

VEGETABLES NETWORK

4.6. Vegetables Network

Working Groups: *Allium*, *Brassica*, Cucurbits, Leafy Vegetables, Solanaceae and Umbellifer Crops.

The **Vegetables Network Coordinating Group** consisted of ten members: Marie-Christine Daunay, France (Network Coordinator), Willem van Dooijeweert, The Netherlands (Vice-Coordinator); Charlotte Allender, United Kingdom; Noor Bas, The Netherlands; Ferdinando Branca, Italy; Maria José Díez, Spain; Emmanuel Geoffriau, France; Joachim Keller, Germany; Teresa Kotlińska, Poland and Rob van Treuren, The Netherlands.

The **Ad hoc Meeting of the Solanaceae Database Managers and First Meeting of the ECPGR Solanaceae Working Group** were held 14-17 February 2012 in Menemen, Turkey, involving 17 WG members and 5 observers.

A recommendation was made that EURISCO should be improved in such a way as to serve for the identification of AEGIS candidate accessions. EURISCO should therefore host all the crop-specific data that are necessary to analyse the existing European collections, as well as the standardized minimum characterization data. Such an approach should eliminate the duplication of efforts currently dedicated to the CCDBs. It was proposed that CCDB Managers become responsible for checking the quality of a crop-specific part of the data in EURISCO. They could monitor these data for quality, consistency and gaps and seek that appropriate adjustments be made by the data providers in the original data and consequently in the National Inventories and in EURISCO. The Solanaceae Database Managers (Tomato, Eggplant, Pepper, Pepino, Groundcherry and Tree tomato) agreed to start operating as responsible for the monitoring of the respective crop data in EURISCO, contacting data providers and suggesting appropriate adjustments.

It was decided to convert the existing draft minimum descriptor lists for Groundcherry and Pepino into final versions, while the Tree tomato minimum descriptors drafted by the WG would be finalized upon publication of the *Biodiversity Descriptors for Tree Tomato*.

AEGIS matters were extensively discussed (see below, 'Summary of AEGIS development status').

Willem van Dooijeweert, The Netherlands, and Marie-Christine Daunay, France, were reconfirmed as Chair and Vice-Chair respectively of the WG.

The International Society for Horticultural Science (ISHS) *Brassica 2012 Symposium*, organized by the Department of Agricultural and Food Science of the University of Catania, was held in Catania, Italy, 12-16 November 2012. This was the occasion to present the **Brassica Working Group**. With two posters prepared by Branca et al. (see Section 7.1), results were reported of the ECPGR-funded activities carried out by the University of Catania, the N.I. Vavilov Research Institute of Plant Industry (VIR), St. Petersburg, Russian Federation and the Institute of Sustainable Agriculture of Córdoba (CSIC), Spain. These activities were focused on taxonomic, morphological, chemical and molecular characterization of wild (n=9) *Brassica* and *B. rapa* accessions provided by European genebanks.

An AEGIS-granted project on '*Brassica* selection criteria for the identification of the Most Appropriate Accessions: relate to the *Brassica oleracea* of Iberian collection', coordinated by Banco Português de Germoplasma Vegetal-Instituto Nacional de Recursos Biológicos (BPGV-INRB), Portugal, was concluded. Accessions of *B. oleracea* vars. *acephala*, *capitata* and *costata* from Spain and Portugal were analysed with molecular markers. Two sets of markers (Internal transcribed sequences (ITS) and SSR) enabled more precise selection of accessions to be made rather than those based purely on passport data, and have allowed the identification of duplicate accessions. A total of 42 accessions (18 held at BPGV and 24 at Misión Biológica de Galicia (MBG)) were selected for inclusion in the European Collection.

With the help of the 'DuplicateFinder' software, developed by CGN through an AEGIS-granted project, the BrasEDB has been updated with the duplicate groups within *B. oleracea*, thus making it possible to generate a list of probable duplicate accessions.

Members of the **Umbellifer Crops WG** started trials for taxonomic identification or tolerance to diseases of wild relatives of umbellifers. Identification of 80 accessions selected through EURISCO has been done both at the plantlet stage and at the blooming stage in the field in summer 2012.

Detailed characterization was carried out by Poland (parsley, celery, dill and carrot), NordGen (*Angelica* and *Carum*), France (250 cultivated and 240 wild accessions, evaluation of 45 wild accessions for *Alternaria dauci* resistance, and 34 wild carrot populations from Corsica with SSR markers) and is in progress in UK (creation of a carrot diversity set for pre-breeding).

The **ECPGR Cucurbits Database** was improved with data from some countries, EURISCO and also from GRIN (USDA-ARS), since many accessions in European genebanks were obtained originally from USDA.

A new field (cultivar group name) was developed for the **ECPGR Umbellifer Database**, managed by the University of Warwick, UK, to facilitate the identification of accessions of the same or close cultivar(s).

The ECPGR *Allium* Database was successfully transferred from the University of Warwick, UK, to IPK, Gatersleben, Germany. The acronym in use for the database was revised into EALLDB, so that it would no longer be confused with the ECPGR *Avena* Database (EADB).

Summary of AEGIS development status

Offers by countries

The following accessions were submitted to the attention of the Working Groups for their opinion on the suitability of their inclusion in the European Collection:

- Bulgaria: Cucurbits (1064)
- IPK, Germany: *Allium* (98), Cruciferae (1638), Cucurbits (214) – accepted by the WG in December 2012), Leafy vegetables (725), Solanaceae (excluding *Solanum* sp., but including *S. melongena*) (744), Umbellifers (546)
- CGN, The Netherlands: *Allium* (151), Cruciferae (763), Cucurbits (256), Leafy vegetables (962), Solanaceae (excluding potato) (391).

Allium WG

- European Collection: As an outcome of the GENRES project 'Vegetative Allium, Europe's Core Collection, Safe and Sound' (EURALLIVEG), a first batch of 143 garlic accessions were flagged by Czech Republic and Germany as part of AEGIS. An additional 59 accessions were proposed to Poland for flagging. An updated, enlarged list of candidate garlic accessions will require molecular screening of the European garlic collection, which has not yet been successfully completed.

Considering that the genus *Allium* has about 700 species, the WG agreed to prioritize target taxa for the identification of candidate European Accessions. Proposed lists of priority crop wild relatives for the onion and the leek/garlic alliances and for minor *Allium* crops in use and under development were circulated to *Allium* WG members in March 2012.

The WG has established an agreed procedure to select seed-propagated wild accessions and landraces as well as cultivars.

- AQUAS: The WG has agreed recommendations for field maintenance of garlic and shallot accessions and 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: As a result of an AEGIS-granted project on Iberian *B. oleracea* landraces, a total of 42 accessions (18 held at BPGV, Portugal and 24 at MBG, Spain) were selected as Most Appropriate Accessions (MAAs) to be included in the European Collection.

The 'DuplicateFinder' software was tested on the Bras-EDB, and in *B. oleracea* (total 11 374 accessions), 4429 accessions were assigned to 1570 duplication groups. In an earlier action on *B. rapa* (total 3769 accessions) a total of 1698 accessions were assigned to 545 duplication groups.

- 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, preliminary lists of accessions of cucumber, wild *Cucumis*, *Cucurbita*, melon, watermelon and “other genera” were prepared by the Chair and groups of volunteers started analysing these lists.
- AQUAS: General guidelines for regeneration, processing and storage of Cucurbit species were agreed.

Leafy Vegetables WG

- European Collection: Preliminary lists of lettuce and spinach accessions were generated following an agreed procedure, including identifying duplicates through ‘DuplicateFinder’. These should be discussed at the next meeting of the WG. The preparation of additional preliminary lists of chicory and minor leafy vegetables accessions is planned.
- AQUAS: Developing a list of suggested minimum genebank standards for leafy vegetables is part of the WG workplan. Information on genebank procedures has been collected for both lettuce and spinach.

Solanaceae WG

- European Collection: During the WG meeting, about 200 candidate Solanaceae accessions to be included in the European Collection were identified. Representatives from Germany, Hungary, The Netherlands, Poland and Slovakia expressed their willingness to include additional accessions in the European Collection. As at September 2012, the WG Chair identified a number of accessions from Germany, Hungary and The Netherlands and proposed to the respective countries their inclusion into AEGIS:
 - * *Capsicum* (pepper): 2506
 - * Tomato: 4756
 - * *Solanum* (eggplant): 696
 - * *Cyphomandra*: 4
 - * *Physalis*: 42.
- AQUAS: The WG adopted the draft FAO *Genebank Standards for the Conservation of Orthodox Seeds* and agreed that the genebanks should strive to follow them. No need was felt to develop more stringent crop-specific standards. It should be noted that the WG had 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.

Umbellifer Crops WG

- European Collection: The WG agreed on a methodology for selecting accessions for AEGIS, and 1415 carrot cultivar accessions were identified as potential European Accessions. The list was cross-checked, and a number of accessions from the list were given first priority. It is planned to extend the lists 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 WG.

Outlook for 2013

The second meeting of the Leafy Vegetables WG is planned in Ljubljana, Slovenia, 8–9 October 2013. The agenda will include the further development of the European Collection and minimum crop-specific genebank standards for leafy vegetables.

The second meeting of the Umbellifer Crops WG is planned in St Petersburg, Russian Federation, 26–28 June 2013.

The Umbellifer Crops WG is organizing an ECPGR-funded collaborative project on umbellifer wild relatives, with a focus on endangered *in situ* populations, taxonomic misidentification of *ex situ* accessions or lack of characterization and knowledge.

A major update of the Umbellifers Database is planned for 2013, along with the addition of characterization data based on selected minimum descriptors.

New functionalities are planned to be implemented in the *Allium* Database by May 2013 (search on botanical names and all other passport data).

A joint ad hoc meeting of the Chairs and Database Managers of the Cucurbits and Solanaceae WGs is planned in Valencia, Spain, 11-12 April 2013. The main topics on the agenda are 1) a brainstorming session about the requirements, possibilities and constraints of transferring the CCDB functionalities to EURISCO; 2) projects for the next Phase of ECPGR and 3) continuation of the selection of European Accessions.