



## European Cooperative Programme for Plant Genetic Resources (ECPGR)

Phase VIII (2009-2013)  
2011 Progress Report

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**AEGIS section extracted from:**

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### **3. ACTIVITIES CARRIED OUT WITHIN THE NETWORKS**

#### **3.1. Cereals Network**

##### **Summary of AEGIS development status**

###### ***Avena* WG**

Draft quality standards were recommended during the AEGIS model crop study (2008). A number of points requiring further discussion have been identified regarding standards for collecting, viability testing, conservation and multiplication/regeneration. A Task Force has been established to draft protocols on regeneration of wild accessions. An *ad hoc* meeting was planned in 2011 to make further progress regarding definition and agreement on crop-specific standards, as well as definition of European Collection accessions. However, the event did not take place and it was postponed.

###### **Barley WG**

It was agreed that the European Barley Collection would be established, commencing with large parts of the barley collection of IPK, Germany, with the addition of accessions that were held in the respective countries of origin and other evidently unique accessions. A detailed list of accessions, recommended for inclusion into AEGIS, is expected to be produced soon.

Regarding AQUAS, a Task Group was formed, coordinated by A. Kolodinska Brantestam (NordGen), to draft protocols for the species-specific maintenance of wild *Hordeum* species and cultivated barley. An agreement on minimum standards should be reached by May 2012.

###### **Wheat WG**

There is agreement to identify European wheat Most Appropriate Accessions (MAAs) and subsequently to prepare a list of potential European or AEGIS accessions, as well as to adopt the resulting list of European wheat accessions by the Wheat WG members and to safety-store the European wheat collection accessions in Svalbard. Practical implementation of the above agreement has not yet started and will be discussed at the Wheat WG meeting in May 2012.

#### **3.2. Forages Network**

##### **Summary of AEGIS development status**

###### **Forages WG**

- European Collection: Selection criteria for Forage Most Appropriate Accessions were defined and test analyses of the *Phleum* and *Poa* collections were made, with assignment of "Primary Collection" status to 1536 *Poa* accessions (i.e. it was defined which institutes are proposed to be the "primary holders" of those accessions – primary holders should take the responsibility for the long-term conservation of the given accessions). A mechanism for formal acceptance of European Collection status still needs to be set in motion and it is planned to achieve this during the AEGIS Grant Project Workshop in 2012.
- AQUAS: Preferred and acceptable quality standards for regeneration have been agreed at the Working Group level.

#### **3.3. Fruit Network**

##### **Summary of AEGIS development status**

###### ***Malus/Pyrus* WG**

The Group will meet in 2012, 5 years after its previous meeting, and AEGIS-related topics will be part of the agenda.

#### ***Prunus* WG**

- European Collection: The procedure to select accessions for the European Collection has been tested with cherry accessions and the Group was finalizing agreed selection criteria. 1116 unique cherry genotypes and 367 duplicate groups were identified. WG members agreed to promote in their respective countries the definition of a proposed list of candidate European Accessions and the lists are planned to be discussed in 2012.
- AQUAS: Minimum standards for *Prunus* conservation were proposed by the AEGIS *Prunus* sub-group in 2008 and re-discussed by the group in 2010. Finalization of the list for formal approval is ongoing. Safety-duplication methodology development is also planned.

#### ***Vitis* WG**

The Group will meet in 2012, nine years after its previous meeting and AEGIS topics will be part of the agenda.

### **3.4. Oil and Protein Crops Network**

#### **Summary of AEGIS development status**

##### **Grain Legumes WG**

The WG has never had an opportunity to discuss AEGIS implementation (the last meeting was in 2006). The first opportunity will be at its fifth meeting in 2013. However, the proposal, "Towards comprehensive pea germplasm management for future use", coordinated by Agritec Plant Research, Czech Republic, was concluded in 2011 and, based on the analysis carried out as part of an AEGIS Grant Scheme supported project in 2011, a set of core accessions from Czech Republic were recommended to be designated as AEGIS accessions.

### **3.5. Sugar, Starch and Fibre Crops Network**

#### **Summary of AEGIS development status**

##### ***Beta* WG**

- European Collection: The WG has never had an opportunity to discuss AEGIS implementation (its last meeting was in 2006). The first opportunity will be at its fourth meeting in 2012.
- AQUAS: The Group has developed a seed increase protocol for wild and cultivated *Beta* germplasm. The Group has identified areas where a quality concept should be developed: germplasm acquisition; status of acquired material; regeneration; post-harvest; pre-storage; germination capacity and storage conditions.

##### **Fibre Crops (Flax and Hemp) WG**

The Group discussed the AEGIS implementation in 2010 among the few participants in its meeting. It was felt that more time was needed to fully absorb information on AEGIS and that the involvement of all members of the WG was necessary in order to implement the process. The participants agreed to focus on the procedures to select flax accessions for the European Collection, under the coordination of the Chair. However, the Group members were not completely convinced of the feasibility and value of a European Collection. They were also discouraged by the cost of devoting time to the selection of accessions. Moreover, the establishment of a European Hemp collection is hampered by legal issues that make it difficult to implement free movement of germplasm.

##### **Medicinal and Aromatic Plants WG**

- European Collection: The Group discussed the implementation of AEGIS during its meeting in 2009 and agreed that MAP accessions could be proposed for the European Collection, but did not start developing procedures for their selection. Similarly, there was agreement on the need to adopt quality standards for conservation, without entering into the process of defining the

standards. The *Origanum* project has provided data that could be used in defining *Origanum* accessions for the European Collection.

- AQUAS: A methodology for using insect pollinators in heterogamous vegetable species, medicinal, aromatic and culinary plants grown in technical isolation was published by Crop Research Institute, Prague and Bee Research Institute Ltd., Dol.

#### **Potato WG**

European Collection: The project funded by the AEGIS Grant Scheme will analyse 500 potato clones with SSR markers and will identify mislabelling or confirm the genetic uniqueness of the clones. Based on the results, the project will indicate which of the fingerprinted varieties will be the most appropriate for inclusion in the European Collection. Due to the late start of the project in the potato growing season, the duration has been extended by six months. Therefore, the project is expected to be concluded in December 2012.

### **3.6. Vegetables Network**

#### **Summary of AEGIS development status**

##### ***Allium* WG**

- European Collection: As an outcome of the GENRES EURALLIVEG project, a list of 202 candidate European garlic accessions were sent to the National Coordinators for flagging them as European Accessions in EURISCO: a first batch of 61 accessions were thus flagged by Germany in December 2011. An updated and enlarged list of candidate garlic accessions will require molecular screening of the European garlic collection, which has not been successfully completed so far. The Group has established a workplan to select seed-propagated wild accessions, landraces as well as cultivars. They will start with a focus on *A. ampeloprasum*.
- AQUAS: The Group has agreed on recommendations for field maintenance of garlic and shallot accessions and on protocols for *in vitro* medium-term storage and for cryopreservation of garlic. Two levels of phytosanitary standards were adopted, with or without virus elimination.

##### ***Brassica* WG**

- European Collection: A test was made for selecting Most Appropriate Accessions of *B. rapa*. It was concluded that insufficient data were available for many accessions of *B. rapa*, meaning that the selection criteria could not be applied in an objective, unequivocal manner.  
The methodology to define MAAs among groups of duplicates is being tested on Iberian *B. oleracea* landraces, as part of a project funded by the AEGIS Grant Scheme.
- AQUAS: A summary of present practices and the draft minimum standards have been completed.

##### ***Cucurbits* WG**

- European Collection: Following an update of the Cucurbits Database, expected for January 2012, volunteers from the WG have planned to screen the Database to identify Most Appropriate Accessions for the European Collection. Bulgaria has offered to designate for AEGIS the 1064 accessions that were safety-duplicated in 2010.
- AQUAS: General guidelines for regeneration, processing and storage of cucurbit species were agreed.

##### ***Leafy Vegetables* WG**

- European Collection: The WG agreed to start focusing on lettuce and spinach and to develop a shortlist of potential AEGIS accessions that should be discussed at the next meeting of the WG. Information on potential AEGIS accessions has been collected for both lettuce and spinach from five collection holders. Once the exercise is completed with lettuce and spinach, the Group will move on to chicory and minor leafy vegetables.
- AQUAS: Developing a list of suggested minimum standards for leafy vegetables is part of the Group's workplan. Information on genebank procedures has been collected for both lettuce and spinach from four collection holders.

### Solanaceae WG

- European Collection: The Group initially aimed at improving the passport data of the Solanaceae collections as a first step, in particular the geographical origin of the accessions. However, given the difficulties encountered, the selection of the European Accessions will be discussed at the next meeting with the Database Managers, on the basis of the existing passport data.
- AQUAS: The Group agreed in 2004 on a “Standardized minimum protocol for seed regeneration and seed storage of Solanaceae”. The protocol includes disinfection of seeds, identification, number of plants regenerated, transplanting seedlings, isolation, harvest, seed cleaning, desiccation and storage. The safety-duplication of all collections is a priority for the future.

### Umbellifer Crops WG

- European Collection: The Group agreed on a methodology for selecting accessions for AEGIS. In total, 45% of the original 2498 cultivar accessions were identified as potential European Accessions. The list needs to be cross-checked, confirmed with complementary information and extended to landraces and wild relatives. A workplan was decided, to extend the analysis to other Apiaceae.
- AQUAS: A proposal for minimum standards for regeneration and long-term conservation conditions was made. The standards still need to be formally agreed by the Group.

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## 4. AEGIS INITIATIVE FOR “A EUROPEAN GENE BANK INTEGRATED SYSTEM”

Whereas the hope for financial support from the European Union through the EUROGENEBANK proposal, submitted at the end of 2009, did not materialize, the Secretariat, in close collaboration with and the full support from the Working Groups, continued the development and implementation of AEGIS activities as planned during 2011. A number of activities and the major achievements during 2011 are summarized below:

- By the end of December 2011 the following 30 countries (compared to 26 in 2010) had returned the signed Memorandum of Understanding (MoU) to Bioversity International: Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Georgia, Germany, Hungary, Iceland, Ireland, Lithuania, Montenegro, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. In addition, in 18 countries, 45 (compared to 19 in 2010) AEGIS Associate Membership Agreements between institutions holding *ex situ* accessions and the respective National Coordinators were concluded.
- Final reports of the three selected projects of the first call of the AEGIS Competitive Grant Scheme have been received and placed on the AEGIS Web site. The second call for proposals was published at the end of 2010 and a total of 10 eligible proposals were received. Under the leadership of the AEGIS Advisory Committee, the following five proposals were selected and funded:
  1. Establishment of the European Forages Collection; MTT AgriFood Research, Finland.
  2. “PGR Duplicate Finder”, a software package to assist in the identification of putative duplicates in germplasm databases; Centre for Genetic Resources, The Netherlands, (CGN).
  3. Improving the prerequisites for a European rye collection; Nordic Genetic Resources Centre (NordGen).
  4. Identification of 240 old potato clones having unreliable variety name by means of fingerprinting using 12 microsatellite (SSR) markers to assist in setting up the AEGIS collection for potato; Centre for Genetic Resources, The Netherlands, (CGN).
  5. *Brassica* selection criteria for the identification of the MAAs: relate to the *Brassica oleracea* of Iberian collection; Banco Português de Germoplasma Vegetal, INRB, I.P, Portugal.
- The developed and approved template for an operational genebank manual was made available on the AEGIS Web site and discussed at a number of WG meetings. Further follow-up with the various AEGIS Associate Members will be required.

- The Secretariat and the ECPGR community participated in the process of revision of the FAO *Genebank Standards* (for seed germplasm) and the final draft was discussed by the Commission during its 13th Session. As the FAO process of revising the genebank standards started to coincide with the AEGIS process it was agreed with the SC to use the approved revised FAO *Genebank Standards* rather than to develop new ones. Thus, ECPGR experts were invited to comment on the draft revised *Genebank Standards* document. A number of them did, a next version was produced and during the discussions of this new version the Commission requested to add a section on the evaluation of germplasm, to hold a second electronic consultation as well as to also develop standards for field genebanks as well as for *in vitro* and cryopreservation. The further to-be-revised draft on seed germplasm as well as the new drafts are planned to be submitted to the Technical Working Group for their approval in November 2012.
- With the establishment of the European Collection the following activities were undertaken. The adopted "simplified" procedure for the selection of European Accessions has been used by several Working Groups and a number of candidate lists of European Collection accessions were established. The *Allium* Working Group was the first one to approve 61 garlic accessions for inclusion in the European Collection and upon acceptance of the conditions for their long-term conservation and continued availability by the German National Coordinator, these accessions have been flagged in EURISCO as the first European Accessions.
- The Secretariat attended several WG and other meetings, including the Inter-regional Network meeting with the Near East and North Africa Region in Izmir, Turkey and made presentations on the concept and the status of the development of AEGIS. Presentations given are available on the AEGIS Web site.
- The preparation of a project proposal entitled "Access to plant genetic resources for food and agriculture in Europe" or "Plant Gene Access" in short, was coordinated by the ECPGR Secretariat, upon request of the ECPGR Steering Committee. The proposal has 33 partners that formally agreed to participate in the project and was submitted on time to the 2012 Call under the Seventh Framework Programme of the EU (Research Infrastructures – Support to existing research infrastructures – Integrating Activities) on 23 November 2011. Whereas this proposal addresses a few areas that are (still) outside of the direct scope of AEGIS, including work packages on genetic stocks, crop wild relatives and historical seeds as well as on genotyping and phenotyping, an eventual acceptance of the proposal would greatly boost the further development of AEGIS. The results of the project evaluation are expected in March/April 2012.
- During the course of 2010 and the beginning of 2011 the AEGIS Web site was revised. It is foreseen that with the actual establishment of the European Collection further revisions will be undertaken.

#### **Outlook for 2012:**

Special attention will be paid to the further designation of accessions to the European Collection and to continuing the efforts on defining crop-specific standards, in close consultation with FAO and its Commission where relevant. Efforts to formulate the reporting and monitoring components of AQUAS will be started in 2012. During 2012 the conclusion of the second set of projects funded by the Grant Scheme is expected.

Should the Plant Gene Access proposal pass the selection hurdles, a lengthy process of negotiating the final workplan and budget is foreseen and will have to be coordinated by the Secretariat.