

## THE *Phaseolus* COLLECTION AT CIAT

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CIAT's *Phaseolus* germplasm collection presently consists of 26,506 accessions already increased and available for distribution (Table 1). *P. vulgaris* and its wild ancestors are the major component of this collections (89.5%), followed by *P. lunatus* (5.5%), *P. coccineus* (2.3%), *P. polyanthus* (1.1%); and *P. acutifolius* (1.0%). Of the true, wild, nonancestral species there are 22 species but they form only 0.6% of the total collection. Documentation compiled in the last year shows that about 50% of the *P. vulgaris* collection originated in primary centers of domestication and such material can be considered as landraces.

A quarantine greenhouse has been constructed near Bogotá to speed up the initial introduction of germplasm from countries outside the primary centers i.e. from Europe, Africa, Asia, and Oceania. This new facility will be completely functional by the end of 1991 and will enhance CIAT's capacity to introduce bean germplasm to Colombia from "high risk" regions.

The most significant breakthrough of recent years has been the completion of a new seed conservation building. The new seed storage facility, donated by the Italian Government, began operation in early 1990. The facility includes (a) a long-term storage room with a temperature of -20 °C, (b) a short-term storage room with a temperature of 5-8 °C and 35% r.h., and (c) a seed drying room at 20 °C and 15% r.h. The facility has a designed capacity for 100,000 accessions in both long-term and short-term conservation rooms. CIAT has negotiated safe heaven duplicate storage agreement of *Phaseolus*. At the present time, the *P. vulgaris* germplasm is 90% duplicated in Costa Rica at CATIE, and 13% in Brazil with CENARGEN.

A preliminary trial will soon be carried out to implement the "cleaning" system which involves visual virus identification and test at advanced plant stages in a quarantine greenhouse, followed by a seed increase in an isolated field.

The available *P. vulgaris* germplasm, in growth habits I and II has been characterized using 30 morphological descriptors, while the whole collection of these species has now data on the "essential descriptors" (growth habit and seed type, i.e., color, shape, size, brilliance). Morphological data are not sufficient to allow discrimination at accession level. A series of biotechnological techniques are now under study in the search for a practical procedure that will allow accession discrimination with more confidence.

Germplasm catalogs of *P. coccineus*/*P. polyanthus* and *P. lunatus* were first published in 1988 and 1991, respectively. A catalog for wild *P. vulgaris* was published in 1990. An updated catalog for cultivated *P. vulgaris* germplasm will be published by the

end of 1991.

The continued availability of bean germplasm to national programs and bean scientists at CIAT has been a major goal for the GRU. Between 1977 and 1991, CIAT's Genetic Resources Unit (GRU) has provided 81,252 accessions to national programs, universities, and other research institutions, while for CIAT's Bean Program a total of 248,499 individual samples were prepared, the GRU also serves to back up those countries who, for various reasons, have lost part or all of their national collections. CIAT has been able to replace collections in Honduras, Iran, Peru, Mexico, and Burundi.

Research priorities include (a) to establish "core collection" for *P. vulgaris*, (b) to assemble a genetic stock collection, (c) to duplicate the entire collection in two other institutions, (d) to eradicate virus from the collection, and (e) to develop practical strategies for managing infra-accession variability.

Table 1. Status of the *Phaseolus* bean collection held at the Genetic Resources Unit, CIAT, as of September, 1991, and available for distribution.

Species	Number of accessions available for distribution		
	Wild	Cultivated	Total <sup>a</sup>
<b>Domesticated</b>			
<i>P. vulgaris</i>	551	23,175	23,726
<i>P. lunatus</i>	87	1,369	1,456
<i>P. coccineus</i>	69	528	597
<i>P. polyanthus</i>	2	290	292
<i>P. acutifolius</i>	145	126	271
<b>Wild nonancestral species<sup>b</sup></b> (22 species)			164
<b>Total</b>			26,506

<sup>a.</sup> In both cultivated and wild forms, subdivisions of the original accessions have been made when genetic mixtures have appeared.

<sup>b.</sup> Forms classified as "weedy" or "regressive" are included within the term "wild" of the domesticated species.