

# Highlights

## CIAT in Africa

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The Highlights series summarises research results and policy implications from the work of CIAT and its partners in Africa

### Bean research for development strategy in central and eastern Africa

Before 1984, there were few active regional bean improvement programmes in eastern and central Africa, despite the importance of dry beans in this region. Most activities were country-specific, with limited access to regional and global bean genetic resources and expertise. This situation was improved with the start of collaborative bean breeding work between CIAT scientists and scientists from National Agricultural Research Systems (NARS) in the region and the commencement of cross border programme activities, not only within Africa but also within the broader bean research community. This led to the establishment of the first two sub-regional networks: the Eastern Africa Bean Research Network (EABRN) and the Great Lakes Regional Network (RESAPAC) in the mid 1980's. Regional sharing of materials and experiences was further strengthened by merging the EABRN and RESAPAC in 1996 under one network, called ECABREN (the Eastern and Central Africa Bean Research Network).

The network's objective is to provide bean growers with high yielding, well-adapted bean cultivars with tolerance to major pests and diseases, and with culinary qualities and seed characteristics preferred by consumers and the processing industry. In addition, the strategy aims to enhance efficiency in development and dissemination of improved cultivars and to strengthen the breeding capability of national programmes for the benefit of people in the region.

#### *A strategic approach*

ECABREN, like its sister network in Southern Africa (SABRN), developed a market-led strategy in 2000. This strategy recognised that bean farmers in the region are not necessarily operating at subsistence level, but are producing for local and regional markets. Indeed several countries are exporting specific bean types (such as snap bean and large white beans) to international markets. Because farmers grow beans in response to market demands and consumption preferences, production priorities differ among countries. The overall strategy of ECABREN is to develop breeding programmes for seven of the most important regional market classes, using participatory approaches. The lead NARS were selected on the basis of importance of a particular market class in their country and on comparative advantage (Figure 1). The main priorities for the breeding programme are (1) yield improvement, (2) sources of resistance to major pests and diseases, (3) assessment of advanced lines for productivity; and (4) cooking and nutritional quality.

#### *Sharing responsibilities*

The new decentralised breeding strategy is based on partnership and on shared responsibilities among NARS scientists, farmers, CIAT scientists, NGOs, CBOs,



Country programmes such as that of Uganda's National Agricultural Research Organisation contribute to both national and regional demand for new bean varieties.

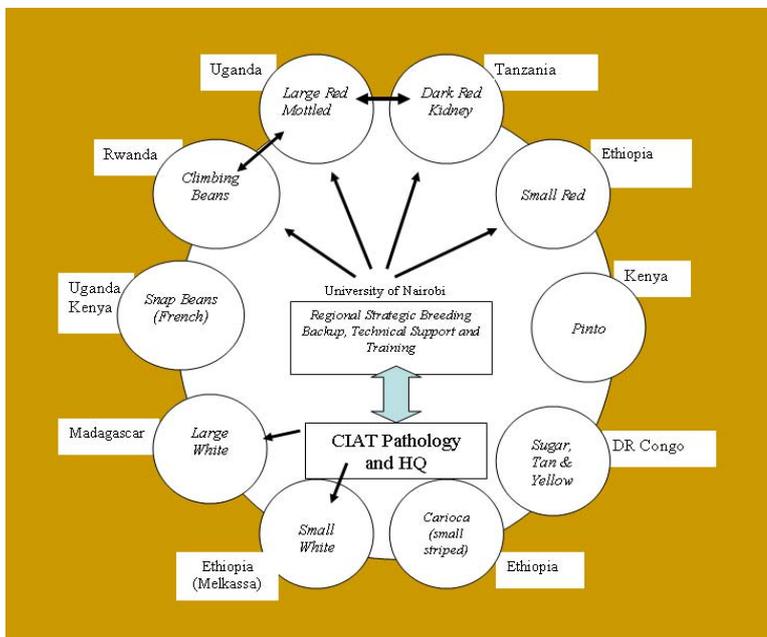


Figure 1: Regional task sharing among ECABREN member countries

seed producers, processors, and exporters. In this scheme, NARS scientists develop breeding schemes, assemble germplasm, select and establish nurseries, release improved lines, produce breeder seed and maintain varieties. They are also responsible for developing linkages with seed producers and for dissemination activities.

Under an innovative agreement between the University of Nairobi, ECABREN and CIAT, regional breeders complement national programmes by maintaining back-up programmes to generate new bean populations. They also provide training in breeding skills and overall regional coordination and technical backstopping. CIAT scientists have provided genetic resources, training in advanced bean breeding techniques and participatory monitoring and evaluation schemes; and supervision of graduate students from the region.

### Recent achievements

The seven NARS-led regional breeding programmes are now operational. Regional nurseries are established and more than 10,000 germplasm accessions have been exchanged in the region since 2000. In 2003, regional evaluation of selected advanced lines began in several countries. A breeders' meeting identified regional lines within each market class which performed well in two or more countries. Lines with specific adaptation to each country were also identified. These lines have entered the final phases of evaluation on-farm and on-station before formal release. Crossing activity has increased considerably, with several

national programmes generating new breeding populations. Training programmes in marker-assisted selection and participatory plant breeding have been conducted and seven NARS breeders have been enrolled in degree programmes.

### Bean marketing

Several market studies were carried out covering local, regional and international bean markets in Kenya, Rwanda, Tanzania and Uganda. Domestic markets, according to these studies, require

a low cost bean, with price (and not quality) being increasingly important to low income consumers. In addition 'fresh shelled' field beans are a growing high value market segment in Uganda. Kenya is still a growing importer of dry beans: its production is static while consumption is increasing. It has a competitive advantage in addressing certain value-added market segments (such as the European market for green beans). Tanzania is the region's lowest cost producer and is well placed to increase bean exports to Kenya. Uganda also has low production costs and can increase exports, particularly to western Kenya and Rwanda. Rwanda is a significant importer of dry beans from DRC.

### Priorities and future directions

The current market-led strategy is set to continue. In 2004, ECABREN stakeholders agreed to focus on four research products: beans for food and health; snap bean for domestic and export markets; navy bean/canning beans for domestic and export markets; and large white and sugar beans for domestic, regional and international markets. ECABREN's future strategic goals include strengthening linkages with exporters and processors; developing new options for dealing with threats such as root rot, bean stem maggot and new variants of disease pathogens. Other areas of focus include: climbing beans for marginal environments, drought tolerant bean lines, selection of bean cultivars for intercrop systems, marker-assisted selection, breeding for nutritional quality, broadening the genetic base of breeding populations and niche market products such as runner beans.



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