

BEAN GERMPLASM COLLECTION IN THE CAPE VERDE ISLANDS, W. AFRICA

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The Cape Verde Archipeligo is located in the Atlantic Ocean approximately 375 miles west of coastal West Africa within an area between 14° 30' and 17° 30' north latitude and 22° 30' and 25° 30' west longitude. Cape Verde is considered an extension of the Sahelian arid region although evaporation rates are more oceanic than found on the continent. Annual rainfall ranges from 50 mm to 1000 mm depending on location on the island, elevation, island mass and orientation to the prevailing northeast tradewinds. Because of its location in relation to the intertropical convergence fronts that bring rain, Cape Verde will always be prone to drought.

Beans are important components of the high risk corn/bean farming systems and provide a major portion of dietary protein to over 80% of the rural population of which over 39% have female headed households. Short and medium-term goals for bean improvement include creation and distribution of synthetic populations selected from local land-races and improved germplasm. In order to preserve genetic diversity in these extremely fragile, agro-ecosystems, there will be no large scale introduction of improved cultivars.

Objectives of the University of Arizona Food Crop Research Project and the INIA collection effort were to provide additional material for increases, distribution, research and breeding purposes and to identify areas of high diversity and specialized adaptation. In addition counterpart training was given to ensure continuity of the program.

Germplasm collection took place from October 1988 to January 1989 and October to December 1989. A total of 459 landrace accessions of beans, corn and other plants was acquired (Table 1). This represents a sampling of some of the genetic diversity which has accumulated in Cape Verde over 500 years. Collections of high diversity are presented in Table 2. Genetic diversity accumulates in stable, favorable environments and is destroyed by shifting, stress environments. Collections of high diversity are clustered in the humid and sub-humid regions of the islands. Stress environments are limited in both the number of species grown and varieties produced. Accessions from stress environments may be valuable for selection of germplasm for drought tolerance and earliness. Local landraces possess tremendous germination vigor when compared to improved cultivars.

The collection has been prioritized and is in the second year of increase and characterization. Complete accession data and sources are found on the collection sheets. It is anticipated that one more year of increase will occur before accessions will be available to other interested scientists.

References

- BUHROW, R., BEAN, R. 1989. Landraces in Cape Verde. Rept. UA Food Crop Research Project.
- MARCARIAN, V. 1990. Perspectives for Bean Research in Cape Verde. *Revi sta* 4:7-9.

Table 1. Germplasm Collections by Island

	Santiago	Maio	Fogo	Santo Antao	S. Nicolau	Boa Vista
	<u>Number of Assessments</u>					
lima bean	58	1	23	14	6	6
corn	17	6	8	11	7	1
common bean	48	0	25	0	23	0
pigeon pea	3	0	22	35	10	3
<u>Lablab</u>	42	0	12	11	3	4
<u>purpurea</u>						
cowpea	26	18	8	2	0	2
squash	0	0	2	2	0	0
coffee	1	0	0	0	0	0
wild dolchos sp	1	0	0	0	0	0
	196	25	98	75	49	16

Table 2. Collections of High Diversity From the Different Islands

#	Locality	Species
3	Riberao Galinha, ST	18 types lima bean 10 types common bean
9	Cha das Caldieras, Fogo	4 types pigeon peas
12	Companas de Baixo, Fogo	12 types common bean
17	Pedro Vaz, Maio	4 types cowpeas
20	Piloncao, Maio	5 types cowpeas
22	Santa Cruz, ST	7 types lima beans
25	Covoadinha de Coruja, Santo Antao	4 types pigeon peas
28	Tortoy, Santo Antao	4 types pigeon peas
30	Cova, Santo Antao	4 types <u>Lablab purpurea</u> 6 types lima
40	Saltos Abaxial, ST	4 types <u>Lablab purpurea</u> 5 types lima
41,42	Ribeira San Miguel, ST	5 types <u>Lablab purpurea</u>
43	Ribeira Chiqueiro, ST	5 types <u>Lablab purpurea</u> 5 types lima bean
46	Fundura, ST	12 types common bean, diverse corn
57	Canto Faja, S. Nicolau	9 types common bean
58	Cachaco, S. Nicolau	8 types common bean
59	Mosteiros, Fogo	4 types cowpea