



## HARNESSING THE TREND: A MILLENNIUM STRATEGY FOR AFRICA

### CIP'S SUB-SAHARAN AFRICA RESEARCH PROGRAM MOVED QUICKLY IN 2003

TO RESPOND TO NEW INVESTMENTS BY PUBLIC SECTOR DONORS AND PRIVATE PHILANTHROPIES THAT TARGET FARMING COMMUNITIES IN BOTH RURAL AND URBAN AREAS

CIP scientists will use the new resources—totaling more than US\$3 million over a three-year period (2004-2006)—to bring improved technologies to bear on the problem of food security, and on growing concerns about the health of agricultural workers.

After nearly two years of consolidation, the Center is rapidly rebuilding its research teams in Kenya and Uganda, and strengthening ties to national programs through the PRAPACE and ASARECA networks. According to Charles Crissman, CIP's Regional Leader for Sub-Saharan Africa, CIP now has the staff needed to meet local seed requirements and to integrate important breeding and crop management projects with new initiatives in health and urban agriculture (see *Partners Move to Bring Urban Agriculture Above Ground in Sub-Saharan Africa*, page 50).

"We're a small team with a big job," he says. "With the resources we're now receiving—and with proper targeting—CIP technology can harness many of the trends that are moving in our direction." Among those, Crissman contends, are high growth rates for Africa's potato and sweetpotato crops (13 and 6 percent respectively according to FAO), numbers that far exceed population growth.

Support for CIP's Africa projects is provided through unrestricted contributions made by CGIAR donor agencies (see page 89 for a list of CIP's core donors), along with restricted funding from the Canadian International Development Agency (CIDA), the German Ministry on Economic Cooperation and Development (BMZ), the United

Kingdom's Department for International Development (DFID), and the United States Agency for International Development (USAID).

#### TARGETING OPPORTUNITY

CIP's recent visioning exercise helped to pinpoint Africa's US\$50 billion domestic food market as a priority for on-going research and development, Crissman notes. Although Africa exports about US\$7 billion dollars annually of commodities like cocoa and coffee, this export market is unlikely to offer significant opportunities for smallholder potato or sweetpotato farmers over the next five or ten years.

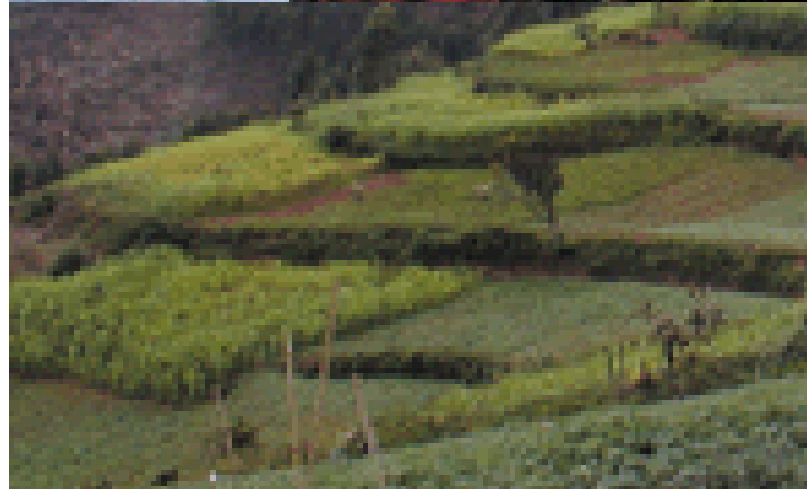
"Africa's potato and sweetpotato producers can gain from exports," Crissman says, "but should focus on regional trade, and then only after serving the domestic market. Supplying local consumers will be a big enough challenge as population grows and as Africa urbanizes. Producers should focus on adding value in their home markets first and think about exports later."

Traditionally, most of Africa's potatoes and sweetpotatoes are eaten close to the locations where they are produced. The dynamics of the market, however, are creating a shift in the trend. As more and more people move to cities, potatoes and sweetpotatoes are being transported to urban areas, where they fetch

higher prices. Moreover, as urban dwellers become more familiar with the crops thanks to street vendors, people are gradually modifying their diets.

"The African urban market for starchy staples is expanding and is potentially huge," Crissman says. "African farmers should go for the logical market, and researchers need to help them get there."

To that end, CIP plans to apply strategies developed through its experience in Latin America, in particular, a model provided by the



*Papa Andina* project to help national partners create linkages between farmers, markets, and local manufacturers. *Papa Andina* works in the Andes to shift research and development efforts away from a strict production orientation, helping farmers to express their needs, access information, and develop business opportunities.

#### **BREAKING OUT OF SUBSISTENCE**

“We’re not trying to push something new,” Crissman says. “Smallholder potato and

sweetpotato farmers are already marketing their crops to urban consumers. The question that researchers need to answer is: How can we simultaneously help farmers increase their profits, avoid oversupplying the market, and prevent environmental degradation?”

Crissman believes that the answer lies in giving farmers greater control over their crops. “Right now, farmers have little shock absorption capacity. When something goes wrong, it does so in a big way.” CIP’s primary task, Crissman adds, is to deliver technology that will help African farmers manage risk and improve their return on investment.

Sweetpotato provides an excellent starting point. Although the crop’s biological yield potential exceeds 100 tons per hectare, African farmers usually produce just a fraction of that amount, and much of what that they do harvest is lost to weevils.

“We haven’t found a single source of genetic resistance to weevils and we’ve tried almost every imaginable management technique to control them,” Crissman says. “Nothing seems to work.”

Accordingly, CIP—as part of its visioning exercise—has assigned a high priority to the production of a genetically engineered sweetpotato that can resist infestation



CIP SCIENTISTS ARE MAKING STRIDES TO GREEN AFRICAN FIELDS AND PROVIDE FARMERS WITH URGENTLY NEEDED SOLUTIONS TO THEIR FOOD AND INCOME PROBLEMS.

(see *Advanced Technologies Readied for Potato and Sweetpotato Producers*, page 21). Center scientists are convinced that the technology is safe and effective. "Transformation, in this case, is a last resort, but one that will save lives," Crissman contends.

The project will be conducted under the auspices of the BioScience Facility, a US\$21 million initiative financed by the Canadian International Development Agency. The new facility, Crissman notes, will be the first to specifically support the *New Partnership for Africa's Development* (NEPAD).

#### **FOCUS ON LATE BLIGHT**

"We'll also be giving a higher priority to potato late blight disease, but in this case we won't have to wait three or four years, or resort to hi-tech genetics to move ahead," Crissman says.

According to CIP plant breeder Juan Landeo, national programs have already released some 60 potato varieties derived from CIP's late blight resistant breeding lines, and more releases are expected. CIP materials now cover about 10 percent of the potato acreage in countries such as Ethiopia, Kenya, and Uganda. Landeo, who produced some of Latin America's most popular potato varieties, anticipates that coverage

will increase considerably following the introduction of a new series of breeding lines derived from traditional Andean varieties.


The new lines, which are scheduled to reach Africa some time in 2004, were bred from the species *Solanum andigena*, a traditional type of potato that is widely grown in the high Andes, but is largely unknown outside the region.

CIP pathologist Greg Forbes, who heads up the Center's late blight program, notes that the *andigena* potatoes, which are excellent for processing and carry superior disease resistance, are being introduced at a time of growing concern about late blight.

"In recent years, the spread of more aggressive strains of the fungus-like organism that causes late blight has led to dramatic crop losses and sparked a rise in the use of toxic chemicals," he says.

Sub-Saharan Africa, Forbes believes, is the only region where older forms of the pathogen still predominate. "It's almost inevitable that new disease strains will migrate to Africa's potato fields, and, when they do, the new *andigena* lines should be ready to help farmers to cope."

The new *andigena* potatoes will undergo extensive testing before reaching farmers, probably sometime in 2006.

A group of African farmers are standing in a field, looking at a row of harvested potatoes. The farmers are dressed in casual clothing, including a red shirt, a floral shirt, and a white shirt. The field is filled with rows of potatoes, and there are trees in the background.

AFRICAN FARMING SYSTEMS STAND TO BENEFIT FROM THE APPLICATION OF TRADEOFF MODELS, WHICH HAVE ALREADY PROVEN THEIR USEFULNESS IN ECUADOR.

## TRADEOFF ANALYSIS RESEARCH MOVES TO KENYA AND PERU

Following the successful use of Tradeoff Analysis modeling in Ecuador's pesticide-intensive potato cropping systems (see CIP annual reports 2001 and 2002), CIP plans to intensify this work under the umbrella of its new Agriculture and Health Division. To heighten their contribution to the UN Millennium Goals in health and sustainable development, Center scientists will apply the Tradeoff model to diverse research topics, beginning with studies of soil fertility and carbon sequestration in central and western Kenya, respectively.

The project will help researchers to appraise the vulnerability of local production systems and to assess alternatives. Economist Charles Crissman, who headed up the Center's Tradeoff work in Ecuador and now serves as CIP's Regional Representative for Sub-Saharan Africa, describes the technique as "a modeling exercise wrapped up in a participatory research process."

The project—which is financed by the United States Agency for International Development (USAID) and the Netherlands Directorate-General for International Cooperation (DGIS)—will be conducted in cooperation with researchers from the International Livestock Research Institute, the Kenya Agricultural Research Institute (KARI), Montana State University, Wageningen University, and the World Agroforestry Center. A similar Tradeoff Analysis study designed to examine the relationship between nutrition, infectious diseases, and land degradation will begin in Peru in 2004.



## **VITAA WINS CGIAR PARTNERSHIP AWARD**

Researchers and farmers from seven countries representing the Vitamin A for Africa (VITAA) partnership were awarded the Consultative Group on International Agricultural Research's (CGIAR) Partnership Award. The award, which carries a US\$10,000 stipend, was presented by Ian Johnson, Vice President of the World Bank and Chairman of the CGIAR at the Group's annual general meeting in Nairobi. It recognizes the VITAA partners' efforts to combat vitamin A deficiency, one of Africa's most serious public health problems.

Vitamin A deficiency—a leading cause of early childhood death and a major risk factor for pregnant and lactating women—does not kill directly, but rather weakens the immune system, leaving its victims susceptible to deadly diseases such as measles, malaria, and diarrhea.

"VITAA offers a common-sense solution to this major public health problem," says Project Coordinator Regina Kapinga, "by providing community groups with new orange-fleshed sweetpotatoes that have high levels of pro-vitamin A." Kapinga, a Tanzanian agronomist, is based at CIP's field office in Kampala, Uganda.

"Sweetpotato is a women's crop," Kapinga goes on to explain, "and women farmers have been fast to take up the new sweetpotatoes because they recognize the benefits for themselves and their children."

VITAA is supported by the German Ministry on Economic Cooperation and Development (BMZ), the United Kingdom's Department for International Development (DFID), the OPEC Fund for International Development, the Micronutrient Initiative, the United States Agency for International Development (USAID), the Senior Family Fund (USA), and important CGIAR donors who generously provide unrestricted funding for CIP research.