



News about bean research and development in countries in sub-Saharan Africa

May 2005  
Issue 1

**In this issue:**

A Network to Nourish the Future  
page 1

Addressing the Impact of Bean Root Rot Disease—Partnership in Practice  
page 2

Training Events and Workshops  
page 4

News  
page 4

Calendar for 2005/2006  
page 4

## A Network to Nourish the Future

The common bean (*Phaseolus vulgaris* L) is a popular legume crop grown mainly by women farmers throughout Africa. Over 4 million hectares of beans are grown annually, providing dietary protein for over 100 million people in rural and urban communities across the continent. Per capita bean consumption in Eastern Africa (50–60kg per person per year) is the highest in the world. Nutritionally, beans are rich in protein (comprising about 22% protein) and are a good source of iron and zinc, playing an important role in child and mental development. Beans also represent a significant and growing source of income for rural households, with sales value now exceeding US\$450 million annually.



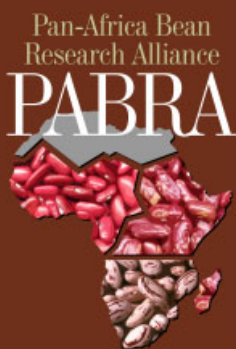
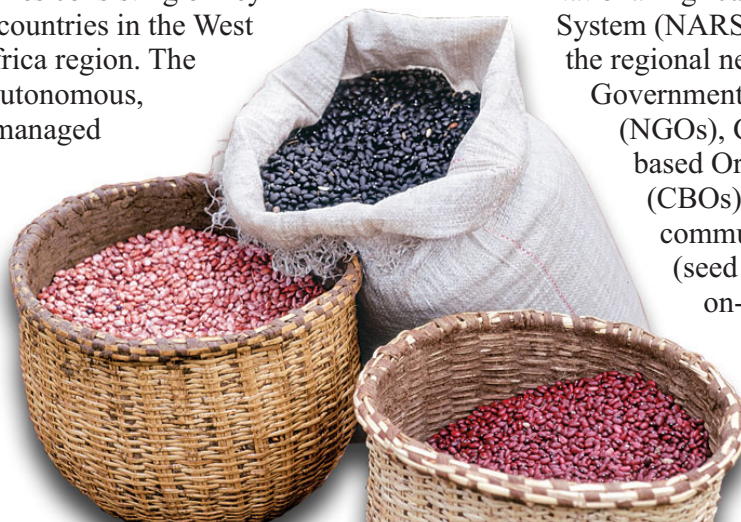
*With significant adoption of bean varieties and pest management practices in Africa, farmers, mostly women, are reporting higher yields, fewer crop losses (to diseases and low soil fertility), improved family nutrition and more cash income.*

### A Strong Alliance

The Pan-Africa Bean Research Alliance (PABRA), founded in 1996, is a consortium of African-owned regional bean networks consisting of National Agricultural Research Systems (NARS) in a total of 18 countries in sub-Saharan Africa, an international research organisation [Centro Internacional de Agricultura Tropical (CIAT)] and a number of donor organisations. The regional bean networks are the Eastern and Central Africa Bean Research Network (ECABREN) and the Southern Africa Bean Research Network (SABRN). Efforts are underway to integrate a fourth (but as yet unconsolidated) group of countries consisting of key bean growing countries in the West and Central Africa region. The networks are autonomous, they are each managed by regionally-recruited coordinators and respond to their respective sub-regional organisation (SRO)—the

Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), the Southern Africa Development Community's Food, Agriculture and Natural Resources Unit (SADC/FANR) and (for the new group), the West and Central African Council for Agricultural Research and Development (CORAF/WECARD), which provide policy, guidance and oversight.

PABRA's research and development (R&D) programme is implemented by PABRA partners (ECABREN, SABRN & CIAT), National Agricultural Research System (NARS) members of the regional networks, Non-Governmental Organisations (NGOs), Community-based Organisations (CBOs), selected rural communities, farmers (seed producers and on-farm researchers), traders and in a few situations, the commer-



cial private sector—with the support of the SROs. CIAT's focus is on strategic research (the production of international public goods that address key cross-situational problems) on mutually agreed topics where it has a comparative advantage.



*Research activities are designed from a common pan-Africa framework developed from partners' shared vision and objectives during an annual meeting involving representatives from the networks, SROs and donor organisations. Pictured above are members of the PABRA Steering Committee who met in Mozambique in May 2004.*

PABRA's programme is composed of a range of projects and research activities designed from a common pan-Africa framework developed by partners and based on shared vision and objectives. The focus is on improving the bean crop and increasing its productivity for the benefit of the urban and rural poor. The alliance's ultimate goal is to enhance food security, income generation, health of resource-poor communities. The major beneficiaries of PABRA efforts are women, who play the main roles in the crop's production and post-harvest handling in Africa.

## Partnership

PABRA facilitates collaborative research within and between the networks by providing a forum for building and maintaining linkages to multiple partners (researchers, NGOs, CBOs and farmers). These collaborative linkages are maintained and strengthened through joint priority-setting, planning, agreed division of responsibilities, joint implementation of activities and joint reporting. In this way, research technologies are shared among countries, and significantly contribute to scaling up and wider dissemination efforts. Collaboration is based on national interest and on comparative advantage. Information exchange and training, key features in institutional capacity building, have evolved to become more focused and more specialised. With developed capacities, networks carry out their own training. PABRA partners have pio-

neered and refined many now-commonplace innovations in implementing bean R&D programmes in Africa such as use of decentralised seed systems, integrated soil nutrient management (ISNM) and pest and disease management (IPDM), farmer empowerment, and capacity building of NARES.

Principles of partnership (collaborative advantage, mutual trust, and the giving and sharing of credit) are an integral part of the culture of PABRA. Another strong feature of PABRA is its success in developing R&D programmes using collective planning, joint monitoring and evaluation and reporting mechanisms involving all PABRA partners, including donor organisations. PABRA also provides a transparency and accountability system, including an annual planning and reporting steering committee meeting with the networks, SROs and donor representatives. Collaboration within well-structured regional networks (and access to strategic outputs from international research organisations such as CIAT) can lead to achievement of economies of scale; provide complementarities and cost-effective solutions to constraints (i.e., financial, human resource capacity) often experienced by the public research sector in Africa. PABRA, in collaboration with the SROs, provides such an environment.

## Progress

Over the last decade, research by PABRA partners has yielded much fruit. With market liberalisation placing purchased fertilisers



*Preferences for new bean varieties are usually tested locally for visual characteristics of the seed such as size and colour (as pictured here in Malawi), as well as other criteria such as taste and time taken for cooking.*

## Addressing the Impact of Bean Root Rot Disease—Partnership in Practice

In the early 1990s, bean root rot disease was responsible for a dramatic drop in bean yields in Rwanda, western Kenya (and later in southwest Uganda), resulting in food shortages and price increases beyond the reach of many resource-poor households. Following intensive research efforts, root-rot resistant bush and climbing beans were identified in 1993 in Rwanda. This disease resistant germplasm was introduced in western Kenya and south-western Uganda through PABRA's multi-partnership approach involving researchers, extension, NGOs and farmers organisations. This approach was successful—despite the fact that the disease-resistant varieties were not of the preferred market class (having been introduced in an attempt to address the acute situation), there was rapid and widespread diffusion of the new varieties. This was conducted largely by local market traders, informal seed groups and farmers, and resulted in resumption of bean production in the areas affected. An impact assessment study carried out in 2001–2002 in western Kenya showed that between 35–80% of the households surveyed adopted at least 1 of the 3 root rot resistant varieties. This resulted in improved household food security for the vast majority of farmers who had been surveyed.



*By 2004, 245 releases of new varieties were made across 18 countries, some with completely new attributes including resistance to new or persistent bean diseases. In Uganda, research efforts are concentrating on developing bean varieties resistant to Angular leaf spot disease in preferred bean types.*

out of the reach of most smallholder farmers, PABRA is focusing on providing low-cost solutions such as management of green manures, and identifying bean lines tolerant to infertile soils. Recent studies show significant adoption of bean varieties and pest management practices in Eastern and Southern Africa, with smallholder farmers, mostly women, reporting higher yields, fewer crop losses (to pests, diseases and low soil fertility), improved family nutrition and more cash income. By 2004, 245 releases of new bean varieties were made across all 18 countries, some with completely new attributes including resistance to previously intractable problems of African agriculture (such as the bean stem maggot, soils low in phosphorus). Improved climbing beans (with a yield three times that of the bush types traditional in Africa); continue to spread from Rwanda to other countries in the region.

While the economic returns from bean R&D have been excellent, our emphasis since 2000 has been to strengthen local institutions. The pan-Africa bean breeding strategy is now managed by regional breeders based at the University of Nairobi (for ECABREN) and in Malawi (for SABRN), with more than 2,200 elite bean materials distributed to PABRA countries for use in their breeding programmes.

Surveys to assess impact of new bean varieties now underway in 6 African countries are providing extremely encouraging results. More than 70% of households interviewed in Northern Tanzania and Western Kenya have adapted new bean technologies. In all cases those who adopt new technologies were better off than non-adopters in terms of both consumption and income from beans. For example in Uganda, household bean consumption was 40% higher and income was 45% higher for those households who had adopted the new varieties.

A small revolution has also taken place in national programmes' approaches to reaching larger numbers of farmers at reasonable cost. From earlier PABRA "action research" in pilot sites (and in the absence of a formal bean seed sector), a new approach to seed dissemination has been adapted in several countries. This involves distributing seed in affordable small packs using a wide variety of local outlets, supported by a decentralised seed production programme. PABRA alliance members are currently using this approach with the target of reaching a total of 10 million people (or 2 million households) across the continent within the next four years using a committed partnership of service providers. This target is likely to be passed sooner: in 2004 alone, partners produced seed of over 120 improved bean varieties which reached 1.25 million households across 10 countries.

In the process, PABRA has already catalysed the signing of more than 60 collaboration agreements among local R&D partners (Government organisations, NGOs, CBOs and commercial seed companies) committed to reaching these targets. In some countries (such as Uganda for example), an emerging private seed sector has begun to work with the public sector and seed producers, at least for those varieties with large urban market demand. Across many countries, groups of small farmers are developing their own local seed enterprises. Again, PABRA support is proving crucial—for example, a series of technical manuals in bean seed production & marketing, has become one of the most popular items in CIAT's publications list for Africa, and have already been published in 8 African languages, through collaboration with NARS and with NGOs.

### **New Areas of Focus**

PABRA is now making efforts to address the nutritional needs of children, women, and those affected by HIV/AIDS in the region through the development of high protein, iron and zinc bean cultivars. Another strategy being followed is to develop technologies and approaches that reduce labour requirements in agricultural production or to improve labour productivity.

Empowerment of rural communities to conduct their own research on beans is already evident in PABRA-supported activities in pilot sites in Malawi, Tanzania and Uganda, and is carried out mainly by local partner organisations (mostly NGOs and NARS). Farmer research groups are currently working closely with national organisations (such as the National Agricultural Research Organisation (NARO) and Africare (an NGO) in Uganda), in the development of better technologies for development. Local R&D partners (such as Malawi's Department of Agricultural Research) are acquiring skills in new areas such as participatory research, and are learning more general lessons by sharing these experiences across sites and countries.

## Training Events and Workshops

### Participatory Monitoring and Evaluation (PM&E) training workshop

A participatory monitoring and evaluation (PM&E) workshop was held in Nairobi, Kenya from 14th to 18th March 2005. Thirty-five scientists from national bean programmes in 12 PABRA member countries participated. The objectives of the workshop were to strengthen the capacity of national bean programmes to establish and facilitate PM&E, and develop country specific PM&E action plans for 2005–2006.

### Participatory Plant Breeding (PPB) monitoring tour

A participatory plant breeding (PPB) monitoring tour took place from 24th April to 5th May 2005. Thirteen participants from 8 PABRA countries visited PPB sites in the ECABREN region (Ethiopia, Tanzania and Uganda) to share and exchange experiences on PPB methodologies and approaches. The tour emphasised issues for enhancing impact: farmer-client evaluation, release, property rights, and seed dissemination. Four CIAT and network scientists also participated as resource persons.

### Innovation histories workshop

Sixteen participants from eight PABRA partner organisations attended a workshop in Kampala in February 2005 as part of a study by PABRA (with technical support from the Rural Innovation Institute of CIAT) to develop innovation histories of the research, development and adoption of four bean adoption cases: 1) Climbing beans in Rwanda; 2) Root-rot-resistant lines in western Kenya; 3) Bush variety CAL96 in Uganda; and 4) Bean varieties released in Kenya by the Kenya Agricultural Research Institute (KARI).

## News

### PABRA and Cameroon

Collaboration between the Institut de Recherché Agricole pour le Développement (IRAD), Cameroon and PABRA which started in 1997 has been recently reinvigorated. Dr. Laurent Nounamo of IRAD visited national bean programmes in Uganda and Kenya in 2004. Participatory diagnosis surveys of the major bean

growing areas in Cameroon to establish baseline data on bean production, market opportunities and farmer preferences were discussed at a planning meeting in Cameroon earlier this year. Research needs, collaborative opportunities and plans with PABRA partners were identified and agreed. We welcome Cameroon's renewed efforts in bean research and as an active member of PABRA.

### ECABREN Partners win ASARECA Biotechnology Grant

A team of six scientists from KARI, Kenya, NARO, Uganda, Makerere University, Université National du Rwanda, ECABREN-University of Nairobi and CIAT was among 4 teams which won a funding of US\$150,000 for a 3-year project under ASARECA Biotechnology and Biosafety Programme Competitive Grant System entitled "Application of marker assisted selection (MAS) for the improvement of bean common mosaic necrotic virus resistance in common beans." The project starts in 2005.



*The networks provide ready access to a pool of skilled people trained through them.*

## Calendar for 2005/2006

### Meetings/Workshops

May 16–19, 2005: PABRA Steering Committee Meeting, Arusha, Tanzania

May 16–31, 2005: Exposure visit of ISAR Technology Transfer Unit to CIAT activities and partners in Uganda

July 2005: Course for bean breeders on design and planning of crosses for nutritional traits and marker assisted selection

August 2005: ECABREN Stakeholders meeting

September 2005: Innovation Histories Synthesis Workshop

October 23–27, 2005: SABRN Steering Committee meeting, Lusaka, Zambia

**PABRA OUTLOOK** is a regional newsletter which seeks to inform readers of the progress of the Pan-Africa Bean Research Alliance (PABRA). To obtain more information about PABRA and its publications please contact:

Pan-Africa Bean Research Alliance (PABRA)  
Kawanda Agricultural Research Institute  
P.O. Box 6247  
Kampala, Uganda

Contact person  
Dr. Robin Buruchara,  
PABRA Coordinator

Tel  
+256 41 567259 or  
+256 41 567670

Fax  
+256 41 567635

Email  
r.buruchara@cgiar.org

PABRA website  
[www.ciat.cgiar.org/africa/pabra.htm](http://www.ciat.cgiar.org/africa/pabra.htm)

The Pan-Africa Bean Research Alliance gratefully acknowledges support for its activities from the following donors (in alphabetical order): ASARECA, DFID, CIDA, The Rockefeller Foundation, SDC and USAID.

Pan-Africa Bean  
Research Alliance  
**PABRA**

