CGIAR NEWS

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH ▪ JUNE 2000

CHARTING THE CGIAR'S FUTURE — A NEW VISION FOR 2010

Mid-Term Meeting, Dresden, May 21-26

The historic city of Dresden, capital of the Free State of Saxony, Germany—a city that was almost completely razed in World War II and has since risen and become synonymous with renewal and rebirth—hosted the CGIAR's Mid-Term Meeting (MTM) 2000. The Honorable Kurt Biedenkopf, Prime Minister of the Free State of Saxony, welcomed the CGIAR, and the Secretary of State Mr. Erich Stather, addressed the inaugural session.

MTM2000 will be remembered as a very successful meeting with results that will mark the CGIAR's future course for years to come. Much of the meeting's success was due to the excellent arrangements made by the hosts, the German Federal Ministry of Economic Cooperation and Development. Top item on the MTM2000 agenda was a review of ideas and proposals developed by the Technical Advisory Committee (TAC) to formulate a new vision and strategy for the CGIAR.

At International Centers Week 1999, the CGIAR requested TAC to embark on a broad, open, consultative and participatory exercise to redefine the CGIAR's vision and strategy for 2010. The outcome, a far-reaching paper—A Food

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GLOBAL FORUM CONVENES

This year's MTM2000 featured the first Global Forum on Agricultural Research (GFAR) which attracted more than 500 representatives of national agricultural research systems, regional and sub-regional organizations, universities, advanced research institutions, non-governmental organizations, the private sector, farmers' organizations, multilateral and donor agencies, and international agricultural research centers.

GFAR Chairman R.S. Paroda welcomed the gathering, and introduced keynote speakers such as Mrs. Uschi Eid, Parliamentary State Secretary of Germany, Mr. Uwe Werblow of the European Union, Dr. Klemens van de Sand of the International Fund for Agricultural Development (IFAD), and Dr. Ismail Serageldin, Chairman, CGIAR.

A key outcome of GFAR2000 was the

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CGIAR CHAIRMAN SERAGELDIN TO STEP DOWN JULY 10

World Bank Vice President Ian Johnson named successor

Ismail Serageldin, the seventh chairman of the CGIAR, ends his World Bank vice presidency and, thereby, his CGIAR chairmanship on July 10. He will be succeeded by Ian Johnson, the Bank's Vice President for Environmentally and Socially Sustainable Development.

Announcing the changes at the May 2000 Mid-Term Meeting of the CGIAR in Dresden, Serageldin said:

"I am delighted that Ian Johnson, a respected colleague and friend, will succeed me. Ian is a distinguished alumnus of three universities: Wales, Sussex and Harvard. His experience includes service with UNICEF, the British Government, and the Bank. He was one of the creators of today's GEF. He is a strong environmentalist whose expertise will greatly benefit the natural resource management efforts of CGIAR centers. He is, as well, deeply committed to nurturing partnerships. I am sure you will find in him a most effective and caring Chairman. You can be assured that we will manage a seamless transition."

Serageldin began his chairmanship at the end of 1993, when the CGIAR

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CGIAR'S FUTURE *Continued from page 1*

Secure World for All: Toward a New Vision and Strategy for the CGIAR—outlines future directions for the CGIAR system.

Momentous changes in the CGIAR's operating environment provide enormous opportunities.

The revolution in biological sciences, quantum advances in information and communication technologies, growing role of the private sector and changing terrain of intellectual property rights are all calling for new ways of doing business. It is a truism that progress is hostage to innovation, and in order for the CGIAR to retain its innovative edge—and meet the needs of a changing world—it must adapt, transform, and renew itself.

The CGIAR has a track record of success in dealing with problems of poverty, hunger, and environmental protection. CGIAR's science-based approaches have worked well, but more needs to be done to tackle the problems of less favorable farming environments, improving the quality of foods consumed by the poor, and at the same time ensuring that productivity targets are maintained. The new vision will help CGIAR to take stock of these challenges and re-position itself to address them more forcefully.

Commenting on the myriad changes confronting the CGIAR, Chairman Ismail Serageldin said "The CGIAR faces a future of make-or-break challenges and make-or-break opportunities. The time has come for action, once again. It is time not simply for renewal but, truly, for rebirth."

TAC's visioning exercise, led by Chairman Emil Javier rests on a two-pronged strategy: continue to build on past successes, but develop a sharper focus on reaching the poor living in less-favored environments that were bypassed by the Green Revolution. The members adopted the principles of the far reaching vision developed by TAC by endorsing the new strategy (see box). In addition, the members reaffirmed TAC's definition of the CGIAR's "heartland" and the implications for CGIAR's future programs and activities.

- Germplasm conservation will remain the core, principal activity for the long term;
- Germplasm improvement will continue to be an important activity over the next 10-15 years, particularly breeding for those traits that can help the poor;
- Integrated natural resources management research will serve as a framework for all CG research and focus more on increasing understanding of biophysical and socio-economic processes;
- Policy research will expand to include regional priority setting and protecting the interests of the poor;
- Enhancing national agricultural research systems' capacities with a focus on delivery of international public goods.

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Key Elements of CGIAR's New Vision and Strategy

Vision: *A food secure world for all.*

Goal: *To reduce poverty, hunger, and malnutrition by sustainably increasing the productivity of resources in agriculture, forestry and fisheries.*

Mission: *To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.*

To realize this mission, a strategy comprising seven elements was adopted:

- sharply focusing CGIAR system activities on the reduction of poverty, hunger, and malnutrition in developing countries;
- bringing modern science to bear on difficult productivity and institutional problems that have proven intractable in the past;
- giving highest priority to the research needs of South Asia and sub-Saharan Africa where poverty is concentrated and growing;
- adopting a regional approach to research planning in order to better address the heterogeneous nature of poverty;
- diversifying and closely integrating its partnerships;
- adopting, under certain circumstances, a task force approach to the organization and delivery of CGIAR products and services;
- serving as a catalyst, organizer, coordinator and integrator of global efforts on key opportunities and constraints in agriculture, forestry and fisheries.

At MTM2000, seven working groups were formed to brainstorm on key issues: genetic resources, intellectual property rights and the private sector, new science and geographic and ecoregional issues, mode of operation, finance, process, and other issues. These working groups helped facilitate rich and diverse discussions.

TAC is launching an electronic conference to seek ideas and proposals from all CGIAR stakeholders on the new vision and implications for structure and governance. In the fall, the Center Directors and Board Chairs will review drafts and develop options, and a new synthesis group will convene to integrate all contributions. ICW'2000 will offer an opportunity for the members to take decisions.

The members also discussed the paper *"A longer term financing strategy for the CGIAR"* prepared by The Conservation Company under the auspices of a working group constituted by Alex McCalla, former chairman of the CGIAR Finance Committee. While highlighting that official development assistance, currently at 90 percent, remains and will continue to remain an essential element of support for the CGIAR, the report calls for a broader effort to draw more Southern country members, the need to tap into non-ODA sources in non-agriculture sectors (environment, population, health and nutrition), and reaching deeper and wider to private and corporate philanthropy. The members unanimously agreed with the need to create a global public awareness effort, and endorsed the concept of a CGIAR/Future Harvest Foundation. In introductory remarks, Mr. McCalla emphasized that the recommendations contained in the paper represented a bold step forward in creating new, system-wide fund raising capacities, but that the success of these efforts will need support from key constituencies of the CGIAR, particularly developing countries.

MTM2000 meeting reports are available at **www.cgiar.org**.

CGIAR'S IMPRESSIVE IMPACTS ON IMPROVEMENT OF FOOD CROPS

Increasing the availability of food, ensuring that agricultural practices are benign, and reducing the burden of poverty are criteria by which the effectiveness of agricultural research and development must be measured. These themes were the topic of a special seminar at MTM2000, presented by Robert Evenson of Yale University.

This milestone study – *Crop Genetic Improvement and Agricultural Development* – was introduced by Hans Gregersen and commissioned by the TAC Standing Panel on Impact Assessment. It was conducted jointly with scientists from the CGIAR and national agricultural research systems and took an in-depth look at the impact of CGIAR research on improvement of crop germplasm. The results are very encouraging confirming the value and beneficial impacts of agricultural research. For example:

- Were it not for CGIAR research, prices for food crops would have been 27 to 41 percent higher over the past 25 years, with the result that poverty and hunger would have increased;
- On average, food imports by developing countries would have been 9 percent higher but for the productivity increases attributable to CGIAR research, thereby freeing public resources;
- Higher yielding crops with better nutritional value developed by CGIAR scientists reduced malnutrition rates among children by 1.5 to 2 percent;
- Without the CGIAR-NARS partnership, the number of improved crop varieties released would have been 45 to 60 percent less;
- CGIAR parent lines were present in 33 percent of NARS varieties.

The major conclusion of the Evenson study – consumers benefit most and poor consumers benefit most of all from agricultural research – reinforces the view that productivity increases in staple crops have direct, beneficial impacts on reducing hunger, malnutrition, and poverty. Indeed, the provisional findings support the proposition that CGIAR research investments have had positive impacts on all crops in the portfolio and that these impacts have been large because of the synergistic partnership with national programs.

A fuller report will be available later in the fall for discussion at ICW2000.

GLOBAL FORUM *Continued from page 1*

endorsement of the Dresden Declaration, "Toward a Global System for Agricultural Research for Development." This global vision calls for development of an agriculture, including crops, livestock, fisheries and forestry, that is:

- sustainable, equitable, profitable and competitive, in the context of community centered rural development, fully recognizing the role of women;
- diversified and flexible to cope with heterogeneous and rapidly changing agro-ecological and socio-economic environments with an important role for the farm family; and
- responsive to multiple sources of knowledge and innovations, both modern and traditional.

GFAR participants also endorsed the "Declaration on Plant Genetic Resources for Food and Agriculture," which strongly supports the ongoing revision of FAO's International Undertaking on Plant Genetic Resources as well as the Leipzig Global Plan of Action. The declaration encourages countries "that are considering or reviewing legislation on intellectual property, to do so in such a way that they do not restrict the exchange, transfer and use of germplasm in crop improvement programs."

FAREWELL

Continued from page 1

faced multiple crises. Under his leadership, the CGIAR faced down the crises with an 18-month program of renewal designed to "clarify its vision, refocus its research agenda, create greater openness and transparency, strengthen its partnerships, ensure its efficiency and effectiveness, and tighten its governance and operations."

The renewal program and other initiatives taken under Serageldin's leadership have resulted in defining changes that include the following:

- The centrality of agriculture and agricultural research in combating the nexus of problems associated with poverty, hunger, and environmental degradation was reaffirmed by the international community at the Ministerial-level meeting in Lucerne. Agriculture and rural development are today embedded in most anti-poverty programs.
- A magnanimous rescue operation by the World Bank combined with reciprocal efforts from several other CGIAR members saved the CGIAR from financial collapse. Coherent funding mechanisms were developed.
- The confidence of center scientists was restored. A system of awards for excellence was introduced to recognize and nurture the talents of a new generation of young center scientists and their partners in national agricultural research systems (NARS).
- The research agenda was refocused on the multiple challenges of increasing and protecting agricultural productivity, safeguarding natural resources, and helping to achieve people-centered policies for environmentally sustainable development.
- Governance mechanisms have been revamped, with the emphasis on transparency, effectiveness, and efficiency. An evaluation culture is growing.
- Partnerships have been inaugurated at all levels of the System. Nothing makes this more clear than the Global Forum for Agricultural Research (GFAR) from which we have recently emerged. GFAR, which came into being through the influence of the CGIAR as catalyst, is a forum that combines all the "players" involved, from the perceptive farmer in her field to the inquisitive scientists at her laboratory bench. It is a unique institution.
- The CGIAR has, meanwhile, adopted most of the recommendations from the Third System Review, including an emphasis on integrated germplasm management and integrated natural resource management.

Serageldin's own assessment is that "the single most significant long-term effect of the 1994/95 renewal is the growth of a sense of open-ness," as manifested in the transformation of the CGIAR into a fully South-North enterprise. (Currently, twenty-two "country members" of the CGIAR are from the South, and twenty-one from the North. There were none from the South in 1971; and only seven when the renewal program was launched.)

In a soaring farewell address, Serageldin told the CGIAR at Dresden that they could not be satisfied with "renewal" for they were now challenged to contemplate "rebirth." The world was changing drastically, he said, with "the profound revolutions of ICT and DNA" having the greatest potential impact on the work of the CGIAR.

"So," Serageldin commented, "we live in the world of these transformative technologies and vast global currents. We must seize the momentous opportunities they offer us, but also remain true to our mission. We must have the courage to seize the future and bend it to our will. We must fashion out of our dreams for better tomorrows the realities of a better world for our children and our children's children."

The CGIAR, Serageldin added, "has proved itself to be an outstanding instrument of progress. Its combination of high-level science with grassroots-level impact has been unique and exemplary. Science revels in replenishment. New knowledge replenishes what is losing its potency. New forms and functions replenish the old. The greatest rewards await those who have the courage to undertake the most difficult transformations. So, as you prepare to face the future, I entreat you:

- Reach out boldly and wisely to protect and enhance the inheritance of visionary zeal and boundless compassion that has been passed down from the founders of the CGIAR.
- Ask yourself whether your actions will benefit the men and women of today, and sustain the children who will be the men and women of tomorrow.
- Send an unequivocal signal to center scientists that you have confidence in them, that you support them, and that you will not in any way compromise their competence or erode their dedication.
- Extend your hand to all the partners with whom the CGIAR must work if it is to be truly effective."

Serageldin received an emotional standing ovation, and the assurance that his charge to the CGIAR would be fulfilled.

The CGIAR is expected to say a formal farewell to Serageldin at International Centers Week in October 2000, when Ian Johnson will be at the helm.

TIGR-ILRI PARTNERSHIP WILL TACKLE EAST COAST FEVER

An innovative partnership between the Institute for Genomic Research (TIGR) and the International Livestock Research Institute (ILRI) has been strengthened by a $100,000 donation from Dr. J. Craig Venter, Chairman of TIGR's Board of Trustees and President and Chief Scientific Officer of Celera Genomics.

Dr. Venter is among three U.S. winners of the prestigious 2000 King Faisal International Prize. Upon receiving his King Faisal award, Dr. Venter announced he will donate the cash prize to the joint TIGR-ILRI project to help fund sequencing of the genome of the parasite *Theileria parva*, which causes the cattle disease East Coast Fever (ECF).

The genome sequence produced by TIGR will be applied to the development of a vaccine to prevent ECF, which is a fatal disease of cattle and is widespread in eastern and central Africa. Transmitted by ticks, the disease is caused by infection with the single-celled protozoan *T. parva*, a parasite that, once it has entered the bloodstream, invades the white blood cells of the host and causes the infected cells to multiply like cancer cells. Infected cattle die within 2-4 weeks from a leukemia-like disease. ECF causes an estimated $200 million in economic losses per year. Loss of cattle to ECF is particularly devastating for small farmers for whom cattle represent a major proportion of family wealth and nutrition.

"Dr. Venter's generous donation, which stems from his vision to find a cure for disease-causing microorganisms, provides funding for a significant project whose research will lead to vaccines that will eliminate a deadly disease that is devastating African countries," said Claire M. Fraser, President of TIGR. "In addition, the ILRI-TIGR project to sequence the *T. parva* genome provides a good example of cooperation between a leading U.S. research institute and an African-based research center aimed at helping to solve a major agricultural problem affecting one-fourth of the African continent."

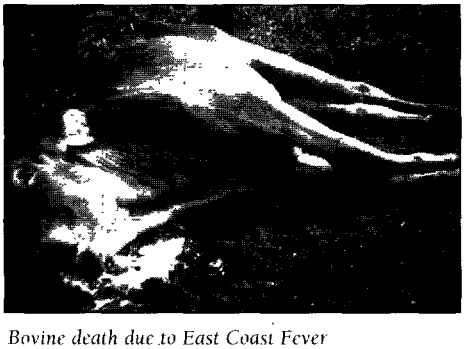
"The significance of the TIGR-ILRI partnership lies in its huge potential to tackle one of the most destructive cattle diseases besieging Africa's poorest farmers, and the possibility that this research will have spillover benefits for malaria research."

— Ismail Serageldin

Ismail Serageldin, World Bank Vice President and CGIAR Chairman, said "This is an age in which the marvels of science are exploding in myriad ways. The challenge is to harness these scientific breakthroughs to serve the poor in developing countries. The significance of the TIGR-ILRI partnership lies in its huge potential to spur socially-relevant science by tackling one of the most destructive cattle diseases besieging Africa's poorest farmers, and the possibility that this research will have spillover benefits for malaria research."

This project also provides opportunities for scientific exchanges and for training of African scientists in genomics research and bioinformatics. Several such exchanges have already taken place with funding awarded by the U.S. Agency for International Development (USAID). TIGR and ILRI also are collaborating with Chihiro Sugimoto of Hokkaido University in Japan who studies another species of *Theileria* that is found in Asia.

www.cgiar.org/ilri or www.tigr.org



Bovine death due to East Coast Fever

SOFTWARE TO ANSWER HARD WHEAT BREEDING QUESTIONS

CIMMYT and the University of Queensland (Brisbane, Australia) are collaborating in developing a sophisticated new computer tool that will assist wheat breeders in making some of the toughest decisions they face. QU-GENE, a genetic simulation software package, can integrate large amounts of data from widely different sources, process them in many ways, and produce realistic scenarios that the breeder can draw on.

"A trained geneticist can picture the potential effect of four or five genes, maximum," says Maarten van Ginkel, bread wheat breeder at CIMMYT. "This simulation module will go much further. It will take the information needed and come up with alternative selection scenarios and the crosses that would produce it. It may even indicate when and where to employ physiological and biotechnological tools to enhance the efficiency of the process."

QU-GENE was developed by Mark Cooper and Dean Podlich at the University of Queensland. A four-year project to develop a breeding simulation module based on CIMMYT's bread wheat breeding program is being funded by Australia's Grains Research and Development Corporation (GRDC).

CIMMYT's bread wheat breeding program was chosen because, according to Ian De Lacy, a biometrician and expert on database management, "the program has 53 years of accumulated breeding data, and is one of the most important, largest, and most successful plant breeding programs in the world."

The simulator will draw on data from the wheat section of the International Crop Information System (ICIS) and the Geographic Information System (GIS) at CIMMYT. It will also be connected to the Agricultural Production System Simulator (APSIM), a collection of biological, physical, system control, and other modules that interact to simulate farming systems.

The module will be endowed with knowledge of genetic and other types of relationships among wheats, plus their performance. One of most important applications will be to figure out the combined effects of several different genes. "There is a synergy at work here that sometimes causes 1 + 1 to equal much more than 2, and sometimes less," explains van Ginkel. Positive synergy can produce huge genetic gains, but until now, except for their experience and intuition, breeders have had no means of predicting how and when this synergy would happen.

"The simulator could help bring down breeding costs. It would also compare the cost of the input to the cost of the corresponding output to determine whether applying a given technology makes sense."

Another significant contribution of the module would be to indicate when it is cost-effective and/or efficient to use a specific technology—for instance, molecular markers in the process of improving a particular trait of wheat. Applying molecular markers at an early stage of the breeding process might seem the thing to do, but at that stage the number of plants to be tested is still very great, as is the cost of testing. It might make more sense to apply the technology later in the breeding process, when the population of experimental wheats has been pared down to a more manageable and, hence, more economical number. But by that time the gene of interest may have been bred out of the population, or nearly so. The module will help to get a better idea of how the two scenarios would play out, and then make a more informed decision.

The module will give breeders not just one possible scenario in which to run tests, but would generate different versions of an artificial environment to simulate conditions in different years and run, say, 100 breeding cycles to see what the outcome would be.

In North Africa, for example, four out of five years are dry. Farmers sow their wheat, and if they see the year will be too dry, they will allow their livestock to graze on it. For that they need a wheat variety that produces lots of stems and leaves. The variety has to produce a lot of grain, too, since farmers expect to reap an abundant harvest one year out of five. In this case, the simulation module would help set breeding priorities.

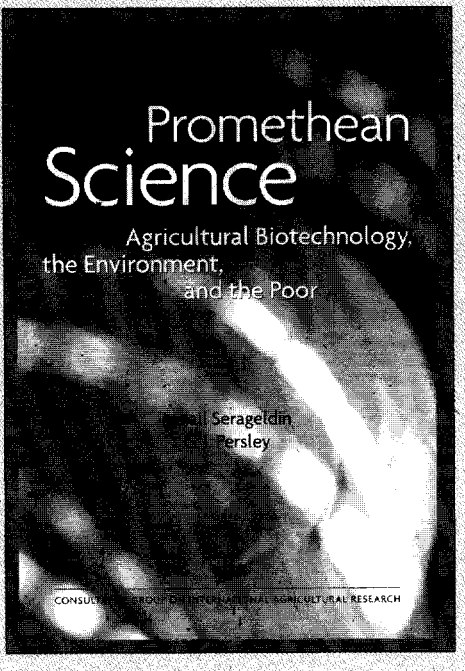
The simulator could help bring down breeding costs. It would also compare the cost of the input to the cost of the corresponding output to determine whether applying a given technology makes sense.

The QU-GENE module arrives at a time when it is more urgent than ever to speed up wheat breeding to help satisfy the specific needs of the developing world's farmers, who will produce most of the grain to feed coming generations.

www.cgiar.org/cimmyt

Agricultural Biotechnology, the Environment and the Poor

"There is a need for major additional global efforts to mobilize new developments in science and technology that, along with better policies, are needed to increase sustainable productivity and improve access to food," says a new monograph by CGIAR Chairman Ismail Serageldin and biotechnology expert Gabrielle J. Persley: *Promethean Science – Agricultural Biotechnology, the Environment, and the Poor.*



The book, published by the CGIAR Secretariat, sees future increases in smallholder productivity in the developing world dependent on a combination of agro-ecological approaches, application of modern biotechnology, and the use of new information technology and precision farming.

Several emerging economies are already investing quite heavily in agricultural biotechnology for food security and reduction of poverty. The study urges additional efforts by all stakeholders to better realize the potential of biotechnology for the benefit of producers, consumers and the environment throughout the developing world.

The authors propose a comprehensive and detailed catalog of action that starts with the mapping of genomes of major crops and farm animals and ends with the identification of desired outputs, such as "improved genotypes and better agricultural practices to ensure sustainable increases in productivity; new biological products, such as vaccines, biocontrol agents, and diagnostics for the control of major endemic diseases of crops and livestock."

New ways of directing public and private financial resources are urged, at both national and international levels. The authors recommend more investment in and adoption of new scientific approaches, skills and tools, forming strategic alliances and creating innovative institutional arrangements cutting across traditional center boundaries.

"Widespread fear exists that private enterprises and research institutes gain unremunerated control of the genes of plants native to the developing world and use them to produce superior varieties that would then be sold back to developing countries at high prices," the authors said, adding: "The successful implementation of the Rio Convention on Biological Diversity, so that it becomes clear who should compensate whom for what and for how much, needs unequivocal regulation. Simple and effective ways need to be found to establish fair compensation."

The full text is available at:
www.cgiar.org

Scientists Spearhead Efforts To Save African Medicinal Tree: Leading Remedy for Prostate Disorders Worldwide

Skyrocketing demand for a natural remedy for prostate disorders found in the bark of an African tree will likely lead to the tree's extinction in the wild in 5 to 10 years, scientists announced. The slow-growing evergreen *Prunus africana*, which is found only in Africa, is being felled at unprecedented rates to fuel a US $220 million annual market in *Prunus* remedies in Europe and the United States, according to ICRAF and Future Harvest. Prostate disorders, which affect most men over the age of 50, often make men more susceptible to prostate cancer.

"Men around the world are about to lose a leading natural remedy for prostate disorders," said Tony Simons, principal scientist at ICRAF. "Unless we can stop the savaging of this tree, it will be gone forever. Attempts to manage the tree sustainably in the wild seem doomed. The best way to ensure that this endangered tree survives is to domesticate it and encourage farmers to plant it on their plots."

ICRAF scientists are working to establish a sustainable source of *Prunus africana* through conservation of wild tree populations and by helping poor farmers to grow the tree and increase their incomes through sustainable bark harvesting. The bark will then be collectively marketed to natural remedy producers in Europe and the United States under a "green" label—one that ensures the bark has been collected without endangering *Prunus* trees. In a breakthrough that could be applied to other wild species of endangered trees, the scientists have adapted a technology mainly used for fruit trees to shorten the time it takes the tree to produce seed—from 15 to 3 years.

The bark of *Prunus* can be harvested sustainably by removing the lower part of two opposite quarters or panels of the trunk, then allowing eight years for regeneration before harvesting the other two quarters. But, increasingly, "bark poachers" are stripping trees entirely of their bark, which results in the death of the tree. Others are cutting down the entire tree. When harvested sustainably, each batch of bark amounts to 55 kilograms (120 pounds), which currently returns US $10 to 20 to the harvester. When completely stripped, a large tree may yield up to a metric ton of bark worth US $200—one year's income for many of Africa's rural poor. The tree is listed in the Convention on the International Trade in Endangered Species (CITES) under Appendix II where trade is allowed, but a CITES license is required.

The extract or powder from *Prunus africana* bark, widely packaged under the name "pygeum," is sold in drugstores and health food outlets throughout Europe and increasingly in North America. In 1994, Germans spent US $150 million on prostate remedies. The demand for the bark is expected to double or triple in the coming decades as populations in industrialized countries age and as these populations seek natural, and what many believe are more healthy, cures. Already, the annual harvest for the bark is 3,500 metric tons, which mainly comes from Cameroon (2,000 tons) and Madagascar (600 tons).

"This tree has an enormous cash value," said Simons. "We are seeking to understand and forecast the demand that is now creating a dire situation so that we can preserve a species, produce a sustainable supply of bark, and generate income for poor farmers in developing countries. Just as the panda bear serves as a symbol for protecting endangered animals, *Prunus africana* is the icon for saving trees threatened by extinction."

The tree grows at altitudes between 900 and 3,400 meters (between 3,000 and 11,000 feet) in mountainous areas that are difficult to police. It takes 15 to 20 years for the tree to produce seed and between 12 and 15 years for the tree to produce bark that contains the prostate remedy's active ingredient. The long period needed to produce seed and the fact that seed remains viable for only a few months both hinder the international exchange of seed and the nursery production of seedlings.

"It is quite a tremendous leap to domesticate a wild tree so that it can be grown in farmers' fields"

ICRAF has created a program to produce shortcuts for propagating the tree. One method is through the use of marcotting, a technique used for already domesticated fruit trees growing in mainly temperate climates. Marcotting involves inducing roots to grow on a small branch while it is still attached to the larger tree. The approach has been proven to reduce the time it takes to produce *Prunus africana* seed to only three years, and it can be done in a small-farm environment. Marcotting has only been used to domesticate one other wild tree—the African pear tree *Dacryodes edulis*. ICRAF is also conducting on-farm research to determine how best to encourage farmers to adopt the tree on their farms as a cash crop and for their own use.

"It is quite a tremendous leap to domesticate a wild tree so that it can be grown in farmers' fields," said Simons. "To put it in perspective, it was only 50 years ago that tree breeding began on commercial tree species. Amazingly, only 40 out of 60,000 wild tree species have been domesticated so far."

Working with Kenya's Forest Research Institute and Cameroon's Institut de Recherche Agronomique et Développement, ICRAF participates in collection missions to gather seedlings from the remaining wild stands of trees. These accessions are being grown in large conservation areas in Cameroon and Kenya. Once the best samples have been identified, the stands will serve as selection gardens and seed orchards to create better varieties for domestication. The center is also using molecular analysis to pinpoint exactly where important genetic diversity that should be preserved is located.

"The ICRAF program underscores how important agricultural research is for saving biodiversity," said Barbara Rose, executive director of Future Harvest. "Agricultural research can be applied not only to improving the lot of poor farmers in developing countries, but also to conserving nature."

ICRAF's work on *Prunus africana* is funded by the Rome-based International Fund for Agricultural Development (IFAD) and the U.K. Department for International Development (DFID).

www.futureharvest.org

FUTURE℠ HARVEST

ANNOUNCEMENTS

Syria Formalizes Membership

Syria, a long-time member of the CGIAR, and host of the Aleppo-based International Center for Agricultural Research in the Dry Areas (ICARDA) has decided to formalize its association with the CGIAR. On May 2, the Syrian Cabinet chaired by H.E. Prime Minister Dr. Muhammad Mostafa Mero, approved a special bill regarding the CGIAR. In the spirit of Syria's strengthened role in the CGIAR, H.E. Mr. Issam EL-Zaim, Minister of State for Planning Affairs, participated in MTM2000.

New Appointment for ICRAF Board Member

ICRAF Board Member Daniel Murdiyarso has been appointed Deputy Minister of the Indonesian State Ministry of Environment by H.E. President Abdurrachman Wahid of the Republic of Indonesia. A professor in Atmospheric Science at the Bogor Agricultural University, Dr. Murdiyarso has been head of the Global Change Impacts Centre for Southeast Asia since 1995.

Third Meeting of the CGIAR Program for Central Asia and the Caucasus

H. E. Sarder Babaev, Minister of Agriculture and Water Management of Turkmenistan, formally inaugurated the third meeting of the CGIAR program for Central Asia and the Caucasus (CAC) in Ashgabat May 30 - June 1. Leaders of national agricultural research programs in eight CAC countries joined CGIAR Centers and donors to assess the progress of the CGIAR's CAC program since its launch in 1998. The CGIAR's region-wide effort is focused on helping restore agricultural growth while preserving and protecting natural and genetic resources in the newly independent states. Strengthened partnerships with national agricultural research systems have been key to the program's success.

Gardening for Food Around the World,

April 28 - June 11, 2000 at Walt Disney's Epcot® Center, in Lake Buena Vista, Florida, USA.

During the Epcot International Flower and Garden Festival, young scientists from CGIAR Centers around the world highlighted global efforts to alleviate world hunger in farm scenes from Africa, Asia, Latin America, and the USA. Integrated into these "living displays" are improved crops that feed millions, and farming methods that have sustained civilizations for thousands of years. The crops of these regions — cassava, millet, rice — will be seen throughout West Future World in Epcot, and scientists will be on hand to give demonstrations and explain the important connection between agricultural research and eradicating hunger.

http://disney.go.com/disneyworld/seetheworld/themeparks/garden_index.html

Plants for the Millennium

beginning Fall 2000, U.S. Botanic Garden, Washington, DC

The U.S. Botanic Garden will open its doors after a multimillion dollar renovation with new spectacular exhibits. One of the exciting houses of the conservatory will feature discoveries about plants. Plants for the Millennium will include improved crops developed through international agricultural research that offer solutions to global agricultural problems. The exhibit will feature the "hairy potato" that was developed by scientists at the International Potato Center in Peru and which traps insects in the sticky hairs of its leaves, thus reducing the need for pesticides. Also exhibited will be a new, higher yielding "super rice" developed by scientists at the International Rice Research Institute (IRRI) in the Philippines, and a new wheat developed through international research at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico.

http://www.nationalgarden.org

ICLARM's New Headquarters

The Malaysian Department of Fisheries formally handed over the buildings of the former Fisheries Institute Training College at Batu Maung, Penang, Malaysia, to the International Center for Living Aquatic Resources Management (ICLARM) at a ceremony on April 10.

On behalf of the Department of Fisheries, Deputy Director General Hisham Ahmad presented a Malaysian pewter kris to ICLARM Director General, Dr. Meryl Williams. The kris, traditionally presented by the sultans as a symbol of delegation of power, is a token to symbolize the delegation of responsibility for the site to ICLARM.

Dr. Williams said "ICLARM is grateful to the Malaysian Government for donating the use of this facility, which since its inception has been in the service of fisheries development. We are pleased that ICLARM can carry on the tradition of serving fishers from this site."

Since 1977, when ICLARM was established, the headquarters has been in Manila. ICLARM long outgrew its accommodation and the search for a suitable site took six years. The refurbishment of the former college premises at Batu Maung will be completed by mid-2001. ICLARM headquarters staff moved from Manila to Penang in mid-February.

www.cgiar.org/iclarm

U.S. Under Secretary Lauds ICRISAT's "Top-Notch Research Agenda"

"I'm very pleased to see the linkages that you at ICRISAT are developing between science, health, nutrition, and trade." said Dr. I. Miley Gonzalez, Under Secretary of Agriculture for Research, Education, and Economics, U.S. Department of Agriculture, who visited the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) this spring.

At the Institute's Patancheru campus, Dr. Gonzalez, a member of the team accompanying President Clinton on his visit to South Asia, received a comprehensive overview of ICRISAT's research "Science with a Human Face" by the Institute's Director General, Dr. William D. Dar.

www.icrisat.org/text/news/gonzalez.htm

IRRI Wins Awards

The U.S.-based Agricultural Communicators in Education (ACE) will in July present three Gold Awards and one Bronze Award to the International Rice Research Institute's Communication and Publications Services for the 1998-99 Annual Report, *Rice, Hunger or Hope?* and for the black-and-white photo series *Eight in 6 Billion.* IRRI's 2000 calendar/diary won a Bronze Award. The so-called Emmys of agricultural publishing recognize outstanding skills in writing, photography, and graphic design.

IRRI Director General Honored by Purdue University

Ronald P. Cantrell, Director General of the International Rice Research Institute was honored in April by Purdue University as Distinguished Agricultural Alumnus, citing his outstanding accomplishments and significant contributions to his profession and to society. Dr. Cantrell had received his Master of Science and PhD in plant breeding and genetics from Purdue. "The key challenge facing scientists and researchers is that of mobilizing global science and technology to address the problems facing agricultural productivity and environmental degradation in the developing world," said Dr. Cantrell, "In part this will require money, but what we really need is science and innovation."

www.cgiar.org/irri

THE CGIAR

CGIAR Chairman
Ismail Serageldin

CGIAR Executive Secretary
Alexander von der Osten

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CGIAR CENTERS

- **International Center for Tropical Agriculture (CIAT)**
  Cali, Colombia
  Phone: (57-2) 4450000
  Web: http://www.ciat.cgiar.org

- **Center for International Forestry Research (CIFOR)**
  Bogor, Indonesia
  Phone: (62-251) 622 622 (operator)
  Web: http://www.cgiar.org/cifor

- **International Center for the Improvement of Maize and Wheat (CIMMYT)**
  Mexico City, Mexico
  Phone: (52) 5804 2004
  Web: http://www.cimmyt.mx

- **International Potato Center (CIP)**
  Lima, Peru
  Phone: (51-1) 349-6017
  Web: http://www.cipotato.cgiar.org

- **International Center for Agricultural Research In the Dry Areas (ICARDA)**
  Aleppo, Syrian Arab Republic
  Phone: (963-21) 2213433
  Web: http://www.cgiar.org/icarda

- **International Center for Living Aquatic Resources Management (ICLARM)**
  Penang, Malaysia
  Phone: (604) 641-4623
  Web: http://www.cgiar.org/iclarm

- **International Centre for Research in Agroforestry (ICRAF)**
  Nairobi, Kenya
  Phone: (254-2) 521450
  Web: http://www.cgiar.org/icraf

- **International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)**
  Patancheru, Andhra Pradesh, India
  Phone: (91-40) 3296161
  Web: http://www.cgiar.org/icrisat

- **International Food Policy Research Institute (IFPRI)**
  Washington, DC, United States
  Phone: (1-202) 862-5600
  Web: http://www.cgiar.org/ifpri

- **International Institute of Tropical Agriculture (IITA)**
  Ibadan, Nigeria
  Phone: (234-2) 2412626
  Web: http://www.cgiar.org/iita

- **International Livestock Research Institute (ILRI)**
  Nairobi, Kenya
  Phone: (254-2) 630743
  Web: http://www.cgiar.org/ilri

- **International Plant Genetic Resources Institute (IPGRI)**
  Rome, Italy
  Phone: (39-06) 518921
  Web: http://www.cgiar.org/ipgri

- **International Rice Research Institute (IRRI)**
  Los Baños, Philippines
  Phone: (63-2) 8450563
  Web: http://www.cgiar.org/irri

- **International Service for National Agricultural Research (ISNAR)**
  The Hague, The Netherlands
  Phone: (31-70) 3496100
  Web: http://www.cgiar.org/isnar

- **International Water Management Institute (IWMI)**
  Colombo, Sri Lanka
  Phone: (94-1) 867404
  Web: http://www.cgiar.org/iwmi

- **West Africa Rice Development Association (WARDA)**
  Bouaké, Côte d'Ivoire
  Phone: (225) 634514
  Web: http://www.cgiar.org/warda