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TRIP REPORT

COLLECTION OF *PHASEOLUS* SPECIES GERMPLASM IN NORTH EASTERN BRASIL

JUNE 15 - 28, 1980

Leonard Song

OBJECTIVE

To collect cultivated Phaseolus vulgaris and Phaseolus lunatus north of Minas Gerais, south-east Bahía and east of Espirito Santo.

BACKGROUND

This is the first of a series of collection trips planned jointly with EMBRAPA, with the participation of CENARGEN and CNPAF. Interest in this region is for P. vulgaris materials adapted to the acid infertile soil and also for P. lunatus that are reported to be grown in this area. Expenses in this trip were covered by the funds for field collection provided by the IBPGR.

PARTICIPANTS

Leonard Song (CIAT)
José Francisco Valls (CENARGEN)
Jaime Roberto Fonseca (CNPAF)
Rogerio Faria Vieira (CNPAF)
Alfonso Damosceno (EPAMIG)

AREAS COVERED

Belo Horizonte - Governador Valadares

Teófilo Otoni - Pedra Azul
Río Pardo - Monteguma
Taiobeiras - Jacinto - San Antonio
Itamaraja - São Mateus - Victoria
Belo Horizonte

RESULT

1. Collection of P. Vulgaris

A total of 48 farms were visited in the above areas most of which grew between 1/2 hectare to 1 hectare of P. vulgaris. Most of the farms visited were located in remote areas which were difficult to reach on account of very bad roads. The area of maximum interest was Rio Pardo-Montezuma in which the farms visited grew older cultivars of P. vulgaris.

The timing for the collection was well scheduled, thanks to the efficient entension service of EPAMIG. For most of the farms visited the materials had already matured so that we could harvest direct from the field and at the same time document the materials collected.

It was common to find 2-5 different types of P. vulgaris materials grown in the same field, and this was related to the way the materials were sold at the market place. At most of the market places visited, farmers sell mixtures in small bags. Thus, the chances of picking out older materials in the field was good. Field selection for good looking materials were made by the CNPAF staff, and this in itself could add to the problem of duplication.

However, notes were taken on these and other aspects during the collection trip. Generally, the materials collected are well adapted to condition of very little input in terms of fertilizer, lime, insecticide or fungicide application. Some very

interesting P. vulgaris materials were also picked up at the lower areas of Bahía and these materials appeared to be adapted to the hot humid condition.

A total of 212 samples of P. vulgaris have been collected in this trip (See Table 1).

2. Collection of P. lunatus

The collection of this species adds to the value of this trip, and it confirms for the first time the importance of P. lunatus in this area. In the areas around Montezuma and Salinas in North-east Brasil, large field plantings of P. lunatus were found ranging from 1/2 to 2 hectares, and were grown in association with maize.

Most of these cultivars belonged to the small seeded types which appeared to be tolerant to diseases and pests of the area and also appeared to be well adapted to the extreme conditions. Variation in seed color were most impressive, and a number of samples have been collected. A total of 55 samples have been collected. (See Table 1).

3. Collection of other grain legumes

Two grain legumes appear to be of future potential in this part of Brasil, and are being grown on a small scale at the moment. The pigeon pea (Cajanus cajan) is a crop of the old world but found wide adaptation. Most farms visited have small plots of this tree size crop, and in three farms 1/2 to 1 hectare plots were found. The plant appears to be a prolific yielder and has found acceptance by farmers. Cowpea (Vigna unguiculata) was found in almost all farms visited and was grown on a small scale, sometimes together with Phaseolus beans. In areas where

P. vulgaris appeared unadapted, cowpea seemed to be doing very well. A total of 11 samples of Pigeon Pea and 12 samples of Cowpea were collected in this trip (See Table 1).

4. Collection of Tropical pasture germplasm

At most stops, collection of tropical pasture species were made. In certain cases, the trip was delayed as we made special stops for collecting certain pasture species which were of interest. Seeds and vegetative materials collected have been taken to CENARGEN and will be send to CIAT after they have been cleaned or seed increased.

A total of 83 samples of tropical pasture species have been collected, of which 33 samples did not have seeds and were collected as herbarium samples. Of those that have seeds, both seeds and herbarium samples were collected. Most of these materials belong to species of Stylosanthes, Zornia, Macroptilium and Centrosema. Grasses were also collected for various species of Paspalum, Digitaria, Eriochloa, Chloris, etc. A more complete list of pasture species collected could be found in Table 2.

5. Collection of Manihot Species

Throughout this trip no samples of cassava (Manihot esculenta) were collected, since the collection of this species deserves greater study by IBPGR so that it could be collected more systematically. In most parts visited, large plots of cassava were found and it is very likely that such materials have already been collected by EMBRAPA and are maintained at Cruz das Almas.

However, the collection of herbarium specimens of wild Manihot species could be of interest to CIAT. Thus, the

CENARGEN collection was brought back to CIAT and are now kept in the GRU herbarium. A list of these materials could be found in Table 3. These samples have been collected by Antonio Allem who is presently working at CENARGEN.

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TABLE 1

LIST OF LEGUME SPECIES COLLECTED IN DIFFERENT AREAS IN NORTH EAST OF BRASIL (June 15 - 18, 1980)

Area Collected		Common Bean (*P.vulgaris*)	Lima Bean (*P.lunatus*)	Pigeon Pea (*Cajanus cajan*)	Cowpea (*V.unguiculata*)	TOTAL
1.) Belo Horizonte-G.Valadores	MG	10	-	-	-	10
2.) G. Valadores-Teófilo Otoni	MG	36	-	2	2	40
3.) Téofilo Otoni-P. Azul	MG	16	1	3	1	20
4.) P. Azul-Río Pardo	MG	13	2	1	1	17
5.) Río Pardo-Montezuma-Taiobeiras	MG	69	5	2	3	79
6.) Taiobeiras-Jacinto	MG	39	20	1	3	63
7.) Jacinto-Itamaraja	MG - BA	26	26	1	3	56
8.) Itamaraja-S. Mateus	BA - ES	2	1	1	-	4
9.) S. Mateus-Victoria	ES	1	-	-	-	1
		212	55	11	12	290

TABLE 2

A LIST OF TROPICAL PASTURE SPECIES COLLECTED IN MINAS GERAIS, BAHIA AND ESPIRITU SANTO (June 15 - 28, 1980)

COLLECTION NUMBER	GENUS/SPECIES	SEED	HERBARIUM
5238	*Macroptilium atropurpureum*	+	+
5266	*Clitoria* sp.	-	+
5270	*Paspalum* sp.	+	+
5271	*Axonopus* sp.	-	+
5272	*Eragrostis* sp.	-	+
5274	*Chloris radiata*	-	+
5276	*Zornia* sp.	-	+
5277	*Stylosanthes scabra*	+	+
5282	*Zornia* sp.	-	+
5289	*Rhynchosia* sp.	+	+
5291	*Calopogonium* sp.	-	+
5292	*Stylosanthes scabra*	+	-
5293	*Paspalum* sp.	+	+
5295	*Stylosanthes* sp.	+	+
5310	*Macroptilium lathyroides*	-	+
5311	*Macroptilium bracteatum*	-	+
5312	*Stylosanthes* sp.	-	+
5313	*Stylosanthes* sp.	-	+
5314	*Stylosanthes scabra*	+	-
5315	*Zornia* sp.	-	+
5316	*Eragrostis* sp.	-	+
5317	*Stylosanthes scabra*	+	-
5318	*Centrosema* sp.	+	+
5319	*Macroptilium* sp.	+	+
5353	*Chloris* sp.	-	+
5354	*Setaria* sp.	-	+
5367	*Stylosanthes bracteata*	+	-
5368	*Stylosanthes* sp.	-	+
5369	*Zornia* sp.	-	+
5370	*Aristida* sp.	-	+
5371	*Eragrostis* sp.	-	+
5372	*Panicum* sp.	-	+
5373	*Setaria* sp.	-	+
5375	*Macroptilium* sp.	+	+
5385	*Eragrostis* sp.	-	+
5436	*Eragrostis* sp.	-	+
5437	*Eragrostis* sp.	-	+
5438	*Urochloa* sp.	-	+
5439	*Panicum* sp.	-	+

COLLECTION NUMBER	GENUS/SPECIES	SEED	HERBARIUM
5441	*Panicum* sp.	-	+
5442	*Digitaria* sp.	-	+
5443	*Paspalum plicatulum*	-	+
5444	*Paspalum* sp.	-	+
5445	*Macroptilium* sp.	-	+
5470	*Stylosanthes macrocephala*	+	+
5476	*Cynodon nlemfuensis*	+	+
5478	*Macroptilium* sp.	-	+
5485	*Eragrostis glomerata*	-	+
5486	*Eriochloa polystachya*	-	+
5488	*Chloris* sp.	-	+
5489	*Centrosema* sp.	-	+
5490	*Chloris* sp.	-	+
5491	*Macroptilium* sp.	+	+
5495	*Macroptilium* sp.	+	+
5499	*Centrosema* sp.	+	+
5500	*Stylosanthes scabra*	+	+
5505	*Axonopus* sp.	+	+
5512	*Axonopus* sp.	+	+
5529	*Aeschynomene* sp.	+	+
5539	*Macroptilium* sp.	+	+
5553	*Stylosanthes guianensis*	+	+
5554	*Digitaria* sp.	-	+
5555	*Paspalum repens*	-	+
5563	*Desmodium barbatum*	+	+
5564	*Stylosanthes* sp.	-	+

OTHER SPECIES COLLECTED

5494	*Manihot* sp.	+	+

TABLE 3

COLLECTION OF WILD *Manihot* SPECIES BROUGHT BACK TO CIAT

Genus/Species	Collector's Number	CENARGEN Number
Manihot gracilis Pohl	A. Allem 344	
Manihot violacea Pohl	A. Allem 487	
Manihot tripartita Spreng	A. Allem 488	
Manihot triphylla Pohl	A. Allem 492	
Manihot gracilis Pohl	A. Allem 608	
Manihot tripartita Spreng	A. Allem 616	
Manihot tristis Müll. Arg.	A. Allem 624	
Manihot tristis Müll. Arg.	A. Allem 625	
Manihot anomala Pohl	A. Allem 672	
Manihot caerulescens Pohl	A. Allem 711	
Manihot anomala Pohl	A. Allem 729	
Manihot carthaginensis(Jacq.)Müll A.	A. Allem 759A	
Manihot gracilis Pohl	A. Allem 791	880
Manihot gracilis Pohl	A. Allem 796	885
Manihot tripartita(Spreng)Müll Arg.	A. Allem 890	1027
Manihot dirergens Pohl	A. Allem 896	1033
Manihot sparsifolia Pohl	A. Allem 907	1044
Manihot sparsifolia Pohl	A. Allem 908	1045
Manihot tripartita(Spreng)Müll.Arg.	A. Allem 918	1055
Manihot violacea Pohl	A. Allem 922	1059
Manihot cacropiaefolia Pohl	A. Allem 929	1066
Manihot tripartita(Spreng)Müll.Arg.	A. Allem 1055	1247
Manihot anomala Pohl	A. Allem 1723	1923
Manihot caerulescens Pohl	A. Allem 1777	1977
Manihot reniformis Pohl	A. Allem 1784	1984
Manihot maracasensis Ule.	A. Allem 1803	2003
Manihot glaziovii M.A.	A. Allem 1804	2004
Manihot cf. *pseudoglaziovii* Pax & Hoffn.	A. Allem 1807	2007
Manihot carthaginensis (Jacq.) Mull. Arg.	A. Allem 2477	2680

Genus/Species	Collector's Number	CENARGEN Number
Manihot sparcifolia Pohl	A. Allem 2479	2682
Manihot caeropiaefolia Pohl	A. Allem 2650	
Manihot peltata Pohl	A. Allem 2666	
Manihot quinqueloba Pohl	A. Allem 2669	
Manihot cf. *salicifolia* Pohl	A. Allem 2689	
Manihot cf. *violacea* Pohl	A. Allem 2684	
Manihot cf. *procumbens* Müll. Arg.	A. Allem 2714	
Manihot cf. *orbicularis* Pohl	A. Allem 2721	
Manihot mossamedensis Taubert	A. Allem 2760	
Manihot grahami Hooker	A. Allem 4862	
Manihot tristis Mull. Agr.	A. Allem	858