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Growing Affinities

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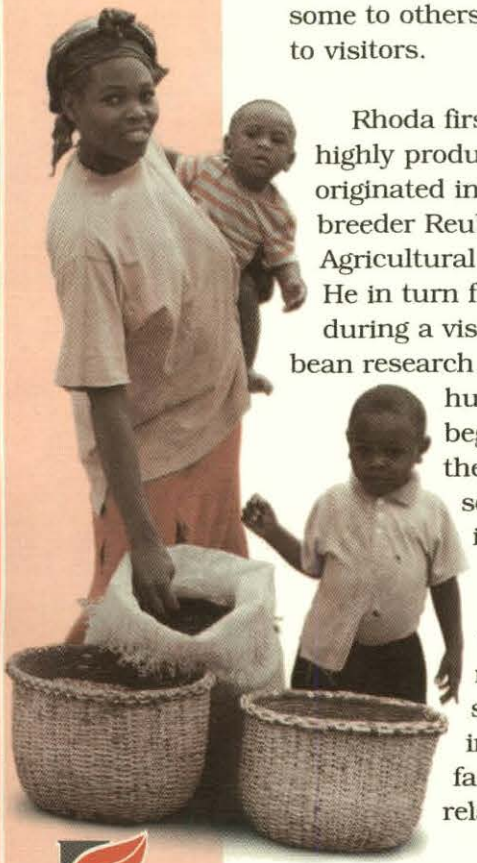
A Bulletin About Cooperation in Agricultural Research

Gathering Strength in Africa

Partnerships to build sustainable rural livelihoods

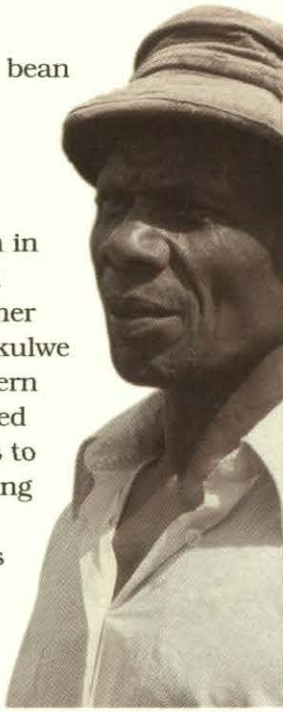
Rhoda Inganza's bean seed business and Alex Bukenya's harvest of new knowledge about the soil show how effective networking can advance the fight against hunger, poverty, and environmental destruction.

Rhoda, who lives in Emuhaya District of Kenya's Western Region, produces seed of new climbing bean varieties and sells it to her neighbors. "Only yesterday I offered seed to four farmers, who gave some to others," she explained recently to visitors.



Rhoda first obtained seed of the highly productive beans, which originated in Mexico, from plant breeder Reuben Otsyula of the Kenya Agricultural Research Institute (KARI). He in turn first saw them in Rwanda during a visit sponsored by a regional bean research network. Rhoda and hundreds of other farmers began experimenting with the new varieties, along with soil improvement methods, in 1995 under a project of the African Highlands Initiative (AHI). Through the project a multidisciplinary team of scientists from various institutions worked with farmers to solve disease and related soil problems that had devastated the region's bean production.

Alex is part of another network that is confronting widespread soil degradation in Africa. Over the last several years, he and about 120 other farmer-researchers in the Ikulwe area of Uganda's southeastern Iganga District have designed and conducted experiments to test new practices for growing various legumes as biofertilizers and soil covers in association with crops such as banana, coffee, cassava, sweet potato, maize, and bean.



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Centro Internacional de Agricultura Tropical (CIAT)
International Center for Tropical Agriculture

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The International Center for Tropical Agriculture (CIAT) publishes this bulletin once a year for people who share our commitment to innovative cooperation in agricultural research for development.

CIAT is one of 16 food and environmental research organizations known as the Future Harvest centers. They conduct research in partnership with farmers, scientists, and policy makers around the world to help reduce poverty and increase food security while protecting natural resources. The centers' work is funded mainly by the 58 countries, private foundations, and international organizations that make up the Consultative Group on International Agricultural Research (CGIAR).

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Solutions That Cross Frontiers

Focus

An African Homecoming

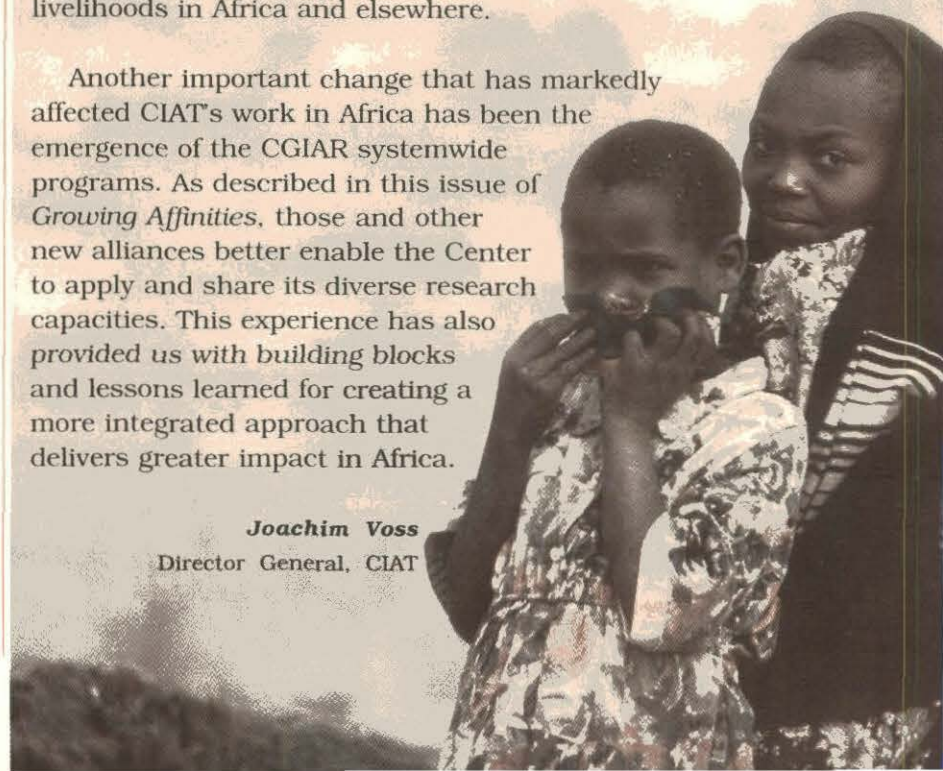
During my first period of service with CIAT, I was privileged to have a part in the development of high-yielding climbing beans for Rwanda. As an anthropologist I was responsible for on-farm testing of this new technology in the context of the country's complex farming systems and traditions.

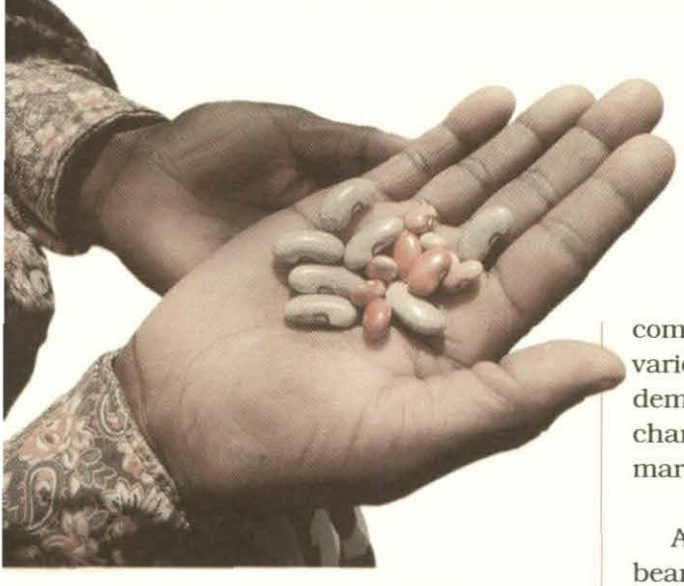
In my new role as CIAT's director general, it has been gratifying for me to return to the region and see how climbing beans have flourished, benefiting thousands of rural people in Rwanda and other African countries. I have also been pleased to take part in recent discussions with our African colleagues on how to make international agricultural research more efficient in the region.

CIAT's work in Africa has changed a lot since I was first there in the 1980s. In those days the Center's substantial commitment to the region was based on its global mandate within the CGIAR for research on beans in particular but also cassava and tropical forages. During recent years, though, the Center has broadened its research portfolio in pursuit of better strategies for combating poverty and natural resource degradation. While remaining committed to crop research, as we described recently to a group of African research directors visiting our headquarters, CIAT has also built strong expertise in integrated pest and soil management, agroenterprise development, land use, and farmer participatory methods. Innovation in these areas, we believe, is vital for achieving sustainable rural livelihoods in Africa and elsewhere.

Another important change that has markedly affected CIAT's work in Africa has been the emergence of the CGIAR systemwide programs. As described in this issue of *Growing Affinities*, those and other new alliances better enable the Center to apply and share its diverse research capacities. This experience has also provided us with building blocks and lessons learned for creating a more integrated approach that delivers greater impact in Africa.

Joachim Voss
Director General, CIAT





What's in a Name?

Crop improvement that counts

New crop varieties matter a lot to African farmers. This is evident from many field surveys and impact studies. And one senses it in the local names farmers have given to improved bean varieties, such as Lepalalimbi (a traditional dance), Mkombozi ("savior"), and Roba ("pouring rain"). CIAT maintains a steadfast commitment to crop improvement for Africa and seeks to strengthen this work through innovative partnerships with national and international research organizations.

Common bean

A striking example is the decentralization of bean improvement through the Eastern and Central Africa Bean Research Network (ECABREN). For this purpose experienced African scientists have recently been chosen for two regional plant breeding posts. One of these scientists, as described on page 7, has a joint appointment with the University of Nairobi and ECABREN.

A key challenge for regional bean breeding is to help farmers become more competitive by shaping new varieties more closely to demand, based on systematic characterization of bean markets.

Among the first improved beans to win Africa's allegiance were climbing types, introduced in Rwanda during the mid-1980s. By the mid-1990s, despite genocide and civil war, about half of Rwandan farmers were growing the new climbing varieties, with economic gains estimated at US$15 million annually. High-yielding and disease resistant, these beans offered the ideal food solution for a land-scarce nation.

Through the regional bean networks, climbing bean varieties have since spread to a half dozen other African countries. A study done in central Kenya during 1998 found that 1,700 farmers were already growing these varieties and selling seed to neighbors at premium prices, repeating earlier successes in western Kenya.

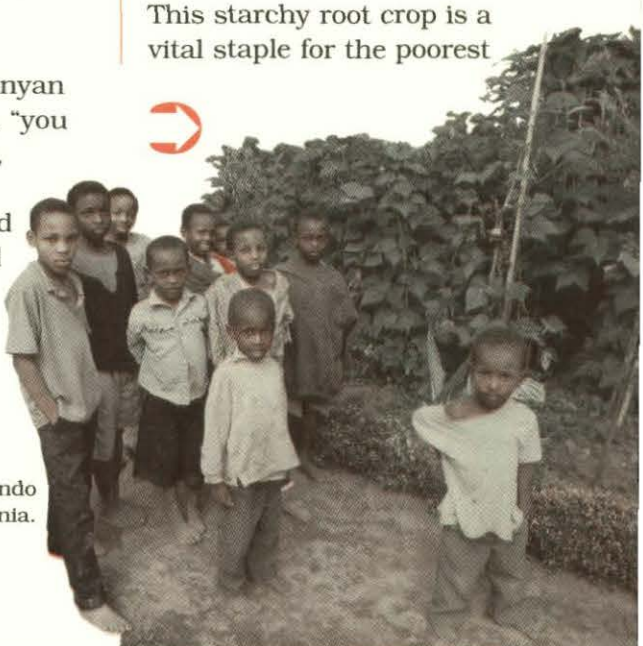
"In the past," says Kenyan farmer Opiayo Morrison, "you couldn't get enough food, especially beans. Now I can easily sell beans and buy school uniforms and notebooks for my two children." By 1999 the new varieties had generated economic benefits for Kenya estimated at $5.4 million.

Elsewhere in the region new bush-type bean varieties are also strengthening food security and enabling farmers to produce a surplus for the market. For example, a survey in Mbale District of southeastern Uganda showed that two new varieties had significantly increased bean supplies during periods of food shortage, raised farmers' cash income, and reduced the amount of time women have to spend gathering wild vegetables to stretch dwindling food supplies.

According to CIAT sociologist Soniia David, 88 percent of the farmers adopting the variety Namungawo ("sweet tasting") reported that their income had risen, because the new variety gave higher yields and fetched a higher price in the market.

Cassava

This starchy root crop is a vital staple for the poorest



Climbing beans at Kimundo village, Tanzania.

people in Africa's most marginal environments. To help bolster the crop's food security role, researchers help farmers increase and stabilize cassava yields by developing genetic resistance to major pests and diseases as well as tolerance to drought.

CIAT contributes to this work in three ways: (1) by injecting Latin American "blood" into Africa's cassava gene pool, (2) by using molecular markers to breed for resistance to cassava mosaic disease (CMD), the most damaging disease of the crop, and (3) by sharing practical insights from studies of cassava genetic diversity in Africa and tropical America. In this work Center scientists collaborate with national partners as well as the International Institute of Tropical Agriculture (IITA), which has an African regional mandate for cassava research.

According to Martin Fregene, CIAT's cassava geneticist, scientists at both centers have long appreciated the importance of introducing valuable genetic resources from cassava's tropical American center of origin into Africa. To accomplish this task, they carried out a long-term project in the 1990s, with support from the International Fund for Agricultural Development (IFAD). The project was particularly successful in bringing new drought tolerant materials to Africa, thanks to invaluable aid from Brazilian cassava scientists working in the country's semiarid Northeast.

Cassava geneticist Yvonne Lokko (right) of Ghana's Biotechnology and Nuclear Agriculture Research Institute (BNARI) with research assistant Janet Gutiérrez in CIAT's molecular markers lab.

That work was greatly complicated, though, by the susceptibility of tropical American germplasm to CMD. To overcome this obstacle, cassava scientists at CIAT are using molecular markers to breed CMD resistance into tropical American cassava, using a new source of resistance provided by IITA. In addition to speeding the transfer of genetic resources to Africa, this work is creating a first line of genetic defense against CMD in Latin America. The biotype of the virus's whitefly vector has already been identified in the region, and it is just a matter of time before the virus itself shows up as well.

CIAT and IITA scientists are now making a rigorous comparison of conventional approaches with marker-assisted selection for rapidly introducing various sources of CMD resistance into African cassava gene pools. "By enabling breeders to eliminate inferior genotypes at an earlier stage," says Fregene, "the new approach should reduce the number of genotypes established in the field by 50 percent, cutting the costs of breeding in half."

Tropical forages

Recent experience in Latin America and Southeast Asia has shown that tropical forages are an effective technology for intensifying small-scale livestock production, while at the same time protecting soil and other natural resources. Their appeal to farmers lies in their high productivity and nutritional value and adaptation to stresses, such as drought and acid soils.

So that African farmers, too, can gain better access to this technology, the International Livestock Research Institute (ILRI) and CIAT are planning to expand their collaborative forage research in the region. In June of this year, the two centers will hold a workshop involving national research organizations, NGOs, and the private sector to seek better ways of placing new forages in the hands of African farmers.

Giving Birth to Business

Small farmer seed systems for Africa

"One seed one shilling, one kilo one dollar." The Kenyan farmers who repeat this simple climbing bean slogan clearly understand the compelling economics of improved seed. What they need now is a reliable seed source for wider dissemination of new varieties. With beans and some other small-farmer crops, large private companies are seldom an option, because they generally have little to gain from marketing seed of numerous varieties in small amounts.

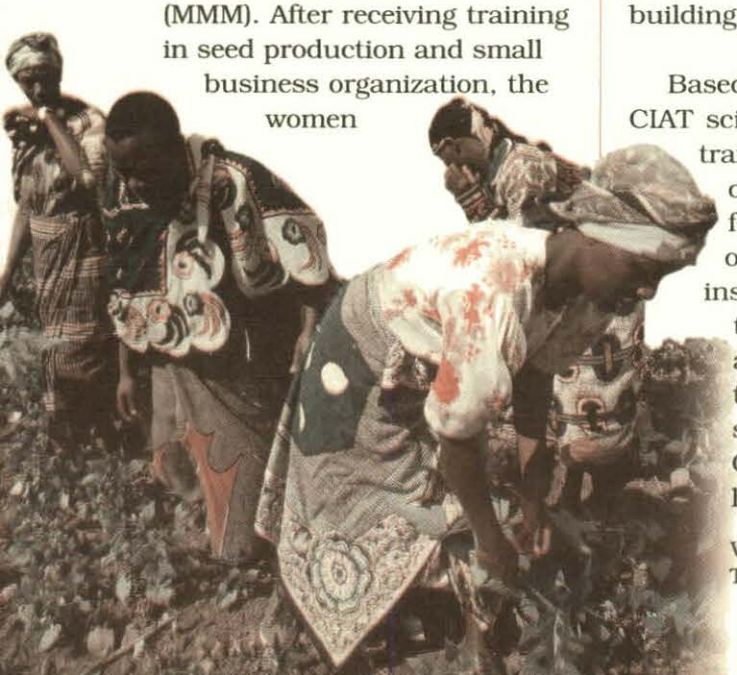
Farmer-entrepreneurs

In search of alternatives, CIAT scientists have found that small farmers can successfully establish small businesses for producing and selling high-quality seed. In southeastern Uganda's Mbale District, for example, Center staff have supported women's seed groups in cooperation with the NGO Missions Moving Mountains (MMM). After receiving training in seed production and small business organization, the women began selling small seed packages through health clinics, shops, and NGOs.

One thriving seed cooperative in the district, though established by women, is now attracting male members as well—a sure sign that it is making money. But, points out MMM director Harriet Namfuna, "the women are enthused, not just about the material improvements in their lives, but about the skills they're acquiring as farmer-entrepreneurs."

The same spirit has caught hold in Patanumbe, northern Tanzania, where bean seed producers are applying their new skills to other crops. After receiving business training from a Dutch NGO, one group negotiated a contract to produce flowers for Tanzania Multiflowers. "Not long ago these farmers could barely feed their families," remarks CIAT pest management specialist Kwasi Ampofo. "Now they're building a business."

Based on such experiences, CIAT scientists have developed training materials and offer advisory services for the growing number of government institutions and NGOs that are interested in alternative approaches to building seed systems. For example, Center staff recently helped plan workshops organized by the CGIAR's African Highlands Initiative (AHI) to launch decentralized seed systems in Madagascar, Tanzania, and Uganda.



Women seed producers in Tanzania.

Agroenterprise development

Farmer seed producers, once they have acquired new business skills, are ideal candidates for leading rural communities toward a more competitive, market-oriented agriculture. To help tap this potential, CIAT's Agroenterprise Development Project is strengthening its work in Africa, drawing on many years of experience working with Latin American farmers to add value to traditional crops, analyze market opportunities, and diversify into new enterprises.

For this purpose the Center has entered into an alliance with FoodNet, a regional network coordinated by the International Institute of Tropical Agriculture (IITA) that forms part of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). In cooperation with FoodNet, CIAT staff are assisting with courses on rural agroenterprise development in eastern Africa. They are also helping another IITA-coordinated initiative, the Southern Africa Root Crops Research Network (SARRNET), identify new markets for cassava, with a view to attracting private sector investment in research on cassava product development.

Continued from page 1

Gathering Strength in Africa

Partnerships to build sustainable rural livelihoods

In collaboration with CIAT and several NGOs, the country's National Agricultural Research Organisation (NARO) has packaged and widely distributed the new options as a series of "minikits" containing seeds of the legumes and decision guides on how to use them.

African ownership

Rhoda's climbing beans would never have traveled their circuitous route from Latin America to her small plot in western Kenya were it not for the Eastern and Central Africa Bean Research Network (ECABREN). This is one of several voluntary associations of national R&D programs formed in the 1980s to disseminate improved bean germplasm from tropical America in the midaltitude and highland areas of central, eastern, and southern Africa.

As national bean programs gathered strength in the 1990s, the regional networks provided an effective and democratic means for organizing collaborative research, explains Roger Kirkby, who coordinates CIAT's work for Africa. Through the networks bean researchers in 16 countries identify common problems, set research priorities, share responsibilities, exchange results, build local problem-solving capacity, and make funds available for projects.

"To strengthen African ownership of the networks, they have been incorporated into larger, African-run regional frameworks," Kirkby adds. Thus, ECABREN is now a subregional component of the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), while the Southern Africa Bean Research Network (SABRN) operates under the Southern African Centre for Cooperation in Agricultural Research (SACCAR). The two have also forged a new partnership with CIAT—called the Pan-African Bean Research Alliance (PABRA)—which fosters collaboration and ensures transparent use of funds from the Canadian, Swiss, and US governments in regional research.

CIAT pest management specialist Kwasi Ampofo (left) with farmer John Ringo at Sanya Juu village in northern Tanzania.

Since the start of the bean networks, national programs have released more than 150 new bean varieties (tripling their rate of variety release since 1985). The cumulative economic impact of these varieties is estimated at US$150 million. Given the success of this work, it is not surprising that CIAT's cooperative research in Africa has come to be practically synonymous with beans.

On this strong foundation, though, the Center has built an integrated R&D program that starts with crop improvement, but goes beyond, in helping rural communities build sustainable livelihoods. Today, fully half of CIAT's scientific work for

Africa deals with crop and soil management, integrated pest management, small-scale seed enterprises, and farmer participatory research.

Widening the web

New networks and alliances, including changes in PABRA, have been vital for bringing about this integrated R&D program.

One exciting development is a new regional role for African universities. The University of Nairobi, for example, has recently entered into an agreement with CIAT for jointly appointing Professor Paul Kimani to carry out bean breeding in support of national programs throughout eastern Africa. Rather than spread his time among disparate research projects, each with a different funding source, Kimani can now focus his efforts, with secure funding, on a few strategic initiatives, such as the development of beans with multiple stress resistance. He is also keen on creating new markets for beans by promoting value-added products, such as bean-based samosas and frozen snap beans.

Under another recent arrangement with PABRA, Ethiopia's Alamaya University is contributing to regional research on participatory approaches to plant breeding and natural resource management. Likewise, Kenya's Egerton University supports regional training, while Rwanda's National University, Tanzania's Sokoine University, and Uganda's Makerere University take part in various aspects of bean technology development.

The bean networks are broadening participation in other ways as well. For example, "in Ethiopia and Madagascar," says ECABREN coordinator Mukishi Pyndji, "we plan to include representatives of private sector bean exporters in our steering committee, which normally includes only researchers." This is part of ECABREN's new strategy for gearing bean variety development in the region more closely to the demands of national and international markets, he explains.

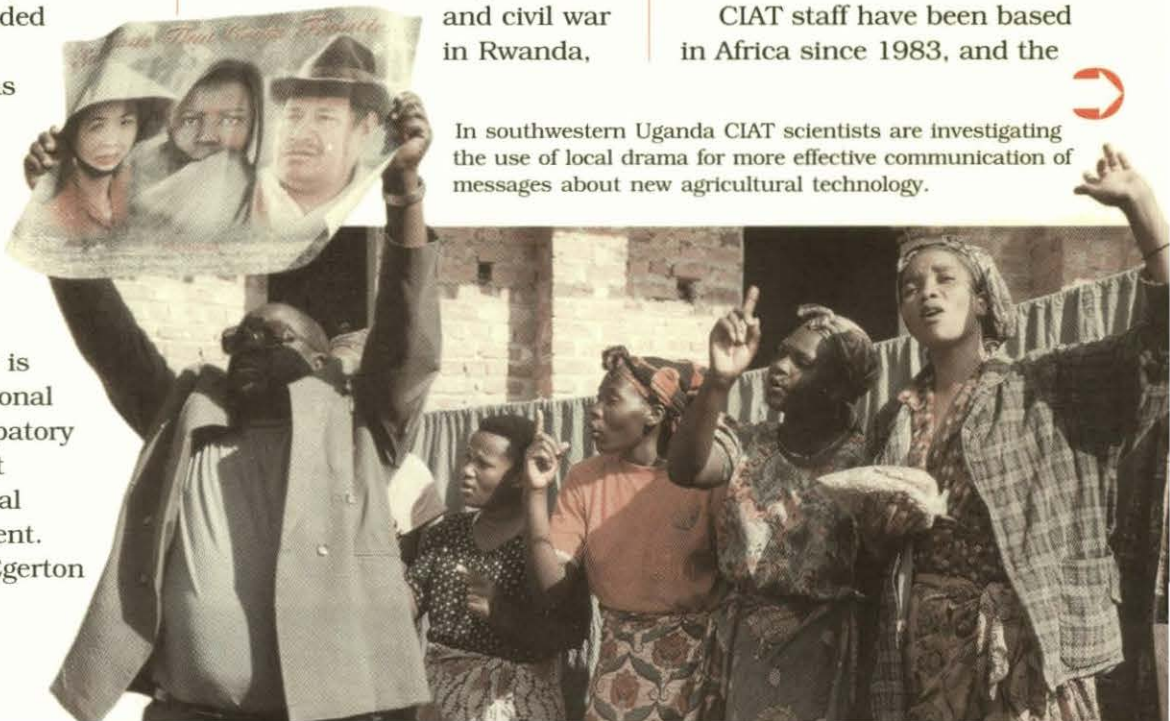
The steering committee will also soon include NGO representatives. In recent years these organizations have played a vital role in translating regional research results into local development outcomes. After the genocide and civil war in Rwanda, for example, World Vision International was instrumental in rebuilding seed systems in collaboration with CIAT and other Future Harvest centers. World Vision has also contributed actively to the dissemination of new bean varieties in the country, together with improved soil management practices. According to a 1999 World Vision report on that work, the "technologies now in place have the potential, if widely applied, to achieve food security."

Stronger private sector and NGO participation in ECABREN, says Pyndji will "make our R&D efforts less costly and more effective."

South-South collaboration

How does an international center headquartered in Latin America help build sustainable rural livelihoods on another continent? Obviously, by working there, particularly on problems and issues that concern both regions.

CIAT staff have been based in Africa since 1983, and the



In southwestern Uganda CIAT scientists are investigating the use of local drama for more effective communication of messages about new agricultural technology.

Center now has a sizable contingent of scientists there, operating mainly from Uganda and Tanzania but also Ethiopia, Kenya, and Malawi. In addition to conducting strategic research for the region with a wide array of partners, these scientists serve as a bridge by which innovations from tropical America can be introduced and adapted in Africa and feedback from this experience can enrich R&D in Latin America and Asia.

Several CGIAR systemwide programs have given a boost to this South-South collaboration by better enabling CIAT to integrate its diverse research program with that of national institutions and other Future Harvest centers. One such alliance is AHI, coordinated by the International Centre for Research in Agroforestry (ICRAF).

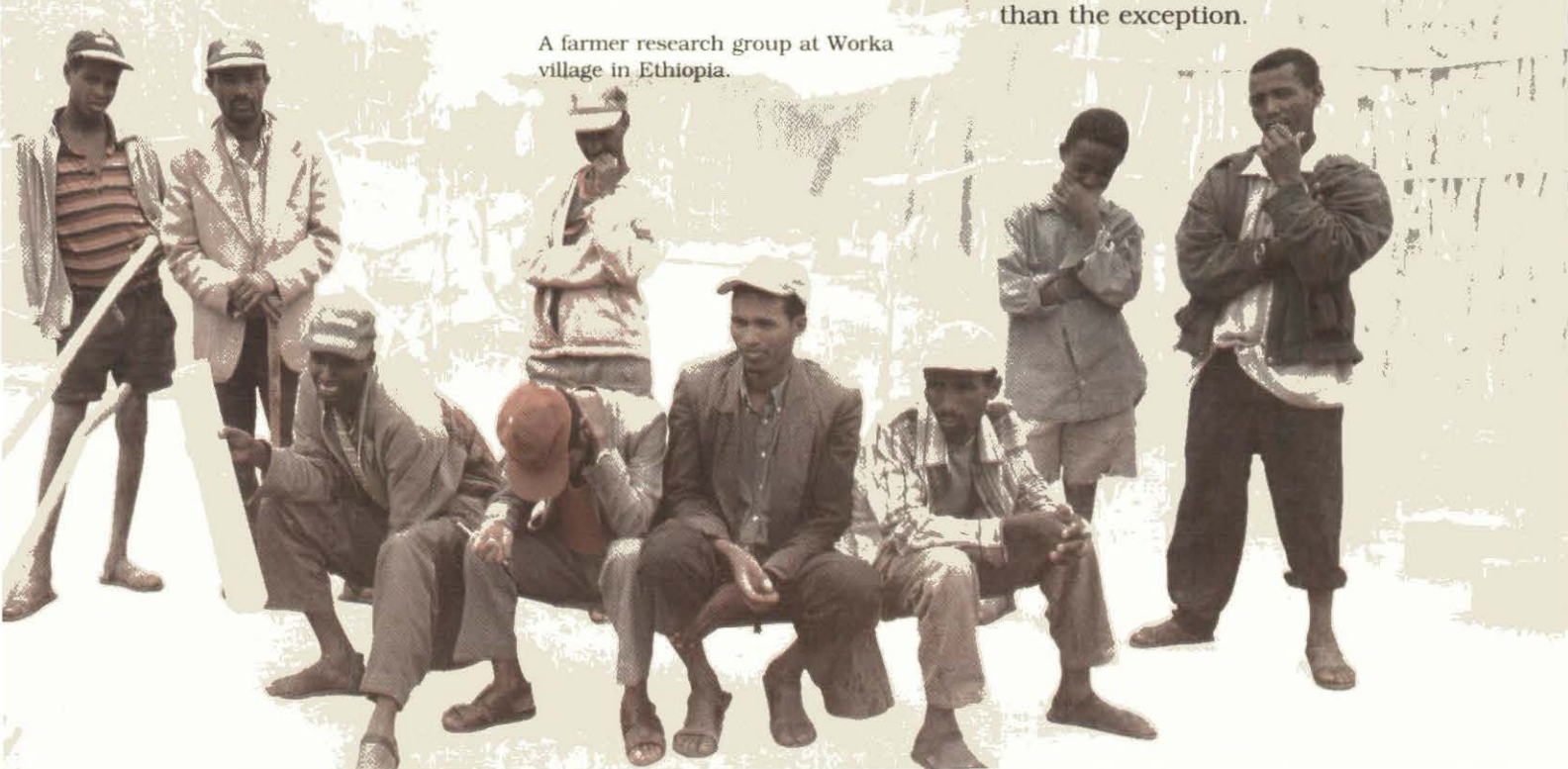
Under AHI, CIAT scientists and Kenyan colleagues have developed an integrated approach for coping with severe outbreaks of bean root rots and stem maggots, associated with declining soil fertility. A key component of the new technology consists of disease-resistant climbing beans, whose high productivity gives Rhoda Inganza and other Kenyan farmers an incentive to apply new practices for improving soil fertility. AHI has also enabled Rhoda to learn seed production methods, teach these to others, and apply them to crops other than beans. "If we had focused just on soil improvement," says AHI site coordinator John Ojiem, "it would have taken a longer time to achieve results."

CIAT researchers have embarked on another initiative to reverse soil degradation in eastern Africa in collaboration with the Kenya-based Tropical Soil Biology and Fertility Programme (TSBF). Under this project, which forms part of the CGIAR Systemwide Soil, Water, and Nutrient Management (SWNM) Program, farmers are designing, testing, and adapting a wide range of practices, such as the use of legume cover crops and rock phosphate.

One partner in the project is the Africa 2000 Network, an initiative of the United Nations Environment Programme (UNEP). Linked to grassroots community organizations in 13 African countries, Africa 2000 could help turn Alex Bukenya's personal quest for new knowledge about the soil into a regional phenomenon.

With support from another of the CGIAR systemwide programs—Participatory Research and Gender Analysis (PRGA), which is now actively engaged in Africa under CIAT coordination—national research organizations should be able to work more effectively with farmer research groups. So, the new roles Alex Bukenya and Rhoda Inganza have assumed in problem-solving research could become the norm rather than the exception.

A farmer research group at Worka village in Ethiopia.



No Monopoly on Good Ideas

Farmers and researchers find ways to manage pests and soils

The roadside stand just before Sanya Juu village, near Mount Kilimanjaro, is a welcome sight. But there are no cold drinks or salty snacks on sale here. Instead, you get a free education in controlling bean foliage beetles, which pose a major threat to local food security. On display in clear plastic containers with blue lids are ash, kerosene, and soap solutions, along with fermented cow urine as well as neem seed oil and powder. The containers are clearly labeled and have detailed instructions in Swahili.

Amanda Koola, the extension officer in this Tanzanian village, presides over the display, accompanied by members of the Mshikamano ("solidarity") Farmers' Group. "If you want to know everything we know about pest management, you'll have to stay around for at least a month," says farmer John Ringo.

Speeding the flow of knowledge

How did these farmers acquire their new knowledge and confidence? It all started in 1996, when severe outbreaks of the bean foliage beetle prompted farmers to join forces with researchers from the nearby Selian Agricultural Research Institute and CIAT staff based at the institute. At Koola's suggestion, the farmers had already formed a group, with 22 members. "Working together," she says, "speeds the flow of knowledge."

When the foliage beetle problem arose, the Mshikamano Group began meeting more often than before to accelerate the fusion of local knowledge with formal science. Together, farmers and scientists planned a series of experiments in integrated pest management (IPM) and afterwards met to monitor the field trials and analyze research results. One option they tested is the use of pesticides made from locally available materials to reduce pest populations. Another is rotation of beans with maize or sunflower (crops the beetle does not attack) to break the pest's life cycle.

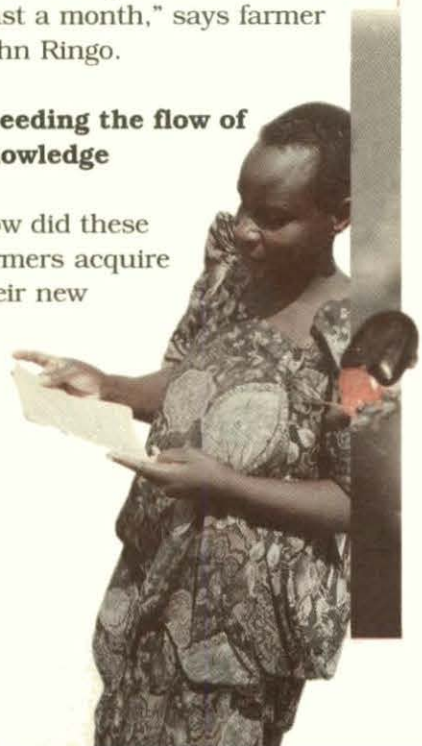
"Perhaps the most important thing the Mshikamano Group learned is that scientists don't have a monopoly on good ideas," notes CIAT pest management specialist Kwasi Ampofo. "Farmers can analyze problems and find solutions, too, and now the group is applying this capacity to other crops, such as tomato and onion."

Beans as an entry point

So, another key lesson from the IPM work in Tanzania is that research on an important crop like beans can provide the entry point for dealing with challenges, like pest management, that often reach across staple foods and cash commodities.

Often, the need to go beyond any single crop stems from the nature of the crop constraint. Whiteflies, for example, affect many crops—including beans and cassava as well as tomato and other vegetables—throughout the tropics. In order to make headway against such a pest, one must work in an integrated fashion on a global scale with numerous research partners (see box on page 10).

Other problems, such as bean root rots and stem maggots, arise not just because bean plants are susceptible to them but because



declining soil fertility makes the plants more susceptible. In these cases farmers and researchers cannot rely on bean improvement alone but must seek solutions in the soil.

Solutions in the soil

Toward this end CIAT staff have undertaken farmer participatory research in Uganda, aimed at forming a whole new repertoire of practices for enabling African farmers to improve soil fertility. These scientists have also recently joined in a much broader effort to reverse soil degradation in Africa, as described on page 8. Funded by the German government, this project is a central component of the CGIAR Systemwide Soil, Water, and Nutrient Management (SWNM) Program.

Following a participatory diagnosis, farmers taking part in the project designed 11 experiments for testing such practices as deep tillage, mulching, composting, fallowing, and the use of grass strips to control erosion. "These technologies are exactly in line with the objectives of our project," says Drake Ssenyange of Africa 2000, a key collaborator in the work.

To build a solid framework for further initiatives of this type, CIAT and the Tropical Soil Biology and Fertility Programme (TSBF), another partner in the SWNM-supported project, are planning to form a strategic research alliance, which would probably also involve the International Centre for Research in Agroforestry (ICRAF). A proposal spelling out the exact terms of the alliance has been submitted to the boards of trustees of the three organizations.

"This alliance," says CIAT director general Joachim Voss, "will better enable all of us to promote ecologically sound farming in Africa through research on soil biology."

A united front against the whitefly

In combating major pests that cut across crops and regions, it is especially vital that researchers form a united front. And that is precisely what they have done in the CIAT-coordinated Whitefly IPM Project, which forms part of the CGIAR's Systemwide IPM Program. According to the project's coordinator, entomologist Pamela Anderson, it has demonstrated resoundingly how the combined research capacity of international centers and their national partners can provide "a strong foundation for moving forward."

In Africa the global initiative operates through two subprojects. One confronts whitefly-transmitted viruses affecting tomatoes and other vegetable crops in mixed cropping systems of eastern Africa, while the other deals with such viruses attacking cassava and sweet potato in nine countries across the continent. The urgent task of the first subproject is to head off a crisis scenario of the sort that has already unfolded in Mexico, Central America, and the Caribbean, resulting in dramatic reduction of farmers' incomes from export-oriented vegetable production. Scientists are working toward this end, says Anderson, by using common research methodologies and sharing experience across regions.

In the work on cassava, scientists from the International Institute of Tropical Agriculture (IITA) and three national research programs have succeeded in mitigating a major food disaster caused by the whitefly-transmitted cassava mosaic disease (CMD). The epidemic resulted in severe food shortages in northern and eastern Uganda, leading to human starvation in some places, and has progressed southwards, threatening western Kenya and northern Tanzania.

By precisely mapping the spread of the CMD epidemic, scientists were able to identify a moving disease "front." Then, with assistance from the US Agency for International Development (USAID), they rapidly multiplied CMD-resistant varieties and disseminated them among farmers ahead of the front to guarantee food supplies in the epidemic zones.

According to a USAID impact report, its investment in this emergency initiative yielded "an enormous internal rate of return of about 167 percent." The report also acknowledges that effective disaster relief would have been impossible without painstaking scientific work, drawing on years of accumulated research capacity in national and international organizations.

Take a Shortcut to the Farm

Participatory research gains ground in Africa

"In the past, the extension worker would come and tell us to use a new product, even though we'd never tried it before. Now, we get together with the scientists and tell them about our experience in overcoming problems."

Boobo Toweri, the Ugandan farmer who shared this observation, has gained a voice in his village's agricultural development. Fortunately, his is not a lone voice but part of a rising chorus of change that can be heard from one end of Africa to the other.

Real-life conditions

CIAT scientists in Africa have helped bring about this change by making farmer participation a prominent feature in every facet of their work. They have done so, explains agronomist Roger Kirkby, who coordinates Center activities in the region, because "agricultural scientists need better ways of exposing preliminary findings to real-life conditions, and participatory research gives them a shortcut to the farm."

The fruits of genuine partnerships between researchers and farmers are evident in CIAT's work on integrated pest management, bean improvement, and soil fertility management.

Work on this last topic received a boost in the 1990s from Participatory Research for Improved Agroecosystem Management (PRIAM). Originally funded by the Rockefeller Foundation, the project has since been incorporated into the Eastern and Central Africa Bean Research Network (ECABREN). Working with national research teams, project staff helped establish farmer research groups in four African countries.

Pioneering efforts

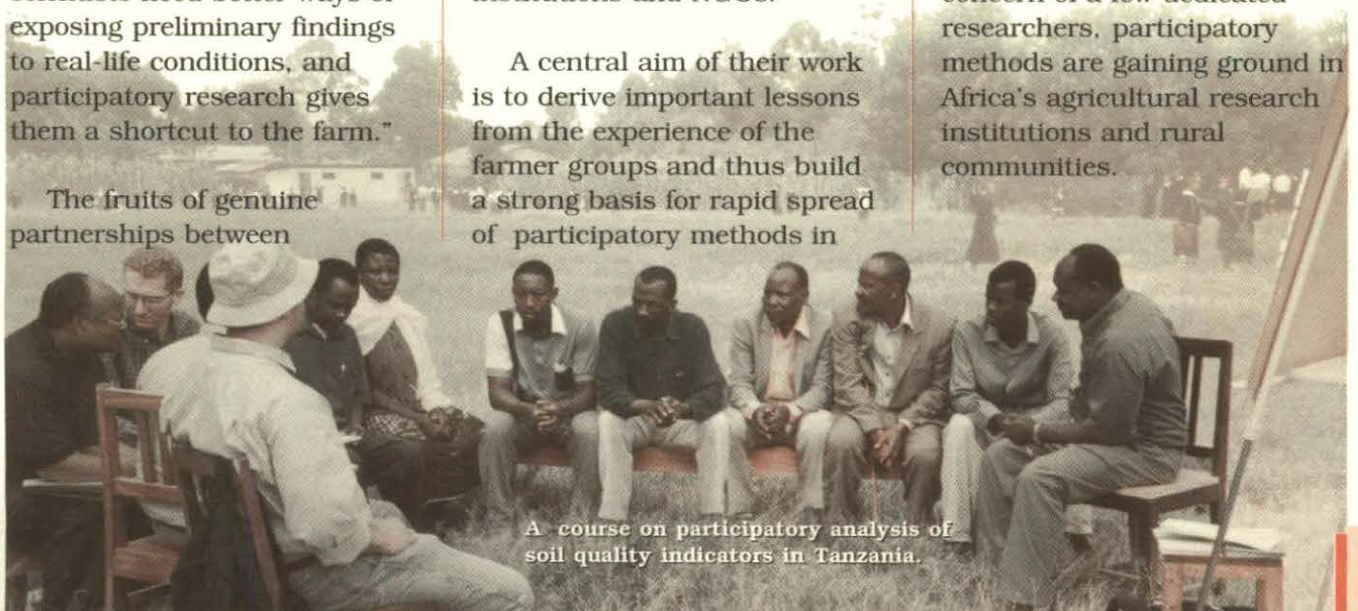
The pioneering efforts of PRIAM have continued under a new alliance of the CGIAR Participatory Research and Gender Analysis (PRGA) Program and African Highlands Initiative (AHI), which work with national institutions and NGOs.

A central aim of their work is to derive important lessons from the experience of the farmer groups and thus build a strong basis for rapid spread of participatory methods in Africa. According to Pascal Sanginga, PRGA/AHI rural sociologist, "farmer groups generate a kind of synergy that helps them serve as a nucleus for technology dissemination."

Through a series of recent studies, some funded through PRGA's German-supported small-grants program, he and others are finding out how and why this happens. One lesson from research in Ethiopia is the importance of committed group leadership. Scientists have also observed in Uganda how mixed groups foster solidarity among women.

A key challenge now is to secure stronger institutional commitment to participatory research by generating solid evidence of impact. One British-funded PRGA project will contribute to this end by assessing the effectiveness of participatory plant breeding with national programs.

No longer the marginal concern of a few dedicated researchers, participatory methods are gaining ground in Africa's agricultural research institutions and rural communities.



A course on participatory analysis of soil quality indicators in Tanzania.

Notes of Interest

Information tool kit

A powerful information tool kit, featuring a CD-ROM called Rural Sustainability Indicators for Central America, was released in December at the World Bank in Washington, D.C. The first product of its kind for any region of the world, the information package gives decision makers an unprecedented ability to analyze problems in development and the environment, determine their causes, and weigh the consequences of different courses of action.

Published in a bilingual English/Spanish version, the product resulted from a 2-year project carried out jointly by CIAT, the World Bank, and the United Nations Environment Programme (UNEP). It was developed through a collaborative process, with 6 regional and 50 national institutions. Financial support came from the governments of Denmark, Norway, and Sweden.

The indicators tool kit includes 11 indices that help analyze development and environmental problems, 68 "core" indicators for determining the causes and effects of these problems, and 114 "complementary" indicators that help apply the analysis to decision making.

A blow against biopiracy

In December 2000, CIAT became the first agricultural research center in the developing world to formally request reexamination of a US patent on a crop variety. Issued on 13 April 1999 to Larry Proctor of Pod-ner Seeds, the patent gives him exclusive rights to market a particular yellow bean of Mexican origin. Pod-ner has already taken legal action against a Mexican-American seed company to bar it from importing seed of such beans into the USA.

In its reexamination request, CIAT maintains that the patent is an obvious case of biopiracy, making a mockery of the US patent system. The Center notes that the yellow-seeded variety (dubbed Enola, after Proctor's wife's middle name) was brought into the country without an export permit from the Mexican government in clear violation of the International Convention on Biological Diversity.

CIAT further points to ample evidence that the yellow beans have long been produced, improved, and documented in Mexico, Peru, and other countries. Thus, Proctor's claim to legal protection of the bean itself and of its particular shade of yellow is without basis. They simply were not his to patent.

The US Patent Office has recently agreed to consider the reexamination request. And CIAT now awaits the outcome, joined by colleagues in the USA and elsewhere, who are outraged by such a blatant violation of the rights of developing country farmers and plant breeders.

Impetus in the Amazon

Massive deforestation in the Amazon basin poses a dire threat to this vast repository of biodiversity, while also increasing the risk of global warming. Future Harvest centers working in the region are convinced, though, that well-organized research can greatly reduce the threat by developing socially and environmentally sound land use systems.

To give new impetus to this work, scientists from four centers—CIAT, the Center for International Forestry Research (CIFOR), International Centre for Research in Agroforestry (ICRAF), and International Plant Genetic Resources Institute (IPGRI)—met recently in Colombia to share research experience and plan joint initiatives.