



GERMPLASM CONSERVED IN THE PORTUGUESE GENE BANK

Ana Maria Barata

BPGV/INIAV

EVA Maize – Malanirs Kickoff

26-27 February, 2025

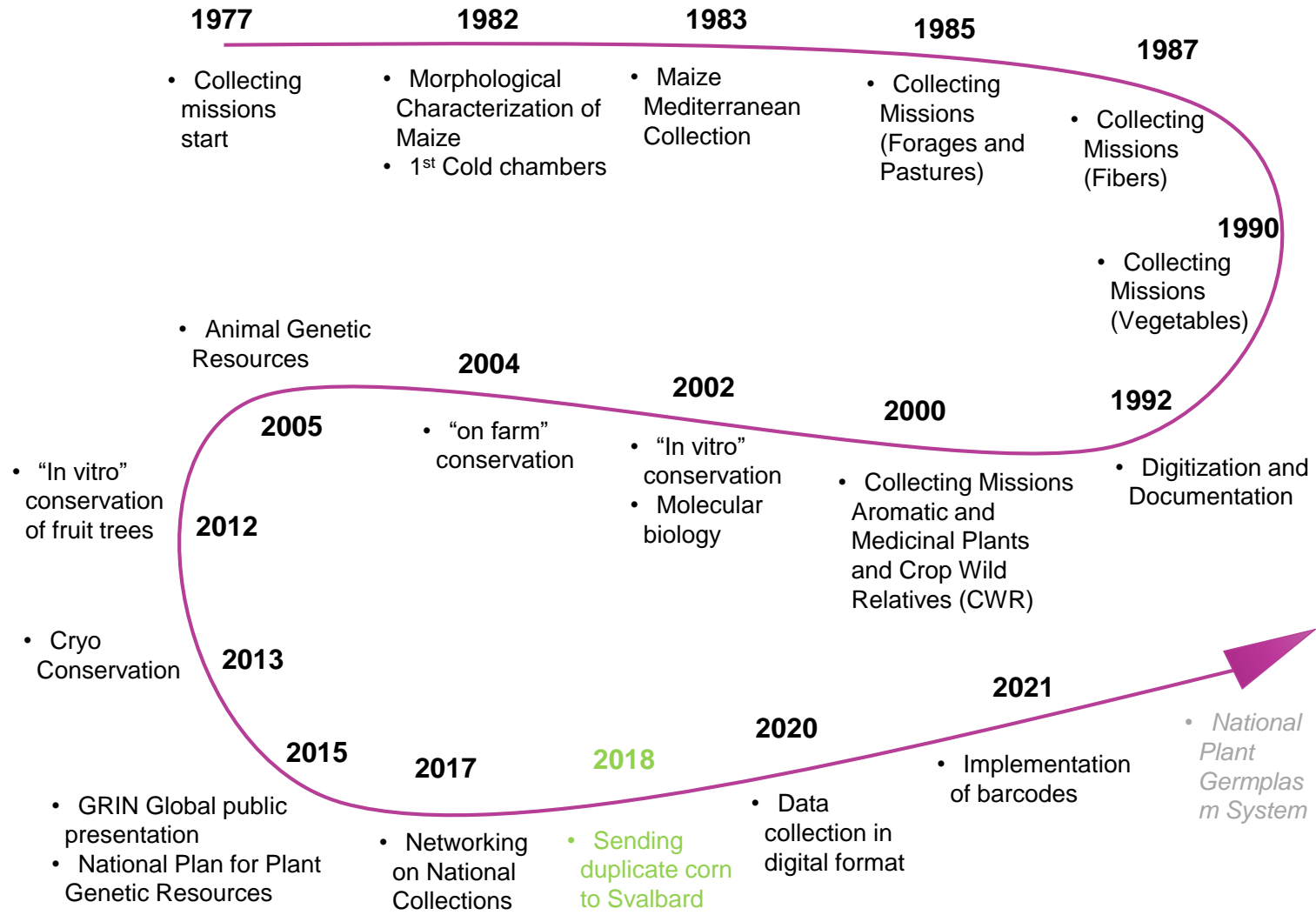
Bergamo, Italy



BPGV: The Portuguese Plant Genebank



The History of the BPGV



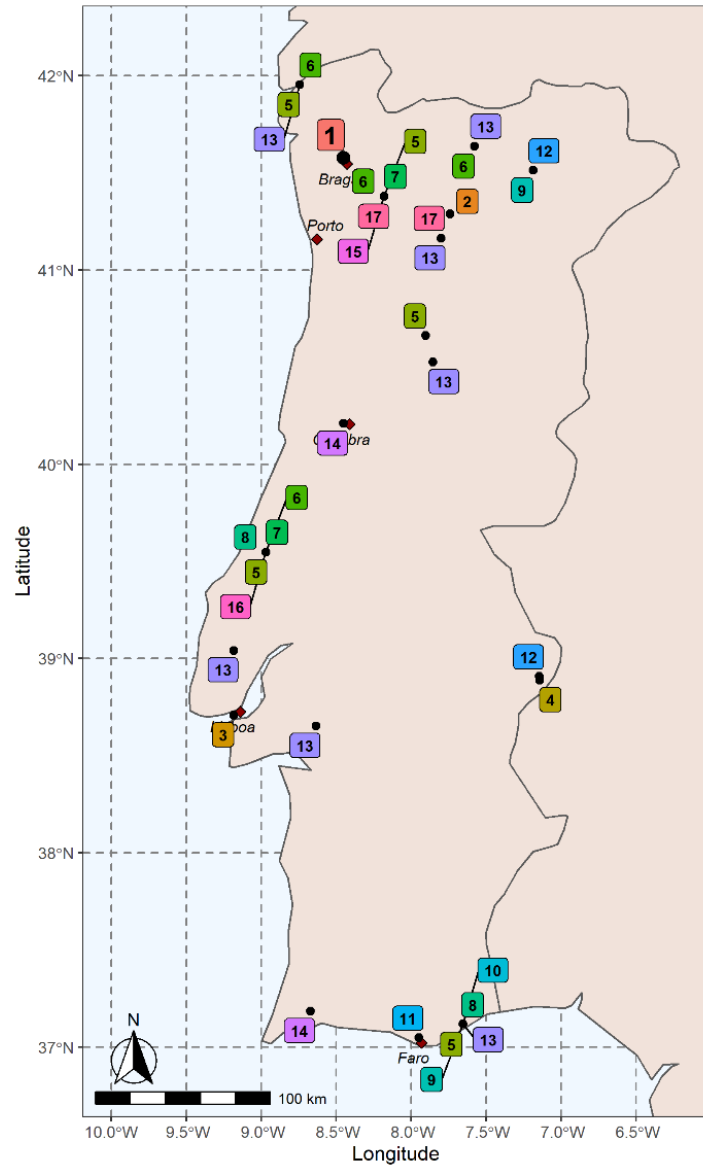
The work continues



Group of species	Total
Aromatic and Medicinal Plants	1 257
Cereals	27 086
Fibers	201
Pastures and Forrages	2 928
Vegetables	6 417
Grain Legumes	6 876
Others	22
Total	44 752



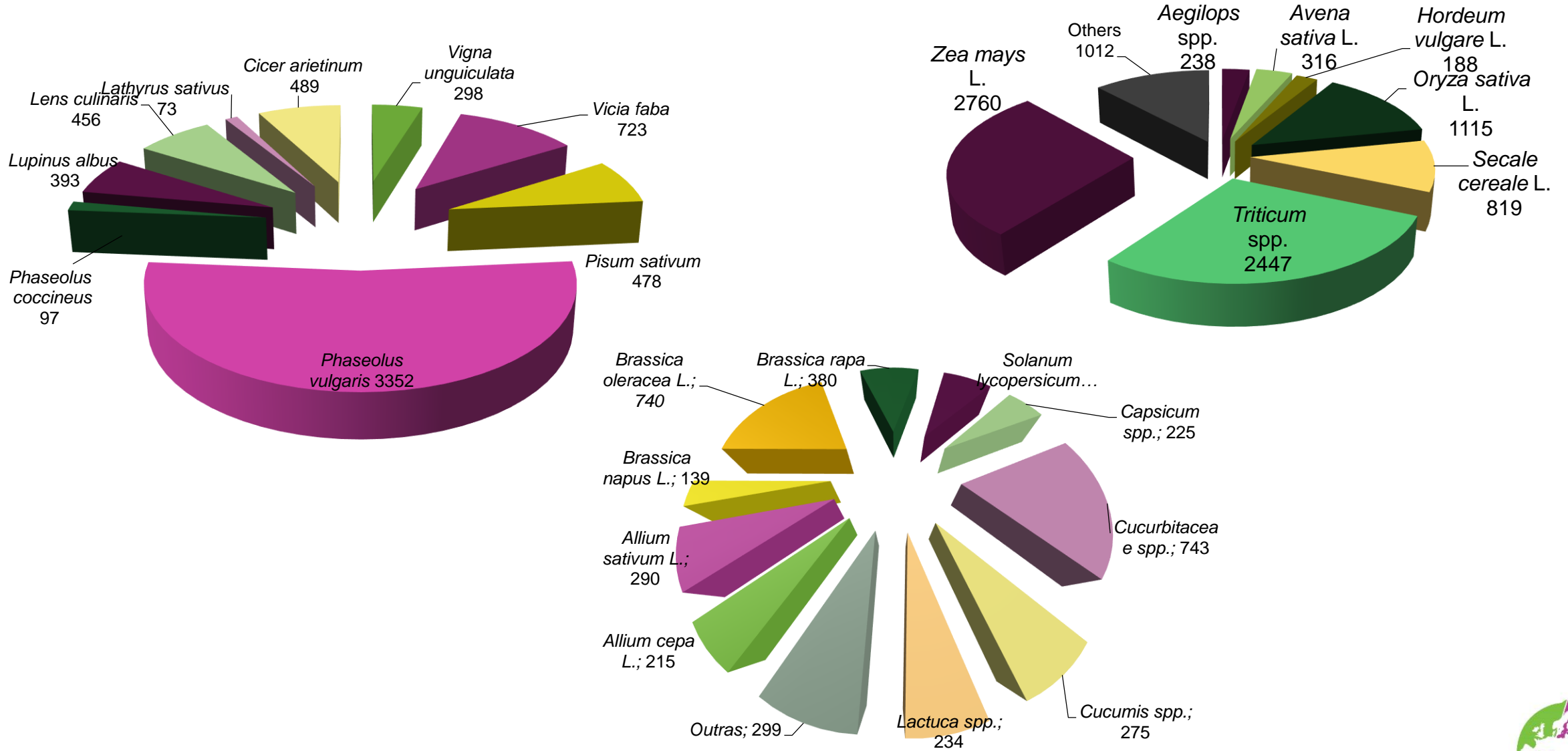
The collections of Plant Genetic Resources for Food and Agriculture in Portugal



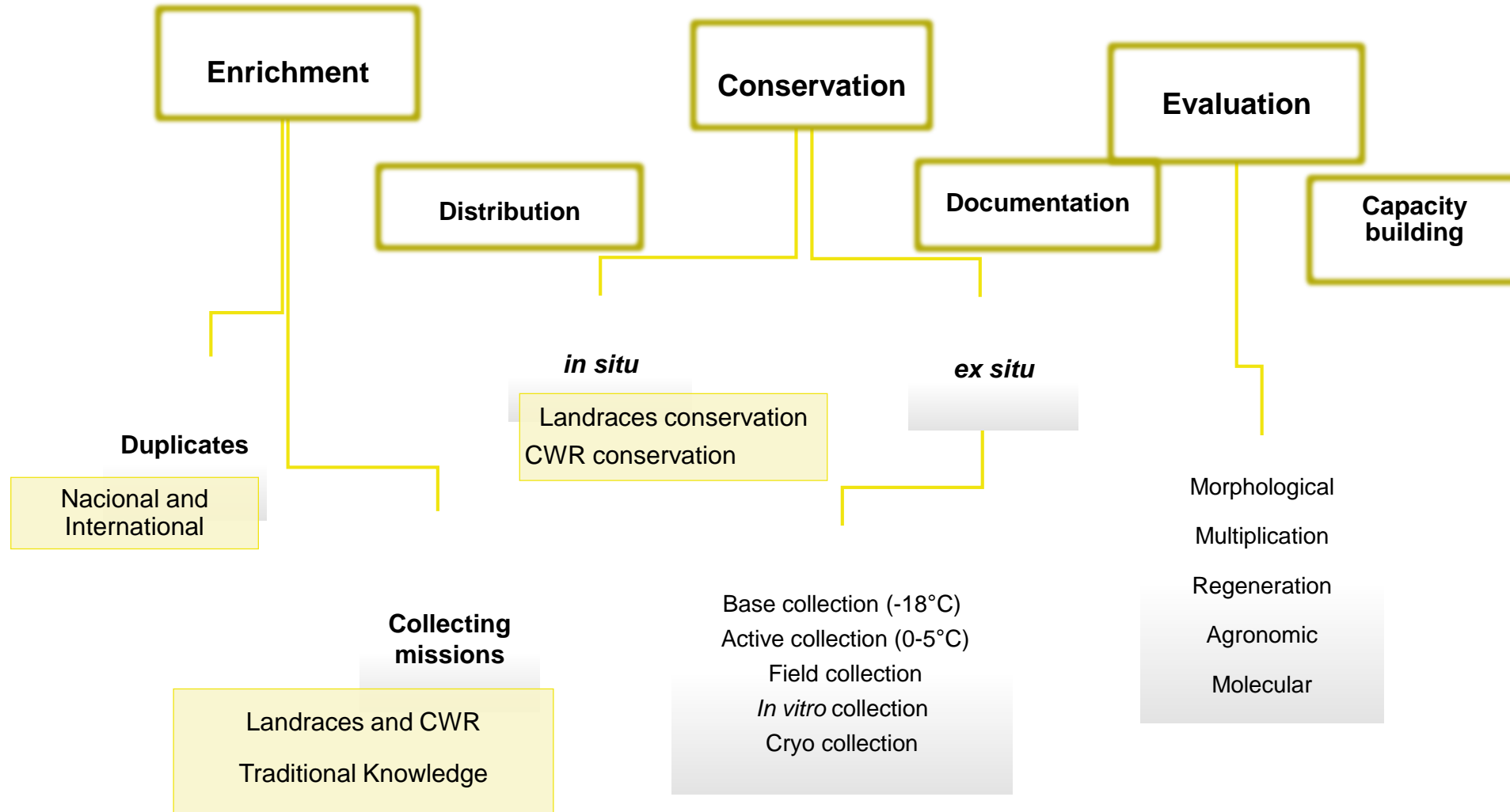
Collections

- | | |
|----|--|
| 1 | Cereals; Grain legumes; Vegetables; Forrages; Medicinal and aromatic plantas; Fibers |
| 2 | Cucurbits |
| 3 | Lupinus; Coffea |
| 4 | Fibers; Forrages; Grain legumes |
| 5 | Apples |
| 6 | Pears |
| 7 | Sweet cherry; Sour cherry; Persimmon; Quince |
| 8 | Figs; loquat; Pomegranate |
| 9 | Almonds |
| 10 | Carob |
| 11 | Citrus |
| 12 | Olives |
| 13 | Grapes |
| 14 | Strawberry tree |
| 15 | European hazel |
| 16 | Walnut |
| 17 | Chestnut |

BPGV Collections



Main activities at BPGV



Ex situ conservation

Long-term storage (-18°C to -20°C)
Medium-term storage (0°C to 5°C)



Ex Situ Conservation

Cold

Cryo

In vitro



Field collections



Field collections



Humulus lupulus L.



Allium sativum L.



Mentha cervina L.



Origanum vulgare L.



Matricaria chamomilla L.

In vitro conservation is a medium term conservation, *ex situ*, for vegetative propagation species.



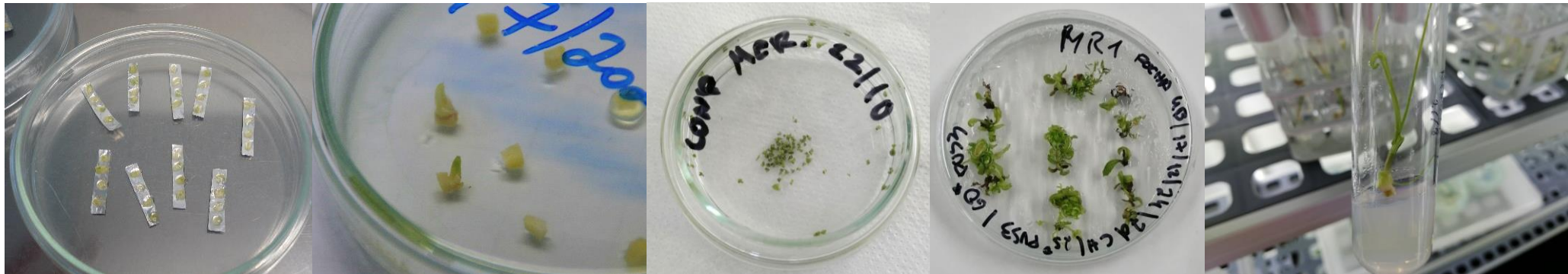
At BPGV:

In 2003, the *in vitro* Conservation Laboratory was established, financed by the AGRO program.

Currently, it is maintained under slow growth conditions *in vitro*:

- Allium collection (296 acc.)
- Pyrus communis collection (72 acc.)
- Malus domestica (1 acc.)

Cryopreservation is a very long-term preservation technique in which cells or tissues remain in liquid nitrogen at extremely low temperatures (-196 °C), which inhibits any metabolic activity.



At BPGV:

Started in 2010 and continued until 2013 as part of an AEGIS project.

It restarted in 2021 using new techniques and protocols;

It mainly affects, at the moment, the species *Allium sativum* and *Pyrus communis*;

It currently has 40 cryopreserved accessions.

Documentation and information

<https://www.inia.pt/bpgv>



RECURSOS GENÉTICOS VEGETAIS

- PLATAFORMA ON-LINE -

No âmbito das estratégias definidas no **Plano Nacional para os Recursos Genéticos Vegetais**, o Banco Português de Germoplasma Vegetal (BPGV) disponibiliza o acesso à informação de conservação dos Recursos Genéticos Vegetais no País.

A informação está disponível no endereço <http://bpgv.inia.pt>, estando suportado na plataforma internacional GRIN-Global enquanto ferramenta de organização, gestão e disponibilização de informação em Recursos Genéticos.

A informação agora disponibilizada resulta dum processo contínuo de atualização e incremento de conhecimento da conservação nacional de recursos genéticos vegetais.

GRIN Global

Banco Português de Germoplasma Vegetal

PLANO NACIONAL PARA OS RECURSOS GENÉTICOS VEGETAIS 2015

GOVERNO DE PORTUGAL | MINISTÉRIO DA AGRICULTURA E DO MAR

iniav | Instituto Nacional de Investigação Agrária e Veterinária, I.P. | DGADR | Direção-Geral de Agricultura e Desenvolvimento Rural | dgav

Documentation and information



Select the tab for the type of search. Each tab has everything you need to do to perform that type of search.

Return up to 500

Simple Search List Search **Advanced Search** Results

Ze mays Search

Available
 All - Including historic (not in the BPGV collections, information only)

Limit accessions displayed to only those:
 With genomic data With NCBI link

Clear All

Additional search criteria:

Simple Search List Search **Advanced Search** Results

Your query included: **All accessions** Zea mays

View Observation Data

Selected item(s) below: Add to Cart View Accession Details

ACCESSION	NAME	TAXONOMY	ORIGIN	REPOSITORY	IMAGE	AVAILABILITY
<input type="checkbox"/> BPGV00001	Milho branco palha ou orelha de mula	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00002	Milho branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00003	Milho branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00004	Milho branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00005	Milho branco palha alta	Zea mays L.	Santarém, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00006	Milho meia palha	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00007	Milho branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00008	Milho pega	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00009	Milho regional branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available
<input type="checkbox"/> BPGV00010	Milho branco	Zea mays L.	Leiria, Portugal	BPGV		Not Available

Details for: BPGV00001, *Zea mays* L., Milho meia palha ou orelha de mula

Summary Passport Taxonomy Other Pedigree IPR Observation

Summary Data

Taxonomy: [Zea mays L.](#)
 Top Name: Milho meia palha ou orelha de mula
 Origin: Collected – Leiria, Portugal
 Maintained: [Banco Português de Germoplasma Vegetal, INIAV, I.P.](#)
 Received by BPGV: 01 out 1977
 Improvement Status: Landrace
 Reproductive Uniformity: Population
 Form Received: Seed
 Backup Location: [Mediterranean Agronomic Institute of Bari](#)

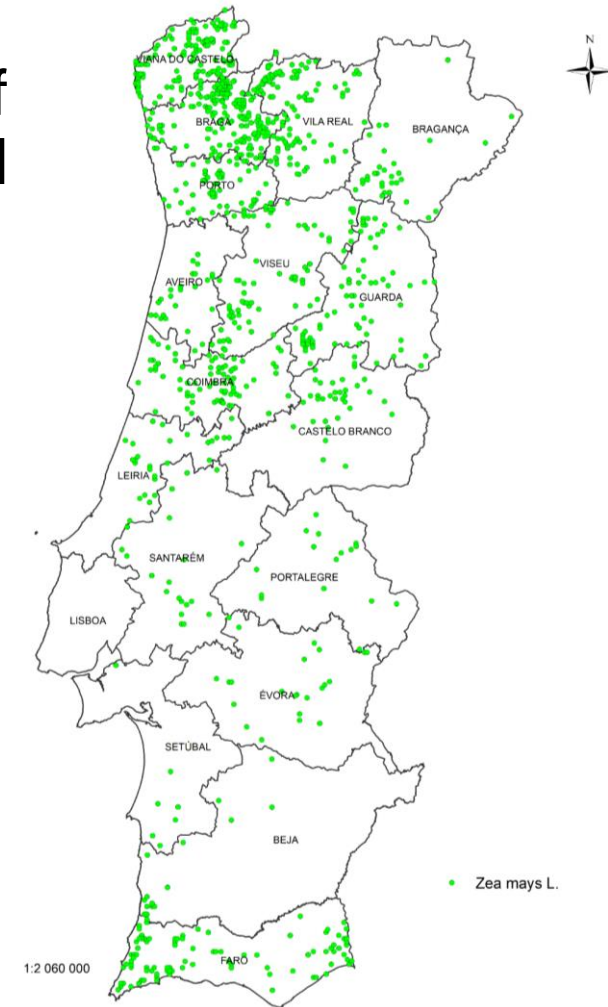
Availability

This accession is available in Banco F

There are no images for this accession.

The *Zea mays* collection consists of 2,760 accessions of Landrace material and 14 accessions of Breeding material and 9,318 accessions of Improvement lines

- In terms of material origin, we have 10 countries that contribute to the enrichment of our collection: These 10 countries contribute with 725 samples (26%), and Portugal contributes with 2,035 samples (74%).
- **Countries that contribute to the enrichment of our collection:** Brazil, France, Germany, Greece, Hungary, Italy, Morocco, Poland, Spain and Yemen
- **European corn collection:** France, Germany, Greece, Italy, Portugal and Spain
- **Mediterranean corn collection:** France, Germany, Greece, Italy, Morocco, Portugal, Spain and Yemen



Mediterranean collection

European Maize Collection, *Core Collection*



Mediterranean collection

Country	Nº accessions
France	16
Germany	8
Greece	216
Italy	19
Morocco	172
Portugal	1 690
Spain	193
Yemen	43
Total	2 357

European Maize Collection, *Core Collection*

Country	Nº accessions
France	16
Germany	8
Greece	12
Italy	19
Portugal	17
Spain	24
Total	96



Participation in projects

1. Resgen (70 landraces)
2. Projects with local farmers
3. EVA Maize (42 landraces)
4. Minlandiv (17 landraces)
5. Participation in the project "A 100 year Seed Longevity Experiment in the Svalbard Global Seed Vault" (5 Landraces Multiplied in 3 years, from 2020 to 2023)
6. Melanirs (40 landraces)

Duplicated in Svalbard: 217 acc (2018); 237 acc (2020) e 333 acc (2023)
Total = 887 acc



Characterization Multiplication/Regeneration

- Multiplied/Regenerated – 1686 acc
- Characterized – 1660 acc

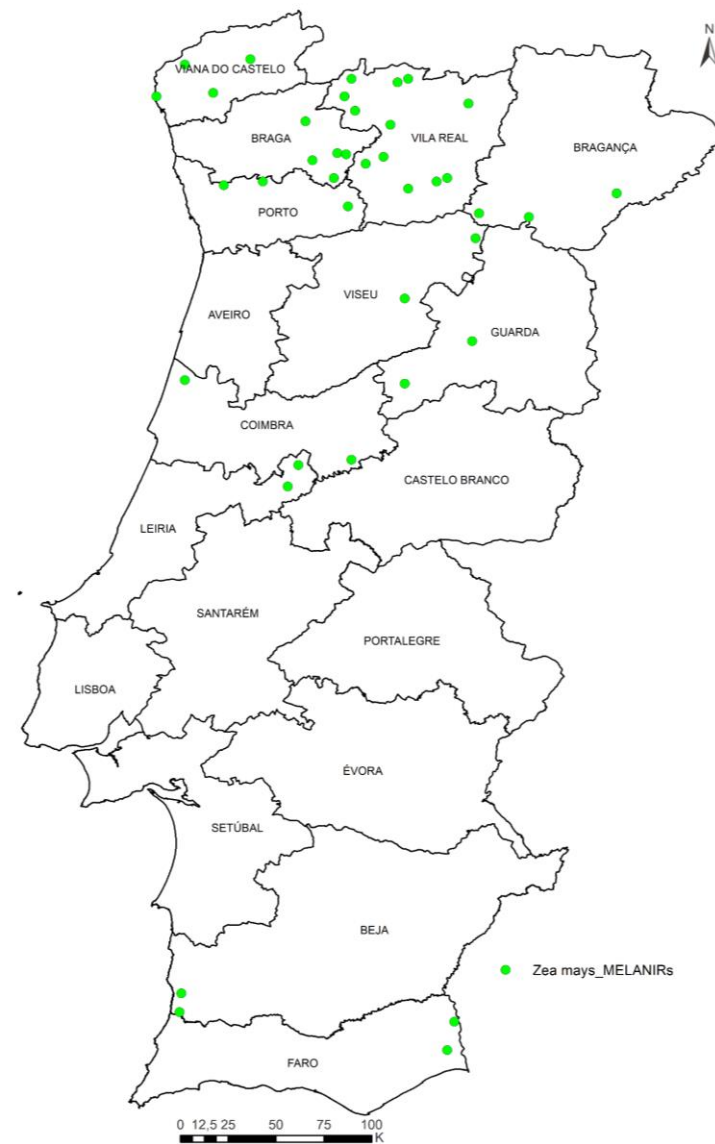


The selection of accesses was based on several assumptions:

- Continuing the work carried out at Resgen
- Largest possible geographic and environmental distribution
- Selection by color
- Selection by grain type

Eco-geographic distribution of selected accessions “Melanirs”

Accession	Geography	Elevation (meters)	Common name	Kernel Type
BPGV00020	Portugal, Leiria	600	Milho amarelo laranja	Flint
BPGV00032	Portugal, Leiria	540	Milho branco	Flint
BPGV00045	Portugal, Coimbra	30	Milho amarelo	Flint
BPGV00133	Portugal, Porto	110	Milho branco	Flint
BPGV00136	Portugal, Porto	50	Milho de batata	Flint
BPGV00163	Portugal, Viana do Castelo	20	Milho branco amarelado	Flint
BPGV00198	Portugal, Viana do Castelo	50	Milho amarelo escuro	Flint
BPGV00219	Portugal, Faro	10	Milho amarelo escuro	Flint
BPGV00228	Portugal, Faro	140	Milho amarelo	Flint
BPGV00308	Portugal, Vila Real	1100	Milho amarelo	Flint
BPGV00310	Portugal, Vila Real	1060	Milho branco amarelado	Flint
BPGV00318	Portugal, Vila Real	700	Milho branco pérola	Flint
BPGV00321	Portugal, Vila Real	715	Milho amarelo	Flint
BPGV00324	Portugal, Vila Real	1110	Milho branco amarelado	Flint
BPGV00335	Portugal, Vila Real	1000	Milho amarelo escuro	Flint
BPGV00339	Portugal, Vila Real	760	Milho branco	Flint
BPGV00358	Portugal, Vila Real	700	Milho milho	Flint
BPGV00361	Portugal, Vila Real	760	Milho unha de porco	Flint
BPGV00362	Portugal, Vila Real	760	Milho amarelo	Flint
BPGV00406	Portugal, Guarda	460	Milho branco	Flint
BPGV00435	Portugal, Braga	500	Milho do rego	Flint
BPGV00457	Portugal, Braga	550	Milho verdial	Flint
BPGV00462	Portugal, Braga	280	Milho branco	Flint
BPGV00667	Portugal, Guarda	500	Milho amarelo	Flint
BPGV02678	Portugal, Braga	550	Milho branco	Flint
BPGV02704	Portugal, Vila Real	390	Milho	Flint
BPGV02764	Portugal, Vila Real	400	Milho amarelo	Flint
BPGV03721	Portugal, Braga	225	Milho amarelo	Flint
BPGV05039	Portugal, Bragança	160	Milho amarelo	Flint
BPGV05298	Portugal, Viseu	480	Milho amarelo	Flint
BPGV05597	Portugal, Bragança	600	Milho amarelo	Flint
BPGV05755	Portugal, Beja	90	Milho amarelo	Flint
BPGV05760	Portugal, Beja	175	Milho branco	Flint
BPGV06214	Portugal, Viseu	650	Milho amarelo	Flint
BPGV06838	Portugal, Viana do Castelo	250	Milho branco	Flint
BPGV06857	Portugal, Coimbra	500	Milho branco	Flint
BPGV07610	Portugal, Porto	700	Milho amarelo	Flint
BPGV08774	Portugal, Viana do Castelo	234	Milho branco	Flint
BPGV12466	Portugal, Bragança	761	Milho amarelo	Flint
BPGV23622	Portugal, Açores	200	Milho branco	Dent



Expectations from EVA Maize/Malanirs

- The BPGV is very interested in making Landraces available for trials to be carried out with various European partners. It is essential to understand the potential of the genetic material and the reliability of these materials.
- BPGV does not have the capacity or equipment for NIRS assessment.
- Partnerships allow trials to be carried out in various geographies and specific environmental contexts.
- The information obtained enriches our collections.



Thank you for your attention

