy, 2002

In Taiwan Province of China, almost 800,000 families engage in small-scale farming operations. They apply a range of organic and mineral fertilizers to produce more than 200 kinds of crops in varied geographical and climatic conditions.

This report provides a comprehensive and up-to-date analysis of crop fertilizer use, trends, yields and profitability in an agricultural sector that is undergoing market liberalization. It presents data by type of crop, fertilizer and agro-ecological zone and explains recent developments in fertilizer production, consumption and distribution.



Now available in Spanish

Los fertilizantes y su uso Una guía de bolsillo para los oficiales de extensión

(*Fertilizers and their Use. A Pocket Guide for Extension Officers*)
 FAO, IFA, 4th edition, Rome, Italy, 2002.

This booklet presents guidelines for extension staff on the use of fertilizers. It explains the need for mineral fertilizers for agricultural development in support of food security and the maintenance of soil productivity. The booklet addresses the role of fertilization in relation to soil characteristics. It provides general fertilizer recommendations for selected crops and contains information on soil and plant tissue testing. Practical suggestions are also offered regarding the design of fertilizer use demonstrations and extension techniques in general.



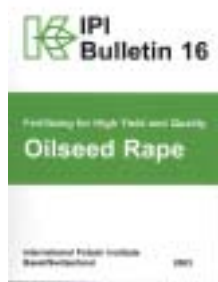
Oilseed Rape: Fertilizing for High Yield and Quality

K. Orlovius. IPI Bulletin 16, Basel, Switzerland, 2003. 130 pp.

The IPI Bulletin on oilseed rape is a comprehensive and informative brochure for extension workers, students and scientists. The botany of rapeseed is discussed together with the use of oilseed rape and the role of plant nutrients on yield and quality management. The main part of the Bulletin describes the effect of fertilizer use on yield and quality.

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Inviting Nominations for the Pierre Becker Memorial Award

The untimely death of Pierre Becker in 2001 has been widely mourned throughout the international fertilizer industry. A man of unique talents and deep humanity, he was recognized as a world authority on phosphates and phosphate fertilizer processing and technology. To perpetuate his memory and spirit of enquiry, British Sulphur Publishing is launching the Pierre Becker Memorial Award. This will be made available each year for work which has made an outstanding contribution to the understanding, exploitation and application of phosphate resources.

Invitations are now open for the nomination of candidates. Any author of a paper, thesis or published article that meets the above criteria is eligible. British Sulphur Publishing requests the submission of applications by 30 September 2003. The recipient of the Award will receive £1,000 and will be invited to attend a presentation in either London or Paris, for which the travel costs and accommodation will be paid.

The judges of the Pierre Becker Memorial Award will be the Editorial Board of *Fertilizer International*, plus the Editor and Technical Editor of the publication. The candidates will be judged on the basis of research quality, originality and practical application. Particular emphasis will be given to research leading to improvements in fertilizer processing efficiency and environmental sustainability. Candidates may be nominated by any individual, company, research institute, industry association or non-government agency. Candidates may be drawn from the fertilizer industry, public or private sector, or from a research institute or education establishment.

The first recipient will be known in the fourth quarter of 2003.

For more information, please **contact:**

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Items are included on this page as a matter of information.

Inclusion does not constitute an endorsement from IFA.

Highlights from the Agriculture Committee

The Agriculture Service has been extremely busy over the last few months with the organization of the IFA-FAO Agriculture Conference, held from 26 to 28 March in Rome. The conference was attended by more than 200 participants from 53 different countries and all major stakeholder categories: policy makers, industry representatives, scientists and farmers. The Secretariat also notes with gratitude the sponsorship offered by the following IFA members: Agrium, Cargill Crop Nutrition, Hydro Agri, K+S Kali / Fertiva, Kemira GrowHow and PotashCorp.

The conference reaffirmed the importance of fertilizers for sustainable agricultural development. It also provided opportunities to renew partnerships with the Food and Agriculture Organization of the United Nations (FAO) and create links with non-conventional partners such as human nutrition specialists. The main conference recommendations were trans-

mitted to the FAO Committee on Agriculture (COAG), which met the week following the joint conference. Several national delegations to COAG supported many of these policy considerations in their speeches.

The partnership with FAO helped bolster media coverage of the conference, including interviews with conference participants that were syndicated for Latin American and French-speaking African radio networks.

The IFA-FAO Conference also provided an opportunity for meetings of the IFA Agriculture Committee and its Strategic Advisory Team (SAT), the Task Force on Fertilizer Use Constraints, the Sub-Group on Fertilizer Demand Forecasts and the panel of IFA Award Recipients. These groups discussed a number of important questions, including improving fertilizer demand forecasts, finalizing the terms of reference for the study on fertilizer use constraints, editing the position paper on



The Panel of Award Recipients and IFA's Director General at the IFA/FAO Agriculture Conference in March 2003

fertilizer use in organic farming and IFA's involvement in micronutrients and emerging scientific issues, among others.

The independent panel of judges has now selected the 2003 IFA Award Recipient, namely Dr. V.T. Balasubramanian from the International Rice Research Institute (IRRI) in the Philippines (*see article on next page*). Dr. Balasubramanian is the first laureate affiliated with an international centre of the Consultative Group on International Agricultural Research (CGIAR).

Since the previous issue of the newsletter, the Agriculture Ser-

vice has issued reports on short-term prospects for the agricultural situation and fertilizer demand and the IFADATA cd-rom containing 2000/01 fertilizer data.

The Service has also been involved in the preparatory process for a workshop on "Risk assessment and management of environmental cadmium" to be organized by the Scientific Committee on Problems of the Environment (SCOPE) from 3 to 6 September 2003 in Ghent, Belgium. ●

Highlights from the Conference Service

The Conference Service has introduced a number of innovations this year to make registration and meeting planning more pleasant for all participants.

- Online registration is available on the IFA web site www.fertilizer.org. For meetings that are reserved for IFA members, the necessary forms are found in the "Members Only" section.
- Registration forms can also be downloaded from the web site in pdf format.
- Preferential rates apply to early registrations, provided that fees are settled by the

registration deadline (see below).

- For each event, the official list of participants is accessible on the IFA web site using a password provided by IFA upon receipt of registration fees. Lists are updated weekly, up to one week prior to the given conference. Only delegates having settled their registration fees are listed.

For details on the following IFA events in 2003, please visit www.fertilizer.org, where registration formalities are regularly announced.

IFA Production and International Trade Conference and Regional Conference

22-26 September
St. Petersburg, Russia
Open to non-IFA members by invitation
Registration deadline: 20 August 2003

IFA Technical Committee Meeting

30 September - 2 October
(Note date change!)
Abu Dhabi, United Arab Emirates
Limited to IFA members.

Registration deadline: 27 August 2003

IFA Regional Conference for Asia and the Pacific
6-8 October
Cheju Island, Republic of Korea
Open to non-members of IFA.

29th Enlarged Council Meeting

9-11 December
Bangkok, Thailand
Limited to IFA members. ●

Highlights from the Technical Committee

Energy Task Force

The fertilizer industry is an important consumer of energy: principally during production and in the transportation of raw materials, intermediates and finished products. In the nitrogen sector, the production of ammonia is a key factor. There are some 400 ammonia plants worldwide, and each uses energy equivalent to a medium-sized city. Mining and beneficiation account for the major portion of the energy used in the production of both phosphates and potash.

Fertilizers are bulky materials. Each year the output of the industry amounts to some 380 million tonnes of products. If intermediates are included, this volume exceeds 500 million tonnes, of which more than 100 million tonnes move across national borders. These products are then spread over a cultivated area that exceeds one billion hectares, equivalent to the size of the United States and Mexico.

Given the critical importance of the role of energy consumption in the production, distribution and use of fertilizers, it is essential for the Association to examine how the industry can use energy more efficiently. As well as monitoring regulatory bodies to anticipate important policy shifts, the Association also has a key role in providing a forum for the exchange of ideas on how to improve energy utilization performance.

At its meeting on 28 January 2003, the

Technical Sub-Committee in Cairo designated Fadhel Al-Ansari, Plant Operations Coordinator of GPIC (Bahrain) as the first Convenor of the Energy Task Force. He will provide leadership as the group defines its objectives and establishes its plan of action. Members are encouraged to name representatives to the Energy Task Force as early as possible so that they may contribute to laying the foundation for the group's activities.

Activities of the Technical Committee for 2003

- Second annual safety survey (covering 2002)
- Biennial emissions report (covering 2002)
- Proposed establishment of an environmental working group
- Preparation for the nitrogen workshop to be held in Brussels, 2-6 June 2003
- Call for papers for the 2004 Technical Conference in Beijing, 20-23 April
- Promotion of "Principles of Safety in Fertilizer Production" and the translation into local languages of certificates pledging member companies to uphold the principles. At the time of print, about ten companies have signed on to the initiative, and the certificates are already available in 16 languages.
- Preparation for the Committee meeting in Abu Dhabi, UAE on 30 Sept-2 October 2003. ●

Highlights from the Production and International Trade Committee

2003 Production and International Trade Conference and Regional Conference

A joint Production and International Trade Conference and Regional Conference will be held in St. Petersburg from 22 to 26 September 2003. This conference will address fertilizer supply and markets in the region.

Topics and speakers are being identified. Seventeen papers are already confirmed. On the last day of the conference, a technical visit will be organized to Baltic Bulk Terminal Ltd.

Simultaneous interpretation will be provided between Russian and English to encourage local participation. About 100 invitations will be sent to selected non-IFA members to create an opportunity to further enhance IFA membership in this region. Participants will receive promotional information on IFA and its activities in Russian.

The Conference Service and the Production and International Trade Service carried out a joint site inspection in late February. Under the leadership of Alexander Gorbachev, IFA's Vice President for Central and Eastern Europe, Phosagro has been providing strong support for the organization of this event.

IFA Trade Initiative

As a first activity under this new initiative, the Committee's Secretariat prepared a compilation of trade measures that affect or may affect the international trade in fertilizers. This draft is currently being circulated internally as a basis for ongoing work to define the scope and distribution of this information. The initial reaction has been positive.

Statistics and Reports

In addition to its usual statistical work, the Committee launched three new surveys – covering ammonium nitrate, single superphosphate, potassium sulphate and potassium nitrate – that should be completed in the second half of this year. ●

New Crop Nutrition Laureate Named



Vethaiya Thevar Balasubramanian (Bala), an Indian national who works at the International Rice Research Institute (IRRI) in the Philippines, is the recipient of the 2003 IFA International Award. His major accomplishments include developing and promoting the Leaf Color Chart for crop-need-based nitrogen management in rice. The resulting optimized use of nitrogen fertilizer encourages farmers to apply more phosphate and potassium to ensure balanced crop nutrition.

Bala, who was nominated by the Philippine Phosphate Fertilizer Corporation (PHILPHOS), will receive his prize during the Opening Session of the IFA Annual Conference in Philadelphia.


word: Association

The Many Faces of Nitrogen

As a necessary component of amino acids, nitrogen is fundamental to life. Seventy-eight per cent of the air that we breathe consists of nitrogen, so the element literally surrounds us. If plants did not absorb nitrogen, you would not be able to eat any protein. However, with the exception of legumes, plants cannot use atmospheric nitrogen directly. The Haber-Bosch process for fixing atmospheric nitrogen, which converts nitrogen from the



air into a form that plants can take up and which is packaged in fertilizers, earned two Nobel Prizes because it was considered of such tremendous value to humanity.

And yet nitrogen in many of its forms is increasingly controversial.

IFA's forerunner began looking at nitrogen-specific issues in 1966, thirteen years before nitrogen manufacturers were eligible to become ordinary members of the Association.

Those questions raised thirty-seven years ago related to safety concerns that have since been resolved by improved products. But today nitrogen is still associated with concerns over security. Ammonium nitrate is a vital tool for farmers in many countries, yet certain grades of this compound are used in explosives. To date chemistry has not provided a solution for preventing the potential misuse of certain fertilizers. Governments around the world have put in place numerous measures to ensure the safe production, storage and distribution of ammonium nitrate. The fertilizer industry in many places also conducts awareness-raising campaigns to promote safety and security when handling ammonium nitrate.

Another, less spectacular, but more pervasive, issue has attracted growing attention in recent years: global change related to reactive nitrogen.

The vast majority of naturally occurring nitrogen is in an inert state. For many industrial uses, including the production of nitrogenous fertilizers, this gas is converted to one of several reactive forms. Some scientists now believe that humans are releasing too much reactive nitrogen into the environment, causing undesirable changes to important natural cycles.

The International Nitrogen Initiative (INI) has been created to address this issue

and to improve our understanding of the phenomenon so that we can establish a better balance between human needs for reactive nitrogen and the unwanted impacts it may have. Experts have identified four ways to move in this direction:

- Decrease NOx emissions from fossil-fuel combustion by capturing these gases for other uses or prevent their formation;
- Convert reactive nitrogen back to its inert form before releasing it to the environment;
- Recycle reactive nitrogen within agroecosystems;
- Increase nitrogen-use efficiency in food production.

Some fertilizer production facilities may be able to recapture or reduce NOx emissions. However, the industry has long been concerned about cleaner production, and many production facilities have already made huge strides in reducing emissions. At some point in time, the processes involved reach limits beyond which no further technical improvements can be made.

Converting nitrogen back to its inert form before releasing it is the area where the fertilizer industry can have the least impact. The whole point of nitrogenous fertilizer production is to convert nitrogen into a reactive and, therefore, plant available form.

The fertilizer industry already advocates using its products within integrated plant nutrient management. This means taking account of all available sources of plant nutrients, including the recycling of reactive nitrogen within an agricultural production system. This is key because the nitrogen in animal wastes that may leach into the environment ultimately comes from animal feed, and is indirectly linked to fertilizer use.

The fertilizer industry has an important role to play in helping increase nitrogen use efficiency in agriculture. One factor will be the ongoing improvement of nitrogen fertilizer products. Making sure that farmers have access to full information and the most up-to-date fertilizer application techniques will also help maximize crop production per unit of nitrogen applied.

It is vital for the inter-

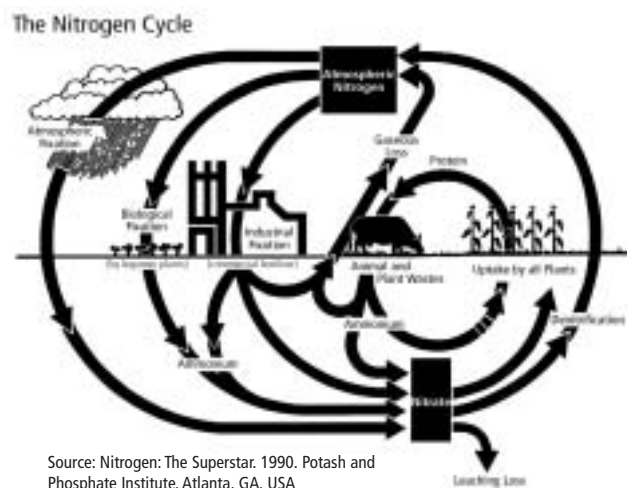
ests of the industry that it continues investing in both types of development, although neither offers a quick fix for the nitrogen conundrum.

Slow- or controlled-release products can reduce nitrogen losses to the environment, as can nitrification inhibitors. However, the technology built into these products currently makes them prohibitively expensive for many farmers. And technological solutions are still only as effective as the humans applying the fertilizer allow them to be: excessive applications of even the world's best products will still be too much of a good thing.

At the same time, ensuring access to the most appropriate information on best application practices is slow-going: there are some two billion farmers and agricultural workers, each facing different crop and agro-ecological conditions that require customized crop nutrient management solutions.

While both of these solutions are less than perfect, they allow the fertilizer industry to make a positive contribution to the management of the nitrogen cycle in a way that ensures adequate global food production while safeguarding environmental quality. By accepting this leadership role, the industry demonstrates its commitment to responsibly stewarding its products. Voluntary initiatives can also help avoid heavy regulation that presents potentially less appropriate solutions.

I firmly believe that companies that come to terms with this imperative will be the long-term survivors as the fertilizer industry continues to evolve. At the sector level, the Association will continue to work with the scientific community and policy makers to maintain the delicate, but vital, nitrogen balance. ●



Source: Nitrogen: The Superstar. 1990. Potash and Phosphate Institute, Atlanta, GA, USA



Calendar

IFA - 2003

26 - 29 May

IFA Annual Conference

Philadelphia, USA #

22 - 26 September

IFA Production and International Trade Conference and Regional Conference

St. Petersburg, Russia

Open to non-IFA members by invitation

30 September - 2 October

IFA Technical Committee Meeting

Abu Dhabi, United Arab Emirates #

6 - 8 October

IFA Regional Conference for Asia and the Pacific

Cheju Island, Republic of Korea

9 - 11 December

29th Enlarged Council Meeting

Bangkok, Thailand #

Restricted to IFA members

Non-IFA - 2003

18 - 20 May

2003 World Agricultural Forum - A New Age in Agriculture: Working Together to Create the Future and Disable the Barriers

St Louis, United States

Fax: +1 314 997 1881 jmbray@earthlink.net

www.worldagforum.org/2003_congress.html

19 - 23 May

IFDC* - Training program - Agriculture Input Marketing

Malawi

1 - 4 June

IFS Study Tour

Warsaw and Pulawy, Poland

Fax: + 44 1904 492700 secretary@fertiliser-society.org

www.fertiliser-society.org

2 - 6 June

IFA and IFDC* - Nitrogen Fertilizer Production Technology

Workshop Brussels, Belgium

9 - 20 June

Training Workshop on "Monitoring, Evaluation and Impact Assessment of R&D Investments in Agriculture"

Pretoria, Republic of South Africa

Fax: + 31 70 3819677 isnar-training@cgiar.org www.cgiar.org

15 - 28 June

4th European Congress on Precision Agriculture

Berlin, Germany

awerner@salf.de www.ecpa-berlin.org

13 - 15 July

14th Fertilizer Latin America Conference

Key Biscayne, Florida

Fax: + 44 20 79032432 matty.diaz@crugroup.com

www.britishtsulphur.com

30 July - 1 August

InfoAg 2003 - 6th Information Agriculture Conference

Indianapolis Airport, USA

Fax: +1 317 381 6159 www.ppi-far.org/infoag

1 - 15 August

1st International Agricultural River Nile Floating Exhibition

AgriNile, The Nile, Egypt

Fax: + 20 2 736 0284 agrinile@bhg-expo.com

www.bhg-expo.com/agrinile.htm

4 - 10 August

Workshop on Applying Information Technology for Site-Specific Agriculture in Small Farms of the Tropics

Bangkok, Thailand

agrtna@ku.ac.th

11 - 15 August

2nd World Congress on Conservation Agriculture: Producing in Harmony with Nature

Parana, Brazil

Fax: + 55 41 374 1094 febrapdp@uol.com.br www.febrapdp.org.br

August

5th China Fertilizer Information Exchange and Trade Fair and the International Forum of Potential Opportunities for Domestic and Foreign Fertilizer Industries and Investments in China

Nanjing, China

Fax: + 86 10 8808 7237 shu-yen.liu@fischina.us www.fischina.com

8 - 10 September

8th International Conference on Environmental Science and Technology

Lemnos Island, Greece

Fax: +30 10 649 2199 cest@gnest.org www.gnest.org/cest

15 - 19 September

IFA and IFDC* - Phosphate Fertilizer Production Technology Workshop

Brussels, Belgium

21 - 26 September

2nd International Symposium on Phosphorus Dynamics in the Soil-Plant Continuum

Perth, Australia

Tel: +61 8 9380 2557 zrengel@agric.uwa.edu.au

www.agric.uwa.edu.au/soils/P_Symposium/index.html

25 September - 9 October

IFS Technical Meeting

London, UK

Fax: + 44 1904 492700

secretary@fertiliser-society.org www.fertiliser-society.org

13 - 24 October

IFDC* - Training program - Fertilizer Marketing Management

Viet Nam

20 - 24 October

17th FMB European Fertilizer Conference and Exhibition

Munich, Germany

Fax: + 44 208 979 4573 fmb@fmb-group.co.uk www.fmb-group.co.uk

*IFDC - An International Center for Soil Fertility and Agricultural Development
Fax: +1 256 381 7408 hrd@ifdc.org www.ifdc.org



TSI-FAI-IFA Workshop Furtheres Balanced Fertilization in India

Viren Kaushik, Director General of FAI; Luc M. Maene, Director General of IFA and Don Messick, Director, Agricultural and Market Studies Programs at TSI lead discussions at the joint workshop of the three organizations on the use of sulphur in balanced fertilization.



The event in February was part of the ongoing cooperation between the Fertiliser Association of India (FAI), the International Fertilizer Industry Association (IFA) and The Sulphur Institute (TSI) and marked Kaushik's first joint meeting of these three organizations since he joined FAI in the second half of 2002.

For more information about the workshop, including conclusions and recommendations, **contact:** FAI, 10 Shaheed Jit Singh Marg, New Delhi 110 067, India
Fax: +91 11 26960052 fai@vsnl.com www.fertindia.com



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- www.fertilizer.org

IFA comprises around 450 member companies in more than 80 countries and includes manufacturers of fertilizers, raw material suppliers, regional and national associations, research institutes, traders and engineering companies.

IFA collects, compiles and disseminates information on the production and consumption of fertilizers and acts as a forum for its members and others to meet and address technical, agronomic, supply and environmental issues.

IFA also sponsors research related to the efficient use of plant nutrients in agriculture, and liaises closely with relevant international organizations, such as the World Bank, FAO, UNEP and other UN agencies.

IFA President

Wladimir A. Puggina, President
Fertibras, Brazil

IFA Director General

L.M. Maene

Mailing list

Subscription to F&A is free of charge. Send full address details to be added to the mailing list. Additional copies may be supplied to organizations to circulate on behalf of IFA.

Letters

We invite your contributions of letters, documents, articles, photographs, etc.

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-Layout: Claudine Aholou-Pütz

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Phosphate Fertilizer Production Technology Workshop 15-19 September 2003, Brussels, Belgium



Best Western County House Hotel



The workshop seeks to provide engineers in the fertilizer industry with an in-depth view on phosphate-based fertilizer production technologies and identify future trends and needs. The seminar will also provide a forum for discussion of various technical, economic, safety and environmental issues as well as allowing participants to network with their peers.

The programme is designed for engineers working in the fertilizer industry, particularly those who have recently assumed new responsibilities.

Some reactions from participants in the first fertilizer production technology workshop:

"Generally, the seminar content was very good. The management of the topics and timing were excellent."
-- Faisal H. Al-Bonayan (SAFCO)

"I really found all the various knowledgeable people's inputs tremendously valuable." -- Jaco Marais (Sasol)

The cost for the 5-day workshop-inclusive of workshop technical materials, lodging in a single room, and meals-is US \$3,500 per participant for IFA members and US \$4,000 for non-IFA members.

Places are still available for the Nitrogen Production Technology Workshop, 2-6 June 2003 in Brussels

For more information: Director, Training and Workshop Coordination Department, IFDC, P.O. Box 2040, Muscle Shoals, Alabama 35662, USA
Tel: +1 256 381-6600 Fax: +1 256 381-7408 hrd@ifdc.org www.ifdc.org

IFA Request Form agriculture May 2003

Please tick the box(es) below and return to IFA by fax: +33 1 53 93 05 45 / 47
Note: most IFA materials are available via the web site at www.fertilizer.org

- Los fertilizantes y su uso
- Fertilizer Use by Crop in Taiwan
- IFA/FAO Rome Conference Proceedings

Name

Company/Organization

Address

Telephone Fax

E-mail Web