

## Cereals Network

**Working Groups:** *Avena*, Barley and Wheat.

The **Cereals Network Coordinating Group (NCG)** consisted of seven members: Helmut Knüpffer, Germany (Network Coordinator); Iva Faberová, Czech Republic; Christoph Germeier, Germany; Marja Jalli, Finland; Andreas Katsiotis, Greece; Gert Kleijer, Switzerland; and Marcin Zaczynski, Poland.

A mission was organized by Andreas Katsiotis, Greece and Gideon Ladizinsky, Israel, to visit Cyprus and Crete in May 2009, aiming **to survey populations and collect samples from endangered wild *Avena* populations**, to be placed under long-term conservation.

In the case of Cyprus, the expedition was organized in collaboration with Angelos Kyratzis from the Agricultural Research Institute, Nicosia, and resulted in the collection of 18 accessions of *Avena ventricosa*, 5 accessions of *Avena eriantha* and 5 accessions of *Avena hirtula*. Twenty accessions were collected from protected areas. The EURISCO descriptors were used for documentation. Accessions were stored in the Agricultural Research Institute's genebank and safety-duplicates were sent to the Agricultural University of Athens. *A. ventricosa* was found to be still present in Cyprus in areas where it had been recorded more than 75 years ago. Most of the areas visited were within Natura 2000 or National Forest protected sites, thus providing the environment for long-lasting *in situ* presence of the species with proper management and monitoring guidelines. The same holds true for *A. hirtula*. For both species a number of areas where they were not previously recorded were found. Most of these new sites are also within protected areas providing suitable conditions for *in situ* conservation of the species. Since large *A. hirtula* populations were found in a number of areas in Cyprus, the visit to Crete was not considered necessary and it was postponed. Similar research is needed to study the distribution of other *Avena* species and their diversity.

**A pre-breeding workshop on cereals** was held in Alnarp, Sweden on 24-25 November 2009. The workshop was organized by ECPGR, NordGen, the Swedish University for Agricultural Sciences (SLU), Graminor, Norway, MTT Agrifood Research Finland and Oatly AB, Sweden. Altogether 49 participants from 12 countries attended the meeting, which included 20 presentations in four themes: 1) Pre-breeding in cereals - status and examples of existing collaborations; 2) Breeding goals and needs; 3) Challenges of funding; and 4) Future needs and application.

It was suggested that a joint disease resistance database could be built up from various sources and experiences, including e.g. data on PGR reactions to different diseases and the availability of molecular markers. It was noted that in light of climate change, problems due to drought are also increasing in Europe. There is a need to develop phenotype tests suitable for abiotic stress tolerance and to apply them to relevant germplasm. Important initiatives to support utilization of PGR in pre-breeding would be to increase the online availability of characterization/evaluation data and to improve the dialogue between genebanks and breeders. A limiting factor was identified in the lack of specific funding programmes devoted to pre-breeding. A proposed solution to this limitation was lobbying in favour of pre-breeding at EU and national levels, and supporting the establishment of private-public collaboration, where they do not yet exist. Regarding future possible collaborations, it was observed that the stakeholders were genebanks (including AEGIS collaborative partners), plant breeding researchers, the European Seed Association (ESA), farmers' organizations, the Global Partnership Initiative for Plant Breeding Capacity Building (GIPB) and the CGIAR Centres, and that the proposals for collaboration should be framed within the International Treaty or on a regional basis.

One of the conclusions of the workshop was the decision to form a task force to produce concept notes on pre-breeding issues. Ten participants volunteered for this and a concept note on small grain cereals is now ready and publicly available on the ECPGR Web site at:

[http://www.ecpgr.cgiar.org/Networks/Cereals/PreBreeding\\_Concept\\_Note.pdf](http://www.ecpgr.cgiar.org/Networks/Cereals/PreBreeding_Concept_Note.pdf)

The workshop's presentations are also available at:

<http://www.nordgen.org/index.php/en/Innehaall/Activities/Cereal-Pre-Breeding-Workshop>

The **ECPGR project for urgent regeneration and safety-duplication activities**, funded by the Global Crop Diversity Trust, started its operation in 2009. In the case of cereals, six countries were involved in the regeneration of wheat or *Aegilops* (Armenia, Belarus, Bulgaria, Georgia, Hungary and Israel), five countries in the regeneration of barley (Armenia, Belarus, Greece, Hungary and Israel) four countries in the regeneration of maize (Azerbaijan, Bulgaria, Georgia and Hungary) and three countries in the regeneration of sorghum (Azerbaijan, Bulgaria and Georgia). Out of the 3990 cereal accessions that are expected to be regenerated with the support of the project, 1798 (45%) have been grown and have completed their cycle during 2009. Of these, 1522 accessions (85%) were successfully regenerated. These represent 38% of the total expected in the two-year project. The regeneration of cereals generally resulted in a success rate above 90%, with a few exceptions, i.e. wild barley in Israel, maize in Hungary and sorghum in Bulgaria. In all cases the problem was insufficient yield.

The Cereals Network submitted five **proposals for funding to the AEGIS Grant scheme**. These were prepared by partners from Azerbaijan (wheat), Czech Republic (barley, oats and rye), Georgia (*Aegilops*) and Ukraine (one on maize and one on millet).

The Report of a Cereals Network, Second Meeting, 21-24 April 2008, Foça, Turkey was published on-line in a draft form at:

[http://www.ecpgr.cgiar.org/Networks/Cereals/Cereals\\_Network\\_2ndMeeting\\_Draft\\_Feb09.pdf](http://www.ecpgr.cgiar.org/Networks/Cereals/Cereals_Network_2ndMeeting_Draft_Feb09.pdf)

**Outlook for 2010:** activities planned by the Network include a mission to collect and survey wild *Avena* accessions in Sicily, Italy and Andalusia, Spain (May 2010). The Sixth Meeting of the *Avena* Working Group is planned for 21-23 October 2010 in Romania.