

Centro Internacional de Agricultura Tropical International Center for Tropical Agriculture Consultative Group on International Agricultural Research *Eco-Efficient Agriculture for the Poor*

A world that benefits from distribution of beans: three case studies



L.G. Santos, O. Toro, A.M. Hernández & D.G. Debouck

Genetic Resources Program, Centro Internacional de Agricultura Tropical Apartado Aéreo 6713, Cali, Colombia ⊠l.g.santos@cgiar.org

The genebank of CIAT, now operated by the Genetic Resources Program, was established as such in late 1978, and inherited the bean collections from the breeders. With a world mandate for *Phaseolus* beans, the GRP conserves 35,980 accessions of this crop mostly as seed collections (CIAT, 2009). Because germplasm activities - namely distribution - have been on since 1973 to date, some analysis of trends is possible.

The signing of an agreement in October 1994 between the Food and Agriculture Organization (FAO) of the United Nations and CIAT confirms further the curatorship role of GRP. Since 1995, distribution of germplasm to external users has been systematically done under the acceptance of a Material Transfer Agreement (MTA). In 1995-1996 the first designation to FAO (i.e. the sending of an electronic file about all accessions maintained in-trust by CIAT) took place, with subsequent updates every two years since.

As per the last update in 2009, GRP has received bean accessions from 109 countries and has distributed to 103 countries. A total of 76 countries has provided and received bean accessions (Figure 1). As an example, three cases studies are worth mentioning.

GRP has distributed between 1973-2009 a total of 410,916 samples of beans that represent 33,196 accessions. We can thus say that GRP has distributed a 92.2% of the total collection registered into the multilateral system of the Treaty.

Many of these samples (306,652) were delivered to CIAT users for the different purposes of the Bean Program. The rest of samples (104,264) have were delivered to different external users such as NARS, Universities, Regional organizations, Commercial companies and other Genebanks, respectively (Figure 2), for uses in agronomy, applied research, breeding and basic research primarily.





Figure 1. Movement of bean germplasm from countries to CIAT, and from CIAT to countries.

Case 1: Mexico. GRP maintains the largest collection of this country which is represented by 6,059 accessions. Mexico has received a total of 5,046 accessions, 1,163 accessions with origin Mexico and 3,883 accessions from other 81 countries (Table 1).

Description	Total
Accessions with origin from Mexico	6,059
Number of accessions from 81 countries (not Mexico) shipped to Mexico	3,883
Number of accessions with origin Mexico shipped to Mexico	1,163

410,916 samples (33,196 accessions) **103 countries**

Figure 2. Distribution of bean germplasm from CIAT-GRP in 1973-2009

In Figure 3 we can see the five major countries that we have sent bean germplasm to. They represent 45.6% of the total of samples that GRP has delivered to external users. Our main customer is USA (17.1%), where 153 cooperators have benefited from the seed bank for researching on this crop in 26 of its universities and 35 different organizations or just for conserving and expanding the diversity of its collection.



Table 1. Movement of bean germplasm from CIAT-GRP to Mexico.

Case 2: Colombia. This collection are made of 3,430 accessions and 7,039 accessions have been shipped with origin from 86 countries, including Colombia. This country is the second receptor that received more bean materials after United States (Table 2).

Description	Total
Accessions with origin from Colombia	3,430
Number of accessions from 85 countries (not Colombia) shipped to Colombia	6,493
Number of accessions with origin Colombia shipped to Colombia	546

Table 2. Movement of bean germplasm from CIAT-GRP to Colombia

Case 3: Peru. It is another example that benefits from the distribution of bean germplasm. In this case, GRP has conserved 3,678 accessions from Peru and has distributed 2,023 accessions with 58 different countries of origin (Table 3).

Description	Total
Accessions with origin from Peru	3,678
Number of accessions from 57 countries (not Peru) shipped to Peru	1,102
Number of accessions with origin Peru shipped to Peru	921

Figure 3. Top five external users of bean germplasm CIAT-GRP in 1973-2009

Acknowledgements

These distribution and related research activities have been supported by grants of CIAT core budget (with contributions of, namely, USAID and the EU), the World Bank, the International Board for Plant Genetic Resources, the System-wide Programme on Information for Plant Genetic Resources and the Global Crop Diversity Trust.

References

CIAT (2009). Annual report. International Center for Tropical Agriculture. Palmira, Colombia.

FAO (1998). The state of the world's plant genetic resources for food and Food and Agriculture Organization of the United Nations. Rome, Italy.





Poster presented at the Annual Program Review Week, CIAT -Palmira, Colombia, 6-8 May 2010.