



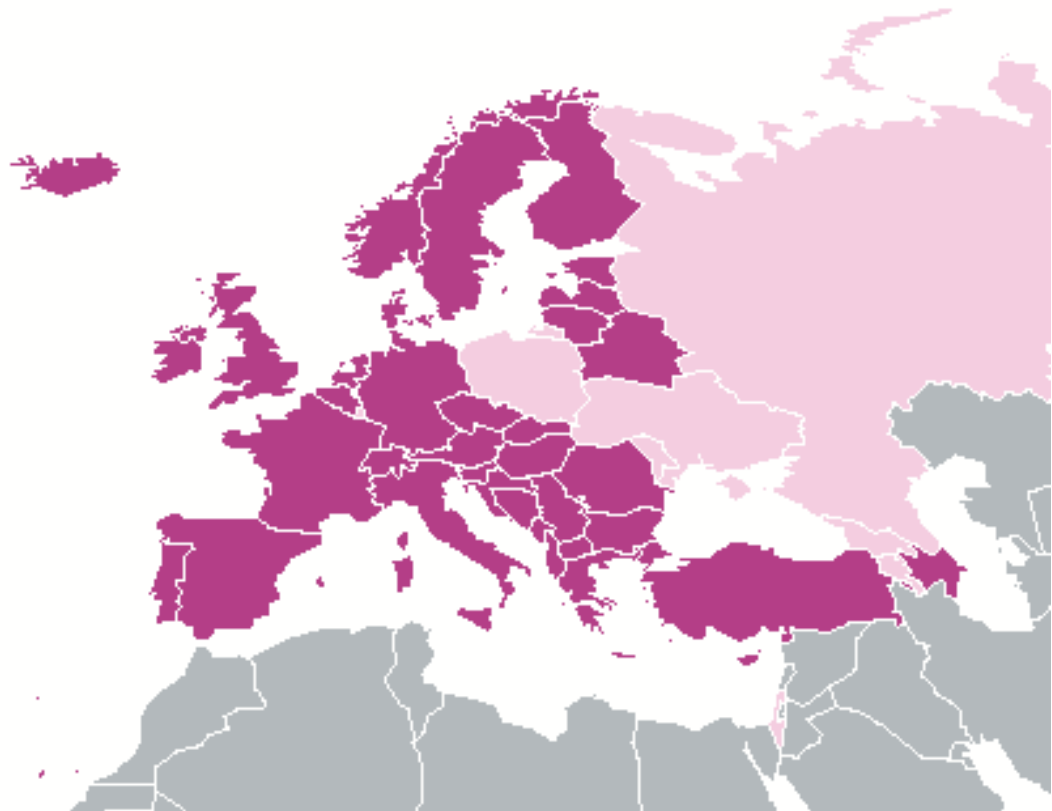
www.ecpgr.cgiar.org/aegis

The Establishment of A European Genebank Integrated System

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ECPGR Secretariat

ECPGR aims at conserving and facilitating the use of plant genetic diversity in Europe as a cooperative effort

- Countries
 - own the programme
 - contribute funds and implement activities
- Secretariat ensures coordination



ECPGR – achievements (1980 – 2017)

- Working Group activities
 - Grant Scheme



- Collaborative projects



- **EURISCO** (European *ex situ* Internet catalogue)



- **AEGIS** (A European Genebank Integrated System)

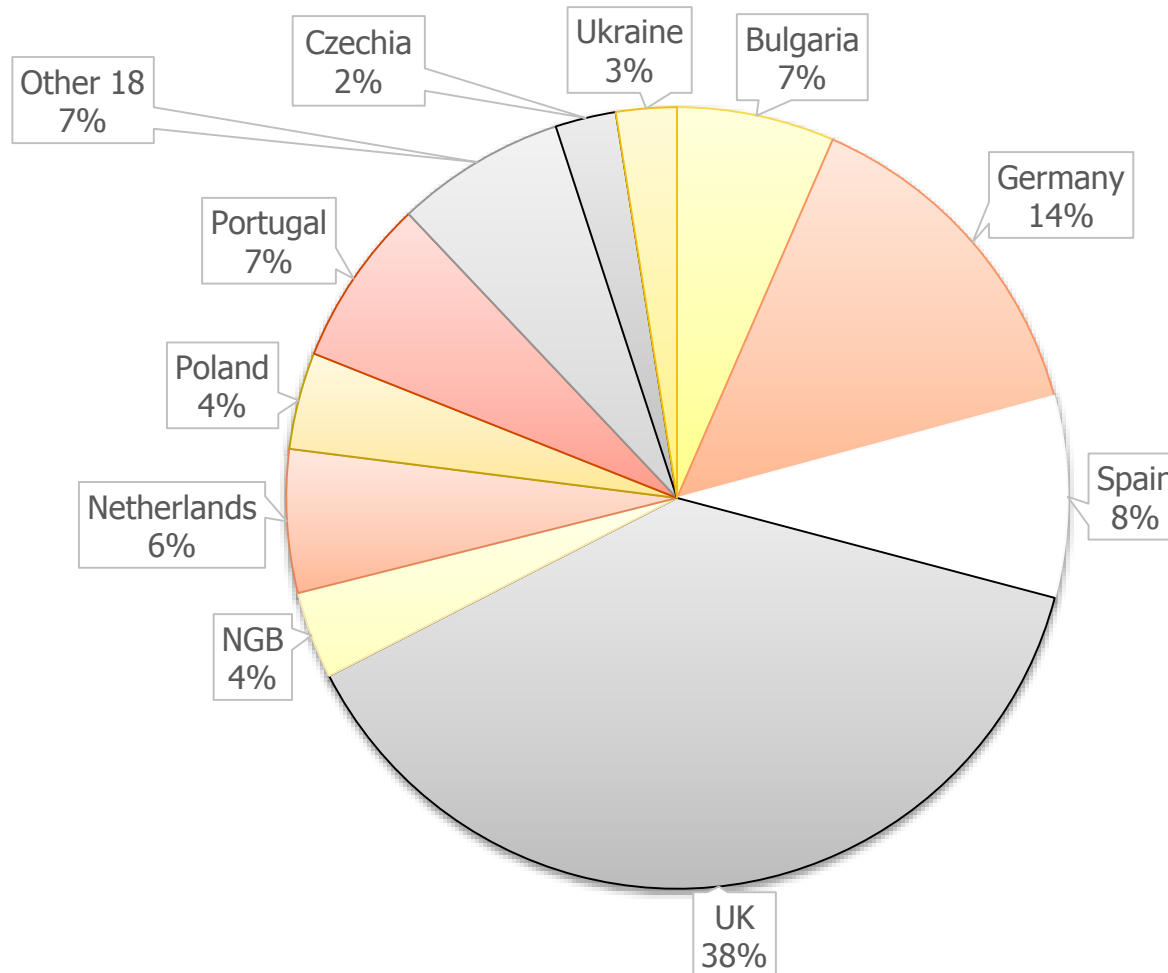


Ex situ conservation in Europe - Background

- ~ 600 germplasm collections/genebanks in Europe (WIEWS)
- ~ 2 million accessions (EURISCO, 2017)
- 35-50% unique accessions
- Accessions for a given crop are distributed across several countries

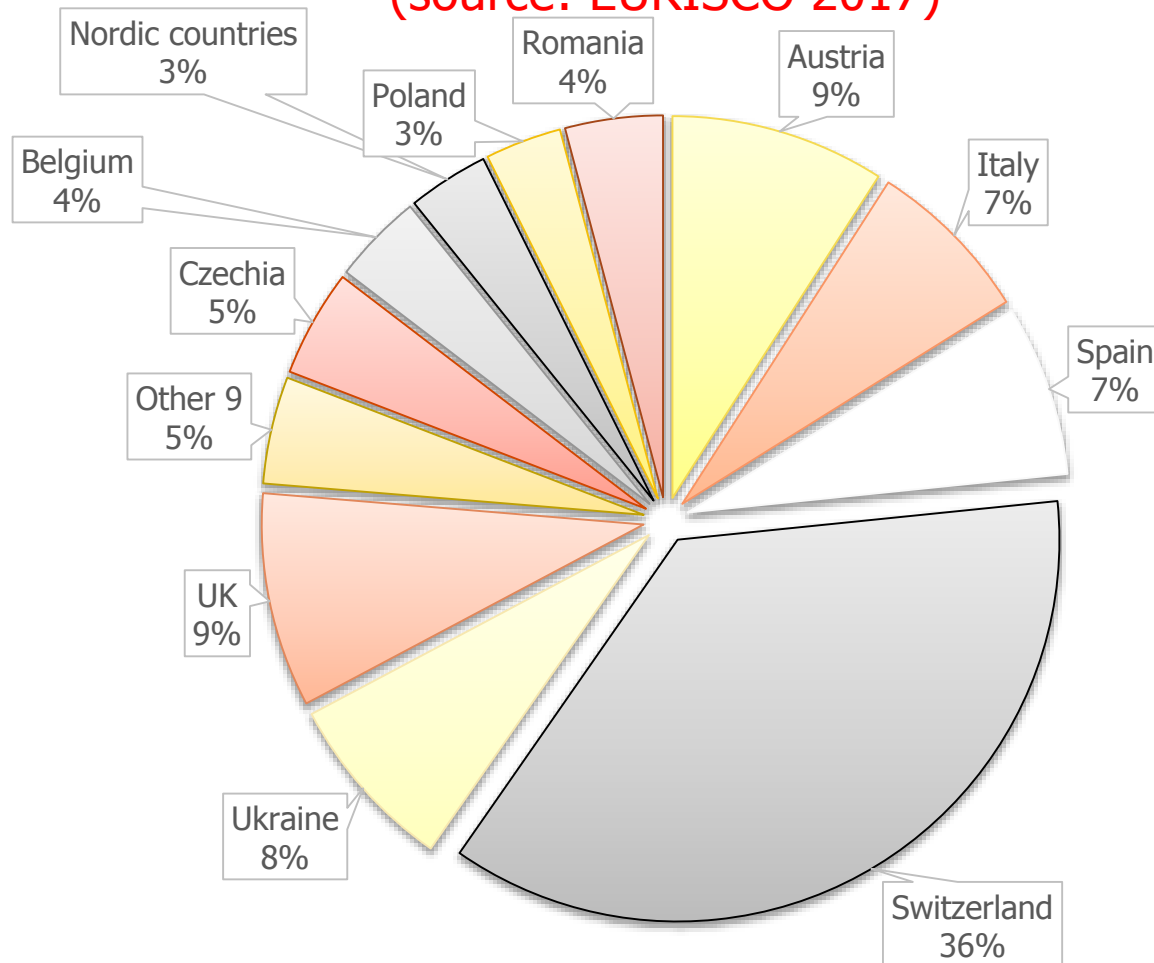
Decentralized collections

10 676 *Brassica oleracea* accessions in Europe
(source: EURISCO 2017)



Decentralized collections

24 000 accessions of *Malus domestica*
(source: EURISCO 2017)



Reported difficulties with the current situation

- Lack of long-term conservation facilities
- Insufficient safety-duplication
- Regeneration backlogs
- Lack of well-defined technical standards
- Inhomogeneous quality of material and information
- Variable germplasm exchange conditions

Why AEGIS ?

Ex situ conservation in Europe can be more efficient and more effective through a regional approach

No country or sub-region is self-sufficient regarding the germplasm and/or capacity to use PGR

Efficient regional system can contribute to a global effort to conserve GR with a benefit-sharing approach

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**

Establishment and milestones of AEGIS

1. 2003 – Idea presented at SC
2. 2004-2008 – Feasibility study for 4 model crops
3. 2006 SC decision to initiate establishment of AEGIS
4. 2008 - Strategic framework policy guide agreed
5. 2009 AEGIS enters into effect with 10 signatures of Memorandum of Understanding
6. 2010 – Eurogenebank FP7 proposal not selected
7. 2011 - European Collection formally established
8. 2012 – Plant gene Access - FP7 proposal not selected
9. 2015 – PGR Gold - H2020 proposal not selected

Key components of AEGIS

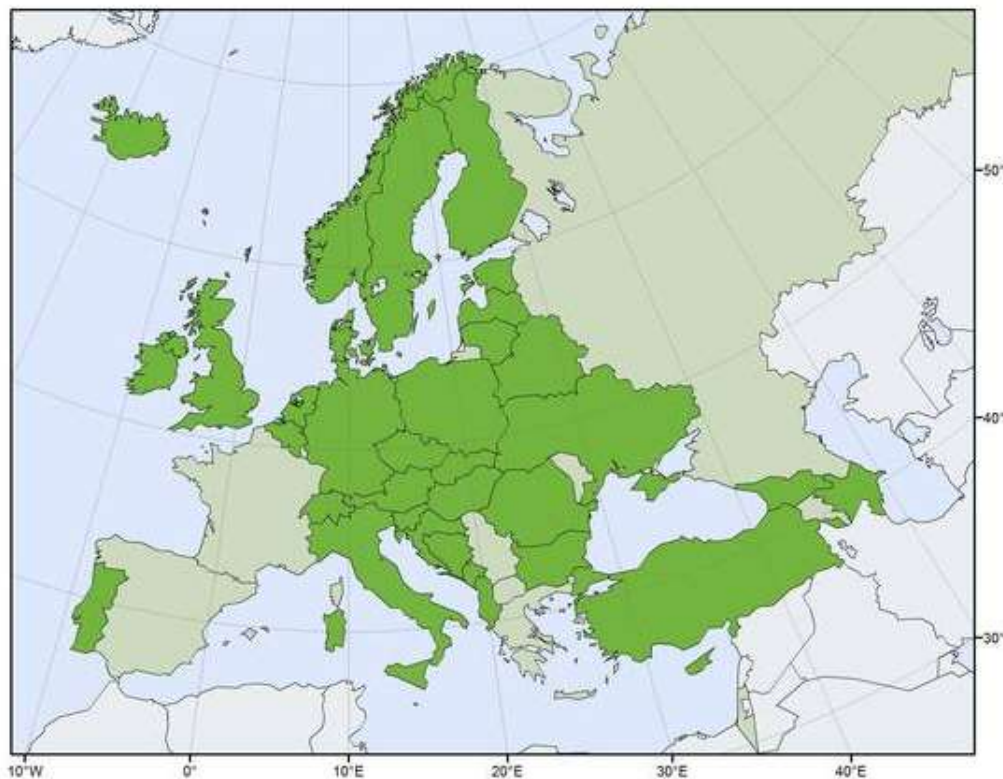
- MoU (Memorandum of Understanding)
- European Collection
- AQUAS (AEGIS Quality System)

Memorandum of Understanding (MoU)

1. Signed by Country and deposited at Bioversity International, on behalf of ECPGR
2. Long-term conservation commitment for registered European Accessions
3. Provision of access to material and information under SMTA
4. Adherence to the AEGIS technical standards
5. Separate agreement between National Coordinator and participating national institutions (Associate Membership Agreement)

AEGIS membership status

<http://aegis.cgiar.org/>



AEGIS Member Countries (April 2014)

34 Members
58 Associate Members' Agreements

1. **Albania** (06 May 2009) - Associate Members
2. **Austria** (05 December 2012) - Associate Members
3. **Azerbaijan** (16 July 2009) - Associate Members
4. **Belarus** (02 November 2011) - Associate Members
5. **Belgium** (01 June 2012) - Associate Members
6. **Bosnia and Herzegovina** (19 May 2010)
7. **Bulgaria** (02 December 2009) - Associate Members
8. **Croatia** (02 December 2009) - Associate Members
9. **Cyprus** (15 September 2012) - Associate Members
10. **Czech Republic** (23 July 2009) - Associate Members
11. **Denmark** (22 February 2010) - Associate Members
12. **Estonia** (22 May 2009) - Associate Members
13. **Finland** (02 December 2009) - Associate Members
14. **Georgia** (18 May 2009) - Associate Members
15. **Germany** (05 November 2009) - Associate Members
16. **Hungary** (22 November 2011) - Associate Members
17. **Iceland** (22 October 2010) - Associate Members
18. **Ireland** (22 July 2009)
19. **Italy** (03 March 2014)
20. **Latvia** (01 June 2012)
21. **Lithuania** (12 October 2010)
22. **Montenegro** (16 December 2010)
23. **Netherlands** (28 May 2009) - Associate Members
24. **Norway** (17 August 2009) - Associate Members
25. **Poland** (17 May 2010) - Associate Members
26. **Portugal** (20 November 2009)
27. **Romania** (14 April 2010) - Associate Members
28. **Slovakia** (17 June 2009) - Associate Members
29. **Slovenia** (21 September 2009) - Associate Members
30. **Sweden** (31 May 2011) - Associate Members
31. **Switzerland** (27 July 2009) - Associate Members
32. **Turkey** (14 November 2011) - Associate Members
33. **Ukraine** (30 April 2009)
34. **United Kingdom** (18 June 2010) - Associate Members

Scope of European Collection

- Material **under the management and control** of the member countries and their associate members, **in the public domain** and offered by the associate members for inclusion into AEGIS
- **Genetically unique** within AEGIS, to the best available knowledge (i.e. genetically distinct accessions; assessment based on available data and/or on the recorded history of the accession)
- **Plant genetic resources for food and agriculture** as defined in the International Treaty as well as **medicinal and ornamental** species
- **European origin or introduced** germplasm that is of actual or potential importance to Europe (for breeding, research, education or for historical and cultural reasons).

Selection of European Accessions

Selection at country level on voluntary basis – approved by National Coordinator:

- Crop-specific selection criteria (role of Working Groups)
- Country of origin as primary initial criteria

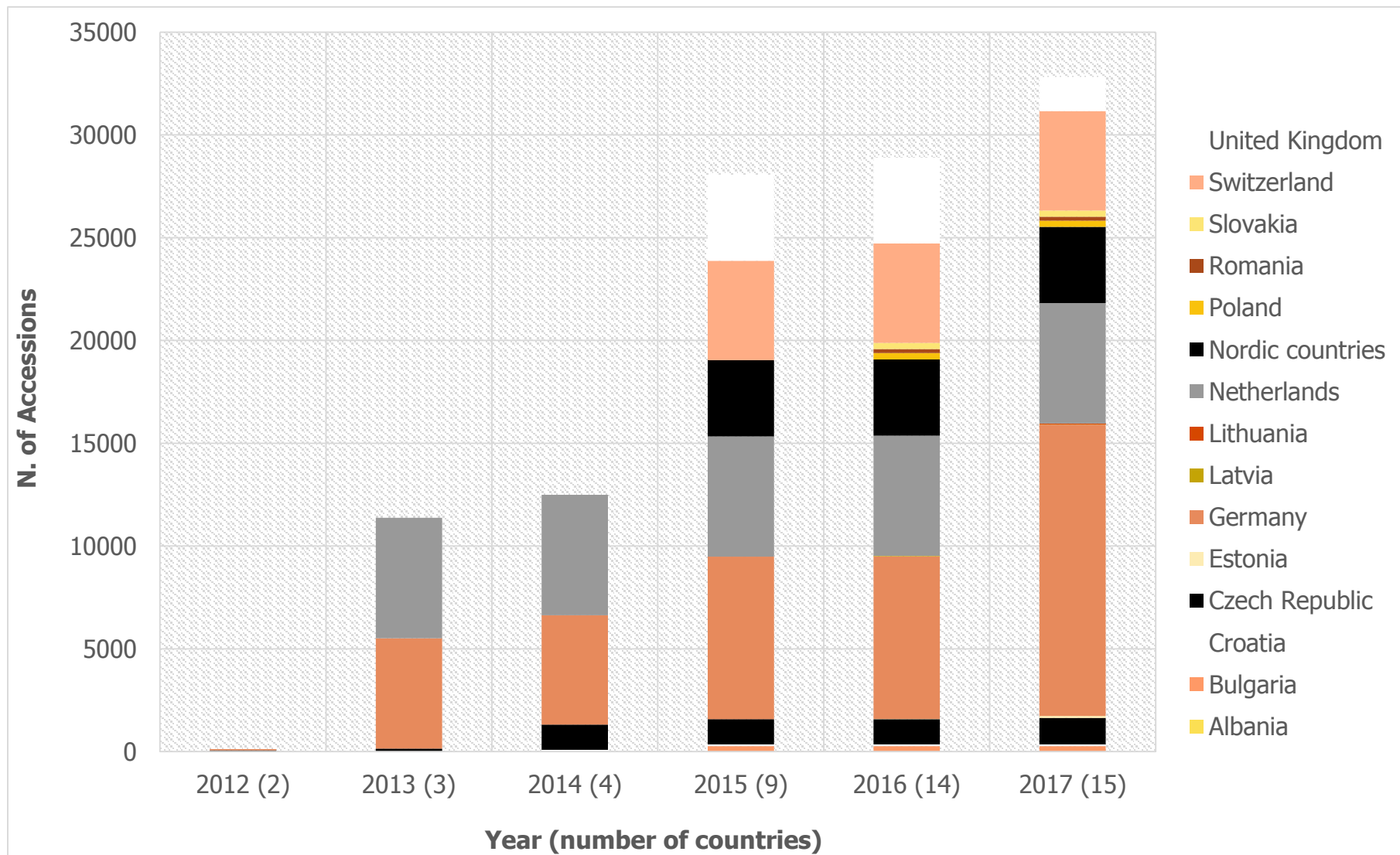
Once selected:

- Flagged in EURISCO as part of AEGIS
- To be maintained at same institute at crop-specific standard (role of WG)
- To be safety-duplicated
- To be promptly available under SMTA

Preliminary designation of European Accessions

Crop	Accessions in European databases	Accessions selected for European Collection	% European Accessions from total
Carrot cultivars	2948	1281	43%
Sweet cherry	2731	1483	54%
<i>Poa</i> sp.	> 5000	3443	68%
<i>Brassica rapa</i>	3618	2170-2822	60—78%

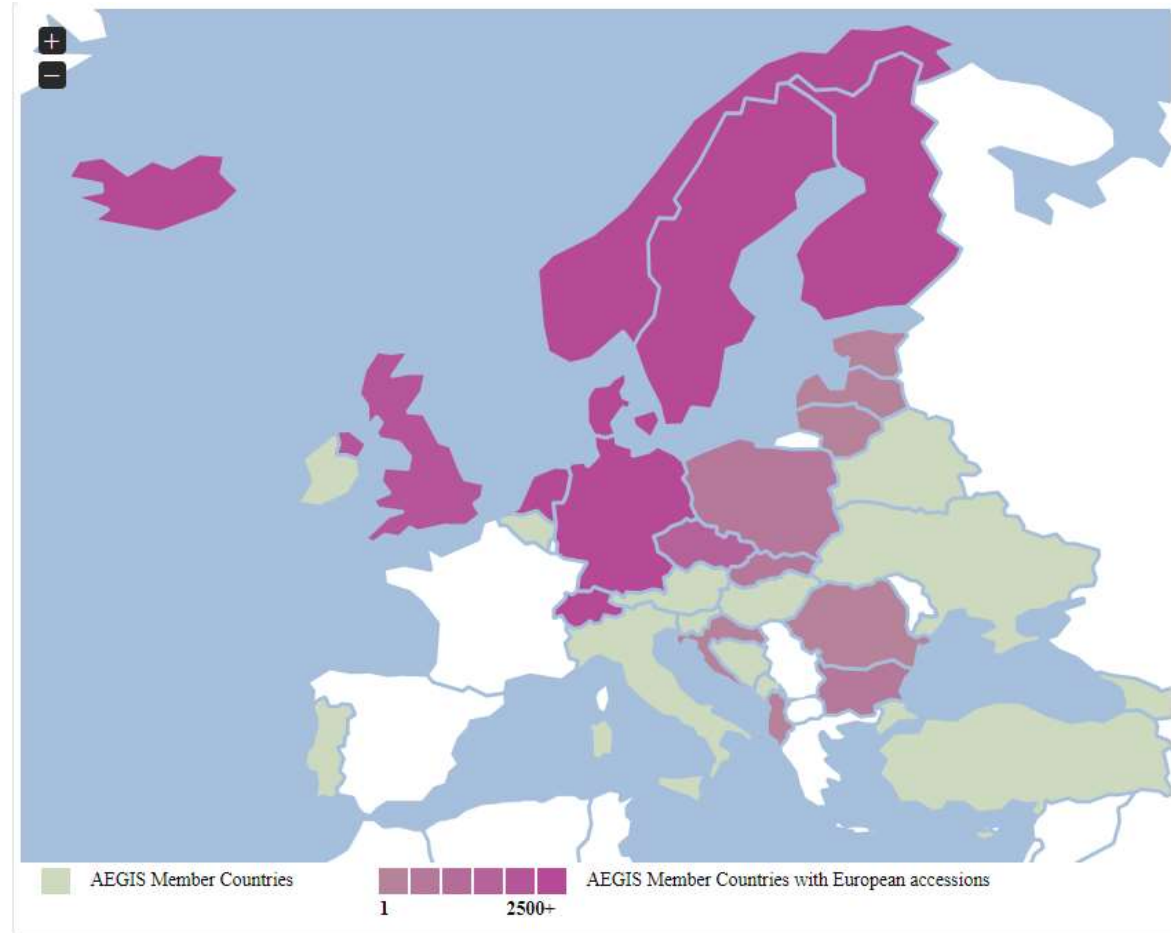
Growth of European Collection



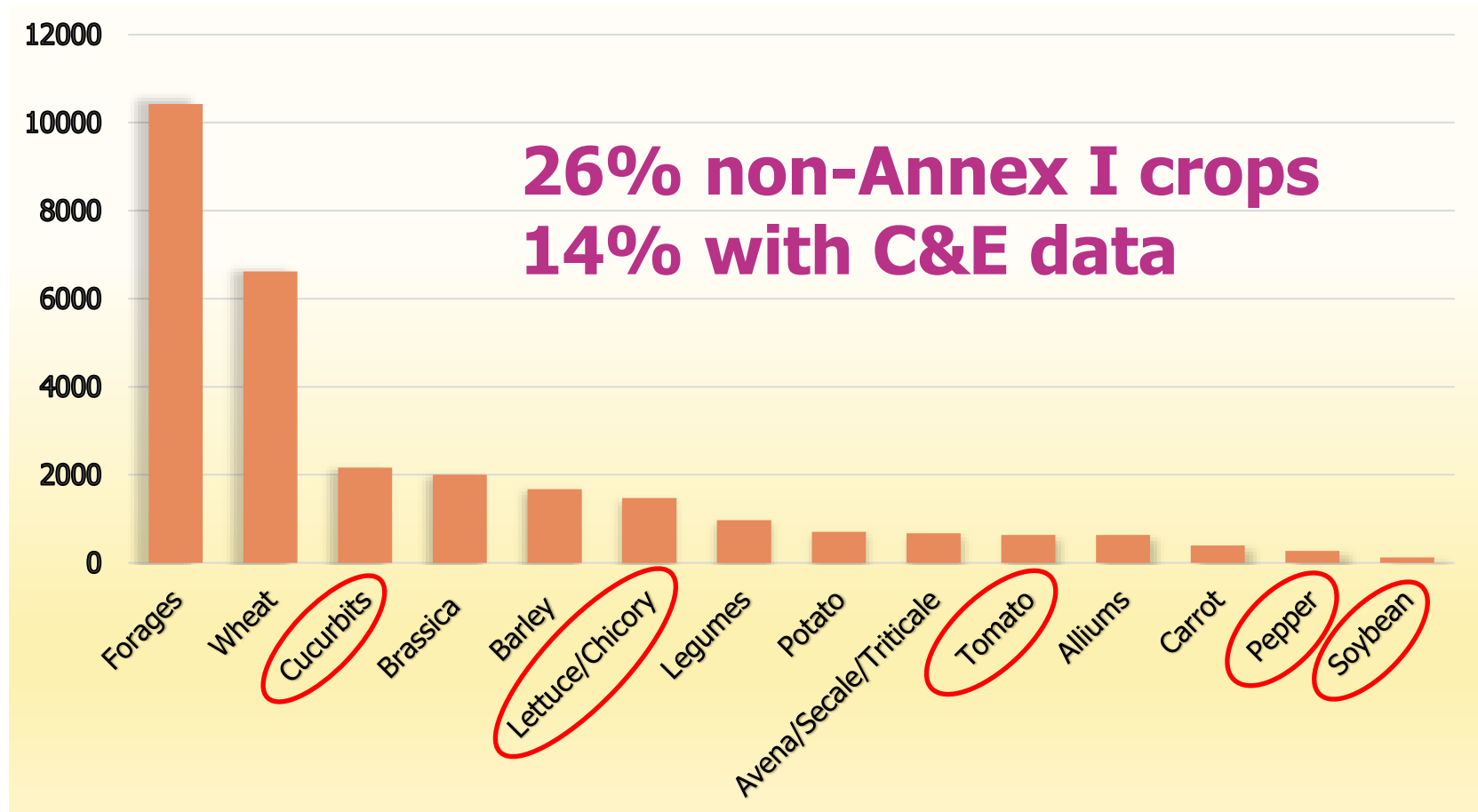
The European Collection

32 817 accessions included in the European Collection

Country	No of accessions
Albania	8
Bulgaria	261
Croatia	90
Czechia	1285
Estonia	89
Germany	14193
Latvia	21
Lithuania	26
Netherlands	5853
Nordic Countries	3708
Poland	303
Romania	194
Slovakia	299
Switzerland	4838
United Kingdom	1659
Total	32 817



European Collection by crops



AQUAS – Quality system

- Transparency: operational **genebank manuals**
- Agreed common conservation **standards** (FAO + crop-specific)
- **Safety-duplication** policy
- **Distribution** guidelines
- **Monitoring** system: voluntary peer review

Agreed crop specific standards

Allium

Avena

Beta

Cucurbits

Leafy vegetables

Prunus

Solanaceae

Vitis

Wheat

<http://www.ecpgr.cgiar.org/aegis/aquas-quality-management-system-for-aegis/>

AEGIS sustainability

- Self-funded (time, facilities and services) by European national programmes (also part of their commitment to implement the International Treaty)
- ECPGR funds
 - Secretariat
 - ECPGR Grant Scheme (small projects: 15K per Working Group)
- Project funds
 - Submission of proposals to EU
 - Other (Trust ?)

Concluding remarks: The past slow progress

- The AEGIS principles have been unanimously endorsed by the technical representatives (National Coordinators)
- At the Ministerial level, sometimes there is fear of increasing costs and reluctance to formalize long-term commitment
- Users (e.g. breeders) easily see the benefits and recommend implementation of the system
- Genebanks do not always perceive a benefit (increasing efficiency of the system requires local adjustments – coordination with wider circle – exposure to monitoring)
- Progress is dependent on good coordination and support at national level

Concluding remarks – Future opportunities

- AEGIS ensures framework for prompt **availability of quality material** under standard terms
- European Collection needs to expand with more material. AEGIS material is a clear priority for investment of national and international funds
- Virtuous circle from a regional evaluation partnership (in progress):
 - AEGIS material **should be characterized**
 - Characterized material **should be included into AEGIS**

Thank you
for your attention!

