Plant Genetic Resources in Portugal
Conserving the past as a guaranty the future

Ana María Barata

Maize WG meeting

REPÚBLICA PORTUGUESA

Belgrade, 2,3 December 2019

Size
Status
Availability
Documentation level of the collection
Constraints to efficient conservation
Use and Valorization
On going projects
Legislation
Expectations

Maize WG meeting

REPÚBLICA PORTUGUESA

Belgrade, 2,3 December 2019

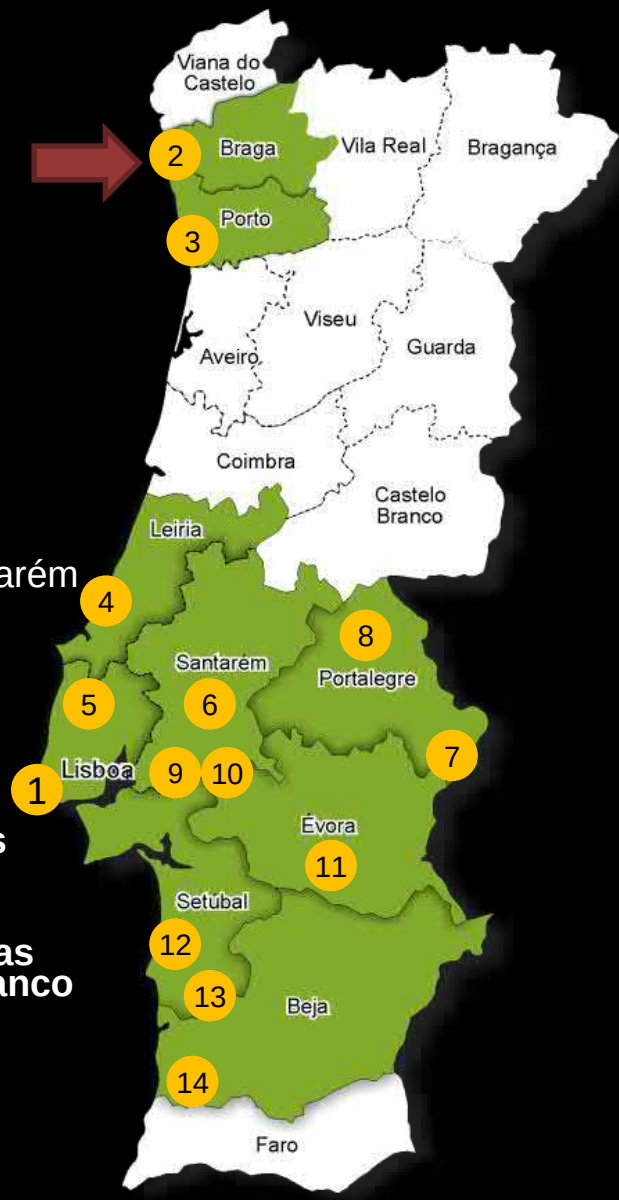
Where we are

Main Office

Quinta do Marquês - Oeiras

Laboratories and Research Stations

1. **Pólos de Lisboa**
   - Tapada da Ajuda
2. **Pólo de Merelim (BPGV)**
   Braga
3. **Pólo de Vairão**
   Vila do Conde
4. **Pólo de Alcobaça**
5. **Pólo de Dois Portos**
   Quinta da Almoínha - Dois Portos
6. **Pólo de Santarém**
   Quinta da Fonte Boa - Vale de Santarém
7. **Pólo de Elvas**
8. **Laboratório de Genética Molecular**
   Alter do Chão
9. **Centro Operativo e Tecnológico do Arroz -** Salvaterra de Magos
10. **Estação Experimental António Teixeira -** Coruche
11. **Laboratório de Veterinária de Évora -** Évora
12. **Herdade Monte dos Alhos**
    S. Domingos da Serra
13. **Posto de Culturas Regadas D. Manoel de Castello Branco**
    Alvalade do Sado
14. **Herdade da Fataca**
    Odemira



National Plan for Plant Genetic Resources

2015

NATIONAL COLLECTIONS NETWORK

Coleções

1 - Aromáticas e Medicinais; Cereais; Fibras; Forragens e Pastagens; Hortícolas; Leguminosas grão, Outras Espécies
2 - Cucurbitáceas
3 - *Lupinus*
4 - Fibras; Forragens e Pastagens; Leguminosas grão
5 - Macieiras – **Coleção de referência**
6 - Macieiras – **Coleção Regional**
7 - Pereiras – **Coleção de referência**
8 - Pereiras – **Coleção Regional**
9 - Cerejeiras, Ginjeiras – **Coleção de referência**
10 - Cerejeiras, Ginjeiras – **Coleção Regional**
11 - Ameixeiras – **Coleção Regional**
12 - Figueiras – **Coleção de referência**
13 - Amendoeira, Citrinos, Alfarrobeiras e Nespereiras, Romãzeiras, Pêros – **Coleção Regional**
14 - Oliveira
15 - Videira
16 - Aromáticas e Medicinais; Cereais; Fibras; Forragens e Pastagens; Hortícolas; Leguminosas grão, Outras Espécies
17 - *Leguminosas grão*

Instituições

1 Banco Português de Germoplasma Vegetal; 2 Universidade de Trás os Montes e Alto Douro; 3 Instituto Superior de Agronomia; 4 INIAV – Elvas; 5 DRAPC; 6 INIAV, DRAPN, DRAPALG; 7 DRAPN; 8 INIAV, DRAPN; 9 INIAV; 10 DRAPN; 11 INIAV; 12 DRAPALG; 13 DRAPALG; 14 INIAV, DRAPN; 15 INIAV, PORVID; 16 ISOPLEXIS, Madeira; 17 Universidade dos Açores

Legislation ??

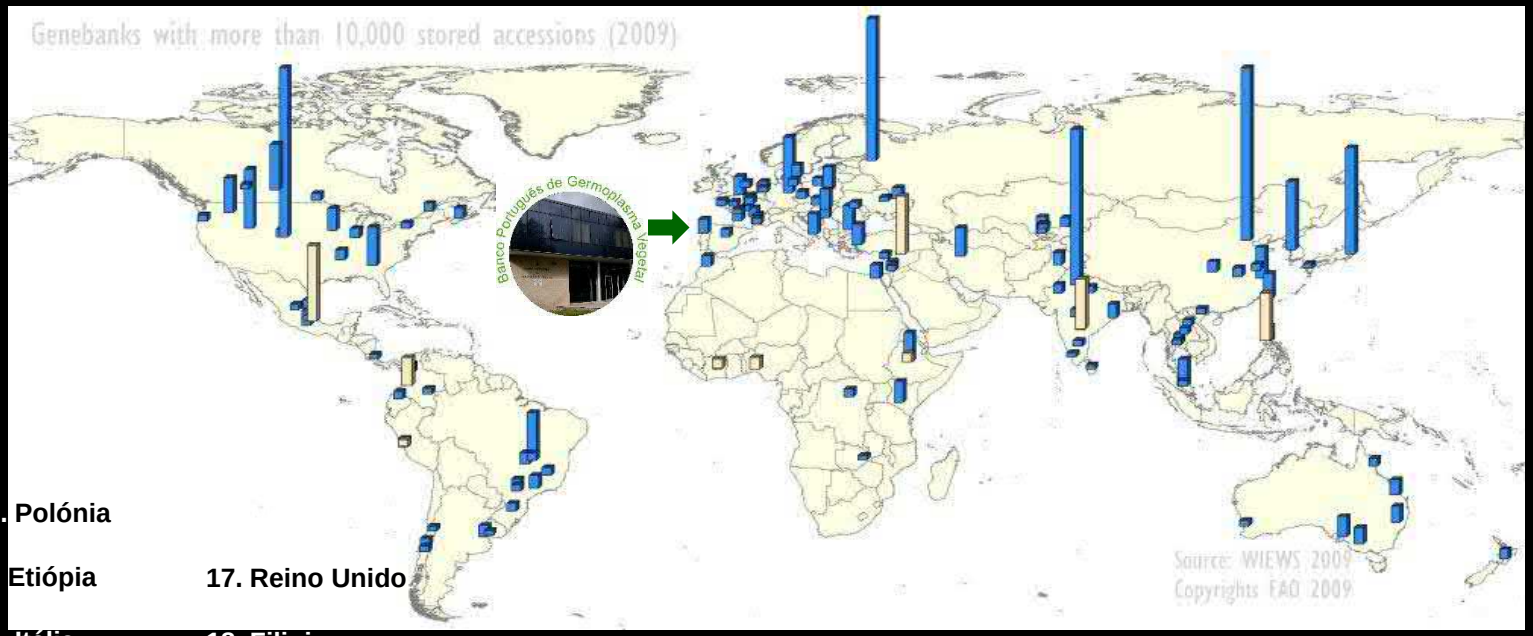
The Portuguese Government is supporting the Plant , Animal and Forest Genetic Resources


BANCO PORTUGUÊS
DE
GERMOPLASMA VEGETAL
INSTITUTO NACIONAL
DE INVESTIGAÇÃO AGRÁRIA
E VETERINÁRIA, IP
iniav


1977

Banco Português de Germoplasma Vegetal

Genebanks in the world
More than 10 000 accessions conserved



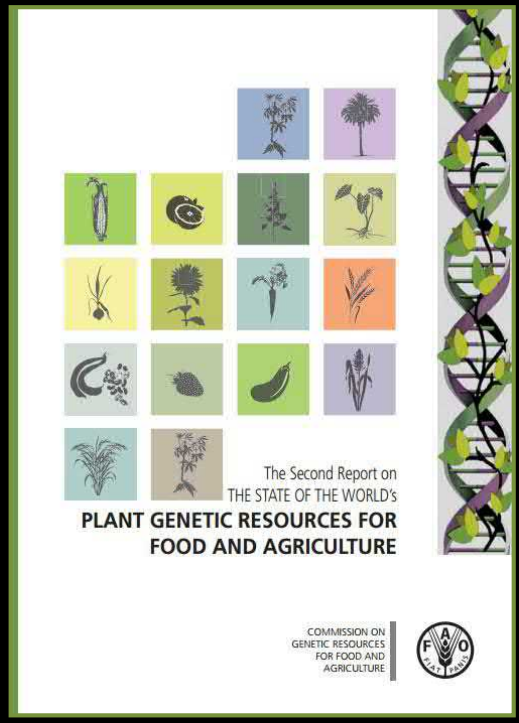
1. China
2. Vavilov , Rússia
3. Estados Unidos
4. Índia
5. Estados Unidos
6. Canadá
7. Alemanha
8. Suécia
9. Brazil
10. Holanda
11. Polónia
12 Etiópia
13. Itália
14. Hungria
15. Japão
17. Reino Unido
18. Filipinas
19.Ucrânia
20. Austrália

7.4 MILHÕES de accessions conserved ex situ in 1750 genebanks

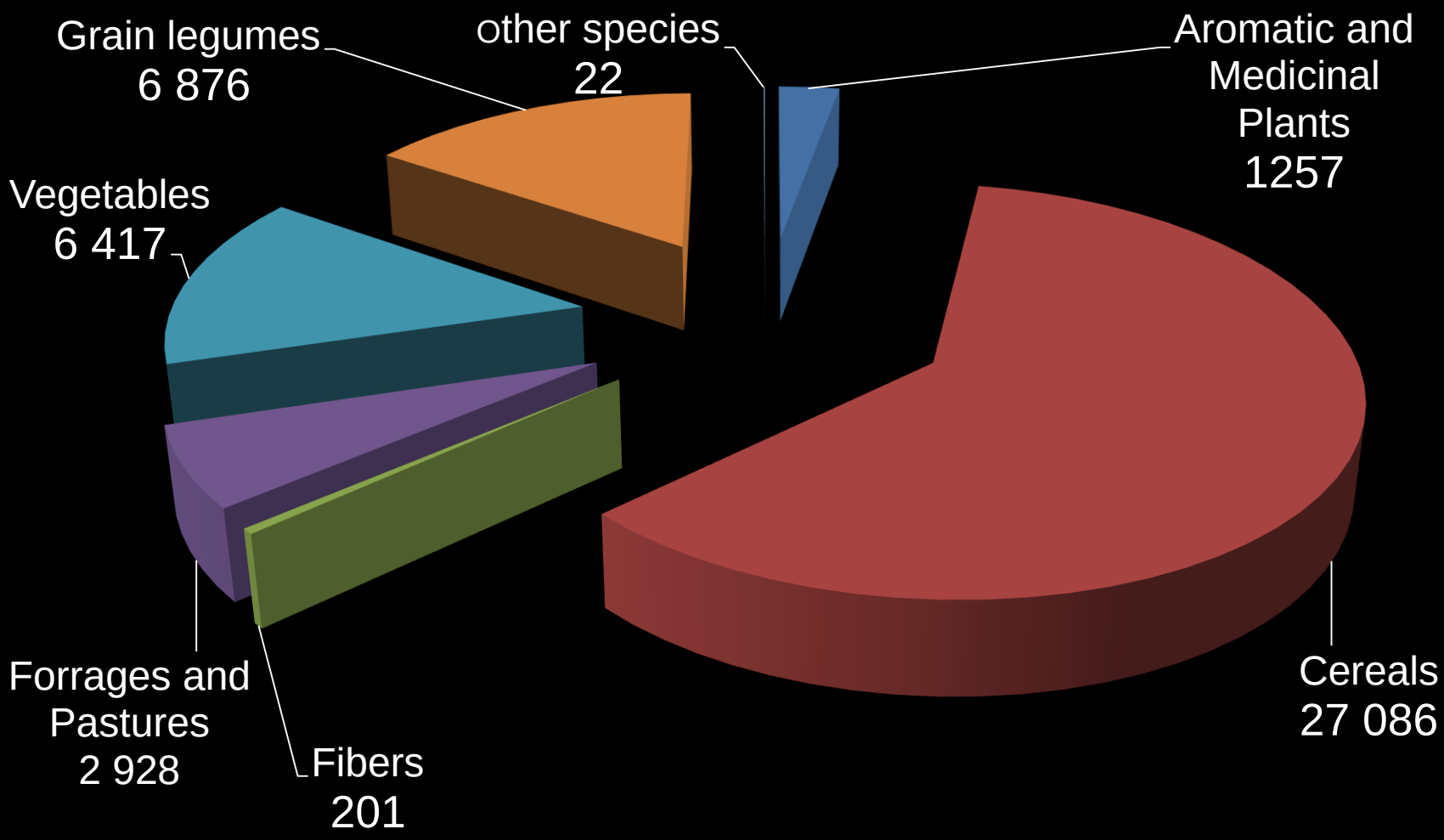
BPGV is one of 130 genebanks refered in the report

Portugal - The Collection

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



Portugal - The Collection



As a result of 128 collecting missions

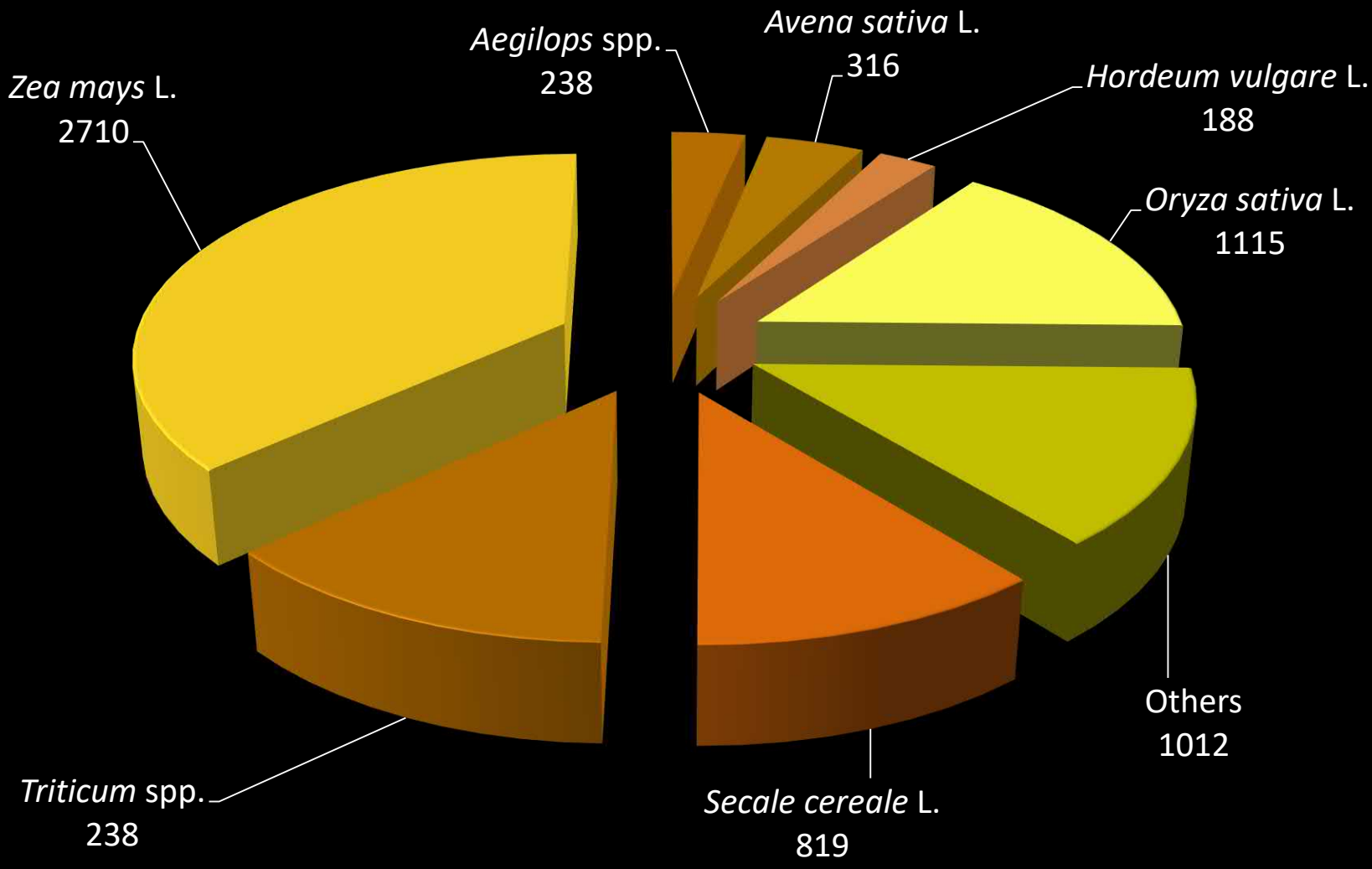
Maize Mediterranean Collection

Country	Nº acessions
France	16
Germany	8
Greece	216
Italy	19
Marroco	172
Portugal	2710
Spain	193
Yemem	43
Total	**3 377**

Maize European Core Collection

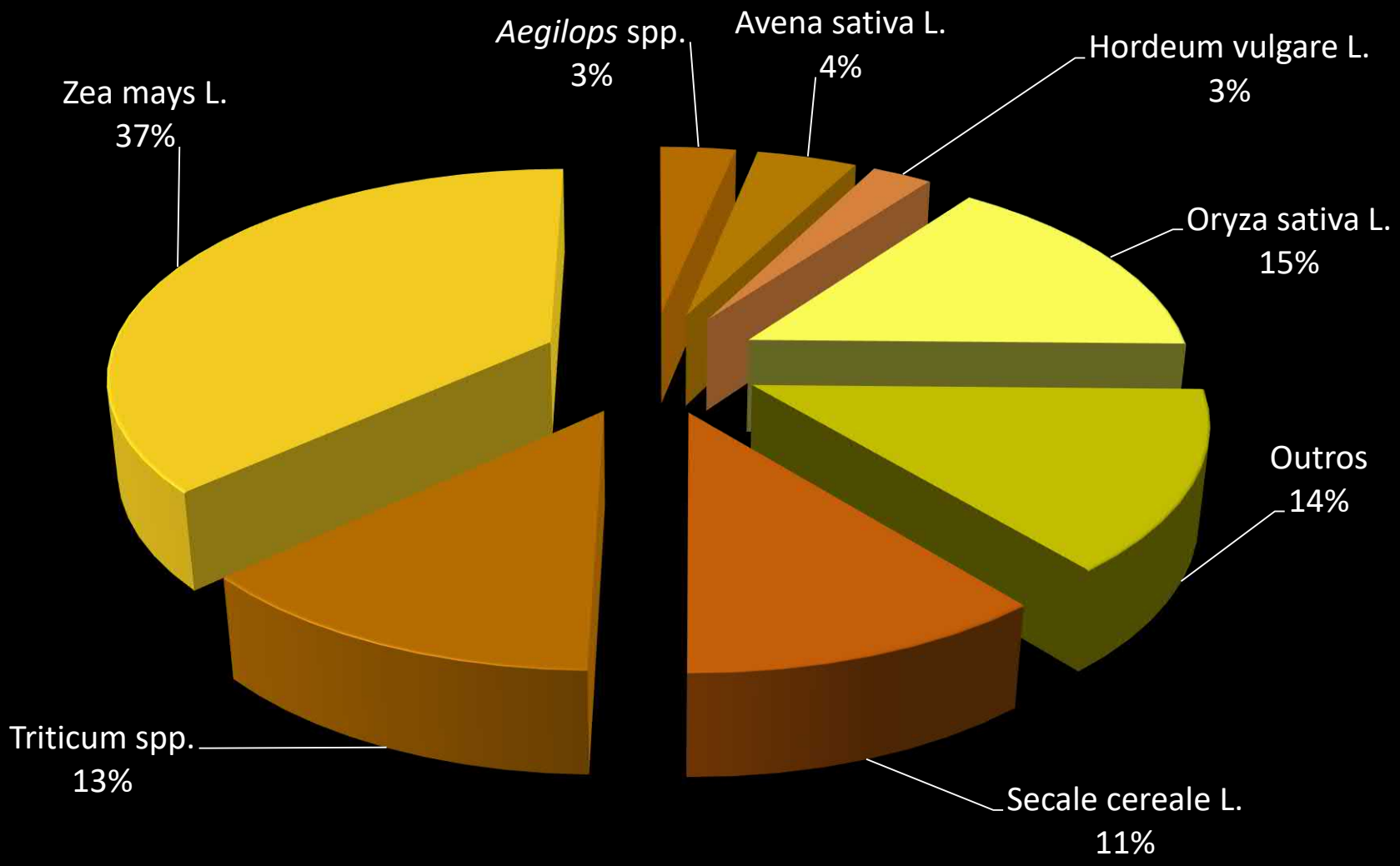
Country	Nº acessions
France	16
Germany	8
Greece	12
Italy	19
Portugal	17
Spain	24
Total	**96**

PORTUGAL
CEREALS COLLECTION



PORTUGAL

CEREALS COLLECTION



The Key point dates of collecting missions

1977 - Cereals landraces

1978 - Grain legumes landraces

1979 - Maize landraces in Azores

1980 to 1983 - Cereals and grain legumes Portugal and Spain

1985 - Forage species – LR and Wild

1987 – Flax landraces

The Key point dates of collecting missions

1990 to 1994 – Vegetables International Collection

1991 - International collection cereals, grain legumes, fibers and vegetables in Madeira

1994- 1996 - Collecting genus *Allium*

1997 to 1999 - Collecting wild hops

The Key point dates of collecting missions

2000 - Collecting MAP species

2001 - International collecting genus *Daucus*;

2006 - International collecting genus *Lupinus*;

2009 to 2010 – International collecting forage, MAP, grain legumes – Portugal and Spain

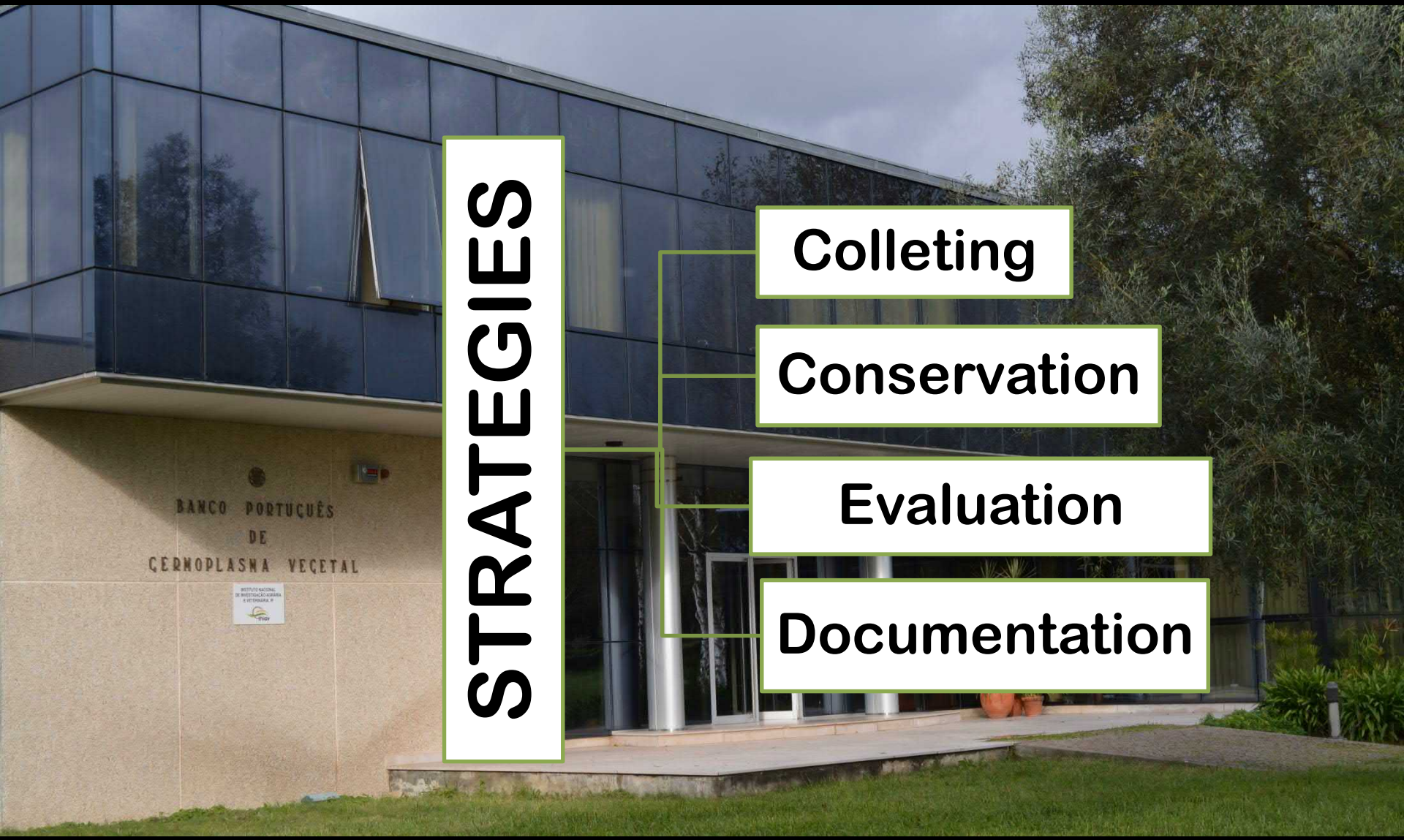
2014 - Collecting crop wild relatives major crops

(*Avena, Daucus, Hordeum, Lathyrus, Lens, Malus, Medicago, Pisum,* and *Vicia*)

"Adapting Agriculture to Climate Change"

Kew Garden and Crop Trust

2019 - *Diplotaxis catholica* (L.) DC.; *Diplotaxis muralis* subsp. *muralis, Diplotaxis siifolia subsp. vicentina* (Welw. ex Samp.) Mart.-Laborde; *Diplotaxis tenuifolia* (L.) DC.;*Diplotaxis virgata* subsp. *Virgata*; *Eruca*



STRATEGIES

- Colleting
- Conservation
- Evaluation
- Documentation

Collecting Missions

Landraces

Collecting Missions
CWR - MAP- Pastures

International Collecting Missions






Banco Português de Germoplasma Vegetal

COLD

CONSERVATION

IN VITRO

FIELD

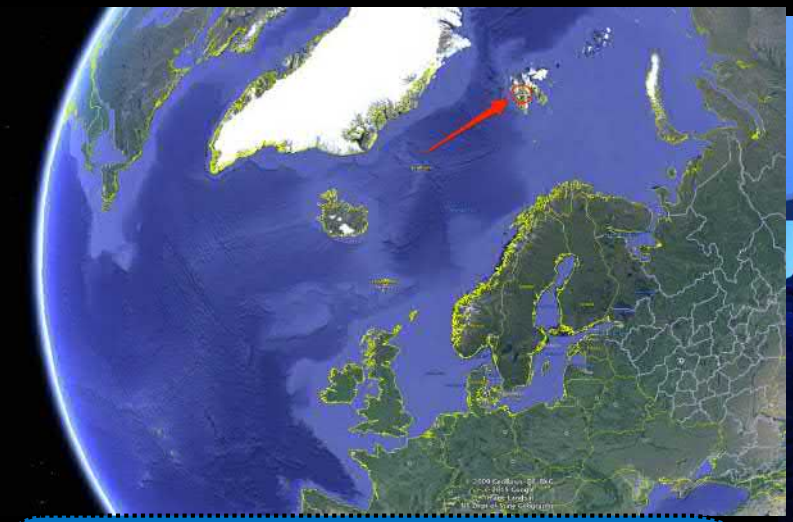
EX SITU CONSERVATION

COLD

Ative Collection

Base Collection

Svalbard Seed Vault



February 2018

217 maize accessions

EX SITU CONSERVATION
Field collection

Humulus lupulus L.

EX SITU CONSERVATION
Field Collection

Matricaria chamomilla L.
Nome comum: Camomila

Mentha cervina L.
Nome comum: Erva peixeira

Origanum vulgare L.
Nome comum: Oregão

In vitro Conservation

Morphological Evaluation

Phaseolus vulgaris L.



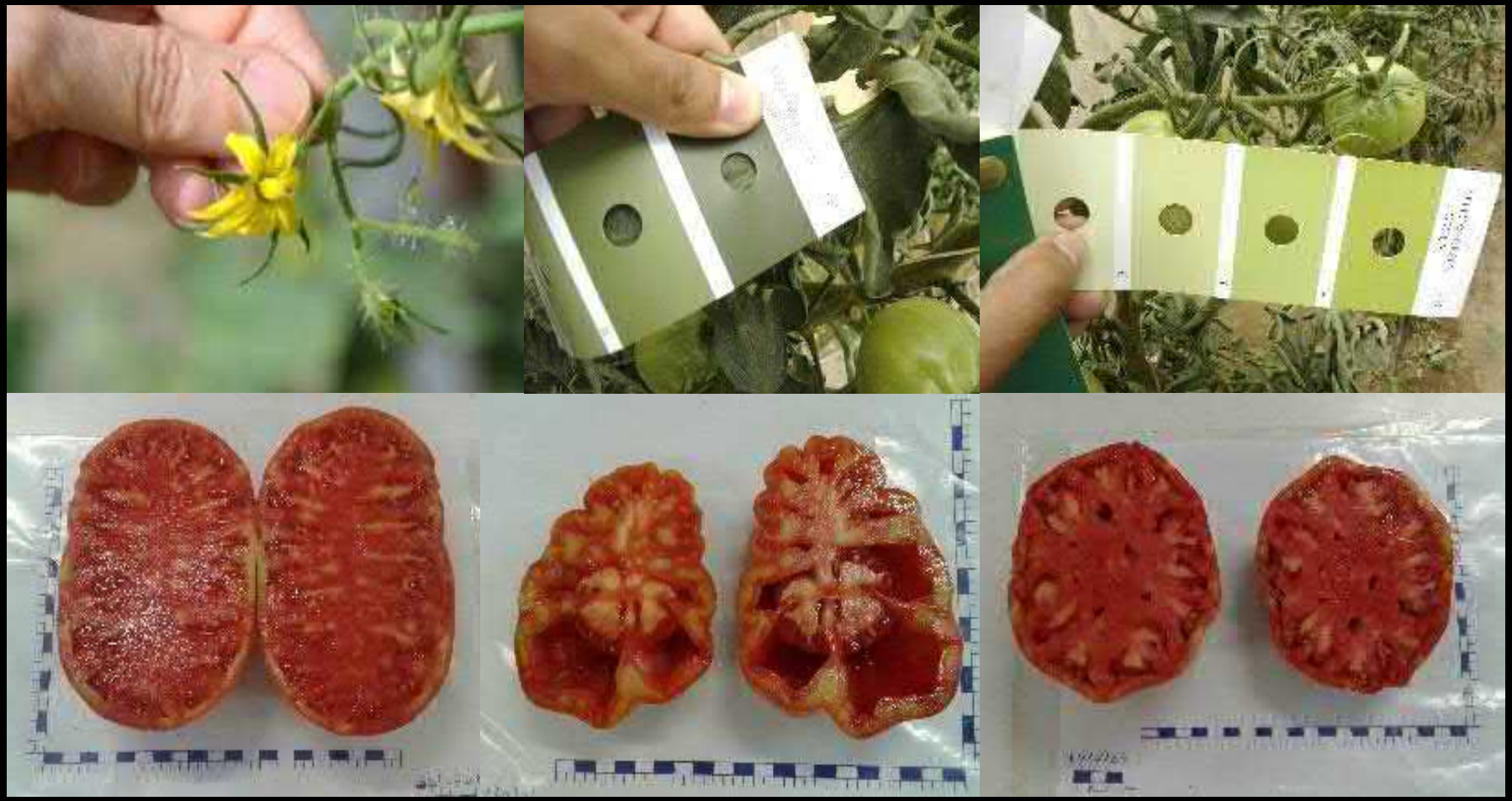






Morphological Evaluation

Solanum lycopersicum L.



Morphological Evaluation

Capsicum spp.

Morphological Evaluation

Zea mays L.

DOCUMENTATION

instituto nacional de investigação agrária e veterinária

INÍCIO | QUEM SOMOS | INVESTIGAÇÃO | LABORATÓRIOS DE REFERÊNCIA | SERVIÇOS & PRODUTOS | BOLSAS | DIVULGAÇÃO | EVENTOS

Menu de Topo > Quem Somos > Unidades Estratégicas > Biotecnologia e Recursos Genéticos > Recursos Genéticos Vegetais-Plataforma on-line

Pesquisa

- Apresentação
- **Unidades Estratégicas**
  - **Biotecnologia e Recursos Genéticos**
  - Tecnologia e Segurança Alimentar
  - Sistemas Agrários e Florestais e Sanidade Vegetal
  - Produção e Saúde Animal
- Polos de Atividade e Serviços desconcentrados
- Qualidade
- Recursos humanos
- Instrumentos de Gestão
- Legislação

CONTACTOS
ONDE ESTAMOS
LIGAÇÕES ÚTEIS
ÁREA RESERVADA
ESTRATÉGIA DO MAM PARA A INVESTIGAÇÃO E INOVAÇÃO AGROALIMENTAR
INOVAÇÃO E TRANSFERÊNCIA DO

RECURSOS GENÉTICOS VEGETAIS-PLATAFORMA ON-LINE

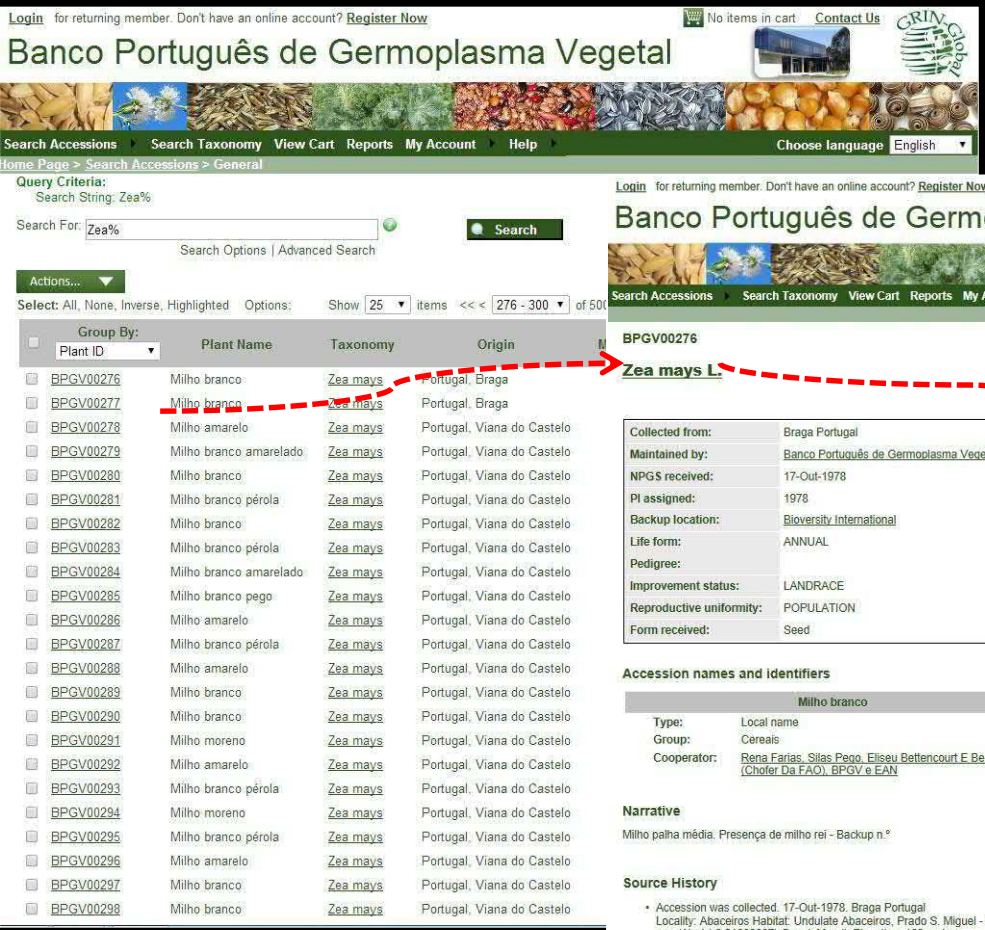
No âmbito das estratégias definidas no **"Plano Nacional para os Recursos Genéticos Vegetais"**, o **Banco Português de Germoplasma Vegetal (BPGV)** disponibiliza o acesso à informação de conservação dos Recursos Genéticos Vegetais no País.

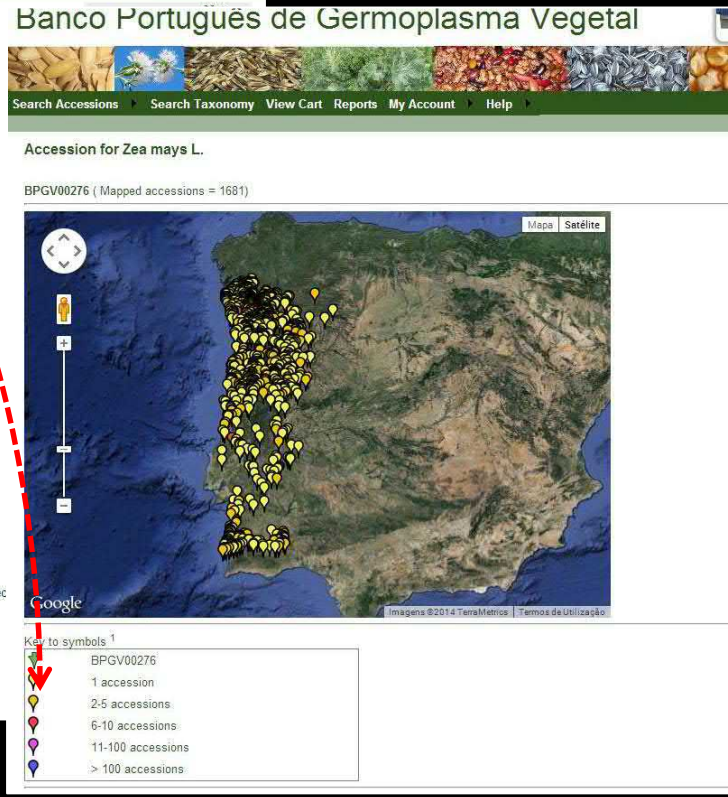
A informação está disponível no endereço **http://bpgv.iniav.pt**, estando a plataforma internacional ***GRIN-Global*** enquanto ferramenta de organização, gestão e disponibilização de informação em Recursos Genéticos.

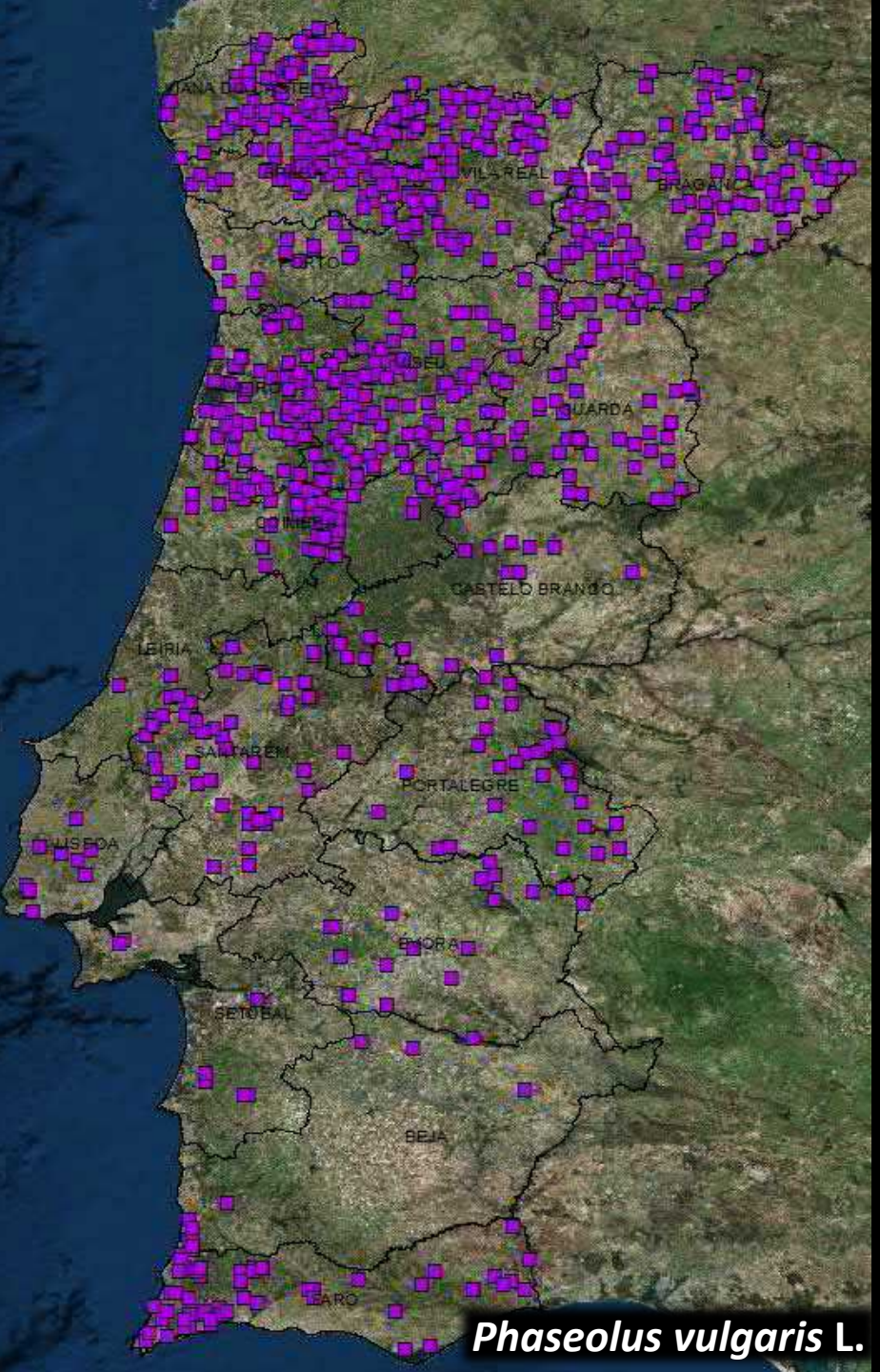
A informação agora disponibilizada resulta dum processo contínuo de atualização e incremento de conhecimento da conservação nacional de recursos genéticos vegetais.

DOCUMENTATION

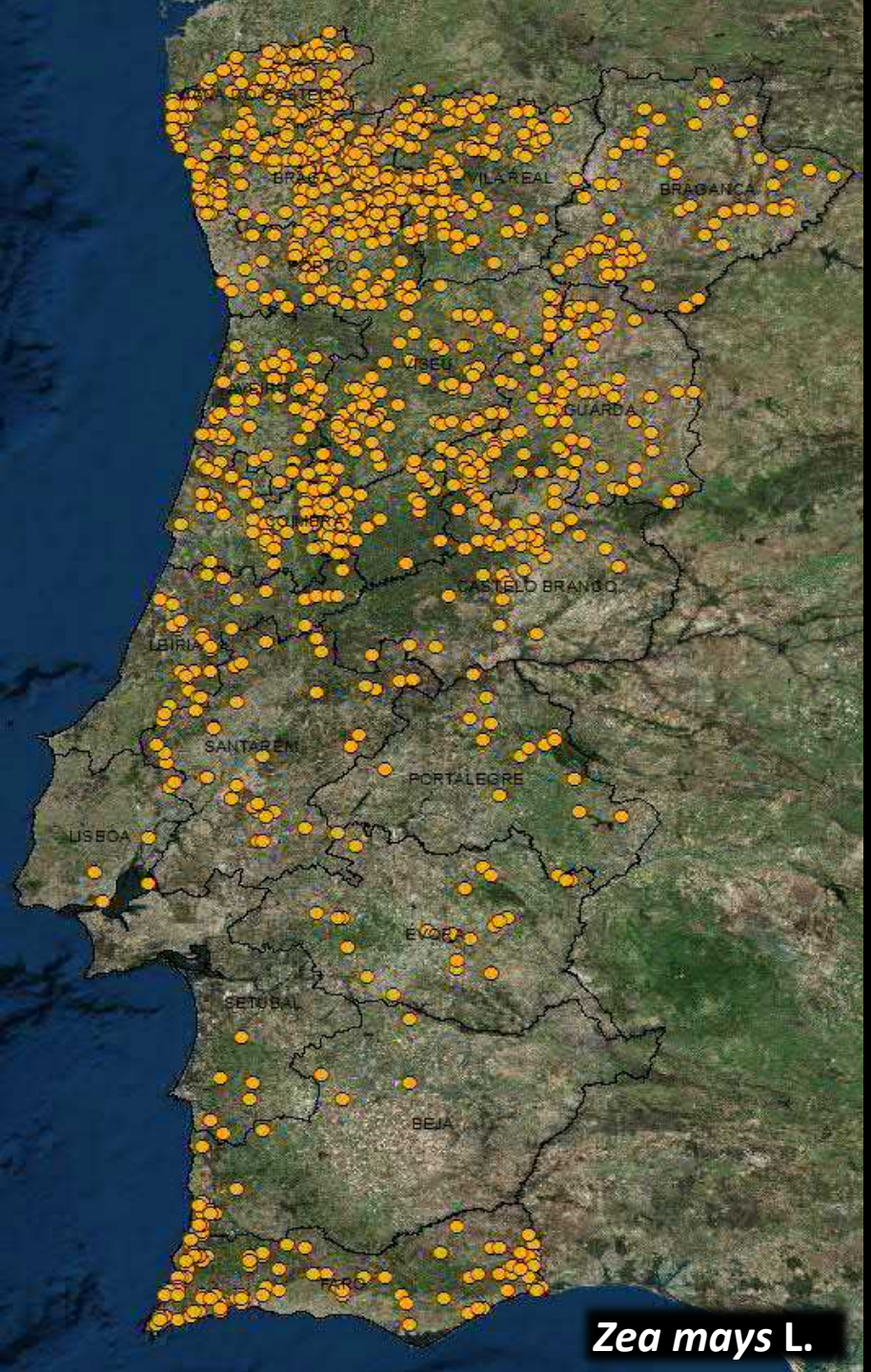
http://bpgv.iniav.pt







***Phaseolus vulgaris* L.**


BRAGA
VILA REAL
BRAGANÇA
VISEU
GUARDA
CASTELO BRANCO
LEIRIA
SANTARÉM
PORTALEGRE
LISBOA
ÉVORA
SETÚBAL
BEJA

Zea mays L.

Valorization

Maize bread from “Arcos de Valdevez”

Slow Food Foundation for Biodiversity

SEARCH

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The Ark of Taste

About the project

History

International Ark Commission

National Ark Commissions

Criteria for inclusion

FAQs

Nominate a product

To download

Contacts

Nominations from around the world

Ark of Taste

« Back to the Map

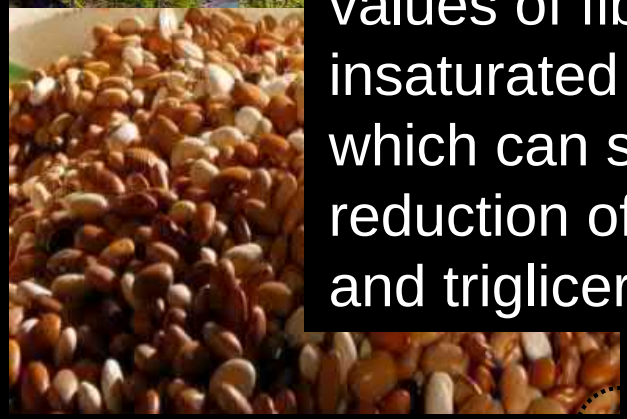
Category: Bread and Oven-baked Salted Products

Broa de milho

Portugal

The Northern regions of Portugal have never been suitable for wheat growing, due to their high altitude and poor soil. Corn represented a valid alternative to wheat here, and in some farms of the Arcos de Valdevez municipality corn is still used – as it once was - to make *broa de milho* bread.
To prepare the *broa de milho* four parts of corn and one of buckwheat must be stone milled, sifted and heaped into the wooden *masseira* (kneading trough). Water and salt is added and slowly and the corn flour is kneaded with a wooden spoon (this requires strong arms as it is very stiff). When the dough has a solid structure the *masseria* is closed and the dough is left for 30 minutes to rest. The buckwheat flour is then added together with a lump of starter, and after a short knead the dough is marked with the sign of the cross and left to rise for a couple of hours.
To bake the bread, a stone oven is fired up with pine and broom wood (occasionally, but hardly ever, also eucalyptus). When it reaches the right temperature, the loaves (which have been shaped in terracotta bowls) are turned onto the oven floor and baked. The oven iron door is sealed with two long strands of bread dough, and when they turn brown the loaves are done. The crust is brown-gold, and the bread smells of toasted corn, warm yeast and caramel. Inside the crumb is solid, crumbly and has a faint yellow-grey color. This old-fashioned heavyweight bread, typical of Arcos de Valdevez, perfectly couples with sardelle or fried stockfish.

Boarded in 2005



This common bean has in its composition high values of fiber and insaturated fatty acids, which can support the reduction of colesterol and triglicerides.

Valorization

"tarreste" common bean from Arcos de Valdevez

Colletion Size

Collection	Total	Grin Global	EURISCO
Populations	2710	2710	2710
Caraterization	1470	1470	1470*
Multiplication	1616	1616	1616
Lines	**22250**	3149	3149

* By January 2020

On going Projects

HOR **2020**

LIVESEED

EVA cereals and Vegetables

COST

SOURDOMICS

Farmer's Pride

INTERREG SUDOE

“pathway for the adaptation of agricultural plant species to climate change” financed by PDR2020-20.2.3-FEADER-045843 - CAEA-AGRI

GOAL:

- Compile the data and create a pipeline of the landraces of maize conserved in BPGV;
- Make a effort in order to conduct a in silico pre-selection of landraces resistant to climate change(heat and drought stress), exploring the genetic wealth of local origin.
- Adopt a communication plan and create content and mechanisms to disseminate the information in a broad-spectrum to the agro-food sector.

Thank you for your attention

Banco Português de Germoplasma Vegetal

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PORTUGAL

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