



# CGIAR NEWS

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH ■ AUGUST 2002

## BUILDING ALLIANCES FOR THE FUTURE: IPGRI HOSTS CENTER DIRECTORS COMMITTEE

Reviewing opportunities and building stronger research-for-development alliances were key themes of a business meeting and workshop of the CGIAR Center Directors Committee (CDC) held at IPGRI headquarters in Mac-



The CGIAR Center Directors Committee (Peter Hartmann of IITA and Frank Rijsberman of IWMI not in picture)

carese. The committee is comprised of 16 CEO's who lead the Future Harvest Centers, mobilizing the best of science in the service of the poor. Director General-designate Masa Iwanaga of CIMMYT attended the meeting for the first time.

In opening remarks, Meryl Williams, chair of the CDC, outlined the challenges faced by the Future Harvest Centers. "The challenges are tempered by opportunities" said Williams. "We need to forge new alliances, mobilize additional resources, and enhance knowledge-sharing—these are essential for increasing the pace and effectiveness with which we deliver results." Noting that people are key to institu-

*Continued on page 7*

## SIR JOHN CRAWFORD MEMORIAL LECTURE

In a year when so much attention has focused on sustainable development and the critical links between environment and agriculture, we are delighted to announce that the 2002 Sir John Crawford Memorial Lecturer will be Mohamed El-Ashry, Chairman and CEO of the Global Environment Facility (GEF).

Mr. El-Ashry is a world leader on global environment issues. He was the Chief Environmental Adviser to

the President and Director of the Environment Department (1991-94) at the World Bank, and served as Chairman of the Global Environmental Facility (GEF) during its Pilot Phase (1991-94).

Prior to joining the World Bank, he held senior positions at World Resources Institute (WRI) and Environmental Defense Fund, among others. He served as Senior Environmental

*Continued on page 2*



The Philippine Department of Agriculture (Kagawaran ng Pagsasaka) designed this special logo for AGM02. The sun, blades, crop sheaf, fish and waves are symbols of land and water resources that are abundant in an archipelago of more than 7,000 islands. Overall, the logo symbolizes the essence of the Philippines-CGIAR partnership and its focus on agriculture, natural resources and the environment.

## MANILA CALLING

The Government of Philippines is hosting the CGIAR 2002 Annual General Meeting (AGM02) in Manila, October 30-November 1, 2002. More than 500 scientists, policy makers, development practitioners, and representatives of the private sector and civil society are expected to attend. Highlight of the meeting include:

- October 28—Philippine Day, including visits to national agricultural and forestry research sites
- October 29—IRRI Day, including a visit to IRRI's Los Baños research station
- October 30 & 31—CGIAR Stakeholder Meeting at Shangri-La Hotel, Makati City, Metro Manila
- November 1—CGIAR Business Meeting, to fine tune and accelerate the reform program

Following the AGM, ICLARM—The World Fish Center will host a "Fish for All" Summit on November 3, 2002 in Penang, Malaysia.

Please mark your calendars. For a detailed program, click on [www.cgiar.org](http://www.cgiar.org)

# SEEDS OF HOPE FOR AFGHANISTAN

Nearly 70,000 Afghan farmers are facing severe food and seed shortages. Thanks to the collaborative efforts of the Future Harvest Consortium to Rebuild Agriculture in Afghanistan and the interim Afghan Government, farmers have received emergency relief supplies and more than 3,500 tons of improved, high-quality wheat seed in eleven provinces. The seeds are helping lay the foundations of recovery and growth in Afghanistan, allowing farmers to commence spring plantings essential for achieving food security.

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ICARDA is the lead center of the Consortium, and an office was recently established in Kabul. ICRISAT, in partnership with the U.K. Overseas Development Institute organized a “Code-of-Conduct Workshop” to develop guiding principles for seed regulatory and seed system support interventions for Afghanistan. The workshop was opened by H.E. Mohammed Sharif, First Deputy Minister of Afghanistan’s Ministry of Agriculture and Livestock. More than 80 participants representing CIMMYT, CIP, IWMI, the International Fertilizer Development Center, and civil society attended the meeting. ICRISAT’s presentation focused on the urgent need for a demand-driven seed supply system.

The Consortium is using emotive sensing data and Geographic Information Systems (GIS) to identify areas that have enough soil moisture to ensure seed growth without recourse to irrigation. “The key information came

from U.S. scientists in the National Oceanic and Atmospheric Administration, NASA, Geographic Survey, and the Foreign Agriculture Service” said Dr. Nasarat Wassimi, Executive Manager of the Consortium. “After four years of severe drought and extensive damage to Afghanistan’s irrigation systems, we need to have the latest information to ensure these critical seeds survive.”

The wheat seeds distributed in Afghanistan—Inqilab 91 and MH 97—are carefully selected varieties, specifically adapted to the harsh growing conditions of this drought-ridden country. The wheat seed distribution is a first of its type. The Consortium is also conducting need assessments and diagnostic studies to better identify critical actions needed to rebuild agriculture in this war-torn country. Afghanistan and its resilient people are truly unique and the CGIAR is proud to be a partner in this effort. 

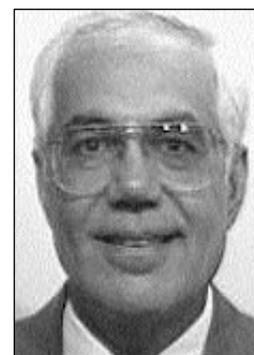
## CRAWFORD MEMORIAL LECTURE *Continued from page 1*

Adviser to UNDP, as Special Adviser to the Secretary General of the 1992 U.N. Conference on Environment and Development (UNCED), and as a member of the World Water Commission.

Launched in 1991, the Global Environment Facility forges international cooperation and finances actions to address four critical threats to the global environment: biodiversity loss, climate change, degradation of international waters, and ozone depletion. It is a principal partner of countries taking real action to achieve sustainable development. In August 2002, 32 governments from developed and developing countries gave \$US 2.92 billion to fund

GEF operations for the next four years—the largest replenishment in GEF history.

The lecture is sponsored by the Australian Government and the event is a highlight of the CGIAR Annual General Meeting. Sir John Crawford was a distinguished civil servant, educator, and agriculturist and a founder of the CGIAR. 



Mr. Mohamed El-Ashry

CGIAR

## BREAKING NEWS: PEDRO SANCHEZ WINS 2002 WORLD FOOD PRIZE

Pedro Sanchez, former Director General, ICRAF has been named the 2002 World Food Prize Laureate. He was chosen for his groundbreaking contributions to reducing hunger and malnutrition throughout the developing world by transforming depleted tropical soils into productive agricultural lands. The World Food Prize carries a cash prize of \$US 250,000 and he is the first Cuban to receive this prestigious award.

Pedro Sanchez' leadership over the past 25 years has been vital to the great strides made toward improving food security in Latin America, Africa, and Southeast Asia. As the leader of the North Carolina State University Rice Research Program in the 1970's, he helped guide Peru to dramatically improve its national food security, achieving self-sufficiency in rice production within three years and attaining some of the highest rice yields in the world. In addition, he developed a comprehensive approach to soil management which enabled 30 million hectares (75 million acres) of marginal Brazilian land, known as the Cerrado, to be brought into production—the single largest increase in

arable agricultural land in the last half-century.

Most recently, Dr. Sanchez has led the charge toward providing smallholder farmers in Africa and Southeast Asia with the means to replenish crucial nutrients in exhausted soils, through the development and promotion of agroforestry. The practice of planting trees on farms has provided nearly 150,000 farmers in Africa with a way to fertilize their soils inexpensively and naturally, without relying on costly chemical fertilizers.

"Pedro Sanchez is being honored for having played a critical role in establishing real alternatives to slash-and-burn farming which has destroyed millions of acres of rainforest, as well as his work in driving the international effort to establish agroforestry as a means of mitigating global warming" said Ambassador Kenneth M. Quinn, President of the World Food Prize Foundation. The announcement was made at the XXVI International Horticultural Congress.

In 1976, Pedro Sanchez published *Properties and Management of Soils in the*

*Tropics*, a classic reference book that is still considered among the 10 best-sellers on soil science worldwide. It has been translated into many languages, including Spanish, Japanese and Bahasa Indonesian. A seminal contribution, the book sets the scientific basis for the proper management of the chemistry, biology, and physics of soils in relation to food production, poverty alleviation and environmental conservation in the tropics.

The formal award ceremony is slated for October 24, 2002, at the World Food Prize International Symposium to be held in Ames, Iowa, USA. The CGIAR has won this coveted prize for the past three years, demonstrating the quality of its science.



Dr. Pedro Sanchez

CGIAR



## THAILAND EXPANDS PARTNERSHIP WITH IRRI

A high-level trade delegation led by Mr. Prachuab Chaiyasan, former Foreign Minister of the Kingdom of Thailand visited IRRI to expand collaboration in rice research.

Thailand is collaborating with IRRI in major ongoing projects such as the Consortium for Unfavorable Rice Environments, Asian Rice Biotechnology Network, International Network for the Genetic Evaluation of Rice, and efforts to develop aerobic rice suited for water-scarce tropical environments or northeastern Thailand.

The delegation was briefed by Ronald Cantrell, Director General, IRRI and senior scientists about IRRI's

research agenda, the rice genome, implications for intellectual property rights, the new plant type, and progress on biotechnology. Further discussions centered on IRRI's research agenda and its relationship with national agricultural research systems, a dynamic partnership that seeks to boost production in rice farming and improving the livelihoods of rice farmers in Thailand and other rice-growing areas. 



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IRRI

## NEW LEADERS IN PARTNER INSTITUTIONS



ACIAR

Mr. Peter Core

### **Australian Centre for International Agricultural Research (ACIAR), Canberra, Australia**

Peter Core has been appointed Director of ACIAR for a 5-year term commencing July 31, 2002. The appointment was announced by the Minister for Foreign Affairs, the Hon. Alexander Downer. Mr. Core is currently Managing Director of the Rural Industries Research and Development Corporation (RIRDC). His previous positions include Secretary (CEO) of two Federal Departments: Transport and Industrial Relations. ACIAR plays an important role in the effective delivery of Australia's aid program, responding

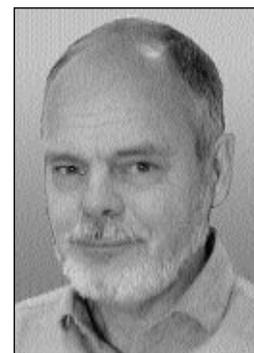
both to global development priorities and to the interests of Australian farmers and researchers. Mr. Core succeeds Dr. Robert Clements who served as Director since 1995.

### **Asian Vegetable Research and Development Center (AVRDC), Shanhua Tainan, Taiwan**

Thomas Lumpkin has been appointed Director General of AVRDC starting from January 1, 2003. Dr. Lumpkin is presently Chairman of the Department of Crop and Soil Sciences and Professor of Agronomy at Washington State University (WSU). He also serves as Professor in Asian Studies. From WSU, where he has worked since 1983, Dr. Lumpkin managed cooperative research and outreach programs linking laboratories and field sites around the world, including Africa and Latin America. He enjoys an international reputation as an expert on East Asian vegetable production systems and on the biology of a range of Asian vegetables.

### **International Foundation for Science (IFS), Stockholm, Sweden**

Michael Ståhl was appointed Director of IFS on July 1, 2002 for a 5-year term. Dr. Ståhl comes from the Swedish International Development Cooperation Agency (Sida), where he was Head of the Division for Thematic Research Programmes at the Department for Research Co-operation (SAREC). IFS works for strengthening the capacity of developing countries to conduct relevant and high quality research on the sustainable management of biological resources, and has supported over 3400 scientists in over 100 developing countries.



IFS

Dr. Michael Ståhl

## INFO FINDER LAUNCHED

A new online research tool—*Info Finder*—is revolutionizing the search and retrieval of specialized agricultural and development information. Launched by the Center Director Committee (CDC), Info Finder is the result of a partnership between FAO's World Agricultural Information Centre (WAICENT), Future Harvest Centers and CGIAR Secretariat, the online tool links information to a single network allowing users to intelligently search the rich reserves of online material produced by the Future Harvest Centers and WAICENT.

The Info Finder is receiving an average of 2,340 hits per day. During June 2002, the most active countries to access the Info Finder were the USA, UK, Saudi Arabia and Kenya.

For more information, please go to <http://infofinder.cgiar.org>





## IFPRI RESEARCH POINTS THE WAY OUT OF FAMINE IN SOUTHERN AFRICA

Recent news reports place the number of people currently suffering from famine or the threat of famine in Southern Africa at 10 million. In Lesotho, Malawi, Mozambique, Swaziland, Zambia, and Zimbabwe, these millions of people are facing food shortages that put their food security, their health, and their lives at risk. IFPRI researchers have conducted extensive research on the causes of, and solutions to, famine in Africa and their findings are summarized in a new brief “Fighting Famine in Southern Africa: Steps out of the Crisis.” A follow-up brief this fall will focus on the steps necessary for preventing future famines.

The immediate causes of the current crisis in Southern Africa are drought, flooding, and low levels of crop planting. These conditions have led to such a severe crisis, however, because of chronic poverty, poor governance, market failures, and lack of capacity to monitor and respond to the crisis as it unfolds.

Famine mitigation policies lie on a continuum ranging from immediate relief, to recovery, to initiating development. When famine strikes, the first task is to get food to the hungry. Governments and relief agencies must rush food supplies to the worst-affected regions and people. The report argues that food should be distributed not just to food camps but to areas where hungry people live. There is also a need to adopt standardized guidelines for distributing food aid that prevent discrimination by gender, age, status, ethnicity, and political

affiliation. Finally, governments must invest in health services during famine relief and recovery. Many of the deaths that occur during famine are due not to starvation but to disease. Poor nutrition makes people more susceptible to disease, and existing health services often cannot take on the added burden.

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***10 million people in Lesotho, Malawi, Mozambique, Swaziland, Zambia, and Zimbabwe, currently suffer from famine or the threat of famine. These millions of people are facing food shortages that put their food security, their health, and their lives at risk.***

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To begin to recover from famine, authorities should assess famine vulnerability, by studying households' income and assets, food intake, and access to water, to help determine what kinds of relief and recovery interventions would be most effective. One important intervention might be labor-intensive public works projects that offer three main benefits: provide poor people with short-term income, serve as risk insurance, and create assets like infrastructure that can help assure future food security. Other safety net programs will also be necessary to help destitute households. And the private sector must play a role by

providing jobs for poor people and by working with the government to make food available.

To initiate development that will reduce the chances of future famine, governments in Southern Africa should work to raise farmers' productivity by distributing basic agricultural inputs like seeds and fertilizer. They should encourage farmers to grow staple food crops with better, more appropriate technologies. They should establish credit programs for rural poor people to allow them to buy agricultural inputs, food, and assets such as livestock. In the long run it is particularly important for governments to invest in rural infrastructure such as roads and to facilitate the growth of more effective markets.

As policymakers consider which interventions to adopt, they must decide which actions will be most effective and when, in tune with local specificities. IFPRI's research shows that by taking appropriate steps and drawing on the help of aid agencies, the governments of Southern Africa can prevent the suffering and death of millions once famine has struck. 



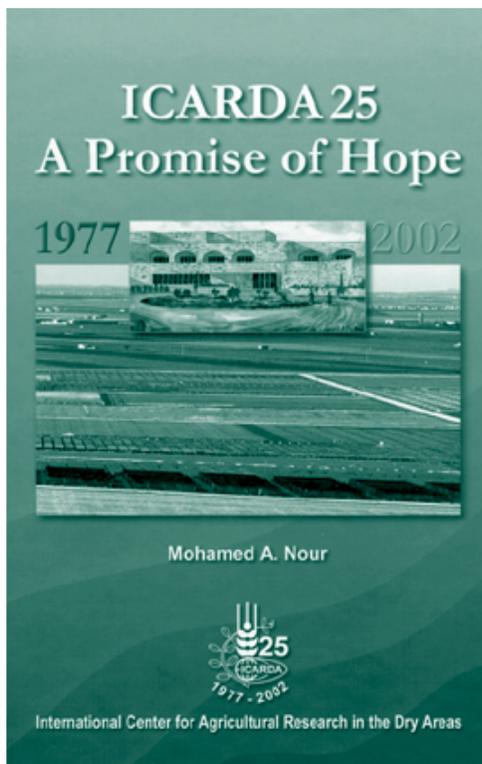
## ICARDA CELEBRATES 25TH ANNIVERSARY

Syria (and the Fertile Crescent) is said to be the cradle of agriculture, where plant domestication first took place some 10,000 years ago. In May, Syria marked a more modern milestone—the 25th anniversary of ICARDA's founding.

To commemorate this important occasion, ICARDA hosted a well-attended symposium and field day at its Tel Hadya headquarters for scientists, research partners, and representatives of member governments. Host country Syria was represented by H.E. Dr. Nouredin Mona, Minister of Agriculture and Agrarian Reform, who pledged Syria's continuing "full support" to ICARDA for achieving its mission of poverty reduction and improved nutrition, working for poor farmers both in Syria and the rest of the world.

Applauding ICARDA's achievements, the Minister noted that "Syria is now an exporter of wheat, barley, lentils, and chickpea" thanks to the foresight of the late President Hafez Al-Assad upon whose invitation ICARDA was established in Aleppo province. The commitment to "partnership" based on "common interest" for the good of the poor which was so important to the late president continues with H.E. Bashir Al-Assad, President of Syria.

Robert Havener, Chairman, ICARDA Board of Trustees presented an overview of ICARDA's history, acknowledging the facilitating role played by late President Hafez Al-Assad, along with the International Development Research Centre (IDRC), The Rockefeller Foundation, Ford Foundation, and others.



*This special commemorative volume "ICARDA 25: The Promise of Hope," was written by Dr. Mohamed A. Nour, former Director General of ICARDA.*

"ICARDA has achieved great successes," he said adding that "much remains to be done" a theme echoed by other speakers. Reminding the audience about the continuing relevance of ICARDA's mandate, Dr. Mervat Bedawi of the Arab Fund for Economic and Social Development (AFESD), Kuwait said "Hunger and poverty still loom in many parts of the developing world, threatening past achievements" adding that "the food gap cannot be closed by expanding [production] area, but must come through increases in productivity achieved through science." Dr. Bedawi paid tribute to the AFESD-ICARDA partnership.

Dr. Peter Cooper, Director, Natural Resources and Environment, IDRC, flagged water and climate change as dominant issues. "Water is becoming increasingly scarce and increasingly a matter of international concern, while climate change is already occurring, making dry areas of West Asia and North Africa hotter and drier. Given these changes, ICARDA's mandate is increasingly relevant and deserving of increasing support from donors."

ICARDA Director General Prof. Dr. Adel El-Beltagy gave a presentation on the challenges facing the world's drylands, noting that ICARDA's strategy would give priority to helping rural communities living in arid areas to add value to their agricultural products. ICARDA plans to make best use of new technologies such as biotechnology, geographic information systems, remote sensing and computer expert systems to help boost agricultural productivity in the mandate area.

The symposium attracted a stellar cast of speakers, including Per Pinstrup-Andersen, 2001 World Food Prize Laureate and Professor Marc van Montagu of Ghent University, among others. The list of participants demonstrated the international community's widespread support for ICARDA.

A special commemorative volume "ICARDA 25: The Promise of Hope," written by Dr. Mohamed A. Nour, former Director General of ICARDA, was released to mark the anniversary celebrations. 🌿



## BUILDING ALLIANCES *Continued from page 1*

tional success, she stressed the need for a new vision in the area of human resources management.

The workshop was partially funded by Ford Foundation's Organization Change Program and facilitated by the Training Resources Group (TRG). Participants also took the opportunity to meet senior staff at FAO and IFAD. Both organizations cosponsor the CGIAR.

Mobilizing resources—financial, human and technical—is at the core of CGIAR's strategy to increase effectiveness. Meryl Williams outlined the important role of traditional donors, and the need for strategic marketing to link research with development strategies and impact. Judith Symonds, newly-appointed Executive Director presented an overview of Future Harvest and emphasized the need to harness strengths and synergies in science and agriculture to meet the needs of the global aid and development agenda. Ruth Raymond, IPGRI, gave an overview of a strategic framework for the newly-formed Future Harvest Marketing Group and planned collaborative efforts between the Centers, CGIAR Secretariat, and Future Harvest. The CDC discussed plans for the establishment of the CGIAR System Office and reviewed ideas for its draft business plan. Jim Bamford of McKinsey briefed the CDC on the work and planning accomplished to date for the CGIAR System Office.

A program highlight was a Berlin-Rome videoconference that linked Ian Johnson, CGIAR Chairman and Kevin Cleaver, newly-appointed Director of the World Bank's Agriculture and Rural Development Department with CDC.

Discussions centered on the challenges facing the CGIAR and opportunities presented by the reforms and the renewed emphasis on agriculture and rural development in the discussions leading up to the World Summit on Sustainable Development (WSSD) to be held in Johannesburg, August 26-September 4, 2002. The CDC also held discussions with special invited guests, including Francisco Reifschneider, CGIAR Director and Emil Javier, Chairman of the CGIAR interim Science Council. Important conclusions of the CDC workshop include:

**Budget 2002:** Full or partial support to five key programs—Future Harvest, Public Awareness and Resource Mobilization Committee (PARC), Central Advisory Services, Gender and Diversity Program, and the Chief Information Officer position—amounting to \$US 1.1 million. CDC have developed streamlined business processes to manage and direct funding for all CDC-sponsored initiatives. The number of pooled Center services and support initiatives are growing, indicating a healthy trend of increasing collaboration among Centers. CDC are establishing strong accountability mechanisms to ensure value and sound program oversight.

**Resource Mobilization, Future Harvest and the System Office:** A working group was formed to explore the CDC's relationship with an expanded Future Harvest; the CDC chair will continue to play an active role in discussion of governance issues of the CGIAR System Office.

**Challenge Programs, System-wide and Ecoregional Programs.** A draft guide for establishing Challenge Programs was developed. CDC expressed strong support for strengthening of System-wide Programs (SWPs) and developed criteria to assist in the setting of priorities for SWPs. A paper on lessons learned is planned at the completion of the 2002 cycle.

**International Treaties and, Intellectual Property Rights.** Geoff Hawtin, IPGRI briefed CDC on developments relating to the Global Conservation Trust and the International Treaty on Plant Genetic Resources for Food and Agriculture (PGRFA) which recognizes the CGIAR's work in plant genetic resources as a pillar of the global conservation effort. Ronald Cantrell, IRRI and chairman of the CDC Task Force on Intellectual Property Rights discussed next steps for revisiting the policies and statements on biotechnology. Kanayo Nwanze, WARDA and chairman of the CGIAR Sub-Saharan Africa Sub-Committee led a discussion on the relevance of Challenge Programs to Africa, and other African-led initiatives.

**Farewells and Welcomes.** The workshop closed with CDC formally honoring outgoing directors general Per Pinstrup-Andersen who led IFPRI for a decade and Timothy Reeves who led CIMMYT for seven years. The CDC welcomed Masa Iwanaga as the next director general of CIMMYT, and appointed Kerri Wright Platais as CDC Executive Secretary on a part-time basis. 

## ILLEGAL LOGGING IN INDONESIA

Bribes are cheap, the likelihood of getting caught very small, and the chances of being found guilty and prosecuted even smaller. This simple reality lies at the heart of illegal forest activities in Indonesia.

“Illegal activities are one of the most pressing problems facing the Indonesian forest sector,” says Luca Tacconi of CIFOR. “They reduce government revenues, cheat local communities of income, foster a vicious cycle of bad governance and destroy the forest.”

Estimates of the extent of illegal logging highlight the enormity of the problem: between 55 and 75 percent of industrial wood is produced illegally resulting in a loss of anywhere between \$US 1 billion and \$US 1.9 billion in foregone tax revenues.

In a significant partnership, CIFOR and Indonesia’s Forest Research and Development Agency together with Pionir Bulungan (East Kalimantan) and the Centre for Social and Economic Research on the Global Environment have been researching the effects of illegal forest activities. Support for this work is provided by the U.K. Department for International Development (DfID).

Recent surveys indicate illegal logging continues unabated despite statements to the contrary. CIFOR’s research is helping to understand the

complex forces driving illegal logging activities, the need to protect interests of the stakeholders, and determine policy interventions that can help alleviate the problem.

Recent policy changes legalizing small-scale logging in production forests have not had the desired effect of reducing illegal logging. In many



*Curbing illegal logging in Indonesia is key to increasing the incomes of the poor and protecting Indonesia’s forest resources.*

cases these activities are not controlled by local communities, but by commercial interests that continue their illegal activities. “Illegal logging provides incomes to people with few other alternatives,” says Krystof Obidzinski, a CIFOR consultant. “Since manual small-scale extraction by rural people is probably one of the least destructive forms of illegal logging, an argument could be made for legalizing such activities and in the process co-opting rural people as forest guardians.”

However, recent examples from Indonesia show that changes in regulatory frameworks that allow small-scale extraction by rural people have been

manipulated, diverting rents to the rich and powerful, leaving local communities with a lower share of timber value.

A ban on exports of logs was introduced in October 2001. Recent fieldwork in Kalimantan and Malaysia shows it has been ineffective for reducing illegal harvesting and exports.

“Economic forces are a fundamental driver of illegal forest activities,” says Tacconi. “The incentives and disincentives, including the cost of being caught and being prosecuted, faced both by illegal and legal operators, need to be researched to better understand how policies could be designed to make legal markets more attractive than the illegal ones.”

Law enforcement in itself is not sufficient to address the problem. Where corruption is endemic, major improvements in surveillance, such as remote sensing, log tracking, and monitoring by third parties are likely to be more effective than increasing penalties. The situation is complicated by the range of actors involved in illegal activities.

“Unless the rewards from illegal activities are reduced, it is unlikely that the complex chain of illegal activities linking various actors can be broken” concludes Tacconi. 🌿



## GOLDEN MILLET, NATURALLY!

Recent research at ICRISAT reveals that some pearl millet genotypes with yellow endosperm *appear* to have levels of beta-carotene comparable to that of “Golden Rice.”

Beta-carotene, also known as provitamin A, is a substance found in food that the human body needs to make vitamin A. There are several such substances, called precursors and beta-carotene is best because the human body makes two molecules of vitamin A (retinol) from each molecule of beta-carotene.

“Golden millet is an exciting new alternative that deserves further development, keeping in mind that it would reduce but not eliminate the need for vegetables and other sources of pro-vitamin A,” says William Dar, Director General, ICRISAT. “It will serve as an important substitute to golden rice where rice production is not possible.”

“To have a staple food with a natural high content of beta-carotene would be an easy way to alleviate vitamin A deficiency, one of the most important nutritional problems in developing countries,” explains Juergen Erhardt of the University of Hohenheim. He helped analyze the beta-carotene content of some of ICRISAT’s millet genotypes.

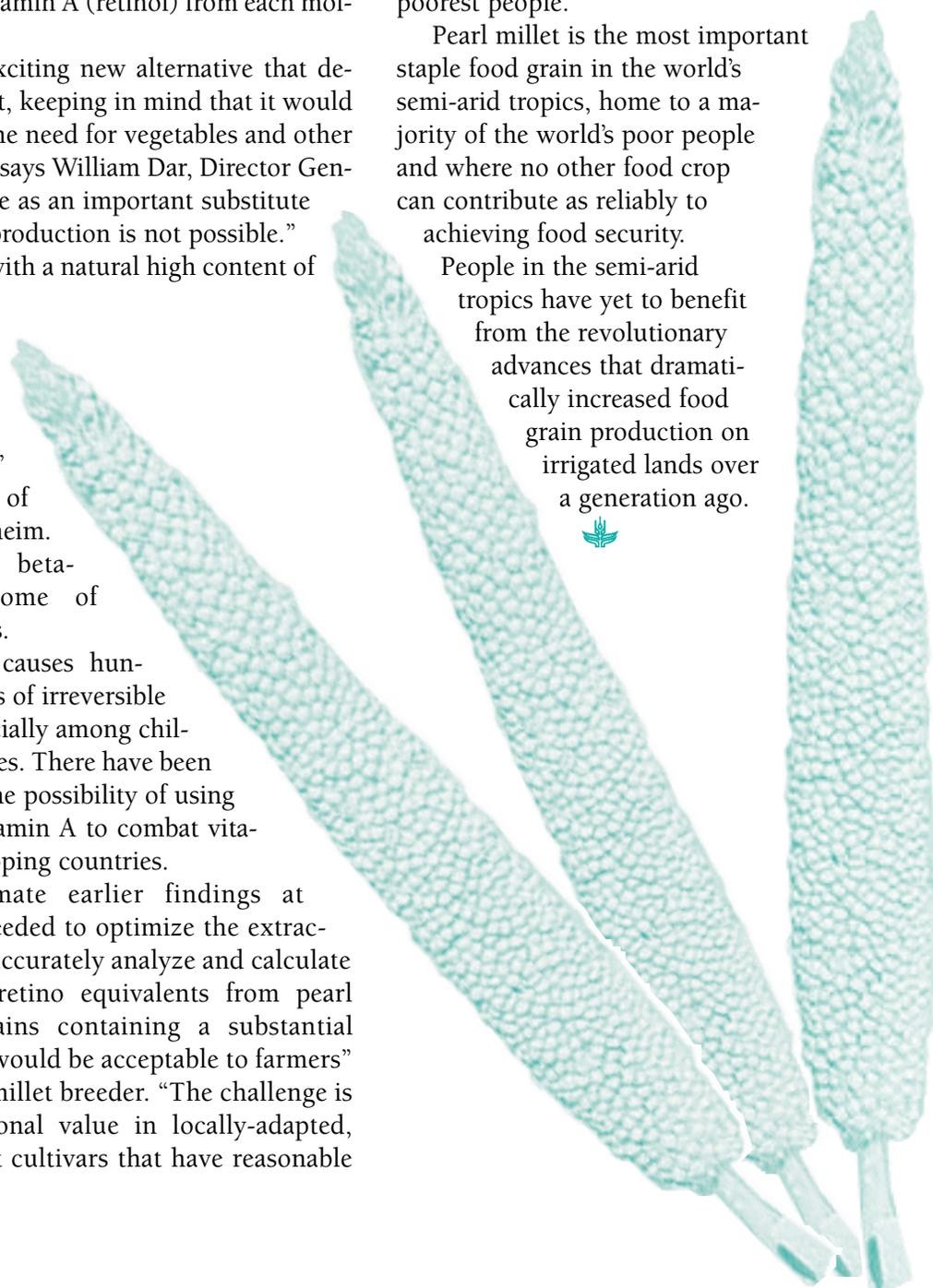
Vitamin A deficiency causes hundreds of thousands of cases of irreversible blindness every year, especially among children in developing countries. There have been many studies examining the possibility of using foods naturally rich in vitamin A to combat vitamin A deficiency in developing countries.

These results proximate earlier findings at ICRISAT. More work is needed to optimize the extraction procedure and more accurately analyze and calculate the potential intake of retino equivalents from pearl millet grain. “Millet grains containing a substantial amount of pro-vitamin A would be acceptable to farmers” says C.T. Hash, ICRISAT millet breeder. “The challenge is to deliver higher nutritional value in locally-adapted, pest- and disease-resistant cultivars that have reasonable yield potential.”

“Golden millet demonstrates the value of global research, development and extension partnerships that effectively link conventional plant breeding, participatory research methods, and tools of molecular biology,” concludes Dr. Dar. “It shows the way forward in using naturally occurring crop genetic variation to address a major health issue affecting the world’s poorest people.”

Pearl millet is the most important staple food grain in the world’s semi-arid tropics, home to a majority of the world’s poor people and where no other food crop can contribute as reliably to achieving food security.

People in the semi-arid tropics have yet to benefit from the revolutionary advances that dramatically increased food grain production on irrigated lands over a generation ago.



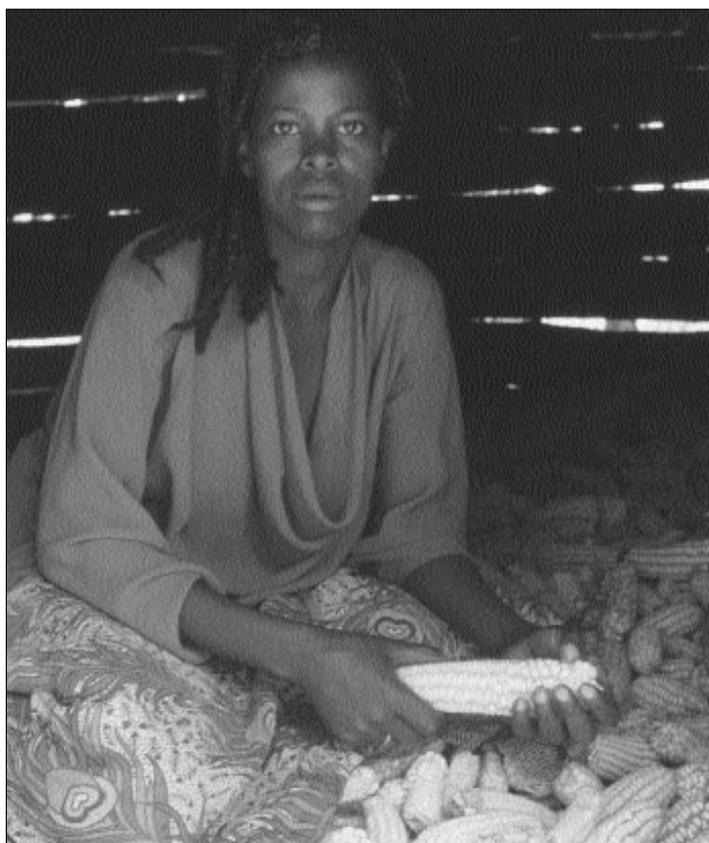
## MAIZE THAT RESISTS STORAGE PESTS

Pest attacks, on crops growing in the field and on stored grain, are the bane of poor farmers' lives. In Eastern Africa, two major pests—maize weevil and larger grain borers—cause ruinous losses, consuming as much as 15 percent of stored grain in a few months. To help farmers tackle this problem, David Bergvinson, CIMMYT maize entomologist, his associates, and partners at the University of Ottawa have developed experimental maize that resists these damaging pests, and new, practical methods to help screen for resistance in maize breeding materials. “Maize with improved resistance against storage pests is clearly in high demand among small-scale farmers in tropical countries,” says Bergvinson who received the 1999 CGIAR Chairman’s Science Award for Promising Young Scientist.

Their research is leading to a better understanding of the biochemical bases of pest resistance, important for both food safety and determining the potential limitations of resistance factors. “Good correlations between pest resistance and kernel hardness are also correlated with elevated levels of diphenolic acids in the pericarp of the kernel,” explains Bergvinson. “But it is important to note that grain moisture levels above 16 percent make normally resistant genotypes susceptible to pests.” This finding emphasizes the importance of drying grain before storing it, a practice that must be pro-

moted with farmers as part of an integrated pest management strategy.

Based partly on studies by graduate students concerning the inheritance of weevil resistance in maize, Kevin Pixley, a CIMMYT breeder



*Farmers in Kenya often store their maize in raised, slatted sheds that provide easy entry for pests. CIMMYT entomologists are developing maize lines that are resistant to voracious pests such as weevils and grain borers, research that is helping cut post-harvest losses in Africa.*

based in Zimbabwe, and his associates have also identified maize lines that serve as sources of resistance not only to weevils, but also to grey leaf spot and maize streak virus, two diseases that seriously limit maize productivity in sub-Saharan Africa. Among other things, breeders will draw on these resistance sources in

developing elite lines for making hybrids. CIMMYT scientists are also homing in rapidly on the areas in the maize genome associated with pest resistance. They hope eventually to combine DNA marker assisted selection with conventional breeding to speed the development of high yielding, pest resistant maize for Africa.

Meanwhile, CIMMYT staff and partners in its regional programs in eastern and southern Africa are routinely screening breeding materials for resistance to storage pests, placing grain samples in closed jars with pests and measuring the damage at regular intervals. Paddy Likhayo, an entomologist with the Kenya Agricultural Research Institute’s Kiboko research station has tested hundreds of CIMMYT hybrids and open pollinated varieties, and identified a small but useful portion that are resistant to voracious pests.

His research has also documented a loss of sensitivity in the larger grain borer to Actellic, a chemical that is commonly used to control this most damaging pest. This finding underlines the importance of continuing the effort to develop maize that is resistant to storage pests and promote integrated pest management practices. 🌿

# ICRISAT FORGES NEW PARTNERSHIP TO COMBAT LAND DEGRADATION

Farming in the semi-arid tropics (SAT) is a perilous enterprise, made riskier by frequent adverse climatic events such as droughts, flood and searing temperatures that negatively impact the harvests and livelihoods of millions of poor farmers.

Following up on the success of the New Consortium Model for Managing Community Watersheds in India, ICRISAT has teamed up with the prestigious Mumbai-based Sir Dorabji Tata Trust to combat land degradation in Madhya Pradesh (Guna and Devas districts) and eastern Rajasthan (Bundi district). The Trust is supporting the consortium formed by the Indian Council of Agricultural Research



*Lighting the ceremonial lamp. Chief Minister of Madhya Pradesh, Mr. Digvijay Singh (far right) is joined by Dr. William Dar, Director General, ICRISAT and Dr. M.S. Swaminathan, Chairman, M.S. Swaminathan Research Foundation*

(ICAR), National Remote Sensing Agency (NRSA), several NGOs, state governments, farmers organizations and ICRISAT. The project uses a holistic livelihood approach.

“In the harsh environments of the semi-arid tropics, conserving rainwater

is critical” said M.S. Swaminathan, former Director General of IRRI and World Food Prize laureate. The project was launched by Mr. Digvijay Singh, Chief Minister of Madhya Pradesh state, who lauded ICRISAT’s efforts in conceptualizing the project.

“We take pride in our partnership with the Sir Dorabji Tata Trust, a leading private foundation” said William Dar, Director General, ICRISAT. “We are

breaking new ground in mobilizing science for poor farmers, benefiting from private philanthropy and forging the alliances necessary to support the important mission of the CGIAR.”



## Honor Roll

**K.L. Heong**, Senior Entomologist, IRRI won the Saint Andrews’ Environmental Prize (with M.M. Escalada of the Philippine’s Leyte State University and Nguyen Huu Huan of Vietnam Plant Protection Department) for an innovative campaign protecting one million rice farmers from the harmful effects of dangerous insecticides in the Red River Delta of Vietnam. The award carries a cash prize of \$US 25,000. In addition, he was awarded a Doctor of Science degree by Imperial College, London.

**J.K. Ladha**, Soil Nutritionist, IRRI has been named Fellow of the American Society of Agronomy.

**Tom Mew**, Head of Entomology and Plant Pathology, IRRI has been named a Fellow of the American Phytopathological Society.

**Sant Singh Virmani**, Deputy Head of Plant Breeding, Genetics and Biochemistry, IRRI won the International Service in Crop Science Award from the Crop Science Society of America.

**Vo-Tong Xuan**, Member of the CGIAR Interim Science Council and Rector, Angiang University, won the Nikkei Asia Prize for transforming rice production in Vietnam and increasing rice production in the Mekong delta.

## In Memoriam

**Arthur Hugh Bunting**, CMG, Emeritus Professor, The University of Reading, and an active supporter of the CGIAR passed away on May 8, 2002. He was a founding trustee of IITA and IPGRI. In 1986, he chaired the CGIAR Technical Advisory Committee’s Training Study.



## CGIAR Chairman

Ian Johnson

## CGIAR Director

Francisco Reifschneider

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## CGIAR-SUPPORTED FUTURE HARVEST CENTERS

- **International Center for Tropical Agriculture (CIAT)**  
Cali, Colombia  
Phone: (57-2) 4450000  
[www.ciat.cgiar.org](http://www.ciat.cgiar.org)
- **Center for International Forestry Research (CIFOR)**  
Bogor, Indonesia  
Phone: (62-251) 622 622  
[www.cifor.org](http://www.cifor.org)
- **International Center for the Improvement of Maize and Wheat (CIMMYT)**  
Mexico City, Mexico  
Phone: (52-5) 804 2004  
[www.cimmyt.org](http://www.cimmyt.org)
- **International Potato Center (CIP)**  
Lima, Peru  
Phone: (51-1) 349-6017  
[www.cipotato.org](http://www.cipotato.org)
- **International Center for Agricultural Research In the Dry Areas (ICARDA)**  
Aleppo, Syrian Arab Republic  
Phone: (963-21) 2213433  
[www.icarda.org](http://www.icarda.org)
- **The World Fish Center (ICLARM)**  
Penang, Malaysia  
Phone: (60-4) 626-1606  
[www.iclarm.org](http://www.iclarm.org)
- **World Agroforestry Centre (ICRAF)**  
Nairobi, Kenya  
Phone: (254-2) 524000  
[www.icraf.org](http://www.icraf.org)
- **International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)**  
Patancheru, Andhra Pradesh, India  
Phone: (91-40) 3296161  
[www.icrisat.org](http://www.icrisat.org)
- **International Food Policy Research Institute (IFPRI)**  
Washington, DC, United States  
Phone: (1-202) 862-5600  
[www.ifpri.org](http://www.ifpri.org)
- **International Institute of Tropical Agriculture (IITA)**  
Ibadan, Nigeria  
Phone: (234-2) 2412626  
[www.iita.org](http://www.iita.org)
- **International Livestock Research Institute (ILRI)**  
Nairobi, Kenya  
Phone: (254-2) 630743  
[www.cgiar.org/ilri](http://www.cgiar.org/ilri)
- **International Plant Genetic Resources Institute (IPGRI)**  
Maccarese (Fiumicino) Rome  
Phone: (39-06) 61181  
[www.ipgri.org](http://www.ipgri.org)
- **International Rice Research Institute (IRRI)**  
Los Baños, Philippines  
Phone: (63-2) 8450563  
[www.irri.org](http://www.irri.org)
- **International Service for National Agricultural Research (ISNAR)**  
The Hague, The Netherlands  
Phone: (31-70) 3496100  
[www.isnar.cgiar.org](http://www.isnar.cgiar.org)
- **International Water Management Institute (IWMI)**  
Colombo, Sri Lanka  
Phone: (94-1) 867404  
[www.cgiar.org/iwmi](http://www.cgiar.org/iwmi)
- **West Africa Rice Development Association (WARDA)**  
Bouaké, Côte d'Ivoire  
Phone: (225) 31634514  
[www.warda.org](http://www.warda.org)