Harnessing the expert knowledge within PABRA: tracking diffusion of improved varieties

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Introduction

The Diffusion of Improved Varieties in Africa (DIIVA) is a cross-center CGIAR project that has been developed to attain a wider understanding of the impact of food-crop genetic research in priority country-by-commodity combinations in Sub-Saharan Africa.

One of its objectives is to develop a comprehensive evidence-based collection on the performance of bean genetic improvement in 10 countries for the period 1999 to 2009.

The project recognizes that a comprehensive analytical basis for perceptions of crop improvement research and its diffusion in sub Saharan Africa is incomplete. Through this effort CIAT seeks to provide an up to date status for the bean crop.

Methods

Partnerships - PABRA Network coordinators, the monitoring and evaluation specialists, and GIS experts worked together with an average of 20 national panel of experts to deliver the collection of vital preliminary evidence on varietal performance over diverse agro-ecologies.

Preparation

1)Up to date records on released varieties between 1999-2009

2) Physical samples of beans present in communities and the research centre for participants to identify varieties

3) Regional and country level crop production statistics from partner institutions

4) Three forums in total. One regional forum where national bean leaders of the 11 countries were first introduced to the project, justification and objectives. Two national forums, where a core team of national bean scientists familiarized themselves with the project implementation plan and proposed potential national experts to be involved in the project. The second national forum was the actual execution of the data collection activity.

Protocol - The expert panel was guided by methodologies for participatory appraisal (PA), specifically through group discussion that carried out participatory mapping. These groups developed sketches on the maps provided showing bean growing areas and their production intensities. These maps were then consolidated into one map. To get the final map, an appreciative inquiry was used, whereby each group exhibited their map for all to view and discuss. The final map was representative of the views of all the participants showing bean production areas and the intensity of the variety within the country.

National partners lay out their representative country products in the preparation process

National partners develop country maps of bean producing areas.

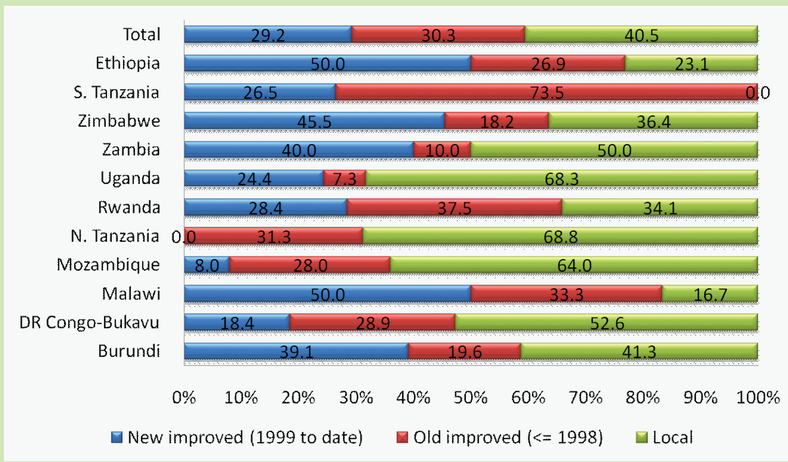
Results

Production areas - Bean production areas have been updated for 15 PABRA countries. The results of the annotated maps were digitized and can be compared with the original bean production areas of the 1998 Atlas of common bean in Africa. The map for Zambia (see case study) shows significant differences in the bean producing areas.

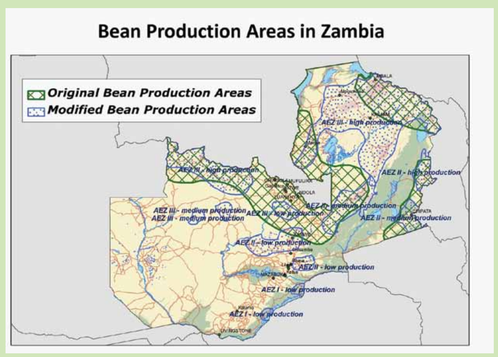
The expert panel meeting has allowed the compilation of production figures for each bean production area or agro-ecological zone, showing the impact of improved varieties in terms of % area grown.

Adoption - Adoption at the farm level has been estimated for all varieties in each bean production area (see Zambia case study). Ideally these perceptions of adoption require household surveys for validation, but when combined with the production data allows national level and PABRA researchers to quickly develop geographically focused strategies on understanding constraints to adoption of improved bean varieties.

Cross-country comparisons - The results from the expert panel meetings also allow cross-country comparisons on the diffusion of improved bean varieties., below.



Zambia Case Study



The original maps for bean production overstated production in the centre Zambia, but did not capture production in the north east region.

Beans are produced mainly in the high altitude zone where the adoption of the new improved varieties is estimated at 28%.

Agro-ecological zone	Area under Production (Ha)	Percentage area of bean varieties	
		Improved	Local
High altitude	76,659	28	72
Medium altitude	7,666	18	82
Low medium	852	8	92
Total	**85,177**	**18**	**82**

In this zone local varieties are ranked highest in terms of area and adoption.

Rank	Variety	Improved	Year of release	Approx. % area per field	Adoption %
1	Kabulangeti			40	40
	Kabulangeti (improved)	✓	2007		
2	Mbala mix			35	30
3	Lusaka yellow			30	20
4	Solwezi rose			25	22
5	Lyambai	✓	1999	5	15
6	Lukupa	✓	1999	2	7

Conclusions

Assessment of method - The definition of bean production areas shows often stark contrasts with previous maps. This underlines the value of drawing on the experiences and knowledge of a diverse range of research and development partners from different regions in any country. The methodology is potentially less accurate than costly data collection strategies such as household surveys but produces more reliable results than from limited single key informant sources.

Developments - The DIIVA methodology has now been extended to PABRA countries (Angola, South Africa and Madagascar) that were not part of the project.

Further research - The conclusions from this methodology would be even wider 'crowd-sourcing' of varietal adoption and production available at: http://banana.mappr.info or www.frutisitio.org

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