PHASELIEU

Catalogue of genetic resources

CATALOGUE OF BEAN GENETIC RESOURCES

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Marina Amurrio, Marta Santalla, Antonio M. De Ron
(Editors)

A PHASELIEU Publication

The Concerted Action is carried out with financial support from the Commission of the European Communities, FAIR programme, FAIR5-PL97-3463, "Improvement of sustainable *Phaseolus* production in Europe for human comsumption - PHASELIEU". The contents of this publication do not neccesarily reflect the Commission views and in no way anticipate the Commission future policy in this area.

Edited by: PHASELIEU - FAIR - PL97-3463 • Misión Biológica de Galicia (CSIC)

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Graphic desing by: Miguez-Olmedo Asociados

Printed by: Gráf. Sogal

Dep. Legal: PO–108/01

INDEX

[1]The information was compiled from:

Maggioni, L., M. Ambrose, R. Schachl and E. Lipman, compilers. 2000. Report of a Working Group on Grain Legumes, Second meeting, 1-3 October 1998, Norwich, United Kingdom. International Plant Genetic Resources Institute, Rome, Italy.

The PHASELIEU project

The PHASELIEU project (Improvement of sustainable *Phaseolus* production in Europe for human comsumption, FAIR5-PL97-3463) developed under the FAIR Program of the European Union was born in 1998.

The overall aim of PHASELIEUwas to coordinate the ongoing research on *Phaseolus* and to elaborate and integrated strategy model for the improvement of *Phaseolus* production in Europe for human consumption. Also, this project would like to avoid the duplication of current research and other RTD activities at national and transnational level on *Phaseolus*.

Therefore, the strategic aims of the project are the following ones, concerning to the organization and management of research and development in *Phaseolus*:

* The **establishment of an EU wide netw ork of experts** in order to exchange and disseminate the knowledge and expertise regarding the issues concerned. This includes also the exchange of genetic material within the participating groups and other outside the network.

* The **organization of thematic workshops-group meetings** , as open as possible, in order to discuss specific subjects, to develop an integrative strategy model approach, and, on the basis of this model, to prepare follow-up research proposals to develop joint shared cost project in *Phaseolus* improvement.

* The **publication of sev eral scientific and technical documents** such as: a) progress and final reports, b) scientific and technical articles, c) handbooks and catalogues and d) contribution in international conferences. It is planned to publish all of them both as hardcopy version, electronic one in Internet and CD-ROM.

* The **scientif ic exchang e as training visits** are one of the aspects of the project. There will be two kinds of exchange visits among laboratories: 1) short visits, like targeted restricted meeting and 2) visits, for technology transfer and diffusion of information notably for younger scientist. First year all of them will be focused in genetic variability, crooping systems and diversification and quality analysis. During the following years (with the agreement required from the Commission) the subject of the visits will be focused in transferring expertise on biotical and abiotic stresses, molecular markers, regeneration and transformation and breeding.

Eleven european countries (Austria, Belgium, France, Germany, Israel, Italy, Portugal, Spain, The Netherlands and the United Kingdom) and thirteen partners participated in the PHASELIEU project (the list of PHASELIEU participants is included). Also, well known scientific institutions such as International Plant Genetic Resources Institute (IPGRI), European Association for Grain Legume Research (AEP), and "Centro Internacional de Agricultura Tropical" (CIAT) supported PHASELIEU project as linked organizations.

PREFACE

Lorenzo Maggioni. ECP/GR Coordinator. IPGRI
Rome, Italy

The initiative of the PHASELIEU project partners to prepare a catalogue of common bean genetic resources responds to the basic need of *Phaseolus* germplasm users to know what genetic material is available and where it is conserved. Good quality information on the status of the European germplasm collections is essential to maintain a high level of collaboration within the region and to permit an effective conservation and use of genetic resources.

It seems useful to mention here a number of existing sources where information on genetic resources of *Phaseolus* can be found:

- The IPGRI directory of germplasm collections (http://www.ipgri.cgiar.org/germplasm/dbintro.htm) offers summary information on *ex situ* germplasm collections worldwide. The data include contact information on organizations holding germplasm and on the type of germplasm, that is maintained, such as: species names, number of accessions per species, type of accessions, etc.

- The European *Phaseolus* Database (http://www.agrobio.bmlf.gv.at/phaseolus) was established on the initiative of the European Cooperative Programme for Crop Genetic Resources Networks (ECP/GR) in 1995. lt is maintained by the Federal Office of Agrobiology in Linz, Austria. The database contains passport data of over 30.000 accessions representing the *Phaseolus* collections of 20 European contributors. The structure of the database follows the IPGRI/FAO Multicrop descriptors list.

- The CGIAR System-wide Information Network for Genetic Resources (SINGER) (htpp://singer2.cgiar.org) links the genetic resources information systems of the individual CGIAR Centres around the world, allowing them to be accessed and searched collectively. SINGER contains key data on the identity, source, characteristics and transfers to users of more than 27.000 *Phaseolus* accessions held in the Centres' genebanks.

The main contribution that the present catalogue adds to the existing sources of information can be outlined as follows:

- It is an update of the summary information available from the IPGRI directory.
- It offers new information, by listing relevant bibliography and some collection highlights of immediate interest for breeders.
- It brings to light a number of collection holdings previously not recorded in the existing databases.

This snapshot of the *Phaseolus* germplasm conserved in Europe in the early 2001, though limited by the different level of response to the questionnaire, is expected to be useful both as a catalogue for immediate consultation and as a reference for further development of a comprehensive information system on *Phaseolus* genetic resources in Europe. This general objective can only benefit from all the complementary initiatives such as this PHASELIEU catalogue.

Introduction

One of the tasks of the PHASELIEU project was to elaborate a "**CATALOGUE OF BEAN GENETIC RESOURCES** ". Therefore, as a first step in this job, the PHASELIEU coordinators (partner 1) elaborated a survey which was presented to the PHASELIEU partners in the FIFTH PHASELIEU WORKSHOP in Hannover-Germany (October 21-22, 2000) to get their suggestions and their approval.

"The Questionaire Sheet Form" was one of the results of this meeting. Thereby, this survey was sent to everyobody who keeps any collection of *Phaseolus* beans and/or is involved in *Phaseolus* bean germplasm and breeding in Europe. Additionally, information was requested from all the european BIC (Bean Improvement Cooperative) members *(the Bean Improvement Cooperative (BIC) is a voluntary and informal organization to effect the exchange of information and materials for the improvement of bean production worldwide. Members include scientists, students, private organizations and lay-people interested in bean research).*

The editors of this Catalogue got information from many researches who are involved in *Phaseolus* bean germplasm and breeding. Likewise, some public organizations/institutions did not answer the survey. Therefore, for the institutions to which the editors did not have any data, they were compiled from:

> Maggioni, L., M. Ambrose, R. Schachl and E. Lipman, compilers. 2000. Report of a Working Group on Grain Legumes, Second meeting, 1-3 October 1998, Norwich, United Kingdom. International Plant Genetic Resources Institute, Rome, Italy.

About ninety surveys were delivered by e-mail, fax and ordinary mail to different European countries. Five months later it is a pleasure to present this catalogue as a task that it was well done.

Finally the Editors thank to the Fundación Pedro Barrié de la Maza for giving financial support to the edition of this book.

Pontevedra (Spain), February 2001

The Editors,
M. AMURRIO, M. SANTALLA, A. M. DE RON

Questionaire Sheet Form

Organization/Institution

Alphabetical order is followed throughout the catalogue regarding the different European Countries.

1. Number of accessions

This item includes Number, Origin and Type for each one of the *Phaseolus* spp.

Abbreviations for easier management of the catalogue have been listed below:

Origin of the accessions:

- **National Collection (NC)** : accessions from the home country
- **European Collection (EC)** : accessions from the other European countries
- **Other (0)** : accessions from non-European countries:

Type of the accessions:

- **Cultivated (C)**
- **Wild (W)**

2. Number of accessions stored with passport data:

3. Number of accessions with characterization data:

- with seed data:
- with plant morphological data:

4. Number of accessions with evaluation data:

5. Facilities for conservation and conditions:

6. Availability of seeds:

7. Availability of information in Internet:

8. How to contact the curator of the collection:

9. References of publications

10. Market classes represented in the collection:

Those which are the representative of the standard types and they are widely used by farmers in the different countries such as Kidney, Navy, Alubia, Cranberry, Great Northern...

11. Breeding lines to develop *Phaseolus* new varieties:

12. *Phaseolus* varieties obtained by the institution:

List of varieties which are currently registrated and/or released.

STATUS OF THE EUR OPEAN *Phaseolus* GENETIC RESOURCES

BUNDESAMT FÜR AGRARBIOLOGIE (Federal Office of Agrobiology) "BAB" Linz, Austria

1. Number of accessions[1]

	Number	Origin[1]			Type[1]	
		NC	EC	O	C	W
Phaseolus coccineus	112	90	13	9	112	
P. lunatus	1			1	1	
P. vulgaris	529	404	120	5	529	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 653

3. Number of accessions with characterization data:

- with seed data: 324
- with plant morphological data: 324

4. Number of accessions with evaluation data: 324

5. Facilities for conservation and conditions:

Long term conservation at -20°C, moisture proof glass bottles, 750 g per accession.

6. Availability of seeds:

Small samples are freely available, free of charge, if the proposed use of the material is outlined; a copy of results is wanted.

7. Availability of information in Internet:

www.agrobio.bmlf.gv.at/genbank
www.agrobio.bmlf.gv.at/phaseolus

8. How to contact the curator of the collection:

W. Kainz
Bundesamt für Agrarbiologie, (Federal Office of Agrobiology)
Wieningerstrasse 8
A-4020 Linz, Austria

Phone: + 43 732 381261 ext 271
Fax: + 43 732 385482
E-mail:kainz@agrobio.bmlf.gv.at

10. Market classes represented in the collection:

Mainly austrian landraces.

NATIONAL BOTANIC GARDEN OF BELGIUM
Meise, Belgium

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus acutifolius var. *acutifolius*	32					32
P. acutifolius var. *latifolius*	17				17	
P. acutifolius var. *tenuifolius*	11					11
P. angustissimus	3					3
P. coccineus	48					48
P. coccineus subsp. *coccineus*	22				22	
P. filiformis	10					10
P. glabellus	4					4
P. grayanus	5					5
P. hintonii	7					7
P. jaliscanus	1					1
P. leptostachyus var. *leptostachyus*	35					35
P. lunatus	7					7
P. lunatus var. *silvester*	52					52
P. lunatus var. *lunatus* Big Lima group	18				18	
P. lunatus var. *lunatus* Kidney group	2				2	
P. lunatus var. *lunatus* Potato group	12				12	
P. lunatus var. *lunatus* Sieva group	41				41	
P. maculatus	11					11
P. marechalii	3					3
P. micranthus	2					2
P. microcarpus	12					12
P. neglectus	3					3
P. oligospermus	4					4
P. pachyrhizoides	1					1
P. parvulus	3					3
P. pauciflorus	2					2
P. pedicellatus	5					5
P. pluriflorus	3					3

	Number	Origin			Type	
		NC	EC	O	C	W
P. polyanthus	27				25	2
P. polystachyus var. *polystachyus*	3					3
P. ritensis	8					8
P. salicifolius	1					1
P. vulgaris	130					130
P. vulgaris var. *aborigineus*	7					7
P. vulgaris var. *vulgaris*	105			105	105	
P. xanthotrichus var. *xanthotrichus*	8					8
P. xolocotzii	1					1
P. zimapanensis	6					6

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data:

with at least one data 100%

3. Number of accessions with characterization data:

0% (the characters observed in order to carry the determination of the material are not entered in the database).

5. Facilities for conservation and conditions:

Equipment

A set of three coldrooms was built in 1986. An automatic equipment, including a refrigeration unit and a rotary silicagel dehumidifyer apparatus, allows to maintain a temperature of 15ºC and a relative humidty of 10% which are excellent conditions for short- and medium-term storage. A temperature and humidity recorder is used for registering and checking the good running of the equipment. In addition, an alarm set warns the technicians of any irregular temperature and humidity. Most seed handlings (cleaning, packaging,...) between harvest and storage are executed in these coldrooms, reducing so the risks of damaging the seeds. The long-term seed storage at -20ºC is performed by the use of deep-freeze units located in the coldrooms.

Seed handlings

1. Drying. Immediately after harvest, the seeds are shelled, cleaned and pre-dried for 24 hours in an universal oven at 300C. Drying is then completed with silicagel in a closed air flow system at 15ºC. The moisture content of the seeds falls at 5-6% after 4 weeks for seed with a 100 seed weight less than 30 g and after 8 weeks for larger seeds.

2. Packaging. Plastic-aluminium laminated foil is used as container for long-term storage. Well adapted to small quantities of seeds, this method is very

practical and most efficient for preservation of seed viability. The seeds are packed at 5 to 6% moisture content.

3. Long-term stor age. Seed bags are then placed in deep-freeze units at -20ºC.

4. Germination tests. Seed viability is regularly checked by germination tests. The first step is the mechanical scarification of the seeds in order to overcome the hardseededness often found in wild material. The seeds coming from the deep-freeze units must be placed in a container with 100% relative humidity at a temperature of 20-22ºC for 24 hours in order to avoid imbibition injury. The seeds are then placed between filter papers in petri-dished wich are arranged into an incubator with an alternating temperature regime of 20ºC/30ºC (16h/8h). The germination criterion is the radicle emergence of 2-3mm.

6. Availability of seeds:

Small seed samples (free of charge) can be obtained by scientists and breeders working in public institutions if the proposed use of the material is outlined.

7. Availability of information in Internet:

http://www.br.fgov.be/RESEARCH/COLLECTIONS/PHASEOLUS/index.html.

8. How to contact the curator of the collection:

T. Vanderborght
National Botanic Garden of Belgium
B-1860 Meise, Belgium
Phone: + 32 (0) 2 260 09 20
Fax: + 32 (0) 2 260 09 45
E-mail: vanderborght@br.fgov.be

9. References of publications: The last one was:

Vanderborght T. & Baudoin J. P. (1998). La collection de base des espèces sauvages de *Phaseolus* et *Vigna*: historique, gestion et conservation. Biotechnol. Agron. Soc. Envrion. 2(1), 27-35.

INSTITUTE FOR INTRODUCTION AND PLANT GENETIC RESOURCES "IIPGR"
Sadovo, Bulgaria

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus acutifolius	25			25		
P. coccineus	23	13		10		
P. lunatus	15			15		
P. vulgaris	1647	263	962	422		

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

3. Number of accessions with characterization data:

P. coccineus: 5
P. lunatus: 5
P. vulgaris: 565 accessions.

5. Facilities for conservation and conditions:

Genebank in Sadovo is for short and long term storage. Short term storage contains the active or "working" collection which provides seeds for characterization and evaluation. Seeds are kept at 5ºC to 8ºC. Long term storage aims to preserve the genetic variability of the crops for future needs. The conditions for this type of storage are temperatures of -18ºC, 5-8% seed moisture content. The seeds are packed in vacuum foil bag. Viability is checked by germination tests every five years. Seeds are rejuvenated if their viability falls bellow 90%.

Long-term conservation: 395 accessions (4 *P. acutifolius*, 5 *P. coccineus*, 5 *P. lunatus*, 381 *P. vulgaris*).

Short-term conservation:1710 (25 *P. acutifolius*, 23 *P. coccineus*, 15 *P. lunatus*, 1647 *P. vulgaris*).

8. How to contact the curator of the collection:

S. Angelova and Tz. Stoilova

11. Breeding lines to develop *Phaseolus* new varieties:

Working collection: *Phaseolus* sp.: 1000 (67% cultivars, 5.5 % lines and 27.5% others)

12. *Phaseolus* varieties obtained by the institution:

Varieties 212 and 222: They were dropped out because of their sensitive to bacterial diseases.

Variety 186: It has showed high yield and good agronomic traits for a long time.

INSTITUTE FOR WHEAT AND SUNFLOWER "IWS DOBROUDJA"
General Toshevo, Bulgaria

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	250	100	50	100	250	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 250

3. Number of accessions with characterization data:

- with seed data: 250
- with plant morphological data: 200

5. Facilities for conservation and conditions:

Long-term conservation conditions. Temperature: -15ºC.

6. Availability of seeds:

Small seed samples (free of charge) could be obtained by scientists and breeders.

7. Availability of information in Internet:

www.netplusdb.bg/gsc

8. How to contact the curator of the collection:

D. Dimitrova
Department of Plant Genetic Resources
Institute for Wheat and Sunflower "Dobroudja"
General Toshevo 9520
Bulgaria
E-mail: dani_vd@yahoo.com

10. Market classes represented in the collection:

Great Northern, Navy, Alubia, Pinto, Dark Red Kidney,Cranberry, Yellow eye, Soldier and etc.

11. Breeding lines to develop *Phaseolus* new varieties: 3000

12. *Phaseolus* varieties obtained by the institution:
Ludogorie, Abritus, Dobrudjanski 7

AGRITEC, Ltd.
Sumperk ,Czech Republic

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	253				253	0

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 253

3. Number of accessions with characterization data: 253

- with seed data:
- with plant morphological data:

5. Facilities for conservation and conditions:

Seed samples are dried (7% moisture), put into glass jars and stored at low temperature in working (-5ºC) and base (-20ºC) collections.

6. Availability of seeds:

Seed samples are freely available for scientific purposes.

7. Availability of information in Internet:

http://genbank.vurv.cz/genetic/resources/

8. How to contact the curator of the collection:

M.Hýbl
AGRITEC Sumperk, Ltd.
Zemedelska 16
787 01 Sumperk
The Czech Republic
E-mail: hybl@agritec.cz

9. References of publications

Hýbl, M.: The status of grain legumes in the Czech Republic. *In*: Maggioni, L., Ambrose, M., Schachl, R. and Lipman, E. (compilers) 2000. Report of Working Group on Grain Legumes, Second meeting, 1-3 October 1998,

Norwich, United Kingdom. International Plant Genetic Resources Institute, Rome, Italy.

Hýbl, M., Smolíková, M. & Faberová I.: Klasifikátor / Descriptor List *Cicer arietinum* L. AGRITEC Sumperk, Genetic resources no. 67, VÚRV Prague Ruzyne, 1998. 14 p.

Hybl, M. & Faberová, I.: Klasifikátor / Descriptor List Genus *Lupinus* L. AGRITEC Sumperk, Genetic resources no. 78, VÚRV Prague Ruzyne, 2000. 20 p.

RESEARCH INSTITUTE OF CROP PRODUCTION "RICP"
Olomouc-Holice, Czech Republic

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus spp.	1088				1035	53

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 1088

3. Number of accessions with characterization data:

- with seed data: 724
- with plant morphological data: 724

4. Number of accessions with evaluation data: 0

5. Facilities for conservation and conditions:

Seed samples are dried (7% moisture), put into glass jars and stored at low temperature in working (-5ºC) and base (-20ºC) collections.

6. Availability of seeds:

Seed samples are freely available for scientific purposes.

7. Availability of information in Internet:

http://genbank.vurv.cz/genetic/resources/

8. How to contact the curator of the collection:

J. Losik
RICP Genebank Department
Slechtitelu 11,
783 71 Olomouc-Holice
The Czech Republic
E-mail: olgeba@ova.pvtnet.cz

UNIVERSITY OF PARIS-SUD "UPS XI"
Orsay, France

8. How to contact the curator of the collection:

T. Langin
Institut de Biotechnologie des Plantes
Universite Paris XI (UPS XI). Centre d'Orsay. Bât. 300
91405 Orsay cedex. France
Phone: + 33 1 69 336383
Fax: + 33 1 69 336424
E-mail: langin@ibp.u-psud.fr

12. *Phaseolus* varieties obtained by the institution:

Cultivar	Anthracnose resistance *(R)* genes	Origin of R genes	Breeding origin
La Victoire		Andean	
MDRK	*Co-1*	Meso-american (Mexico)	
Cornell 49-242	*Co-2*	Meso-american (Venezuela)	
MY (Mexico 222)	*Co-3*[a]	Meso-american (Mexico)	
MZ (Mexico 227)	*Co-3*[b]	Meso-american (Mexico)	
TO	*Co-4*	Meso-american (Mexico)	
TU	*Co-5*	Meso-american (Mexico)	
AFN	*Co-2, Co-4*	Meso-american	France (INRA breeding program)
EO2	*Co-2*	Meso-american	France (INRA breeding program)
P12R	*Co-2*	Meso-american	France (INRA breeding program)
P12S	*Co-2* (Near-isogenic-line of P12R)		France (INRA breeding program)
AB 136	*Co-6*	Meso-american (Mexico)	
G2333	*Co-5, Co-4 2*	Meso-american (Mexico)	
BAT93	*Co-7, Co-8*	Meso-american	(CIAT)
JaloEEP558	*Co-x, Co-y, Co-z*	Andean	(CIAT)
77 RILs BAT93 x JaloEEP558			P. Gepts (Davis, USA)
Widusa		Andean	
Kaboon		Andean	
Perry Marrow		Andean	

FEDERAL CENTRE FOR BREEDING RESEARCH ON CULTIVATED PLANTAS "BAZ"
Braunschweig, Germany

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus sp.	27					
P. acutifolius	2					
P. coccineus	26					
P. lunatus	2					
P. vulgaris	841					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

8. How to contact the curator of the collection:

L. Frese
frese@kepler.dv.fal.de

12. *Phaseolus* varieties obtained by the institution:

Fifty six percent of the collection correspond to breeding varieties and strains.

INSTITUT FÜR PFLANZENGENETIK UND KULTURPFLANZENFORSCHUNG "IPK"
Gatersleben, Germany

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus sp.	139					
P. acutifolius	15					
P. coccineus	354					
P. lunatus	35					
P. vulgaris	7066					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

8. How to contact the curator of the collection:

A. Graner
graner@ipk-gatersleben.de

12. *Phaseolus* varieties obtained by the institution:

Thirty percent of the collection correspond to breeding varieties and strains.

GERMPLASM INSTITUTE "CNR"
Bari, Italy

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus spp.	116	6	46	64	—	—
P. vulgaris	1152	695	316	141	1149	3
P. coccineus	137	96	30	11	—	—
P. lunatus	49	2	4	43	24	25
P. acutifolius	52	—	4	48	—	—

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: All

3. Number of accessions with characterization data:

- with plant morphological data: The screening is in progress for *Phaseolus vulgaris*.

4. Number of accessions with evaluation data:

The phaseolin type is available for all accessions of *Phaseolus vulgaris* and *P. lunatus.*

The seed composition is available for 60 italian landraces of *Phaseolus vulgaris.*

5. Facilities for conservation and conditions:

Two chambers at –20ºC for long-term storage. The short and medium-storage is done in climatized chambers at 0ºC and 30% air relative humidity.

6. Availability of seeds:

Small seeds samples are available for scientists.

7. Availability of information in Internet:

Phaseolus database address:
http://bigarea.area.ba.cnr.it:8012/areagg34/2legbk.htm

8. How to contact the curator of the collection:

P. Perrino
Germplasm Institute-CNR
Via Amendola 165/a, 70126 Bari (Italy)
E-mail: germpp04@area.ba.cnr.it

9. References of publications

LIOI L., 1991. Electrophoretic variation and geografical distribution of the seed protein phytoemagglutinin in cultivated *Phaseolus vulgaris* L. Journal Genetics and Breeding 45:97-102.

SONNANTE G., STOCKTON T., NODARI R., VELASQUEZ V.B., GEPTS P., 1994. Evolution of genetics diversity during the domestication of common-bean (*Phaseolus vulgaris* L.). Theoretical and Applied Genetics 89:629-635.

LIMONGELLI G., LAGHETTI G., PERRINO P., PIERGIOVANNI A. R. 1996. Variation of seed storage proteins in landraces of common bean (*Phaseolus vulgaris* L.) from Basilicata, Southern Italy. Euphytica 92:393-399.

LIOI L., LOTTI C., GALASSO I., 1998. Isozyme diversity, RFLP of rDNA and Phylogenetic affinities among cultivated Lima beans, *Phaseolus lunatus* (Fabaceae). Plant Systematics and Evolution 213:153-164.

PIERGIOVANNI A. R., TARANTO G., PIGNONE D., 2000. Diversity among common bean populations from the Abruzzo region (Central Italy): a preliminary inquiry. Genetic Resources and Crop Evolution 47: 467-470.

PIERGIOVANNI A. R., CERBINO D., BRANDI M., 2000 The common bean populations from Basilicata (Southern Italy). An evaluation of their variation. Genetic Resources and Crop Evolution 47: 489-495.

INSTITUTE FOR VEGETABLE CROPS OF MONTANASO LOMBARDO
Lodi, Italy

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O*	C	W
Phaseolus coccineus	2	2	0	0	2	0
P. vulgaris	23	13	0	10	23	0

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

Bean breeding for desease resistance (resistance to BCMV and halo-blight) and for the improvement of protein profile (this last is carried out in collaboration with the 'Istituto di Biosintesi Vegetali', CNR, Milano) are the main activities of the Institute. We do not have the structure to keep many germplasm accessions for long time. Everytime we need an accession for breeding purposes we require it where available; moreover, because of a strong financial cut operated in public research in the last seven years, many bean accessions used in previous breeding activities (resistant parents, wilds and so on) had been lost. We report here only the available genetic materials that are still able to germinate.

(*) The accessions obtained from CIAT are the following: A55, A57, A132, A193, A240, A475, A525, Bat 881, Rio Tibagui, Xan 265.

3. Number of accessions with characterization data: (Table 1)

- with seed data:
- with plant morphological data:

4. Number of accessions with evaluation data: (Table 1)

5. Facilities for conservation and conditions:

We have a very small cooled room (~20 m^3 at 11ºC) for the conservation of genetic materials for 5 years. Besides bean seeds we store asparagus, eggplant, pepper and onion seeds.

6. Availability of seeds:

The accessions no. 7, 8, 9, 10, 11, 12 and 13 (see 2nd Table) are Italian local cultivars protected by IGP or DOP. The local autority who is responsible of their protection must be informed of any seed release and, in any case, they can be released only for breeding purposes. The other cultivars, selected from breeding activity carried out in our Institute and widely cultivated, are available for breeding purposes.

8. How to contact the curator of the collection:

B. Campion
E-mail: bruno.campion@libero.it or isoml@apm.it.

9. References of publications

ALLAVENA A., 1989 - Modification of the Seed Coat Color Associated to the I Gene Conferring Resistance to BCMV. Annual Report of the Bean Improvement Cooperative **32**: 90-91.

ALLAVENA A., A. Fadda and G. P. Soressi, 1989 - "Montecarlo" and 'Monterosa', Borlotto-type dry beans. HortScience **24** (6): 1047-1048.

CAMPION B., 1995 - "Venere" and "Alarico", New Scarlet Runner Bean (*Phaseolus coccineus* L.) Cultivars with Determinate Growth Habit. HortScience **30** (7): 1483-1484.

11. Breeding lines to develop *Phaseolus* new varieties:

In addition to the cultivars already present in the collection, our Institute can get available (free of charge) also a few breeding lines borlotto-type carrying the I gene conferring resistance to BCMV associated with the character 'red seed mottles'. Other two breeding lines resistant to BCMNV are available for breeding purposes.

12. *Phaseolus* varieties obtained by the institution:

Four stable breeding lines resistant to BCMNV have been obtained in our Institute. Two of them have been released with exclusive right to private companies.

Table 1. Accessions with related characterization and evaluation data:

	Accession	Genus/ species	Seed-mottles	Seed-background	Seed shape	1,000 seeds' weight (g)	Growth habit	Plant height (cm)	Vegetative cycle (days)	Genetic resistances
1	Clio	*P. vulg.*	vined	light beige	long	~700	determinate	50	80-83	BCMV+halo-blight
2	Giulia	"	dark purple	dark beige	long	~540	"	61	90-95	BCMV
3	Lena	"	vined	light beige	round oval	~460	"	52	82-85	"
4	Minia	"	vined	light beige	long oval	~490	"	50	82-85	"
5	Montalbano	"	—	white	long	~500	"	58	83-86	"
6	Montecarlo	"	black	dark beige	long	~590	"	50	83-86	"+halo-blight
7	Zolfino	"	—	yellowish	round oval	~250	determinate	-	-	*
8	Calonega	"	vined	light beige	kidney flat	~960	climbing	-	-	*
9	Canalino	"	vined	light beige	round oval	~790	"	-	-	*
10	Piattone di Pisa	"	—	white	long flat	~460	"	-	-	*
11	Spagnol	"	red	beige	round oval	~890	"	-	-	*
12	Spagnolet	"	red	beige	round oval	~850	"	-	-	*
13	Spagnolon	"	red	beige	round oval	~910	"	-	-	*
14	Venere	*P. cocc.*	—	white	kidney flat	1,600± 300	determinate	40-60	125	**
15	Alarico	"	black	wine-pink	kidney flat	1,650± 300	"	40-60	125	**

(*) Not tested for the presence of genetic resistances. In nature it appears to be susceptible to BCMV and halo-blight.
(**) Not tested for the presence of genetic resistances. In nature it appears to be resistant to viruses and bacteria. (-) Not available data.

NORDIC COUNTRIES
(Denmark, Finland, Iceland, Norway, Sweden)
NORDIC GENE BANK "NGB"
Alnarp, Sweden

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus spp.	33	21	8	4		

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

Ten are commercial varieties, 17 are local cultivated material and 6 are new and unverified culta.

5. Facilities for conservation and conditions:

NGB accessions are stored in a base collection and the active collection at -20ºC after drying to 5-10% moisture. The saferty-storage is subject to natural conditions at -4ºC. Generally, we store 4000 viable seeds in the base collection, 10000 in the active collection and 500 in the safety store.

8. How to contact the curator of the collection:

G. B. Poulsen
Nordic Gene Bank
P. O. Box 41
230 53 Alnarp, Sweden
Phone: 46-40 461790
Fax: 46-40 462188
E-mail: gert@ngb.se

GENEBANK GENETICS SECTION "EAN"
Oeiras, Portugal

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	30					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

5. Facilities for conservation and conditions:

long-term conservation conditions.

8. How to contact the curator of the collection:

E. Bettencourt
Estaçao Agronómica Nacional 2784-505
Oeiras, Portugal
Phone: 351 21 440 35 00 (ext.473)
Fax: 351 21 441 60 11
E-mail: e.bettencourt@meganet.pt

PORTUGUESE PLANT GERMPLASM BANK
Braga, Portugal

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus coccineus	106					
P. vulgaris	5					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

3. Number of accessions with characterization data: 60

- with plant morphological data: 60

5. Facilities for conservation and conditions:

long-term conservation conditions.

8. How to contact the curator of the collection:

R. Farias

UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO "UTAD"
Vila Real, Portugal

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	52					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 52

3. Number of accessions with characterization data: 10

4. Number of accessions with evaluation data:
27 by isoenzymes and 11 by means of RAPDs

5. Facilities for conservation and conditions:
-18º C and 45% of relative humidity

6. Availability of seeds: No availability of seeds

8. How to contact the curator of the collection:

V. P. Carnide
UTAD
P. O. Box 202. 5001 Vila Real Codex. Portugal
Phone: + 351 59350501
Fax: + 351 59 350480
E-mail: vcarnide@utad.pt

AGRICULTURAL RESEARCH STATION SIMNIC
Jud. Dolj, Romania

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	25				25	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 25

6. Availability of seeds:

Only when the owner of the sample does not specify that is secret sample.

8. How to contact the curator of the collection:

V. Urechean
Statiunea de Cercetari Agricole Simnic
Loc. Simnic, 1110
Jud. Dolj

11. Breeding lines to develop *Phaseolus* new varieties: 25

12. *Phaseolus* varieties obtained by the institution: 9

CENTRAL STATION FOR PLANT CULTIVATION ON SANDY SOILS DABULENI
Jud. Dolj, Romania

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	49	49			49	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 49

6. Availability of seeds:

Only when the owner of the sample does not specity that is secret sample.

8. How to contact the curator of the collection:

G. Dumitru
Statiunea Centrala de cercetare pentru Cultura plantelor pe nisipuri Dabuleni
Loc. Dabuleni, 1183
Jud. Dolj

11. Breeding lines to develop *Phaseolus* new varieties: 42

FACULTY OF AGRICULTURE TIMISOARA
Jud. Timis, Romania

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	158	158			158	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 158

6. Availability of seeds:

Only when the owner of the sample does not specity that is secret sample.

8. How to contact the curator of the collection:

G. Butnaru
Universitatea de Stiinte Agricole a Banatului
Timisoara, 1900
Calea Aradului.nr.19
Jud. Timis

RESEARCH INSTITUTE FOR VEGETABLE AND FLOWER GARDERING VIDRA
Jud. Ilfov, Romania

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	11				11	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

6. Availability of seeds:

Only when the owner of the sample does not specity that is secret sample.

8. How to contact the curator of the collection:

I.Scurtu
Institutul de Cercetare pentru Legumicultura si Floricultura Vidra
Loc. Vidra, 8268
Jud. Ilfov

11. Breeding lines to develop *Phaseolus* new varieties: 2

12. *Phaseolus* varieties obtained by the institution: 6

SUCEAVA GENEBANK
Suceava, Romania

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	2091	1834	41	216	2091	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 2091

3. Number of accessions with characterization data: 25

- with seed data: 25
- with plant morphological data: 25

4. Number of accessions with evaluation data: 25

5. Facilities for conservation and conditions:

Four cells for medium term (+4ºC), 1 cell for long-term (-20ºC).

6. Availability of seeds:

Only when the owner of the sample does not specity that is secret sample.

8. How to contact the curator of the collection:

D. Murariu
Suceava Genebank
B-dul 1 Decembrie 1918, nr. 17
5800, Suceava, Romania

11. Breeding lines to develop *Phaseolus* new varieties: 225

VAVILOV INSTITUTE OF PLANT INDUSTRY "VIR"
St. Petersburg, Russia

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus spp.	9762					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

5. Facilities for conservation and conditions:

long-term conservation conditions.

8. How to contact the curator of the collection:

M. Vishnyakova
N. I. Vavilov Institute of Plant Industry
Bolshaya Morskaya Str. 42
190000 St. Petersburg, Russian Federation
Phone: 7-812 3144732
Fax: 7-812 318762
E-mail: vir@mail.dux.ru

AGRICULTURAL INSTITUTE OF SLOVENIA
Ljubljana, Slovenia

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus coccineus	53					
P. vulgaris	964					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

5. Facilities for conservation and conditions:

long-term conservation conditions.

8. How to contact the curator of the collection:

V. Meglic
Crop and Seed Production Department
Agricultural Institute of Slovenia
Hacquetova 17
1000 Ljubljana, Slovenia
Phone: 386-61 1375375
Fax: 386 61 1375413
E-mail: vladimir.meglic@kis-h2.si

CENTRO DE RECURSOS FITOGENÉTICOS "CRF-INIA" Madrid, Spain.

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus coccineus	76	—	—	—	76	—
P. lunatus	14	—	—	—	7	7
P. longipedunculatus	2	—	—	—	—	2
P. vulgaris	2290	—	—	—	2290	—

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 2382

Total accessions with passport data recorded in the national inventory: 3872

3. Number of accessions with characterization data:

- with seed data: 2138
- with plant morphological data: 859

5. Facilities for conservation and conditions:

Two cold rooms for base collection (-18º C) and active collection (-4º C) respectively. Germination laboratory with two incubators with temperature, light and humidity control. Seed cleaning laboratory with winnowing machine and other mechanical facilities. Three desiccation rooms at 20% RH and 20º C. Containers to stored the seeds consisting in hermetically closed tins for base collection and glass jar with twist off top for active collection (hermeticity tested in both types of containers). Laboratory of seed physiology and seed pathology.

Conservation conditions: one thousand clean seeds by accessions (base Bank), not less than 200 seeds (active Bank). Germination of 85% or more. Relative humidity under 7%. Hermetic seal containers to avoid re hydration. Stored at -4º C, active collection and at -18º C, Base collection.

6. Availability of seeds:

Depending of the possibilities of multiplication.

7. Availability of information in Internet:

www.crf.inia.es

8. How to contact the curator of the collection:

C. de la Cuadra
Centro de Recursos Fitogenéticos (INIA)
P. O. Box 1045, 28800 Alcalá de Henares, Madrid. Spain.
Phone: + 34 918819261/86; Fax: + 34 918819287
E-mail: cuadra@inia.es

9. References of publications

DE LA ROSA, L.e I. MARTÍN. 1996. Colecciones de recursos fitogenéticos de leguminosas. Agricultura 763: 155-162

DE LA ROSA, L. 1997. La colección de judía del CRF-INIA. Caracterización de semillas. En: Situación actual y perspectivas del cultivo de la judía. Ed. Universidad de Santiago de Compostela. Pp.: 46-49.

LÁZARO, A,; I. MARTÍN y L. DE LA ROSA. 1999. Recursos genéticos autóctonos conservados en el CRF-INIA. Agricultura 799: 128-131.

MARTÍN, I., L. DE LA ROSA y C. DE LA CUADRA. 2000. Evaluación de la conservación en las colecciones de judía (*Phaseolus* spp.) del CRF-INIA. Actas de Horticultura.

INSTITUTO VASCO DE INVESTIGACIÓN Y DESARROLLO AGRARIO "NEIKER"
Vitoria, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	160	160			160	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 160

3. Number of accessions with characterization data:

- with seed data: 160
- with plant morphological data: 95

4. Number of accessions with evaluation data: 17

5. Facilities for conservation and conditions:

long-term conservation conditions: 5ºC, 60% HR

6. Availability of seeds:Yes

8. How to contact the curator of the collection:

J. I. Ruiz
P. O. Box 46
E-01080
Vitoria, Spain
jiruiz@neiker.net

9. References of publications

RUIZ DE GALARRETA J.I., LEGORBURU F.J., MANTXO M., AMENABAR R. (1998). Preliminary evaluation of common bean landraces from the Basque Country. EUCARPIA. International Symposium on Breeding of Protein and Oil Crops. Pontevedra.

11. Breeding lines to develop *Phaseolus* new varieties: 60

12. *Phaseolus* varieties obtained by the institution:

			Seed			
Cultivar	**Origin**	**Habit**	**Colour**	**Shape**	**Weight (g)/1000s**	**Resistance to**
Tolosana	NEIKER	IV	Black	Rounded	480	
Alavesa	NEIKER	I	Cream Mottled	Rounded	370	

MISION BIOLÓGICA DE GALICIA
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS "MBG-CSIC"
Pontevedra, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus augusti	5			5		
P. acutifolius	3		3			
P. coccineus	54	36	10	8		
P. parvifolius	3		3			
P. vulgaris	822	498	139	185		
P. vulgaris var. *aborigineus*	28		28	28		

Seventy seven commercial varieties are also storaged in the collection.

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data:

Passport data available for 915 accessions and for the commercial varieties.

3. Number of accessions with characterization data:

Phaseolus coccineus: there are 34 accessions with seed and plant morphological data.

Phaseolus vulgaris: there are there are 802 accessions with seed and plant morphological data.

5. Facilities for conservation and conditions:

Cool storage room at 4ºC and 40% relative humidity

6. Availability of seeds:

Variable depending of the material

7. Availability of information in Internet:

www.usc.es/mevex

8. How to contact the curator of the collection:

A. M. De Ron, M. Santalla, A. P. Rodiño
Misión Biológica de Galicia – CSIC
P. O. Box 28. 36080 Pontevedra, Spain
Phone: + 34 986854800
Fax: + 34 986841362
E-mail: csgpoarp@cesga.es, csgpomsf@cesga.es, csgpoapr@cesga.es

9. References of publications

Ron, A. M. De, M. Santalla, N. Barcala, A. P. Rodiño, P. A. Casquero, M. C. Menéndez. 1997. Beans (*Phaseolus* spp.) collection at the Misión Biológica de Galicia - CSIC in Spain. Plant Genetic Resources Newsletter 112: 100

10. Market classes represented in the collection:

The main types are medium and large white-seeded varieties as Alubia and Faba. Other types as Pinto, Navy and Cranberry are also represented as well as local types as "Garbanzo"

11. Breeding lines to develop *Phaseolus* new varieties:

Phaseolus vulgaris
Breeding lines: 162
Origin: 131 obtained at the MBG-CSIC, 31 from other origin

12. *Phaseolus* varieties obtained by the institution:

Phaseolus vulgaris - dry bean
Pazo de Gandarón, Faba do Sil, Alubia de Lemos, Faba Celta, Judía Peregrina, Garbanzo Grande de Tuy, Mourisca, Garbanzo Capelán, Alubia de Enfesta.

NESTLE ESPAÑA S. A.
Barcelona, Spain

11. Breeding lines to develop *Phaseolus* new varieties:

40 bean pure lines, ten from them were obtained from Galician landraces (Galicia, Spain).

12. *Phaseolus* varieties obtained by the institution:

Litoral 1, Litoral 4, Litoral 16, Litoral 22, Guadiana, Hispania
Obtentor: R. Ortíz.

SERVICIO DE INVESTIGACIÓN AGRARIA "SITA"
Valladolid, Spain

8. How to contact the curator of the collection:

C. Asensio
Servicio de Investigación Agraria (SITA). Junta de Castilla y León.
P. O. Box 172. 47080 Valladolid. Spain.
Phone: 34 983414461 - 34 9834144438 - 34 983414782
Fax: 34 983414780
E-mail: Maria-Carmen.Asensio@dgiadr.cag.jcyl.es

12. *Phaseolus* varieties obtained by the institution:

			Seed			
Cultivar	**Origin**	**Habit**	**Colour**	**Shape**	**Weight (g)/1000s**	**Resistance to**
Bolita	SITA	III	White Cream	Rounded	540	BCMV(I)
Cárdeno	SITA	III	Mottled	Rounded	530	
Órbigo	SITA	II	White	Kidney	400	
Tropical	SITA	I	White	Kidney	500	
Tremaya	SITA	I	White	Kidney	450	bacteriosis
Casasola	SITA	I	White	Kidney	430	bacteriosis
Mariserrán	SITA	I	White	Kidney	460	bacteriosis

SERVICIO DE INVESTIGACION AGROALIMENTARIA
Zaragoza, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus sp.	639	620				639

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

The *Phaseolus* sp. collection has been created since 1980. The collection currently contains 639 accessions, most of them (620) were collected in different parts of Spain. The origin of the remainder 19 is unknown.

2. Number of accessions stored with passport data:

639 with basic passport data

3. Number of accessions with characterization data: 88

- with seed data: 88
- with plant morphological data: 88

The characterization of the 88 accessions was made with a well elaborated descriptor which was developed by ourselves. This descriptor includes 38 plant and seed traits per accession.

5. Facilities for conservation and conditions:

88 *Phaseolus* sp. accessions are multiplicate and they are stored at -18ºC.

551 *Phaseolus* sp. accessions are not multiplicate and they are stored at -2ºC. Glass jars with silicagel are used for both cases.

6. Availability of seeds:

For the no multiplicate vegetable material, seeds are not available.

For the multiplicate vegetable material, small seed samples are availabe just for the accessions that there are enough seed at the moment which it is required and under of vegetable exchange criterions.

8. How to contact the curator of the collection:

M. Carravedo
P. O. Box 727
50080 Zaragoza, Spain
E-mail: mcarravedo@aragob.es

SERVICIO REGIONAL DE INVESTIGACIÓN Y DESARROLLO AGROALIMENTARIO "SERIDA"

Asturias, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus coccineus	4					
P. vulgaris	344[2]				340	4

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

[2]Including anthracnose and bean common virus differentials.

2. Number of accessions stored with passport data: 340

3. Number of accessions with characterization data: 246

- with seed data: 246
- with plant morphological data: 246

4. Number of accessions with evaluation data:

246 accessions evaluated for bean common mosaic (BCMV/BCNMV)
246 accessions evaluated for anthracnose

5. Facilities for conservation and conditions:

Cool storage room at 2- 4ºC and 12-20% relative humidity

6. Availability of seeds:

Small quantities of seed are available in the 246 accesions that were characterized

8. How to contact the curator of the collection:

J. J. Ferreira
SERIDA
P. O Box 13
33300 Villaviciosa
Asturias, Spain
Fax:+ 34 985891854
E-mail: jjferreira@princast.es

9. References of publications

Annual report of Asturias bean collection (internal publication of SERIDA)

10. Market classes represented in the collection:

The following types are represented: Faba and Alubia, White Kidney, Large Marrow, Great Northern, Small White, Cranberry, Canario, Rojo, Calima, Negro opaco

According to their uses: Dry beans and Snap beans

11. Breeding lines to develop *Phaseolus* new varieties:

Genetic stock: 126 lines from different institutions and breeders

12. *Phaseolus* varieties obtained by the institution:

Andecha, Xana and Cimera

New lines like faba that have specific resistance genes to anthracnoses and common mosaic viruses (BCMV/BCNMV).

UNIVERSIDAD POLITÉCNICA DE VALENCIA
"U. P. VALENCIA"
Valencia, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	24	24			24	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

3. Number of accessions with characterization data:

- with seed data: 24
- with plant morphological data: 24

5. Facilities for conservation and conditions:

medium-term conservation conditions

6. Availability of seeds:

very limited

8. How to contact the curator of the collection:

G. Palomares
Area de Genética. Departamento de Biolotecnología
Escuela Técnica Superior de Ingenieros Agrónomos
Universidad Politécnica de Valencia
Camino de Vera, 14
46022 Valencia, Spain
Phone: 34 9 6 3877421/26
Fax: 34 9 6 3877139 or 34 9 6 3877429
E-mail: gpaloma@btc.upv.es

9. References of publications

B.I.C., 40 (1997): 145-146
B.I.C., 41 (1998): 84-85

10. Market classes represented in the collections:

5 (White long, White kidney, Red mottled, Cream mottled, Dark cream)

11. Breeding lines to develop *Phaseolus* new varieties: 13

12. *Phaseolus* new varieties obtained by the institution:[1]

			Seed			
Cultivar	**Origin**	**Habit**	**Colour**	**Shape**	**Weight (g)/1000s**	**Resistance to**
Pepa	UPValencia	I	White	Long	790	BCMV (I)
Africa	UPValencia	I	Red Mottled	Long	400	BCMV (I)
Mulata	UPValencia	I	Red Mottled	Long	470	BCMV (I)
Sara	UPValencia	I	White	Long	420	BCMV (I)
Alicia	UPValencia	I	White	Long	780	BCMV (I)
Alaska	UPValencia	I	White	Long	420	BCMV (I)
Celia	UPValencia	I	White	Kidney	640	BCMV (I)
Clara	UPValencia	I	White	Long	620	BCMV (I)
Nairobi	UPValencia	I	Cream Mottled	Long	540	BCMV (I)
Siria	UPValencia	I	White	Kidney	570	BCMV (I)
Elsa	UPValencia	I	White	Kidney	585	BCMV (I)
98/234	UPValencia	I	Dark Cream	Long	620	BCMNV (pseudo bc-3)
98/309	UPValencia	IV	White	Kidney	794	BCMNV (bc-3 or bc-2 (2))
98/521	UPValencia	III	Cream Mottled	Long	703	BCMNV (bc-2 (2))
98/527	UPValencia	III	Cream Mottled	Long	637	BCMNV (bc-2 (2))
98/815	UPValencia	I	White	Long	391	BCMNV (bc-3)
99/286 A	UPValencia	IV	White	Long	697	BCMNV (pseudo bc-3)
99/308	UPValencia	IV	White	Kidney	765	BCMNV (bc-2 (2))
99/311	UPValencia	IV	White	Kidney	800	BCMNV (bc-2 (2))
99/313	UPValencia	IV	White	Kidney	676	BCMNV (bc-3 or bc-2 (2))
99/336	UPValencia	IV	White	Kidney	832	BCMNV (pseudo bc-3)
99/451	UPValencia	II	Red Mottled	Long	667	BCMNV(bc-3)
99/454	UPValencia	II	Red Mottled	Long	570	BCMNV (pseudo bc-3 or bc-3)
99/837	UPValencia	I	White	Long	315	BCMNV (bc-3)

[1]Just nine of them were registered

CENTRO DE CONSERVACION Y MEJORA DE LA AGRODIVERSIDAD VALENCIANA "COMAV" UNIVERSIDAD POLITÉCNICA DE VALENCIA
Valencia, Spain

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus sp.	18					
P. lunatus	4					
P. vulgaris	139					
	161	130		31	161	

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

2. Number of accessions stored with passport data: 161

5. Facilities for conservation and conditions:

Two cold rooms at -3ºC and 30% relative humidity.

8. How to contact the curator of the collection:

F. Nuez
Universidad Politécnica de Valencia
Camino de Vera, s/nº
46022 Valencia
Phone: 96 387 74 21
Fax: 96 387 74 29
E-mail: fnuez@btc.upv.es

COLIN LEAKEY
Cambridge, United Kingdom

1. Number of accessions:

Some old seeds of lines used for developing varieties.

2. Number of accessions stored with passport data:

4. Number of accessions with evaluation data: (see Summary 1)

5. Facilities for conservation and conditions:

Facilities for any than seasonal carry-over storage are extremely poor.

8. How to contact the curator of the collection:

C. Leakey
The Close
15 Cambridge Rd. Girton
Cambridge CB3 OPN
Phone: 44 1223 276866
Fax: 44 1223 565215
E-mail: clal@zoom.co.uk

9. References of publications:

LEAKEY C.L.A. (1973) A note on *Xanthomonas* blight of beans (*Phaseolus vulgaris* (L.) Savi and prospects for its control by breeding for tolerance. Euphytica **22**132- 140

LEAKEY C.L.A. (1974b) In CIAT Potentials of field beans and other food legumes in Latin America. pp 263-265 Plant introduction and germplasm of *Phaseolus vulgaris* and other food legumes.

LEAKEY C.L.A. (1975) Making use of germplasm collections Bean Improvement Co-operative (BIC) Annual Report **18** 38-41

LEAKEY C.L.A. (1988) Genotypic and Phenotypic markers in Common Bean pgs 245-327 In GEPTS P. Ed. Genetic Resources of *Phaseolus* beans. 245-327

LEAKEY (1996) Breeding *Phaseolus* beans for consumer quality Grain Legumes **11** 23.

LEAKEY C.L.A.(1999) Progress in developing dry *Phaseolus* beans for Britain Aspects of Applied Biology **55** 195-202

LEAKEY C.L.A. (1999) Progress in developing tannin-free dry *Phaseolus vulgaris*. Bean Improvement Co-operative (BIC) Biennial Conference Proceedings Calgary, Canada

11. Breeding lines to develop *Phaseolus* new varieties:

Breeding lines that have been used to obtain new *Phaseolus* varieties by Colin Leakey's breeding programmes.

[1]DIACOL NIMA, COFINEL, COCO-R No 2, SURVIVAL, HORSEHEAD,OPAL, ROYAL RED, MERVEILLE DE FRANCE (= 'LIMOUSIN'), MINVERT, SHAKO, ROCKET, EMERSON, BICO d'OURO, Al-10-M, ZILLIS, XPR 35, RACHEL, EARLYRAY, CALLIDE,

[1]There is a deep and useful description of each one of the breeding lines wich could be asked to the author of this chapter.

"AS" CODED GREEN-SEEDED FRENCH BEANS BULK:

This material comprised a population of early generation single plant selections from a pool of material obtained by Nutting and Speed from NPI Seeds of the USA, with permission to use for study and hybridisation in the NS bean breeding programme. I acquired thismaterial as part of a deal on the dissolution of N & S. "VERITY" is a straight selection from this material. but was used during its re-selection years as a seed parent. The parentage of the AS lines was not disclosed but clearly relates to the work with the "persistent green" trait developed by the famous breeder Bill Dean.

ADDITIONAL GERMPLASM EMPLOYED:

Many other parental lines have been used in creating families that have fallen by the wayside through providing no segregates considered of sufficient promise to continue their use beyond three or four generations of assessment.

These have included, especially PI lines from USDA, lines from CIAT's programme and other lines from INRA of particular described attributes that might have been useful has the crosses "knicked" better.

12. *Phaseolus* varieties[2] obtained by the institution:

Red-mottled kidney:
HORSEHEAD ex Diacol Nima X Cofinel

Red-seeded:
STOP Brazil 2 (Bico d Ouro) X Royal Red

A yellow-seeded Manteca bean:
PRIM

Yellow and white-seeded beans:
COSCORRONS
IMPERIAL

PRECIOUS
VICTOR
COCO COSCORRON
GEEWIZZ

Green -seeded dry beans:
GOGO and JALOUSIE
VERITY

Haricot blanc sec types:
White Alubia Beans (similar to Canellinis):
MONTBLANC

Great Northern varieties:
GENERATIF
CASA
OPERA
DORDOGNE

Coco blanc varieties:
COQUETTE
PLUSGUS

Green pod vegetable bean varieties:
VERITY
PLUSGUS (from 'ZILLIS' X XPR35).

[2]There is a deep and useful description of each one of the varieties wich could be asked to the author of this chapter.

The continuing breeding programme

1) Aim New Pintos for Northern Europe:

Two families are still being 'worked' at advanced generation stage from a range of candidate crosses created between selected F4 Coscorron lines as female parent with respectively a commercial Pinto variety "Earlyray" and our own 'Generatif' as pollen parents.

In the pipeline and near to market is a new range of very early maturing Pinto beans. It is unclear at present where work to complete the breeding of this material can be accommodated.

Some of the lines are being co-assessed in Canada with S.S. Johnson Seeds breeder Eric Klassen. There may be interest from a British university programme in collaborating to bring several new pintos to the point of commercial exploitability.

2) Aim to produce 'extra-fine' green-seeded "French" beans

A family from a cross between "VERITY" and "CALLIDE" contains some interesting material but was not grown on during 1999 or 2000 for lack of support or interest in extra fine bean production since such material is all now imported.

YUGOSLAV BANK OF PLANT GENES "YUGB"
Yugoslavia

1. Number of accessions[1]

	Number	Origin			Type	
		NC	EC	O	C	W
Phaseolus vulgaris	276					

[1]National Collection (NC), European Collection (EC),Other (0), Cultivated (C), Wild (W)

5. Facilities for conservation and conditions:

long-term conservation conditions.

8. How to contact the curator of the collection:

D. Jovicevic
Institute of Field and Vegetable Crops
Maksima Gorkog 30
21000 Novi Sad, F. R. Yugoslavia
Phone: (381-21) 614933
Fax: (381-21) 621212

STATUS OF THE W ORLD *Phaseolus* COLLECTION

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL "CIAT"
Cali, Colombia

1. Number of accessions

We keep collections of over 40,000 accessions of *Phaseolus* beans, for about 35 species.

2. Number of accessions stored with passport data:

A substantial number of these accessions (65%) have full passport data, and another set have at least country of origin.

3. Number of accessions with characterization data:

Characterization data also exist for a majority of these accessions, or are in the process to be documented.

4. Number of accessions with evaluation data:

The availability of evaluation data is much more variable: they exist for the core collection of *P. vulgaris*. Evaluation has not been performed systematically for all accessions and when existing scales and standards of evaluation might have changed. We are in the process to collate and verify all that information, but it will take a couple of years before that compilation is finished. More importantly, we are in the process during this year 2000 to put this information on the internet, starting with passport data of all accessions designated to FAO. We use to publish catalogues about bean germplasm in the past, but we are to abandon that (too expensive, and frequent updating) and to put that information at CIAT web site.

5. Facilities for conservation and conditions:

Two major cold stores with capacity of 100,000 accessions each (with the recent addition of a third cold store at +5C), one at -20C and another one at +5C. Total occupancy 55-60%, which means that extra space for short and long-term conservation exists.

6. Availability of seeds:

For the germplasm designated to FAO (31,880 accessions of *Phaseolus* beans, declared in August 1999), we distribute free of charges small amounts of

seeds, that is for common bean, a sample of 25 seeds per accession, year and institution. Larger amounts can be produced and distributed on a contract basis, and we charge for the cost to produce that seed.

7. Availability of information in Internet:

www.ciat.cgiar.org/projects/bar_sb1.htm

8. How to contact the curator of the collection:

D. G. Debouck
Head, GRU-CIAT
P. O. Box 6713
Cali, Colombia
Email: d.debouck@cgiar.org

9. References of publications

There is a list of the publications of the lab, where several accessions of the FAO designate collections are mentioned/ have been studied. We can send reprints/ copies for those who have a particular interest.

EUROPEAN BEAN MARKET CLASSES

EUROPEAN BEAN MARKET CLASSES

Marta Santalla[1], Antonio M. De Ron[1] and Osvaldo Voysest[2]

[1]Legumes Breeding Group. MBG-CSIC. Pontevedra. Spain
[2]Centro Internacional de Agricultura Tropical (CIAT). Cali. Colombia

In this chapter of the Catalogue is included the description of the different types of dry beans (*Phaseolus vulgaris* L.) currently cultivated in Europe or/and maintained in the gene banks and breeder collections.

In order to make more active and useful this description, the different types are grouped according to the well-known international market classes, with a reference to the most frequent local names (Bosch et al. 1998), as shown in table 1. These market classes are grouped by seed colour in the following ones: white, cream, yellow, brown, pink, red, purple and black (Voysest 2000). Additionally some new market classes of European bean types, are proposed (MAPA 1984).

As samples to illustrate the different market classes some accessions maintained in the germplasm collection from the Misión Biológica de Galicia - CSIC (Ron *et al.* 1997) were used.

Table 1. Common bean international market classes and synonyms.

SEED COLOUR	INTERNATIONAL MARKET CLASS	SYNONYMS
White	Small white	Garbancillo, Arrocina
	Navy	Chichos blancos
	Great Northern	Garbanzo, Gallega de Carballo, De Peón, Sorana
	Marrow	Blanca redonda, Pocha, Riso bianco, Fagiolo di Controne
	Large Great Northern	Plancheta
	Hook (*)	Ganxet
	Canellini	Alubia, Pinet, Granjilla, Haricot blanc, Fasolia, Fagioli, Feijão branco, Canellino
	White kidney	Flageolet, Blanca de Riñón
	Favada	Faba, Granja
White (bi-coloured)	Hen eye (*) (**)	Ollo de Pita, Nasieddu
	Rounded Caparron (*) (**)	Caparrón redondo, Tuvagliedda

SEED COLOUR	INTERNATIONAL MARKET CLASS	SYNONYMS
	Red Caparron (*) (**)	Red Calypso, Caparrón rojo
	Kindney Caparron (*) (**)	Caparrón de Riñón,
	Favada pinto(*) (**)	Faba pinta, Speckled Brown Cow Beans
Cream	Carioca	
	Mulatihno	
	Dark garbanzo (*)	Garbanzo oscuro
	Sargaço	Feijão Sargaço
	Mottled Canellini (*)	Manteca jaspeada
	Viscado (*)	Feijão Viscado
	Pinto	Pinta
	Ojo de Cabra	Borlotto lingua di fuoco, Ciuoto, Marucchedda
	Bayo Gordo	Feijão sete semanas, Tabacchino
	Cranberry	Pinta de León, Vermont Cranberry
	Canela	Yellow flageolet
	Large Cranberry (*)	Avinado
Yellow	Small yellow (*)	De aceite
	Garbancillo	Garbanzo amarillo, Verdolino
	Canario bola	Amarilla peón, Amarilla redonda
	Azufrado	
Brown	Chumbinho	Garbanzo marrón
	Brown Marrow (*)	Marrón redonda
	Brown garbanzo (*)	Garbanzo marrón
	Brown mottled (*)	Jaspeada oscura
	Manteca	
Pink	Rosada (*)	
	Light red kidney	Alubia rosada
Red	Small red	Chicho rojo
	Sangretoro	Morada redonda, Del vino
	Guernikesa (*)	
	Dark red kidney	Morada larga, Red flageolet
	Red Pinto	Palmeña
	Large red mottled (*)	Rojo moteado, baccicia
Purple	Morado	
	Purple Caparron	Caparrón morado
Black	Black Turtle	Negrita
	Negro brillante	Tolosana
	Black Canellini (*)	Faba negra, Black Valentine
	Black mottled	Negra pinta

(*) New market class

(**) Heirloom beans

REFERENCES

Bosch, L., F. Casañas, E. Sánchez, M. Pujolá, F. Nuez. 1998. Selection L67, a pure line with true seed type of the ganxet common bean (*Phaseolus vulgaris* L.). HortScience 33: 905-906

MAPA. 1984. Alubias, garbanzos y lentejas. Una fuente de proteínas. Ministerio de Agricultura, Pesca y Alimentación. Madrid, Spain. 240 pp.

Ron, A. M. De, M. Santalla, N. Barcala, A. P. Rodiño, P. A. Casquero, M. C. Menéndez. 1997. Beans (*Phaseolus* spp.) collection at the Misión Biológica de Galicia - CSIC in Spain. Plant Genetic Resources Newsletter 112: 100

Voysest, O. 2000. Mejoramiento genético del fijol (*Phaseolus vulgaris* L.). Legado de variedades de América Latina 1930 - 1999. CIAT. Cali. Colombia. 195 pp.

MARKET CLASSES OF WHITE SEED

Market Class:
Small White

100 Seeds/weight (g):
27 g

Accession MBG-CSIC:
PHA-0009

Market Class:
Navy

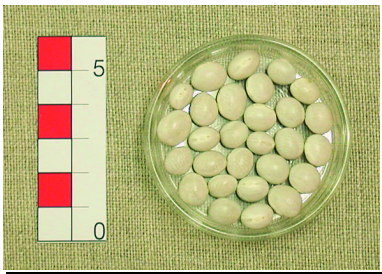
100 Seeds/weight (g):
22 g

Accession MBG-CSIC:
PHA-0471

Market Class:
Great Nothern

100 Seeds/weight (g):
45 g

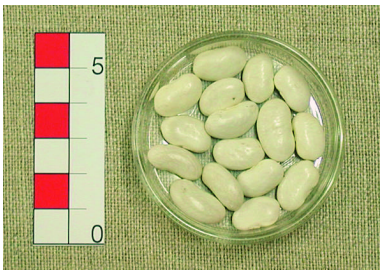
Accession MBG-CSIC:
PHA-0019



Market Class:
Marrow

100 Seeds/weight (g):
43 g

Accession MBG-CSIC:
PHA-0065



Market Class:
Large Great Nothern

100 Seeds/weight (g):
58 g

Accession MBG-CSIC:
PHA-0240

Market Class:
Hook

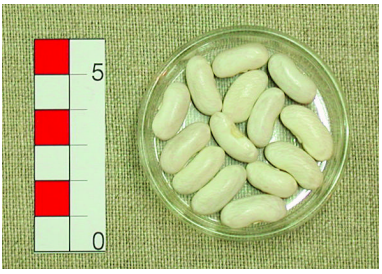
100 Seeds/weight (g):
45 g

Accession MBG-CSIC:
PHA-0593

Market Class:
Canellini

100 Seeds/weight (g):
74 g

Accession MBG-CSIC:
PHA-0600



Market Class:
White Kidney

100 Seeds/weight (g):
66 g

Accession MBG-CSIC:
PHA-0187

Market Class:
Favada

100 Seeds/weight (g):
98 g

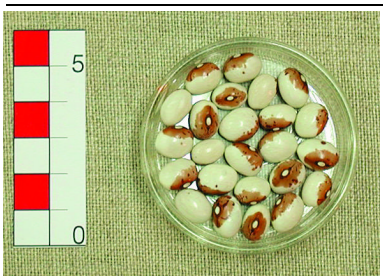
Accession MBG-CSIC:
PHA-0222

MARKET CLASSES OF WHITE (BI-COLOURED) SEED

Market Class:
Hen eye

100 Seeds/weight (g):
57 g

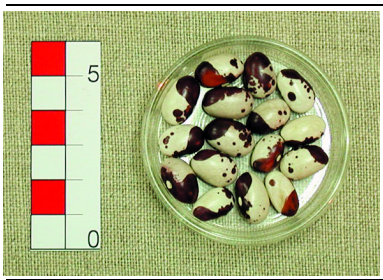
Accession MBG-CSIC:
PHA-0017



Market Class:
Rounded Caparron

100 Seeds/weight (g):
49 g

Accession MBG-CSIC:
PHA-0331



Market Class:
Red Caparron

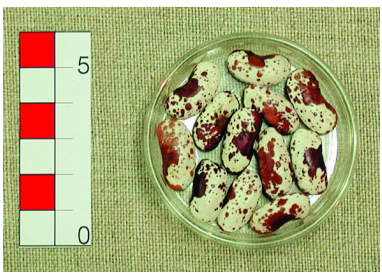
100 Seeds/weight (g):
73 g

Accession MBG-CSIC:
PHA-0404

Market Class:
Kidney Caparrón

100 Seeds/weight (g):
64 g

Accession MBG-CSIC:
PHA-0252

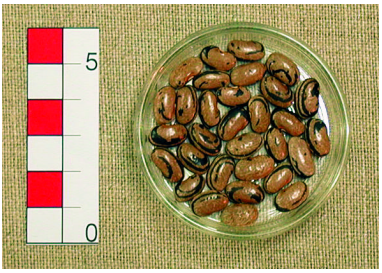


Market Class:
Favada Pinto

100 Seeds/weight (g):
79 g

Accession MBG-CSIC:
PHA-0413

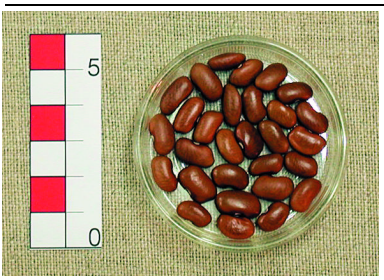
MARKET CLASSES OF CREAM SEED



Market Class:
Carioca

100 Seeds/weight (g):
21 g

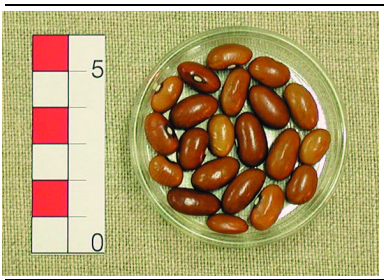
Accession MBG-CSIC:
PHA-0671



Market Class:
Mulatinho

100 Seeds/weight (g):
23 g

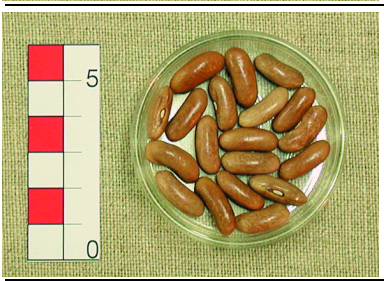
Accession MBG-CSIC:
PHA-0678



Market Class:
Dark Garbanzo

100 Seeds/weight (g):
50 g

Accession MBG-CSIC:
PHA-0025



Market Class:
Sargaço

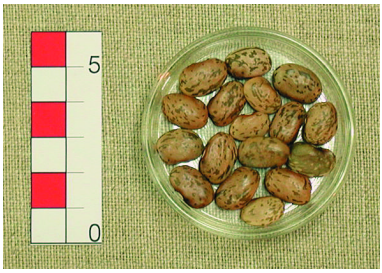
100 Seeds/weight (g):
48 g

Accession MBG-CSIC:
PHA-0655

Market Class:
Mottled Canellini

100 Seeds/weight (g):
52 g

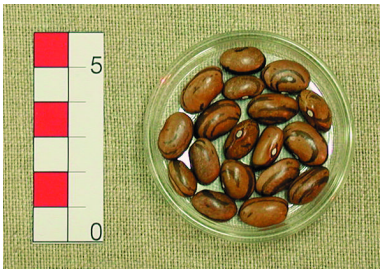
Accession MBG-CSIC:
PHA-0048



Market Class:
Pinto

100 Seeds/weight (g):
42 g

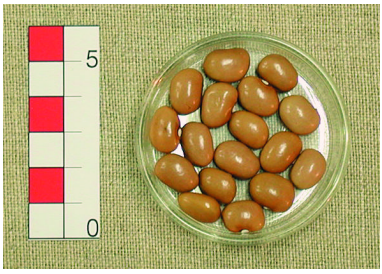
Accession MBG-CSIC:
PHA-0057



Market Class:
Ojo de Cabra

100 Seeds/weight (g):
58 g

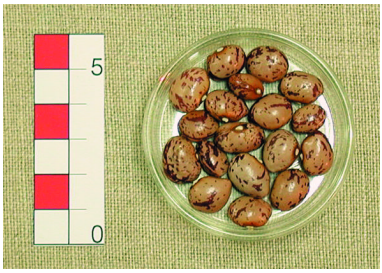
Accession MBG-CSIC:
PHA-0434



Market Class:
Bayo Gordo

100 Seeds/weight (g):
57 g

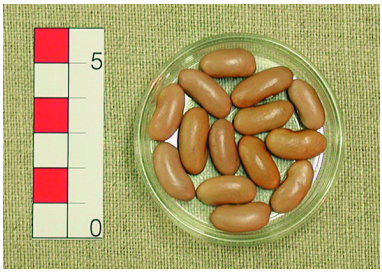
Accession MBG-CSIC:
PHA-0061



Market Class:
Cranberry

100 Seeds/weight (g):
61 g

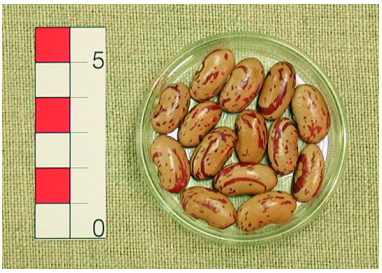
Accession MBG-CSIC:
PHA-0242



Market Class:
Canela

100 Seeds/weight (g):
61 g

Accession MBG-CSIC:
PHA-0118



Market Class:
Large Cranberry

100 Seeds/weight (g):
72 g

Accession MBG-CSIC:
PHA-0104

MARKET CLASSES OF YELLOW SEED

Market Class:
Small yellow

100 Seeds/weight (g):
44 g

Accession MBG-CSIC:
PHA-0598

Market Class:
Garbancillo

100 Seeds/weight (g):
49 g

Accession MBG-CSIC:
PHA-0328

Market Class:
Canario Bola

100 Seeds/weight (g):
59 g

Accession MBG-CSIC:
PHA-0475

Market Class:
Azufrado

100 Seeds/weight (g):
79 g

Accession MBG-CSIC:
PHA-0112

MARKET CLASSES OF BROWN SEED

Market Class:
Chumbinho

100 Seeds/weight (g):
31 g

Accession MBG-CSIC:
PHA-0632

Market Class:
Brown Marrow

100 Seeds/weight (g):
42 g

Accession MBG-CSIC:
PHA-0038

Market Class:
Brown garbanzo

100 Seeds/weight (g):
48 g

Accession MBG-CSIC:
PHA-0116

Market Class:
Brown mottled

100 Seeds/weight (g):
54 g

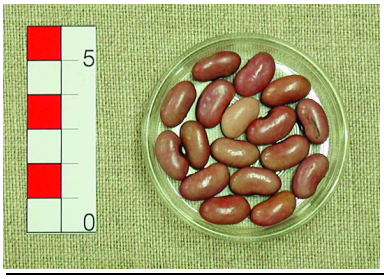
Accession MBG-CSIC:
PHA-0275

Market Class:
Manteca

100 Seeds/weight (g):
60 g

Accession MBG-CSIC:
PHA-0252

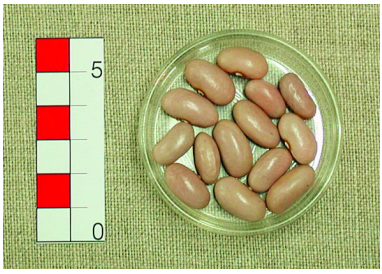
MARKET CLASSES OF PINK SEED



Market Class:
Rosada

100 Seeds/weight (g):
53 g

Accession MBG-CSIC:
PHA-0910

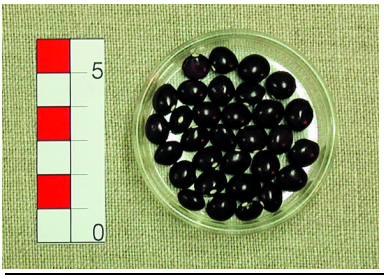


Market Class:
Light Red Kidney

100 Seeds/weight (g):
68 g

Accession MBG-CSIC:
PHA-0261

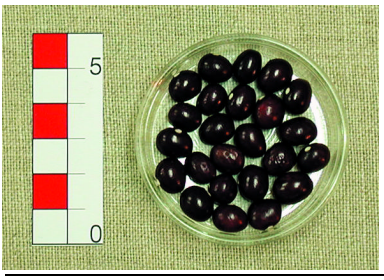
MARKET CLASSES OF RED SEED



Market Class:
Small Red

100 Seeds/weight (g):
32 g

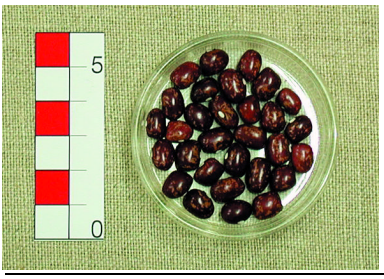
Accession MBG-CSIC:
PHA-0568



Market Class:
Sangretoro

100 Seeds/weight (g):
49 g

Accession MBG-CSIC:
PHA-0407



Market Class:
Guernikesa

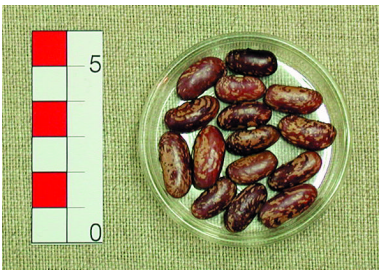
100 Seeds/weight (g):
33 g

Accession MBG-CSIC:
PHA-0490

Market Class:
Dark Red Kidney

100 Seeds/weight (g):
39 g

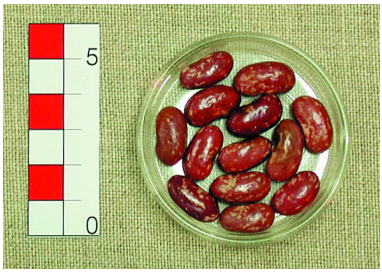
Accession MBG-CSIC:
PHA-0649



Market Class:
Red Pinto

100 Seeds/weight (g):
58 g

Accession MBG-CSIC:
PHA-0621

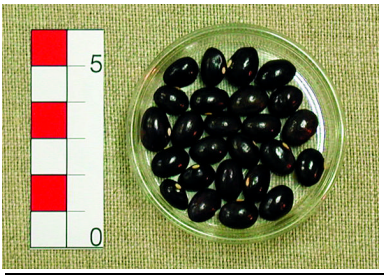


Market Class:
Large red mottled

100 Seeds/weight (g):
74 g

Accession MBG-CSIC:
PHA-0668

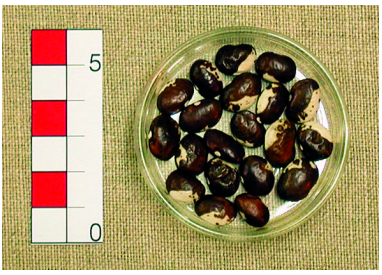
MARKET CLASSES OF PURPLE SEED



Market Class:
Morado

100 Seeds/weight (g):
41 g

Accession MBG-CSIC:
PHA-0177

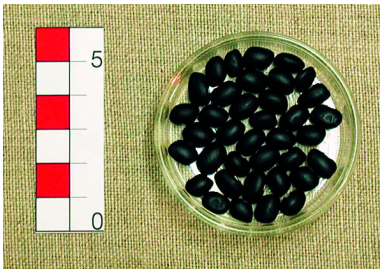


Market Class:
Purple Caparrón

100 Seeds/weight (g):
42 g

Accession MBG-CSIC:
PHA-0272

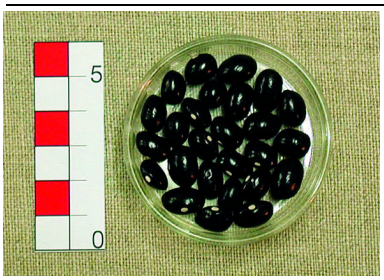
MARKET CLASSES OF BLACK SEED



Market Class:
Black Turtle

100 Seeds/weight (g):
22 g

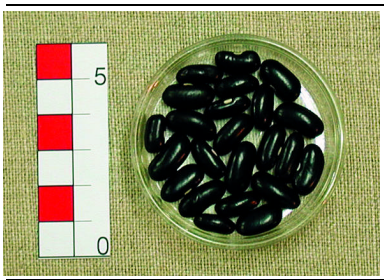
Accession MBG-CSIC:
PHA-0397



Market Class:
Negro brillante

100 Seeds/weight (g):
39 g

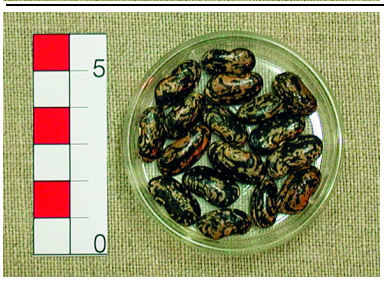
Accession MBG-CSIC:
PHA-0502



Market Class:
Black Canellini

100 Seeds/weight (g):
40 g

Accession MBG-CSIC:
PHA-0136



Market Class:
Black mottled

100 Seeds/weight (g):
46 g

Accession MBG-CSIC:
PHA-0255

APPENDIX I

List of organizations/institutions and addresses

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E-mail: genbank@agrobio.bmlf.gv.at

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B-1860 Meise
Belgium
Phone: + 32 (0) 2 260 09 20
Fax: + 32 (0) 2 260 09 45
E-mail: vanderborght@br.fgov.be

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Sadovo, District Plovdiv
Bulgaria

INSTITUTE FOR WHEAT AND SUNFLOWER “IWS DOBROUDJA”
General Toshevo 9520
Bulgaria
E-mail: genchevd@yahoo.com

AGRITEC, Ltd.
Zemedelska 16
787 01 Sumperk
Czech Republic
E-mail: hybl@agritec.cz

RESEARCH INSTITUTE OF CROP PRODUCTION “RICP”
Genebank Department
Slechtitelu 11,
783 71 Olomouc-Holice
Czech Republic
E-mail:olgeba@ova.pvtnet.cz

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Institut de Biotechnologie des Plantes. Universite Paris XI
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91405 Orsay cedex, France
Phone: + 33 1 69 336383
Fax: + 33 1 69 336424
E-mail: Langin@ibp.u-psud.fr

FEDERAL CENTRE FOR BREEDING RESEARCH ON CULTIVATED PLANTAS “BAZ”
Gene Bank, Braunschweig
Germany
E-mail

INSTITUT FÜR PFLANZENGENETIK UND KULTURPFLANZENFORSCHUNG “IPK”
Gene Bank
Gatersleben, Germany

GERMPLASM INSTITUTE “CNR”
Via Amendola 165/a
70126 Bari, Italy
E-mail:germpp04@area.ba.cnr.it

INSTITUTE FOR VEGETABLE CROPS OF MONTANASO LOMBARDO
Lodi, Italy
E-mail: bruno.campion@libero.it or isoml@apm.it.

GENEBANK GENETICS SECTION “EAN”
Estaçao Agronómica Nacional 2784-505
Oeiras, Portugal
Phone: 351 21 440 35 00 (ext.473)
Fax: 351 21 441 60 11
E-mail: e.bettencourt@meganet.pt

PORTUGUESE PLANT GERMPLASM BANK
Braga, Portugal

UNIVERSIDADE DE TRÁS-OS-MONTES E ALTO DOURO “UTAD”
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Fax: + 351 59 350480
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AGRICULTURAL RESEARCH STATION SIMNIC
Statiunea de Cercetari Agricole Simnic
Loc. Simnic, 1110
Jud. Dolj, Romania

CENTRAL STATION FOR PLANT CULTIVATION ON SANDY SOILS DABULENI
Statiunea Centrala de cercetare pentru Cultura plantelor pe nisipuri Dabuleni
Loc. Dabuleni, 1183
Jud. Dolj, Romania

FACULTY OF AGRICULTURE TIMISOARA
Universitatea de Stiinte Agricole a Banatului
Timisoara, 1900
Caela Aradului.nr.19
Jud. Timis, Romania

RESEARCH INSTITUTE FOR VEGETABLE AND FLOWER GARDERING VIDRA
Institutul de Cercetare pentru Legumicultura si Floricultura Vidra
Loc. Vidra, 8268
Jud. Ilfov, Romania

SUCEAVA GENEBANK
B-Dul 1 Decembrie 1918, nr. 17
5800, Suceava, Romania

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N. I. Vavilov Institute of Plant Industry
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E-mail: vir@mail.dux.ru

AGRICULTURAL INSTITUTE OF SLOVENIA
Crop and Seed Production Department
Agricultural Institute of Slovenia
Hacquetova 17
1000 Ljubljana, Slovenia
Phone: 386-61 1375375 • Fax: 386 61 1375413
E-mail: vladimir.meglic@kis-h2.si

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28800 Alcalá de Henares
Madrid, Spain.
E-mail: cuadra@inia.es

INSTITUTO VASCO DE INVESTIGACIÓN Y DESARROLLO AGRARIO "NEIKER"
P. O. Box 46
E-01080
Vitoria, Spain
E-mail: jiruiz@neiker.net

MISION BIOLÓGICA DE GALICIA

CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS "MBG-CSIC"
P. O. Box 28
36080 Pontevedra, Spain
E-mail: csgpoarp@cesga.es

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Edificio Nestlé
08950 Esplugues de Llobregat
Barcelona, Spain

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P. O. Box 172.47080
Valladolid, Spain
Phone: 34 983414461 - 34 9834144438 - 34 983414782 • Fax: 34 983414780
E-mail:Maria-Carmen.Asensio@dgiadr.cag.jcyl.es

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Carretera de Montañana, km 176
Apartado 727
50080 Zaragoza, Spain

SERVICIO REGIONAL DE INVESTIGACIÓN Y DESARROLLO AGROALIMENTARIO "SERIDA"
P. O. Box 13
33300 Villaviciosa
Asturias, Spain
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UNIVERSIDAD POLITÉCNICA DE VALENCIA "U. P. VALENCIA"
Camino de Vera, 14
46022 Valencia, Spain G. Palomares
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E-mail: gpaloma@btc.upv.es

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Camino de Vera, s/nº
46022 Valencia
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E-mail: fnuez@btc.upv.es

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230 53 Alnarp, Sweden
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Fax: 46-40 462188
E-mail: gert@ngb.se

COLIN LEAKY
The Close
15 Cambridge Rd. Girton,
Cambridge CB3 OPN
United Kingdom
Phone: 44 1223 276866
Fax: 44 1223 565215
E-mail: clal@zoom.co.uk

YUGOSLAV BANK OF PLANT GENES "YUGB"
Institute of Field and Vegetable Crops
Maksima Gorkog 30
21000 Novi Sad, F. R. Yugoslavia
Phone: (381-21) 614933
Fax: (381-21) 621212

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL "CIAT"
P. O. Box 6713
Cali, Colombia
E-mail: d.debouck@cgiar.org

APPENDIX II

List of partners in the PHASELIEU project

Partner 1:

Scientific Coordinator: *A. M. De Ron*
Administrative Coordinator: *J. M. Amurrio*
Computer manager: *L. Outeiriño*
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Partner 4:

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Hans-Jörg Jacobsen
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AEP

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PHASELIEU