



ECPGR Phase X

Lorenzo Maggioni (ECPGR Secretariat)



EUGrainLeg Activity, 10 April 2019, Bucharest, Romania

ECPGR long-term goal

Stakeholders in Europe collaboratively,
rationally and effectively **conserve ex situ and
in situ PGRFA**, provide **access** and increase
sustainable **use**

www.ecpgr.cgiar.org

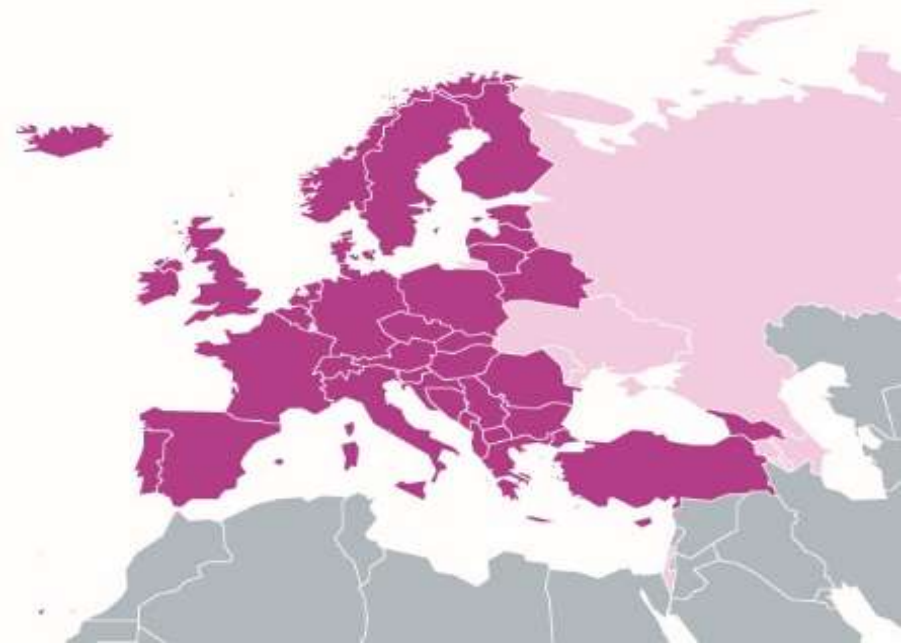
Objectives of ECPGR Phase X (2019–2023)

1. To efficiently conserve and provide access to unique germplasm in Europe through **AEGIS** and the **European Collection**
2. To provide passport and phenotypic information of actively conserved European PGRFA diversity *ex situ* and *in situ* through the **EURISCO** catalogue
3. To improve *in situ* conservation and use of **crop wild relatives**
4. To promote **on-farm** conservation and management of European PGRFA diversity
5. To promote **use** of PGRFA

Membership and funding

Ten Phases (1980-2023)

- Member countries contribute funding (ca. € 540 000 per year)
- National Coordinators are nominated at governmental level
- Use of funds:
 - Coordination
 - Working Group activities
 - Maintenance of EURISCO



Structure

Executive Committee

Steering Committee

Coordinating Secretariat

Crop Working Groups

Thematic Working Groups

- *Allium*
- *Avena*
- *Barley*
- *Berries*
- *Beta*
- *Brassica*
- *Cucurbits*
- *Fibre Crops (Flax and Hemp)*
- *Forages*
- *Grain Legumes*

- *Leafy Vegetables*
- *Maize*
- *Malus/Pyrus*
- *Medicinal and Aromatic Plants*
- *Potato*
- *Prunus*
- *Solanaceae*
- *Umbellifer Crops*
- *Vitis*
- *Wheat*

- *Wild Species Conservation in Genetic Reserves*
- *On-farm Conservation and Management*
- *Documentation and Information*

ECPGR Grain Legumes Working Group



Chair: Creola Brezeanu

✉ [creola.brezeanu\(at\)yahoo.com](mailto:creola.brezeanu(at)yahoo.com)

Confirmed as Chair in February 2019

[View CV](#)

Previous Chairs

Mike Ambrose (Until 2 February 2015)

Grant Scheme Activity

**Sixth Call
(2018)**

- *Lathyrus* diversity: available resources with relevance to crop improvement – progress reviews and relationship with AEGIS (EUGrainLeg)

[Back to Grain Legumes Working Group page](#)

96 ECPGR Grain Legumes Working Group Members

[✉ Email Distribution List](#)

Chair: Creola Brezeanu ✉ [creola.brezeanu\(at\)yahoo.com](mailto:creola.brezeanu(at)yahoo.com)

[☰ Full list](#)

Genebank Curator (26)

Crop specialist (39)

Information/Documentation (15)

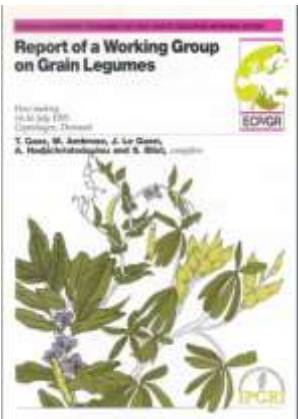
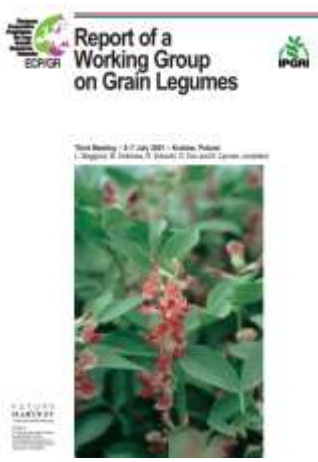
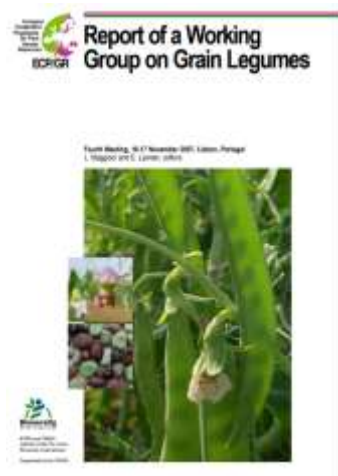
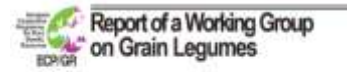
Plant breeder (24)

Policy and law (10)

Other expertise (3)

Contact Persons (5)

Working group on Grain legumes





*A European Genebank
Integrated System*



AEGIS objective

Conserving in a **collaborative way** and at **agreed quality standards**, the **genetically unique** and important accessions for Europe of **all crops** and making them **available** for breeding and research **through SMTAs**

1. *Ex situ* conservation

A European Genebank Integrated System AEGIS



- Establishment of **decentralized European Collection** of unique and important accessions
- **Memorandum of Understanding** whereby countries commit to **long-term conservation** and management of European Accessions and to their availability
- **Availability through SMTA**, including non-Annex I material
- **Quality System**: agreed standards, reporting, monitoring & capacity building
- **Role of Working Groups** for the management of decentralized collection

AEGIS benefits

Users

- Transparent/well defined set of accessions available from all of Europe under clear and uniform terms of access (SMTA)
- Compliance with CBD/Nagoya Protocol
- Unique material
- Well conserved
- Well documented

AEGIS benefits

Genebank curators

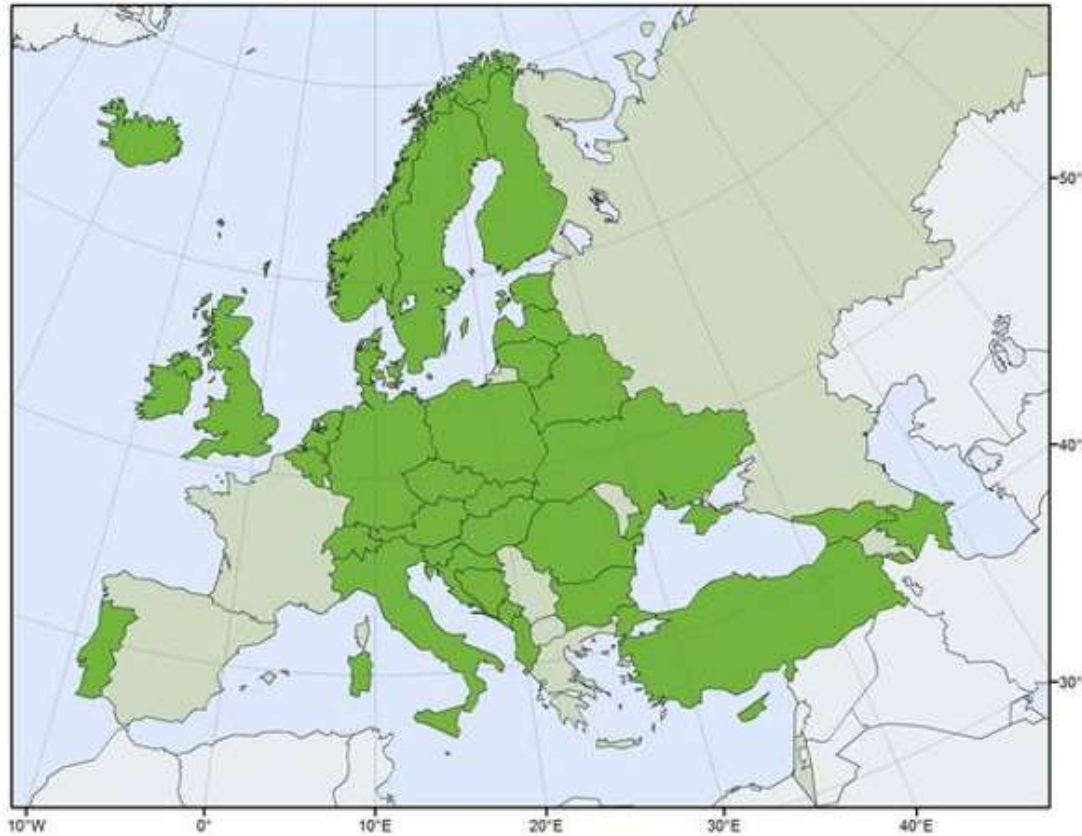
- Clear and participatory framework establishing and revising standards for conservation
- Capacity building support triggered by peer/mentorship review system
- Stable commitment from country/region to conserve European Collection for the long-term

AEGIS benefits

Policy makers

- Compliance with International Treaty / Nagoya Protocol
- Mechanism to prioritize resources
- Strengthened position of European region (example of efficiency/ commitment)

AEGIS membership

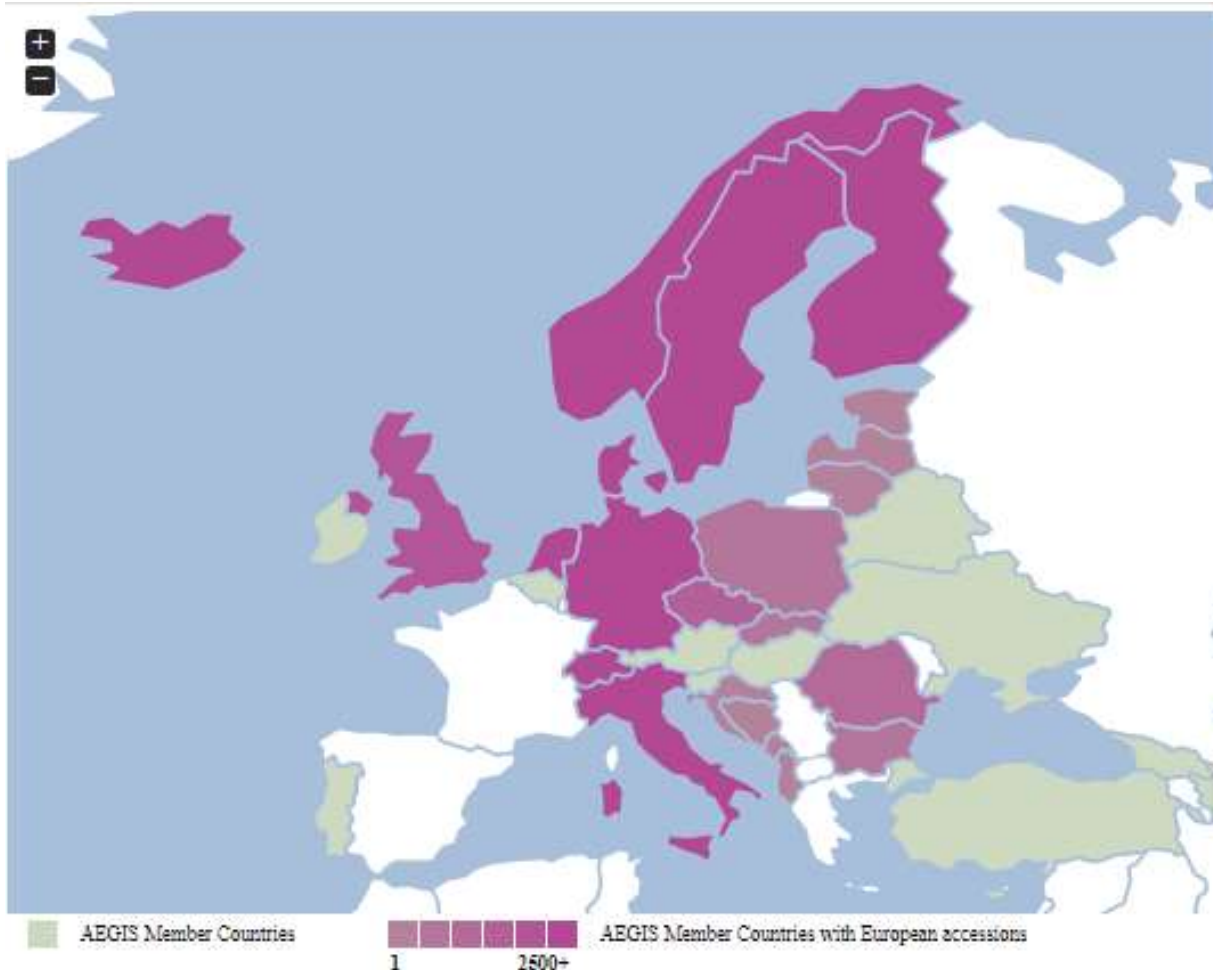


34 Member countries

69 Associate Member Institutions

The European Collection

Total number of European Accessions: **56 727** (April 2019)



Country	No of accessions
Albania	8
Bulgaria	341
Bosnia and Herz.	22
Croatia	90
Czechia	1341
Estonia	126
Germany	26841
Italy	8605
Latvia	27
Lithuania	36
Montenegro	31
Netherlands	5845
Nordic Countries	4779
Poland	443
Romania	623
Slovakia	299
Switzerland	5611
United Kingdom	1659
Total	56 727

Grain legumes accessions in AEGIS

Glycine (128)

Glycine max	128	Nordic Countries (126), Romania (2)
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Lupinus (43)

Lupinus albus	14	Italy (14)
Lupinus angustifolius	4	Italy (3), Nordic Countries (1)
Lupinus luteus	25	Netherlands (25)

Pisum (537)

Pisum sativum	537	Netherlands (300), Nordic Countries (237)
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Phaseolus (106)

Phaseolus vulgaris	106	Bosnia and Herzegovina (3), Nordic Countries (36), Romania (67)
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Vicia (114)

Vicia faba	112	Netherlands (96), Nordic Countries (16)
Vicia hirsuta	1	Italy (1)
Vicia hybrida	1	Italy (1)

Lathyrus = 0 vs. 7030 in EURISCO

Crop-specific standards - still missing for grain legumes

CROP-SPECIFIC GENEBAK STANDARDS FOR ORTHODOX SEEDS

Agreed by the *Beta* Working Group

March 2016

FAO Genebank standards for orthodox seeds	Crop-specific genebank standards for orthodox seeds – <i>Beta</i> and <i>Patellifolia</i> species <i>No comment in this column means agreement with FAO standard</i>	Remarks (reasons for deviating from FAO standards)
<p>4.1.5 The minimum number of plants from which seeds should be collected is between 30-60 plants, depending on the breeding system of the target species</p>	<p>The minimum number of plants from which seeds should be collected is between 40-100 plants, depending on the breeding system of the target species and on the size of the population mainly for wild or rare species. In the cases the seed quantity is small multiplication must take place before storage.</p>	<p>For <i>Beta</i> and <i>Patellifolia</i> species, seeds from 40-100 plants should be collected in the case of allogamous species. In the case of autogamous and apomictic species, especially if the target species is a threatened one, few seeds from at least 10 individuals but from as many sub-populations as possible should be collected.</p>
<p>4.2 Standards for drying and storage</p>		
<p>4.2.1 All seed samples should be dried to equilibrium in a controlled environment of 5-20°C and 10-25 percent of relative humidity, depending upon species.</p>		<p>According to genebank curators and different countries' seed increase manuals for <i>Beta</i>¹, seed samples should be dried in a controlled environment, till the moisture content drops to 5-8%.</p>
<p>4.2.2 After drying, all seed samples need to be sealed in a suitable airtight container for long term storage; in some instances where collections that need frequent access to seeds or likely to be depleted well before the predicted time for loss in viability, it is then possible to store seeds in non-airtight containers.</p>		
<p>4.2.3 Most-original-samples and safety duplicate samples should be stored under long-term conditions (base collections) at a temperature of -18 ± 3°C and relative humidity of 15 ± 3 percent.</p>		<p>When samples are stored in airtight bags or containers at -18°C, there is actually no need to control the relative humidity of the storage room.</p>
<p>4.2.4 For medium-term conditions (active collection) samples should be stored under refrigeration at 5-10°C and relative humidity of 15 ± 3 percent.</p>		<p>According to genebank curators the active collection can also be stored under long-term conditions (see also comment for standard 4.2.3).</p>

¹ Manuals provided by countries are available online [here](#).

Grain legumes specific standards

Journal of Agricultural Science and Technology B 1 (2011) 975-981
Earlier title: Journal of Agricultural Science and Technology, ISSN 1939-1250



An International Survey on State of the Art of Grain Legume Management in Gene Banks

M. J. Suso¹, M. Vishnyakova², Á. Ramos³, G. Duc⁴ and M. Ambrose⁵

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2. Department of Genetic Resources of Grain Legumes, Vavilov Institute of Plant Industry, Saint- Petersburg 190 000, Russian Federation

3. Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA), Complejo Universitario "Duques de Soria", Soria 42004, Spain

4. INRA Institut National de la Recherche Agronomique, UMR 102, Génétique et Ecophysiologie des Légumineuses à Graines, BP 86510, 21065 DIJON cédex, France

5. Department of Crop Genetics, John Innes Centre, Norwich Research Park, Norwich NR4 7UH, United Kingdom

Received: February 22, 2011 / Published: November 20, 2011.

**Assessing current practices and procedures to strengthen AEGIS,
the initiative for A European Genebank Integrated System**

Report of a Workshop
10-12 December 2018, San Fernando de Henares, Madrid, Spain

J.M.M. Engels, L. Maggioni and E. Lipman



2. Documentation

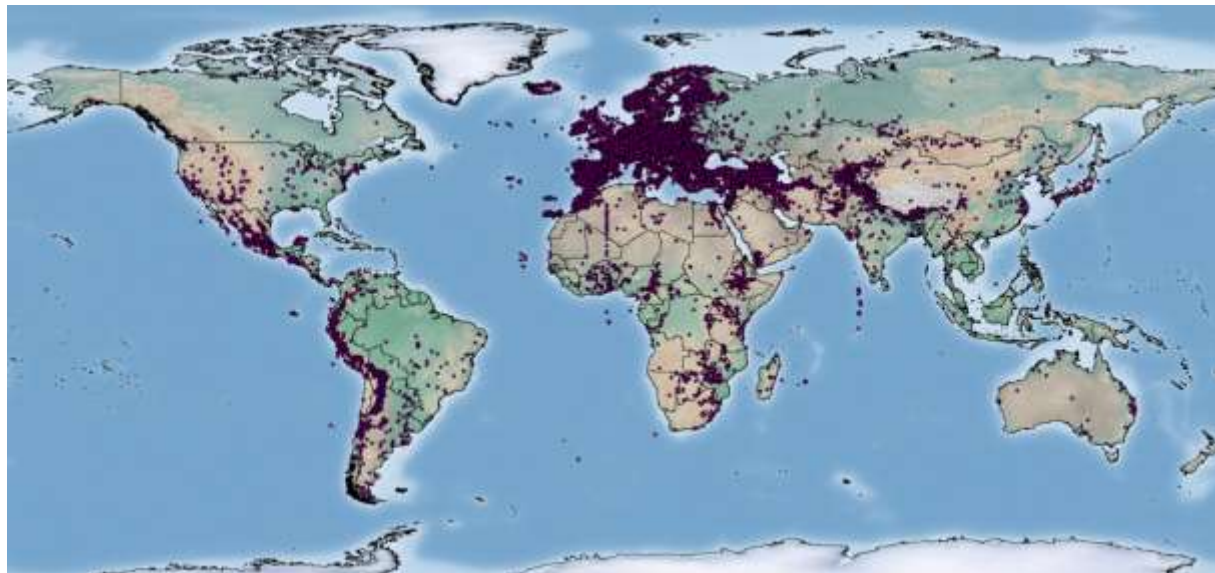
Online catalogue

with information on the European *ex situ* collections:
passport and recently characterization and evaluation data

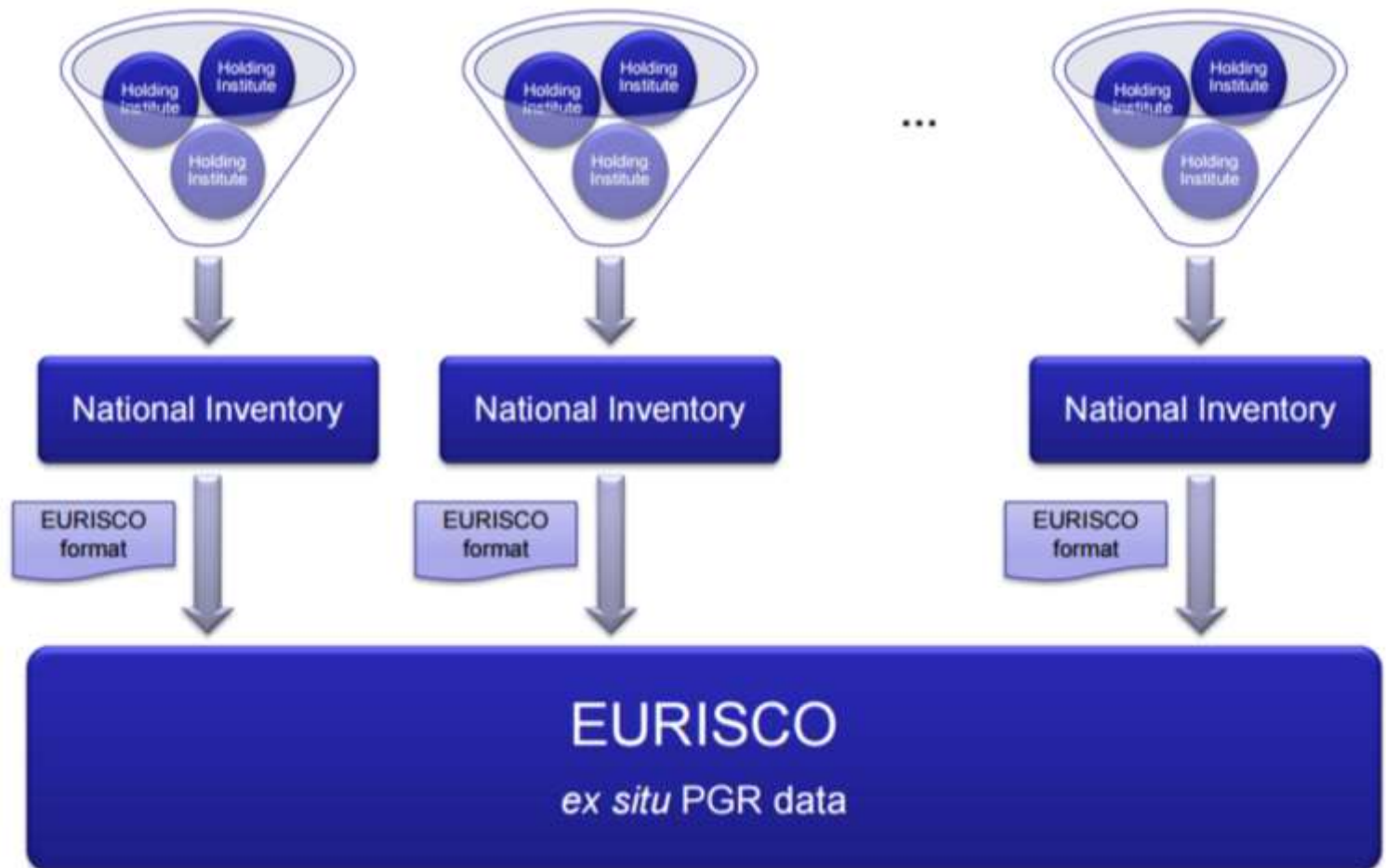


Online catalogue of accessions in European genebanks: EURISCO

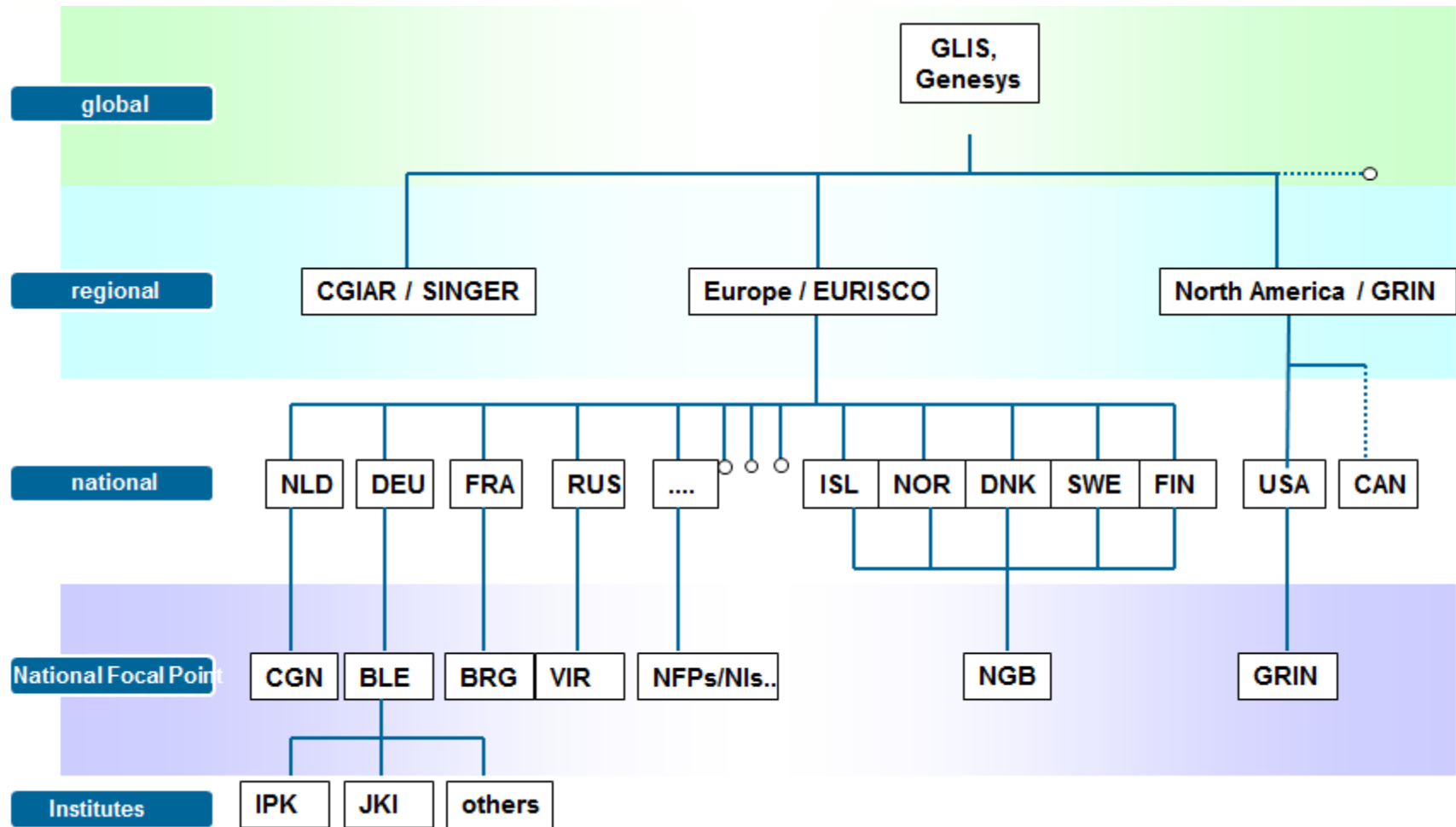
- Data gathered from 43 national inventories
- 1.96M accession data from 384 institutions throughout Europe
- Largest PGR data provider at the accession level
- Register for the Multilateral System (437k) and AEGIS (56k) European accessions



Data flow



Global Information Infrastructure



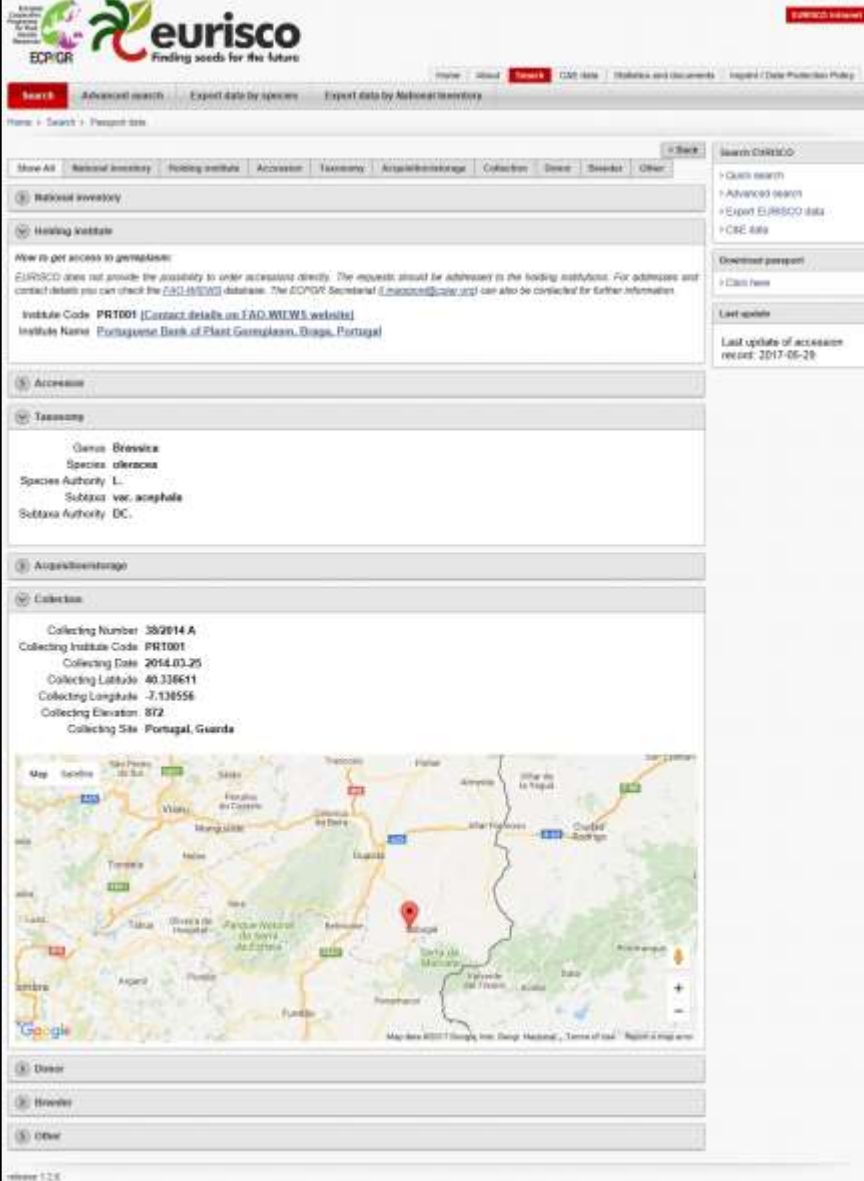
Lathyrus accessions in EURISCO

L. sativus	3287	
L. cicera	723	
L. aphaca	369	
L. ochrus	264	
L. tingitanus	150	
L. annuus	112	
L. odoratus	51	
> 80 species	...	
TOTAL	7236	

→ C&E data

Passport data in EURISCO

- Four standard searches:
 - Taxonomy
 - Accession
 - Biological status
 - Collecting site
- Advanced search
- Different user-specific export features



The screenshot shows the EURISCO website interface. At the top, there is a navigation bar with links for Home, About, Search, CMI data, Statistics and documents, and Inquire / Data Protection Policy. Below this is a search bar and a list of search options: National inventory, Holding institute, Accession, Taxonomy, Archived storage, Collection, Diver, Diver, and Other. The 'Accession' section is selected, displaying the following information:

- Genus: *Brassica*
- Species: *oleracea*
- Species Authority: L.
- Subtaxa: var. *capitata*
- Subtaxa Authority: DC.

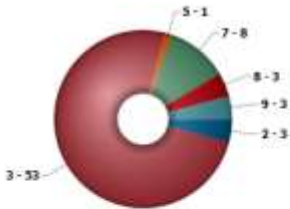
The 'Collection' section displays the following information:

- Collecting Number: 382614 A
- Collecting Institute Code: PR1001
- Collecting Date: 2014.03.25
- Collecting Latitude: 40.338611
- Collecting Longitude: -7.128556
- Collecting Elevation: 872
- Collecting Site: Portugal, Guarda

Below the collection information is a map showing the location of the collecting site in Guarda, Portugal. The map includes a red pin and a scale bar. At the bottom of the page, there are sections for Diver, Diver, and Other, and a footer indicating version 1.2.0.

C&E data in EURISCO

Trait details



Descriptive statistics

Trait Name	Minimum	Maximum	Average	Stdev	Variance	First Quartile	Median	Third Quartile
Fruit attitude	2	9	3.9	1.93	3.72	3	3	3

Experiment description: Sowing date = February 2, Planting date = April 17, I/T glasshouse XII, heated, soil culture, 2 stems, 4 plants per field, collection no. 567-658, experimental H. Roelofsen and G. Pet, standard = Brunnsma Wonder

Trait name: Fruit attitude

Additional filters

Genus:

Origin Country:

Wizard-based searches for

- Genus
- Species and trait
- Experiment
- Trait

Accession scores for selected trait

Q Go Rows 10 Actions

1 - 10 of 71

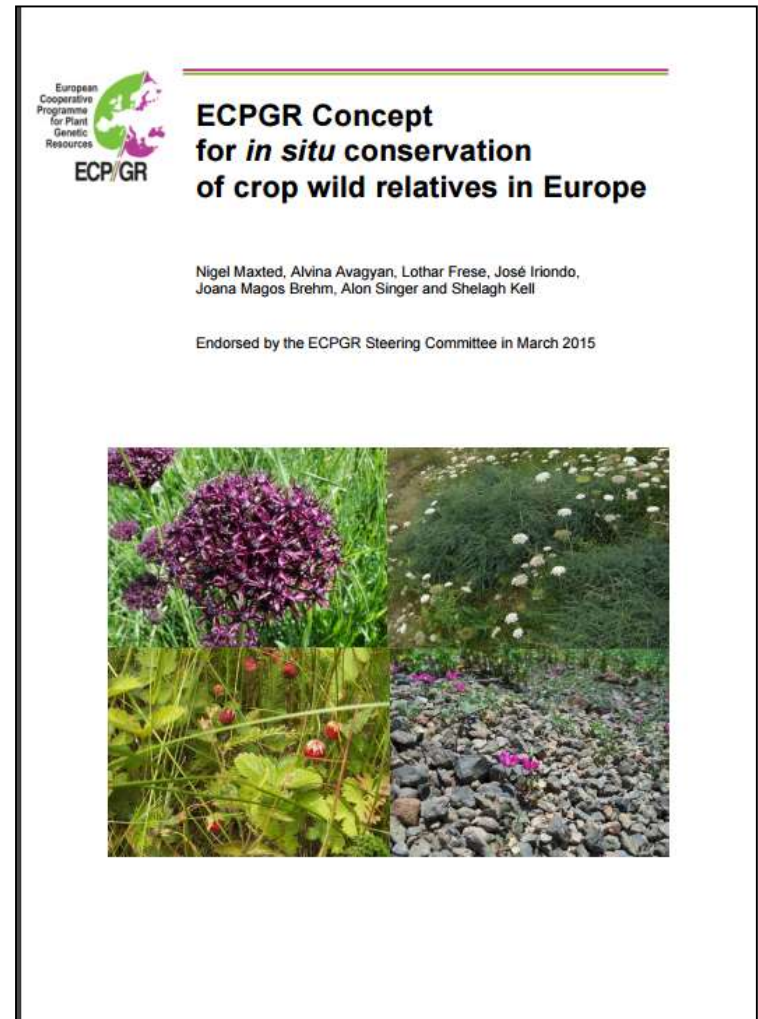
MICCODE	INSTCODE	GENUS	ACCENUMR	Score	Score Link	Origin Country	Biological Status	Details
NLD	NLD037	Capsicum	CGN16913	3	-	Germany	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Capsicum	CGN16914	3	-	Netherlands	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Capsicum	CGN16916	8	-	Israel	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Capsicum	CGN16917	7	-	Israel	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Capsicum	CGN16918	3	-	Hungary	Traditional cultivar/landrace	Accession details
NLD	NLD037	Capsicum	CGN16919	3	-	Hungary	Advanced or improved cultivar (conventional breeding methods)	Accession details
NLD	NLD037	Capsicum	CGN16920	7	-	-	-	Accession details
NLD	NLD037	Capsicum	CGN16904	9	-	-	-	Accession details
NLD	NLD037	Capsicum	CGN16905	3	-	-	Traditional cultivar/landrace	Accession details
NLD	NLD037	Capsicum	CGN16906	3	-	-	Advanced or improved cultivar (conventional breeding methods)	Accession details

1 - 10 of 71

0.02 s

3. Conservation of crop wild relatives

- National and regional conservation strategy planning (checklists -> priorities -> inventories -> action plans)
- Designation and management of **Most Appropriate Wild Populations** (genetic diversity and traits of interest) **in genetic reserves**



4. On farm conservation and management

- European Inventory of on-farm genetic diversity
- Developing indicators for monitoring diversity and threat
- Promoting good practices for on-farm management
- Concept of European agro-diversity sites
- Addressing issues of ownership, access, availability, marketing, etc.



5. Relations with users

Establishment of the European PGRFA Evaluation Network (EVA)

WHEREAS the world is facing increasing challenges to food security through the loss of diversity and the underutilization of the diversity that exists;

WHEREAS the natural range of growing conditions in Europe calls for and permits more comprehensive evaluation of PGRFA across different environments;

WHEREAS it is of strategic importance for Europe to better utilize Plant Genetic Resources for Food and Agriculture to facilitate adaptation of European agriculture to climate change and to contribute towards the achievement of Sustainable Development Goals;

WHEREAS it is important not only to increase the use of genetic diversity in plant breeding, but also to increase the diversity of stakeholders in plant breeding, including private and public sectors, small and medium enterprises and participatory plant breeding actions;

WHEREAS there is an opportunity to build on existing networks for conservation and use of PGRFA and to develop a European PGRFA Evaluation Network which is open for participation by both private and public sectors in order to facilitate the exchange of data on evaluation in a standardized format;

Now therefore, the Steering Committee of the ECPGR hereby establishes the European PGRFA Evaluation Network in the form of Private/ Public Partnerships within the framework of the European Cooperative Programme for Plant Genetic Resources (ECPGR), in accordance with the following provisions.

01 Definitions

For the purposes of this Proposal –

- i) "AEGIS" means the European Genebank Integrated System;¹
- ii) "ECPGR" means the European Cooperative Programme for Plant Genetic Resources;
- iii) "EURISCO" means the European Search Catalogue for Plant Genetic Resources;²

¹ AEGIS entered into force in 2009 within the framework of ECPGR in order to improve coordination with respect to the conservation of PGRFA in Europe and to facilitate the exchange of PGRFA and related information among the countries and genebanks of Europe, and is now functioning to conserve genetically unique and important accessions for Europe and to make them available for breeding and research

² EURISCO is a European cooperative mechanism, which provides information on nearly 2 million accessions of crop plants and their wild relatives, preserved *ex situ* by almost 400 institutes, based on a network of National Inventories of 43 member countries. EURISCO forms part of the Global Information System on Plant Genetic Resources for Food and Agriculture provided for under the International Treaty of Plant Genetic Resources for Food and Agriculture, and is now being extended to characterization and evaluation data.

- European Evaluation Network (EVA) approved by the ECPGR Steering Committee in Thessaloniki, May 2018

EVA Network

- **Wheat and Barley**
- **Vegetables (carrot, lettuce, pepper)**

- German support
- European Private Public Partnerships to carry out targeted evaluation of genebank accessions
- Multiplication of material
- Multi-environment evaluation of same accessions across Europe (disease resistance)
- Use harmonized methods and standard protocols
- Genotyping of all accessions
- Provide evaluation data to EURISCO (embargo)
- Breeding companies evaluate at their cost
- Use of SMTA

Horizon 2020 - SFS 28 2018

GenRes Bridge

- ECPGR-related partners:
 - ECPGR Secretariat; BLE, Germany; WR, The Netherlands; BGCI, UK; INRA, France; Univ. Bham, UK; EURISCO, IPK, Germany; Pro Specie Rara, Switzerland
- ECPGR-related activities:
 - European GRFA integrated strategy
 - Peer-review system for conservation quality assurance
 - AEGIS: involving Botanic gardens; phytosanitary issues
 - EURISCO: Training workshops; linking information systems
 - GenRes Gateway
 - GenRes Journal

ECPGR Mode of Operation of Phase X

- Two budget lines of similar amounts:
 1. Meetings
 2. Other activities

Budget line "Meetings"

- Principles:

1. Meetings should be planned in order to enable proactive Working Group members to collaborate **towards implementing ECPGR objectives**
2. The most important crop collections and crop distribution areas of given gene pools should be represented in the meetings, as far as possible.
3. Meetings should be organized according to criteria of efficiency and cost-effectiveness, also merging different WGs and taking advantage of synergies with other fora (EUCARPIA, COST, etc.)
4. Organization of meetings should be made in collaboration between WG Chairs and the Secretariat.
5. The country quota system guarantees a balanced participation.

Budget line "Meetings"

- Practice:
 1. Each WG can apply for funds to organize a meeting
 2. Applications can be submitted **at any time** to the ExCo through the Secretariat and should indicate: purpose of the meeting; criteria of efficiency and cost-effectiveness; possible synergies; names of participants; suggested date and location of the meeting
 3. Applications would be **processed within 4 weeks** from the submission

Budget line "Meetings"

- Limitations
 1. The meetings can span through **maximum three nights**
 2. **Only WG members** can be funded by ECPGR
 3. **The country quota system applies.** One quota allows attending one meeting

Budget line "Other activities"

- General principle:

Additional activities directed to implement the ECPGR objectives will be funded through the Grant Scheme based on selection of proposals by the ExCo. There is no limitation whether these activities should be meetings or different actions and the country quota does not apply.

Budget line "Other activities"

- Practice:

Applications for other activities should be submitted by WG Chairs through the same **ECPGR Grant Scheme** procedure and rules adopted during Phase IX, except for the following **elements of simplification** which are introduced:

1. Meetings of Working Group members and/or other actions can be funded, with **no limitation regarding the ratio** between the budget used for meetings and for other actions
2. Meetings approved under this budget line are **not subject to country quota**
3. No limitations in the number of participants
4. Budget limitations depend on the rules of each call



Thank you for your attention