



An update on the Establishment of A European Genebank Integrated System



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**Second Meeting of the ECPGR Working Group on *Vitis*,
18-20 September 2012, Institut für Rebenzüchtung, Geilweilerhof,
Siebeldingen, Germany**



Contents

- Introductory notes
- Establishment and milestones of AEGIS
- Key components of AEGIS
- AEGIS membership (MoU and Associate Membership)
- The European Collection: principles; requirements and criteria; selection procedure; role of players; achievement
- AEGIS Quality System (AQUAS), including genebank manual, technical standards and safety-duplication policy
- AEGIS Competitive Grant Scheme
- Plant Gene Access FP7 project proposal



Introductory notes

- Appreciated to have a chance to discuss AEGIS with you!
- *Vitis* WG has expressed interest to contribute to AEGIS, but has had little chance and opportunity to start implementing it
- I hope that through this meeting good progress can be made!
- Due to importance for SC, it is proposed to elaborate especially on the selection procedures of European Accessions and on AEGIS Quality System (AQUAS) elements
- Yesterday we heard already some matters that are of significant interest/importance to AEGIS
- **Please do not hesitate to interrupt if things are unclear or you have a different view!**



Establishment and milestones of AEGIS

1. ECPGR **SC decision** to initiate establishment of AEGIS in 2006
2. AEGIS Advisory Committee appointed
3. ECPGR Secretariat (incl. **AEGIS Coordinator**) to coordinate
4. **Feasibility studies** for 4 model crops conducted (2004-2008)
5. **Strategic framework** policy guide agreed (2008)
6. **Memorandum of Understanding** (MoU) developed and currently signed by 32 countries and 46 Associate Member institutes (August 2012)
7. Agreement on development of **quality management system**; **AQUAS** discussion paper (...)



Establishment and milestones of AEGIS (cont.)

8. Agreement on **selection requirements** for **European Accessions and selection criteria** for Most Appropriate accessions (MAAs)
9. Template for preparation of genebank manual agreed; first genebanks have uploaded their manual
10. **Competitive Small Grant Scheme:**
 - **First Call:** 18 proposals received and 3 awarded;
 - **Second Call** published October last year;
12 proposals received; 5 selected and funded
11. EUROGENEBANK proposal to **FP7 Research Infrastructure 2010 Call**; met threshold but not selected (...)



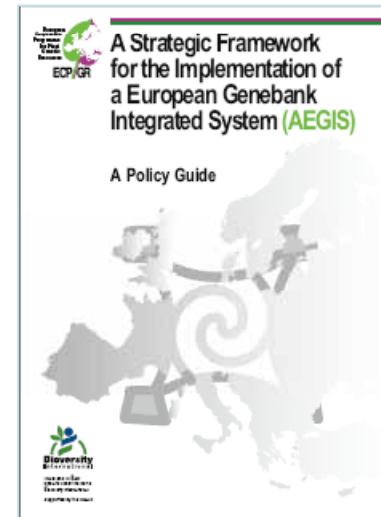
Establishment and milestones of AEGIS (cont.)

12. New proposal (**Plant Gene Access**) submitted to 2012 FP7 Research Infrastructures Call; met threshold, not selected
13. **European Collection** formally established (12 Dec. 2011) and ongoing discussion on best procedure
14. Draft AEGIS safety-duplication policy developed; being considered by AEGIS Advisory Committee



Key components of AEGIS

1. A **Strategic Framework** for the Implementation of A European Genebank Integrated System – A Policy Guide
2. Formal **agreement** with countries (MoU) and institutions within countries (Associate Membership)
3. **European Collection**
4. **Quality management system** (generic and crop-specific standards; template for development of genebank manuals; reporting, monitoring and capacity building) (...)





Key components of AEGIS (cont.)

5. EURISCO as information portal for European Collection



35* . AEGIS Status

(AEGISSTAT)

The coded status of an accession with regard to the European Genebank Integrated System (AEGIS).

Provides the information, whether the accession is conserved for AEGIS.

0 – not part of AEGIS

1 – part of AEGIS

If the AEGIS status is unknown, the field stays empty

6. Dedicated AEGIS Web site:

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



A European Genebank Integrated System

Home Page > About AEGIS

- About AEGIS
- > Objectives
- > Benefits
- > AEGIS and ECPGR
- > AEGIS and the Treaty
- Membership
- Structure
- The European Collection
- AQUAS
- AEGIS Road map
- AEGIS Grant Scheme
- Documents
- Latest news

About AEGIS

The AEGIS initiative is the brain child of the [European Cooperative Programme for Plant Genetic Resources \(ECPGR\)](#). At the present time, plant genetic resources for food and agriculture (PGRFA) in Europe are conserved in some 650 institutions scattered over about 43 European countries. While coordination of activities is carried out within the framework of the ECPGR and the ECPGR Crop Working Groups, each genebank basically operates on its own, providing for the conservation of a full range of crop germplasm important for agriculture in the area it serves.



Photo: V.Bozhkova

- ▣ [General Description of the AEGIS Initiative](#)
- ▣ [The Age of AEGIS \(J. Engels and L. Maggioni. 2011. Public Service Review: Science and Technology; Issue 7\)](#)

With this in mind, the countries of the European region believe that there is a need to improve coordination and share responsibilities with respect to the conservation of, management of and access to PGRFA in Europe by setting up AEGIS.

The legal mechanism for establishing AEGIS is the [Memorandum of Understanding \(MoU\)](#) entered into by eligible countries of the region and the European Commission. The MoU sets out their commitments as full Members of AEGIS and the main lines of AEGIS. To be eligible for membership, the countries listed must be members of ECPGR, and either Contracting Parties to the Treaty or otherwise willing to make PGRFA under their jurisdiction available under the conditions of the Treaty.

The MoU has come into force in July 2009. The MoU is supplemented by a series of Associate Member Agreements for the individual genebanks and other institutions that wish to become part of AEGIS.

- ▣ [Checklist for the implementation of the AEGIS Memorandum of Understanding \(MoU\) at National Level](#)

[To top](#)

RELATED INFORMATION

Highlights

First accessions formally included in the European Collection

The *Allium* Working Group has recently notified a few countries about the Group's agreement on a first batch of garlic accessions to be proposed as European Accessions. On the 12th of December 2011, Germany has flagged **61 garlic accessions in EURISCO as belonging to AEGIS**, thereby giving birth to the European Collection: [more information](#)

FP7-INFRASTRUCTURES-2012-1 Call

- ▣ [Submission of "Plant Gene Access" project proposal](#)

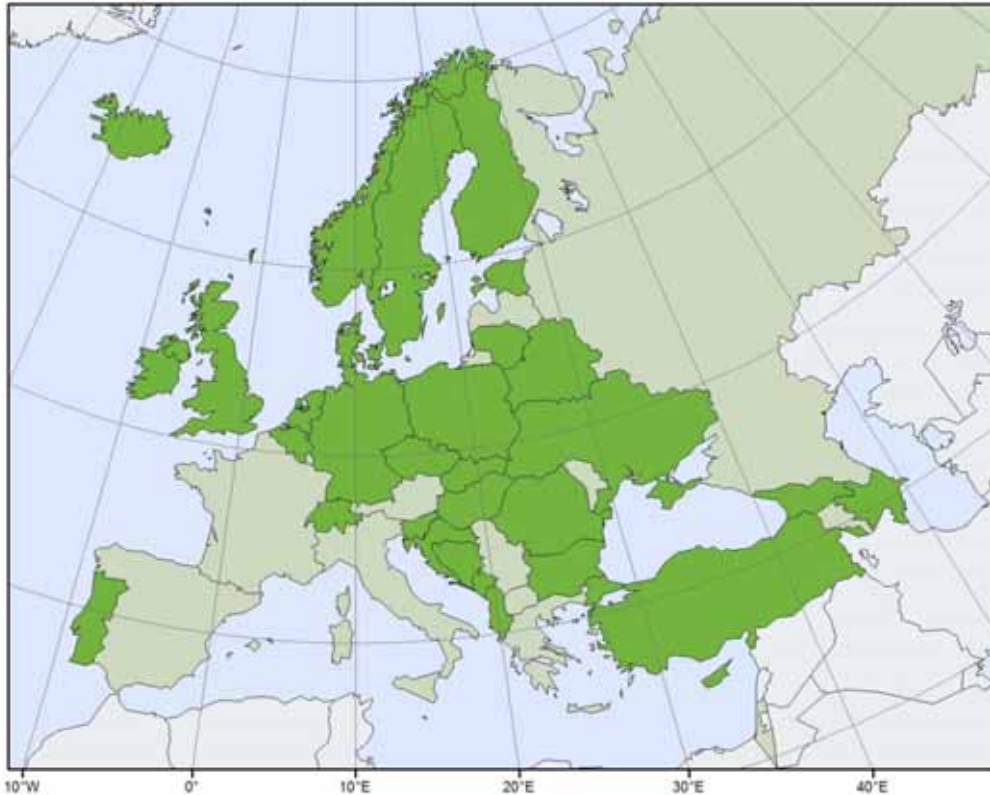
AEGIS Competitive Grant Scheme

- ▣ [Outcomes of the second call for proposals](#)

http://aegis.cgiar.org/about_aegis.html

Second Meeting of the ECPGR Working Group on *Vitis*, 18-20 September, Geilweilerhof, Siebeldingen, Germany

AEGIS member countries



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



Associate Members

- **46** Associate Membership agreements received
- As a result of recent Plant Gene Access proposal development process **2** new AEGIS Member countries and **23** new AMAs had joined!

- Recorded Associate Members per country:

Azerbaijan (2)

Belarus (9)

Belgium (1)

Bulgaria (1)

Croatia (1)

Cyprus (1)

Czech Republic (8)

Estonia (3)

Georgia (1)

Germany (3)

Hungary (1)

Netherlands (2)

Romania (1)

Slovakia (1)

Slovenia (5)

Sweden (1)

Switzerland (1)

Turkey (1)

United Kingdom (3)



The European Collection

Content:

1. General aspects and principles of European Collection
2. How are accessions selected: selection requirements and selection criteria
3. The process of selecting
4. Formal responsibilities expected from partners
5. Progress until today, including its formal establishment



The European Collection

General aspects:

- The European Collection will consist of **dispersed accessions**, i.e. a virtual European genebank
- Through signing the **MoU** countries accept responsibilities for **long-term conservation and availability of European Accessions**, and to
- Conserve/manage according to **quality standards**
- **Conservation/management strategies** for each crop needs to be prepared by respective Crop WG/NCG and approved by SC



General Principles for European Accessions

- AEGIS Members have **discretionary rights** to propose European Accessions;
- Proposed European Accessions must meet the agreed **selection requirements**;
- European Accessions must be free from any **third party obligations or restrictions**;
- **SMTA to be used** for the transfer of Annex I crops;
- Transfer of **Non-Annex I** material registered as European Accessions to be under the terms and conditions of the SMTA with explanatory note



General Principles for European Accessions (cont.)

- Management Standards for European Collection to be proposed for each crop genepool by respective ECPGR Crop Working Group and approved by ECPGR Steering Committee;
- Associate Members of AEGIS to perform all selected activities according to agreed standards;
- Public domain accession-level information, as well as non-confidential characterization and evaluation data, to be made available;
- Each European Accession to have identified safety-duplicate stored under the same or better conditions than the original



Selection requirements

1. Material under the management and control of the governments of member countries and their associate members, in the public domain and offered by the associate members for inclusion into AEGIS
2. 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)
3. Plant genetic resources for food and agriculture as defined in the International Treaty as well as medicinal and ornamental species
4. 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 Criteria

To sort out duplicates —► MAA

- Need to be agreed by **each WG** for their specific crop(s)
- Used when deciding **which accession to accept** among two or more (quasi) duplicates or similar accessions/genotypes (i.e. **MAAs**)
- **WGs** to decide if any of these criteria have **prevalence** over the others, or that the selection should be the result of a **combination of two or more** criteria
- Example of 'draft' selection criteria to allow the selection of the MAAs from a group of (quasi) duplicates – see next slide



Suggested “generic” Selection Criteria

1. Maintained in “country of origin”
2. A known origin (collected and/or bred; pedigree data!?)
3. Comprehensiveness of passport information
4. Number of regeneration/multiplication cycles (Do we know?)
5. Health status (i.e. is the germplasm disease free?)
6. Existence of morphological/molecular characterization data
7. Existence of (agronomical) evaluation data
8. Validated accession name (particularly relevant for perennial clonal crops where the same name can be attributed to different accessions; history of individual accessions is important; special attention to be paid to synonyms and homonyms)



Simplified selection procedure of the European Accessions -1

1. WGs (or delegates) to elaborate a list of candidate European Accessions for a crop “pool”, as documented either in EURISCO and/or in CCDB, regardless MoU, Associate members, offers from countries... → LIST OF CANDIDATE ACCESSIONS
2. Agree on selection procedure (examples: Cucurbits, *Daucus*, Forages, *Prunus*, see also AEGIS Web site)
 - All selected accessions must meet “selection requirements”
 - Not worry (too much) about “governmental control”
 - Mainly focus on genetic uniqueness
 - Could exclude categories, such as: “hybrids”, “unknown accessions”
 - Not a “core collection”(...)



Simplified selection procedure of the European Accessions -2

3. Selection criteria (crop-specific) are used to select MAAs among “duplicates” (also considerations of management practices)
 4. **WG sends list with candidate accessions to respective National Coordinators for consideration of possible inclusion in the European Collection**
 5. NC, in close consultation with the holding institute(s), indicates to WG whether or not proposed accessions can be included in European Collection
- (...)



Simplified selection procedure of the European Accessions -3

6. **Accessions accepted** by the country and subsequently by the WG for inclusion in the European Collection **should be flagged in EURISCO** as AEGIS accessions upon instructions of NC and implemented by the EURISCO National Focal Point
7. In case candidate accessions were not accepted by a given country, WG looks for **alternative accessions** not confirmed by NC and **seeks acceptance for inclusion** by a different holder
8. **Alternative**: a genebank or country identifies **all accessions maintained in the institute/country that originated in the country and/or are likely unique** and offer these to AEGIS



European Collection

Responsibilities of WG + members

Summary of process in Germany (IPK) of the alternative approach as mentioned in point 8 of simplified procedure:

Accessions of all crops and selected according to the criteria below have been offered to AEGIS as candidate accessions

1. Accessions that originated in Germany
2. Accessions collected by German or Austrian collectors before 1945 (this might not be of relevance to non-German and Austrian genebanks)
3. Accessions collected by IPK staff; in the case of collecting missions after 1993 – when CBD entered into force – only those accessions that have been collected under a material transfer agreement
4. Material collected by “alien missions” and donated to IPK. This would specifically apply if IPK is the only maintainer of such material.
5. Other material not conserved in other genebanks.



Selecting European Accessions

- Main players are **Crop Working Groups** and **Countries**
- Simplified **selection procedure** to identify European Accessions, including MAAs, available
- **Selection Requirements** have been approved by the Steering Committee (see later)
- No precise **definitions** of European Accessions and MAAs exist (i.e. they are the **result of a process** and thus might vary from crop to crop!)
- The **Selection Criteria** have been discussed by the model crop groups, without much divergence of opinion (see later)
- A **WG agreement** on Selection Criteria will be required for each crop or crop group

The European Collection

Has now been formally established and will hopefully steadily grow!

The European Collection

Species	European accessions	Holding genebanks	Countries of origin
<i>Allium sativum</i> L.	143	IPK, Germany (61) CRI, Czech Rep. (82)	16

<http://aegis.cgiar.org>



Preliminary designation of European Accessions (September 2011)

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%



AQUAS (AEGIS Quality System) – technical elements

1. **Operational genebank manual** – all AEGIS Associate Members; based on **genebank template** (template finalized – AEGIS Web site; so far three manuals received)
2. **Generic operational standards** – Secretariat (cooperation with FAO; inputs into draft also by ECPGR members; discussed at Commission in July 2011; standards for non-orthodox species on field genebank and *in vitro*/cryopreservation drafted (more details later))
3. **Agreed minimum crop-specific technical standards** – all WGs (complementing generic standards, when necessary)
4. **Quality management system procedures** – Secretariat; all WGs; Associate Members (still to be developed):
 - a. record keeping
 - b. reporting
 - c. monitoring (not policing, but guiding and advisory approach)



AQUAS (AEGIS Quality System) – principles

Quality assurance based on the following:

- Say what you do
- Do what you say
- Let an independent body check that you do what you say
- Correct and improve what you say you do



AQUAS (AEGIS Quality System) – principles

- Consensus
- Agreed minimum standards
- Capacity building
- As little bureaucratic as possible
- Monitoring system (not policing, but guiding and advisory approach)



AEGIS Grant Scheme (8 projects)

2010

1. Assessment of Unique Material in the European Collections of **Umbellifer Crops**
2. Towards comprehensive **pea** germplasm management for future use
3. Cryopreservation of young inflorescence bases in bolting **garlic**

2011

1. Establishment of the European **Forages** Collection
2. "PGR Duplicate Finder" a software package to assist in the identification of putative duplicates in germplasm databases
3. Improving the prerequisites for a European **rye** collection
4. Identification of **old potato clones** having unreliable variety name by means of fingerprinting using microsatellite (SSR)
5. *Brassica* selection criteria for the identification of the MAAs relate to the ***Brassica oleracea*** of Iberian collection



FP7 Research Infrastructure. Call for proposals of July 2011

Theme on *Plant Genetic Resources Centres*

- The ECPGR Steering Committee endorsed/ recommended the **ECPGR Secretariat** to coordinate the preparation of a project proposals
- Submission completed: **23 November 2011**
- Budget: ca. **Euro 10 million; 34 partners**
- Threshold was met, but **no funding** provided
- ECPGR invited by FP7 to provide **proposal for topic** in Horizon 2020 scheme (October 2012)



Plant Gene Access (12 Work Packages)

1. Project management (ECPGR)
2. Access to the European Collection (ECPGR)
3. Access to PGR information (Bioversity)
4. Quality assurance (MTT, Finland)
5. Establishing the European Collection (INRA, France)
6. Establishing a knowledge base (CRI, Czech Republic)
7. Upgrading management of PGR Information (CGN, The Netherlands)
8. Research to improve services (Warwick, UK)
9. Strengthening genebank services through genotyping (IPK, Germany)
10. Identify and rescue endangered resources (NordGen, Sweden)
11. Capacity building (KIS, Slovenia)
12. Partnership with industry (Plantum, The Netherlands)

PROJECT WEB SITE: <http://aegis.cgiar.org/documents/>



Thank you
for your attention!

