

Report of a Vegetables Network

Third Meeting, 10-12 November 2009, Catania, Italy
L. Maggioni, M.C. Daunay, W. van Dooijeweert, D. Astley, N. Bas,
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The European Cooperative Programme for Plant Genetic Resources (ECPGR) is a collaborative programme among most European countries aimed at facilitating the long-term conservation and the increased utilization of plant genetic resources in Europe. The Programme, which is entirely financed by the member countries, is overseen by a Steering Committee composed of National Coordinators nominated by the participating countries and a number of relevant international bodies. Bioversity International provides the Coordinating Secretariat. The Programme operates through nine networks in which activities are carried out through a number of permanent working groups or through ad hoc actions. The ECPGR networks deal with either groups of crops (cereals; forages; fruit; oil and protein crops; sugar, starch and fibre crops; vegetables) or general themes related to plant genetic resources (documentation and information; *in situ* and on-farm conservation; inter-regional cooperation). Members of the working groups and other scientists from participating countries carry out an agreed workplan with their own resources as inputs in kind to the Programme.

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Related presentations available online can be downloaded at
<http://www.ecpgr.cgiar.org/Networks/Vegetables/VegNet.htm>

EXECUTIVE SUMMARY

Introduction

Welcome addresses and opening remarks

The meeting was opened by the local organizer, Prof. Ferdinando Branca, University of Catania. The Group was then welcomed by the Dean of the University of Catania, Prof. Agatino Russo, and by the Delegate for international relations, Prof. Carmelo Rapisarda, who described the activities of the Faculty of Agriculture (*presentation available online*). The National Coordinator for plant genetic resources (PGR) in Italy, Prof. Carlo Fideghelli, welcomed the delegates and expressed his appreciation for the role of and actions of the European Cooperative Programme for Plant Genetic Resources (ECPGR), including its positive effects in stimulating cooperation within Italy among the PGR researchers. Dave Astley, Coordinator of the ECPGR Vegetables Network (VEGNET), thanked the Italian National Coordinator for his presence and the local hosts for their organization. He reminded the members that the meeting is an opportunity to exchange and receive information. He warmly thanked all the members of the ECPGR Secretariat for their excellent work behind the scenes.

He wished to dedicate this meeting to Cesar Gómez-Campo who passed away this year and who was a very active collaborator of the *Brassica* Working Group (WG), as well as a friend to many members of the Vegetables Network.

He reminded participants that the objective of this meeting is to try to make “A European Genebank Integrated System” (AEGIS) work, by making sure that all the members understand what it is, how it should operate and also understand its technical and scientific concepts, as well as the responsibilities of each member within their country and as a member of the Network. He stressed the informality of the meeting. Well-informed WG members will help the good operation of AEGIS within their own countries. AEGIS will be able to function only if it is able to work at all levels, with good connections between networks, national systems and the ECPGR Secretariat. WGs will also have an opportunity to meet in separate sessions and update and review their plans for Phase VIII of ECPGR and be better equipped to carry out their workplans for the next years.

He also announced that as of the end of this meeting he would resign as the Coordinator of the Network.

ECPGR developments and EURISCO

Presentation by Lorenzo Maggioni available online

ECPGR at the start of Phase VIII (2009-2013) reached 42 members. The main decisions made by the Steering Committee (SC) at its last meeting in Sarajevo, Bosnia and Herzegovina, September 2008 were summarized. An invitation was made by the SC to the Vegetables Network to consider the possibility of merging some of its WGs. The workplans made by the Vegetables Network and the respective budgets were outlined. The European Plant Genetic Resources Catalogue (also known as European Internet Search Catalogue, EURISCO) includes more than 1 million accession data from 40 countries. The new EURISCO Web site was launched in July 2008. Services for the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture were introduced, such as the possibility for countries to register accessions belonging to the Multi-Lateral System (MLS) (as of November 2009, more than 200 000 MLS accessions were designated from Europe) and to

register the use of Standard Material Transfer Agreements (SMTAs). Activities to establish a Global Information System combining Passport and Characterization and Evaluation (C&E) data from the System-wide Information Network for Genetic Resources (SINGER) of the Consultative Group on International Agricultural Research (CGIAR), EURISCO (Europe) and the Germplasm Resources Information Network (GRIN) (North America) are ongoing. Funds are provided by the Global Crop Diversity Trust (The Trust), Bioversity and the International Treaty through a project called GIGA (Global Information on Germplasm Accessions). The Steering Committee of ECPGR, advised by the Documentation and Information Network, has agreed to move towards the provision of existing un-standardized C&E data to EURISCO. Exchange formats, uploading and downloading mechanisms will need to be developed either through the GIGA project and/or through a project to be funded by the European Commission.

Discussion

- The Group thought that it would be useful to send a formal response to the SC regarding their invitation to merge some WGs of the Vegetables Network (see below, p. 9).
- It was noted that the proposed Global Information System does not so far extend to various areas of the world such as Asia or South America.

A European Genebank Integrated System (AEGIS)

General Introduction and Strategic Framework

Presentation by Jan Engels available online

The presentation included some historical facts, the establishment of A European Genebank Integrated System (AEGIS), milestones and key components of AEGIS, the perceived benefits of AEGIS, the European Collection, the AEGIS Quality System and the EUROGENEBANK Project.

The suggested way forward for the Vegetables Network members includes the following:

- to advocate the importance of AEGIS at home;
- to share the thinking on establishing A European Genebank Integrated System with colleagues/bosses;
- to make sure that all relevant vegetable genebanks/collections in the respective countries are aware of and become Associate Members of AEGIS;
- to discuss how to assist in the implementation of AEGIS at national level (e.g. provision of data to EURISCO; availability to include accessions in the system) and at WG level (refinement of criteria, quality guidelines, monitoring system, conservation workplans);
- to seek contact with relevant Work Package Leaders or Task Managers of the EUROGENEBANK Project.

AEGIS Memorandum of Understanding (MoU)

Presentation by Lorenzo Maggioni available online

The various articles of the Memorandum of Understanding (MoU) were described, i.e. the eligibility for AEGIS membership, the objectives of AEGIS, the responsibilities of AEGIS Members, the responsibilities of National Coordinators, the general principles for European Accessions, the relationship of AEGIS with ECPGR and the Associate Member Agreements.

The MoU entered into force after the 10th signature in July 2009. As of November 2009, the AEGIS member countries are 14 (Albania, Azerbaijan, Cyprus, Czech Republic, Estonia, Germany, Georgia, Ireland, The Netherlands, Norway, Slovakia, Slovenia, Switzerland and Ukraine).

Discussion

- The developments of the AEGIS components at the national level are expected to be funded with national funds. These could possibly be part of the funds that each country dedicates to the implementation of the International Treaty.
- F. Branca complained of a bias against countries from South and East Europe regarding the participants in the EUROGENEBANK project. J. Engels replied that attempts were being made to find available and suitable persons from a wide representation of countries, but this search was not always successful.
- It was made clear that material distributed through an SMTA would also be made available outside Europe, although availability might be limited in cases where import/export phytosanitary restrictions would apply.
- Extension of the list of Annex I crops of the International Treaty cannot be foreseen in the near future and therefore it is not expected that international funds would be extended very soon to non-Annex I crops either.
- I. Traka stressed the importance of making germplasm available for use in participatory breeding. D. Astley stressed the importance of ensuring that material is available in the genebank in the first place, in order to be able to provide it for breeding. It is also important that breeding processes do not displace traditional material that is not conserved.
- J. Engels assured the meeting that participation in the EUROGENEBANK project will be wide, through participating in project workshops, even though not every country will be able to be a formal partner in the project.
- R. van Treuren thought that it would be better to identify what are the collections that reach the approved quality standards and to base the European Collection on these institutions. He also expressed scepticism on the process for checking that the standards are met. J. Engels and L. Maggioni made the point of the importance of identifying the valuable material for the European Collection in order to ensure that the focus can be put on such material to raise its standards. D. Astley added that nothing should stop a WG from saying that the European Collection should be conserved in one excellent place. The WGs should first identify what is the best collection in terms of its diversity and then prepare a workplan to ensure that the collection be conserved at the best possible standard, including through functional collaboration and exchange of germplasm among countries.
- The Group is facing a dilemma, whether to start implementing AEGIS or to wait for the EUROGENEBANK project, should it be funded, to offer the tools and solutions. D. Astley suggested that the Network should establish its agreement with the concept and accept the possibility of moving forward in parallel with the project. W. van Dooijeweert expressed concern about the risk of duplication of work, specifically regarding the analysis of the European Central Crop Databases (ECCDBs), where the data sets do not match those contained in EURISCO.

Most Appropriate Accessions (MAAs)

Presentation by Jan Engels available online

Most Appropriate Accessions should be identified by the WGs among those accessions that are offered by the countries for possible registration as European Accessions. Only accessions

corresponding to the **agreed selection requirements** can be included as European Accessions. These selection requirements have been agreed by the SC.

Selection criteria should be agreed upon by the Working Groups and used to select among possible duplicate accessions. A number of possible criteria have been proposed by the model WGs during the feasibility study for AEGIS. Categories of germplasm have been formulated to give an indication to the countries and WGs of which types of material could be included in the collection. The process of identification of MAAs was included in the presentation. A proposed follow-up action was presented.

Brassica WG experience on MAAs

Presentation by Charlotte Allender available online

The *Brassica* WG took into consideration the requirements and the selection criteria in order to define the Most Appropriate Accessions (MAAs). A pilot study was carried out on *B. rapa* (3618 accessions) to see whether selection criteria were effective. Accessions were taken from the European *Brassica* Database (BrasEDB); genetic uniqueness was determined by accession name or other data. The geographic origin was considered a “key factor”. Data were split into two groups (accessions with and without names) and potential MAAs were identified from each group in a parallel exercise. Differing results were obtained by N. Bas (60% selected in total) and by C. Allender (78%), due to different (subjective) stringency used for the selection.

The most relevant descriptors for carrying out the selection were “Accession name”, “Country of origin”, “Donor number”, “Donor code”, “Sample status”, “Collection number”, “Collection site” and “Other number”. Coverage of data of these descriptors was very variable. Due to incompleteness of data, in many cases it was impossible to decide about the uniqueness of accessions. A workflow chart for the selection of MAAs was prepared. Questions remain regarding accessions with insufficient passport data and the process needs to be refined for accessions without names. Overall, it is a complex task, especially for outbreeding crops.

Allium WG experience on MAAs

Presentation by Joachim Keller available online

Main activities were carried out for the vegetative alliums (garlic and shallot) as part of the EC-funded project EURALLIVEG. Among the selection criteria, “Maintained in country of origin” was not considered the most relevant, as garlic and shallot have their regions of origin most probably in Central Asia and Southwest Asia, respectively. The number of regeneration cycles is not important either for vegetatively propagated material. The health status is very important, but it can only be implemented stepwise. Validated names are very rare and cannot be an important criterion. Molecular fingerprinting was considered the main criterion to be used in the selection of garlic MAAs. The EURALLIVEG project (2007-2011) is expected to analyse a fraction of the European garlic material. The plan is to extend screening to other garlic collections (Spain and Portugal) in Phase VIII, while additional funds will be required in the future to extend screening to other European collections (Israel, Lithuania, Romania, Russian Federation, Slovakia and Ukraine).

Data between collections were compared on the basis of known safety-duplications and single nucleotide polymorphism (SNP) markers were used to analyse all the accessions. However, problems were reported in the identification of duplicates by the molecular analysis screening (true duplicates were not identified). The marker analysis failed, possibly due to errors made by the company that was hired to carry out the work. Therefore, the selection of the European Collection will initially need to be made on the basis of the agreed

selection criteria, without molecular analysis, which should be repeated in the future, with additional resources.

Discussion

- A. Beharav stressed the importance of taxonomic validation of accessions when looking for MAAs. The taxonomic validation was considered a very valid point, not only for wild, but also for cultivated material. Practical solutions would be required, since it is not immediately possible to validate entire collections. Proper documentation of *ex situ* germplasm remains an essential priority that needs to be stressed.
- It was clarified that germplasm originating outside Europe would not need to be excluded from the European Collection, if it is important for Europe.
- The value of spending funds to identify a duplicate was questioned, by comparing it to the low cost of conservation (at least in the case of seed material). J. Keller clarified that his institute is still carrying out the process of calculating the cost of conservation. In the case of vegetative crops, cryopreservation is cheaper than field conservation, but re-creation of samples for distribution from cryo is more expensive than from the field.
- Concern was expressed that the European Collection might end up being a collection of not well documented accessions, of which the value and the genetic uniqueness will not be known. The essential objective was stated not to be the identification of the true duplicates, but rather the identification of the most important material to conserve. A good documentation of *ex situ* accessions remains a critical need.

AEGIS Documentation

Experience of the Solanaceae WG at the Centre for Genetic Resources, Wageningen (CGN)

Presentation by Willem van Dooijeweert available online

The ECPGR Tomato Database, hosted at CGN, is searchable online, with downloading options. It is based on the FAO/IPGRI *Multi-Crop Passport Descriptors* and includes extra fields for "Original taxonomy of donor" (taxonomy has been standardized according to Mansfeld and GRIN, reducing the number of taxa from 400 to 20). Minimum characterization descriptors determined by the Solanaceae WG are also present, as well as additional information. As of spring 2009, the database has a search facility on "Probable duplicate". Identifying MAAs means identifying duplicates first, which is a good exercise, independently from AEGIS. It is however uncertain whether it is recommendable to start with all accessions recorded in the Tomato Database or with those recorded in EURISCO.

An analysis carried out on the Tomato Database gave the following results:

- 7892 accessions out of 21 327 were assigned to a duplication group
- 2491 duplication groups were identified
- 15 926 accessions are unique or probable MAAs, which means that about 75% are unique.

Not all probable duplicate accessions could be identified, due to lack of data. Incorrect data ("Country of origin") need to be updated. Some of the identified probable duplicates could actually be unique. The whole exercise must be done again when new data are entered in the database.

Uncertainties remain on how to proceed in the future, regarding the completeness of the databases, which may need to be improved, the need to wait for countries to sign the AEGIS MoU and provide lists with their offered AEGIS accessions, and whether ECPGR WG members should start by determining MAAs in their own collections. It could also be necessary to wait for EURISCO to further develop and become the main source of data, but

for the moment data in EURISCO are not the same as in the ECCDBs and the ECPGR database managers have no means of making direct inputs to EURISCO.

Discussion

- It was suggested that analysis of the databases should not be carried out manually, but using algorithms to be applied to software. The EUROGENEBANK project includes a component aimed at developing such a tool.
- M.C. Daunay wished to advise about the limits of the concept of duplication, since if only based on passport data, it could lead to errors. N. Bas thought that there is no need to throw away any samples, what is important is to identify what is really valuable for investment in quality conservation and to enable distribution to users.

Brainstorming on MAAs and duplication

Discussion

J. Engels recognized that the identification of duplicates is very controversial. Rather than deciding what we want to throw away, a more positive approach would be to decide what we want to conserve as important elements of the European Collection. The rationalization process could be left to the individual countries.

G. Poulsen quoted the example of NordGen, where the status of material can be changed and “archived” accessions continue to be stored without being regenerated or managed in any way, they are simply not thrown away.

F. Branca suggested moving towards the concept of “core collections” to make the material more attractive for users and J. Engels confirmed that this approach coincides with the approach taken by the Global Cacao Genetic Resources Network (CacaoNet).

F. Branca stressed the importance of involving the breeders in the selection of MAAs and J. Engels thought that it should be the role of WGs to make sure that breeders are involved.

A Quality System (AQUAS)

Presentation by Jan Engels available online

The principles of a quality system (AQUAS) include quality assurance, decision by consensus, agreed minimum standards, capacity building, avoiding bureaucracy and monitoring with an approach of offering guidance and not as a policing measure. The elements to be established include an operational genebank manual (based on templates), generic operational standards, agreed minimum technical standards (crop-specific) and a quality management system, including the procedures to develop it (record keeping, reporting and monitoring).

A discussion paper on AQUAS was endorsed by the SC (http://aegis.cgiar.org/about_aegis/aquas.html), containing an agreed timeframe and process as well as responsibilities for its development. The EUROGENEBANK project will also consider a new item, i.e. the need for some sort of certification (of an accession, or collection, or genebank, or genebank operation).

The proposed way forward includes the following steps: 1) preparation of genebank manuals (following proposed templates); 2) development of crop-specific technical minimum standards (collecting, regeneration, drying and other preparatory steps, storage/field genebank maintenance, seed quality and viability monitoring); and 3) designing a monitoring and reporting system.

Brassica WG experience on establishing a Quality System

Presentation by Noor Bas available online

The *Brassica* WG asked itself the question, how is germplasm conservation carried out at the moment in Europe? A questionnaire was prepared on different procedures and standards in genebank management. Institutional and crop-specific procedures were taken into consideration. Responses were obtained from 18 institutes in 14 countries. Procedures and standards are often based on FAO/IPGRI genebank standards, but practical implications are defined by various factors. The conclusion is that a quality system is required, there is a need to use protocols and logbooks, but there needs to be room for flexibility (deviations from protocols need to be documented) and some kind of auditing system needs to be installed. A report of *Brassica* procedures and practices is available on the AEGIS Web site (<http://aegis.cgiar.org>).

Allium WG experience on establishing a Quality System

Presentation by Dave Astley available online

The *Allium* WG only focused on vegetatively propagated crops. The AEGIS *Allium* Model Crop Group agreed that cryopreservation offers the best method for the conservation of vegetative alliums. The Group agreed to formulate a set of quality standards and standard operating procedures for the cryopreservation of *Allium*. The group views the requirement for quality standards and routine network audits as essential components of the AEGIS Agreement with national governments. In order to achieve the high technical standards required in a European *Allium* Cryopreservation Network, the partners would have to accept routine audits of their facilities, methods and of the AEGIS samples in cryopreservation. The detailed protocols are essential in this case, although some laboratories may use (well-defined) modifications in techniques or protocols according to local experience and conditions. Precise record maintenance is an integral part of the cryopreservation work, but the AEGIS *Allium* Group felt that on-site audits by cryopreservation specialists with the opportunity for discussion will provide greater adherence to the agreed minimum standards and thereby higher security for the material in the cryopreservation network. The audit results will be forwarded to the institute, the *Allium* WG member and the ECPGR National Coordinator for action where required. The Group members working on cryopreservation will report regularly to the vegetative *Allium* subgroup and all decisions should be the product of a wider consultation with the ECPGR *Allium* WG members. For cryopreservation, the "agreed minimum standards" are very complex and exacting, requiring high levels of staff competence and technical resources.

In course of the project EURALLIVEG, a proto-network for cryopreservation of garlic was established, based on the principle of "learning by doing". The cryopreservation conservation methods require high standards that are best taught by demonstration and hands-on experience.

In terms of administration, there is complete agreement with keeping a low bureaucracy approach.

Discussion

- G. Poulsen recommended that the Group should reach a common understanding of the terminology used ("archive", "base", "active" and "safety" collections) as part of a quality system.
- N. Bas clarified that it was not easy to reach consensus on agreed minimum standards in the *Brassica* WG. It was necessary to work with the approach of reaching a pragmatic conclusion.
- The Group expressed consensus about the principles of AQUAS described by J. Engels.

Discussion on issues of Network-wide interest

Updating information on stakeholders' present practices

In order to reach an agreement within each WG about the various components of AQUAS, it is necessary that the Vegetables Network (VEGNET) produces an updated general survey of the present regeneration and conservation strategies of most European germplasm stakeholders. This document will be the basis for identifying generic and crop-specific quality criteria, to be proposed and adopted by each WG. As the main European stakeholders, in particular the genebanks, are involved in more than one VEGNET WG, it would be a waste of time if all WGs contact independently many identical institutions asking for the same type of information. It is suggested that this survey should be centralized at VEGNET level for the sake of efficiency. Several pathways of actions are possible, such as mailing a generic questionnaire on current genebank practices, or making it available online in such a way that genebanks could fill it in online. The conclusion reached was that, under the supervision of the VEGNET Coordinating Group, the Table on stakeholders' practices developed by the *Brassica* WG in the framework of the AEGIS pilot study, would be completed under the responsibility of each WG's Chair and Vice-Chair, in order to compile (1) a full list of the institutions concerned by the inquiry and (2) already existing information about stakeholders' practices (by mid-March 2010). Once ready, this document will be made available online by the ECPGR Secretariat (by end of March 2010) and one WG member per country will be requested to take responsibility for checking and completing the respective country's information (by end of May 2010). VEGNET chairs will then identify generic quality criteria which will be proposed and adopted at the next WG meetings. The various steps of the whole process will be managed at the VEGNET Coordinating Group level.¹

Role of the National Coordinator (NC)

There is concern about the role and operation of National Coordinators, since some members reported cases of no support, no active communication with them, or even a temporary absence of an NC. The launch of AEGIS requires active National Coordinators. The MoU needs to be signed by each ECPGR country and afterwards relevant national institutions should be requested to become an MoU Associate Member. The Group is confident that the MoU will improve the status and the effectiveness potential of the ECPGR WGs. Thus it was recommended that each ECPGR member should become more pro-active in interacting with his/her NC in any relevant way (e.g. informing him/her about the main conclusions of a VEGNET or WG meeting, requesting information about the advancement of the signature of the MoU, etc.).

The following issues were not discussed thoroughly but were briefly mentioned during the meeting. The text describes the issues and reflects partly the discussion and partly the point of view of the newly appointed Coordinator and Vice-Coordinator of VEGNET.

¹ At the time of publication, the agreed workplan was changed, following intense consultation between the ECPGR Secretariat and the Network Coordinating Group. A template for generic genebank operational standards will be prepared under the coordination of the ECPGR Secretariat. A detailed "Workplan towards the establishment of AQUAS" was made available on the AEGIS Web site (http://aegis.cgiar.org/about_aegis/aquas.html).

Consistency between EURISCO and CCDBs content

For various reasons the content of several vegetable Central Crop Databases (CCDBs) is more complete than in EURISCO. The question of the future coexistence of EURISCO and CCDBs is not yet resolved. Until this issue is clarified it seems suitable to update EURISCO in parallel with the ongoing work on the CCDBs. Providing updated inventories for EURISCO is one of the responsibilities of a National Coordinator, through the action of nominated National Inventory Focal Points. Each WG Chair/Vice-Chair and the respective national WG member(s) are expected to encourage the National Coordinators to attend to this responsibility.

Informing the scientific community of ECPGR VEGNET WGs achievements

Despite the easily accessible information of VEGNET WGs activities and achievements on the ECPGR Web site, in practice, the scientific community working on the same species, as well as the public, largely ignore what is done at the European level for improving the quality and accessibility of germplasm and the associated information. Henceforth VEGNET, and more specifically each WG, should develop an active communication strategy to become more widely known, referred to and consulted. As an example, short papers should be regularly submitted to relevant scientific electronic or paper leaflets. Examples are the *Solanaceae Newsletter*, the *Cucurbits Genetics Cooperative*, or *Chronica Horticulturae*, the quarterly journal of the International Society for Horticultural Science (ISHS). Also participation of VEGNET members in international meetings such as those of the European Association for Research on Plant Breeding (EUCARPIA) and of the International Horticultural Congress (IHC) to present communications on behalf of the Group should be encouraged. It is important to use such communication supports to reach scientists and horticulturists. Public awareness actions such as field visits, fruit exhibitions, seminars, cooking experiences with unusual varieties should be encouraged and advertised by each WG.

Merging of Vegetable Working Groups

The Steering Committee suggested at its Eleventh Meeting in Sarajevo (2-5 September 2008), that the number of Vegetable Working Groups could be reduced by merging some of them. The matter was discussed during one of the plenary sessions, and none of the WGs agreed with this proposition. Each WG deals already with a whole set of crops, chosen as generally belonging to a single botanical family (Solanaceae, Alliaceae, Brassicaceae, Cucurbitaceae, Umbelliferae) or a vegetable type (leafy vegetables). Each WG works with species of relatively similar biology and consequently relatively similar and very specific technical issues. If the WG efficiency and cost effectiveness is a priority for the SC, the WGs should remain focused on a workable number of topics to be discussed within a workable number of motivated people, knowing each other, and willing to work together. Much more relevant than merging WGs, there is a need to improve the efficiency of each WG, and delegating a temporary coordination of specific and small actions to members of each WG could accelerate the achievement of some objectives. Further, given the progressive enlargement of Network-wide issues within the frame of AEGIS, stronger interaction between the Chairs/Vice-Chairs of WGs is needed.

Establishment of a Network on Cryopreservation

The Network reiterated the opinion already expressed in the past, i.e. that for the benefit of all Working Groups maintaining vegetatively propagated germplasm, a new ECPGR Thematic Network on Cryopreservation should be created.

Conclusion

D. Astley, Coordinator of the Vegetables Network, thanked the Group for their participation.

He informed the meeting that after his resignation was announced, the NCG had found a new Coordinator (M.C. Daunay, INRA, France) and Vice-Coordinator (W. van Dooijeweert, CGN, The Netherlands) for the VEGNET Network Coordinating Group. M.C. Daunay accepted this responsibility, even though the status of France as a member ECPGR has been very unclear in the past two years and its ECPGR commitments need urgent regularization.

D. Astley was honoured with a note of thanks for his long-standing service as Network Coordinator. The Group also thanked all the staff from the University of Catania who contributed to the excellent organization of the meeting.

WORKING GROUP ON *ALLIUM*

Dave Astley and Joachim Keller

Participants

Working Group members	Bulgaria	Stefan Neykov
	Czech Republic	Helena Stavéliková
	Germany	Joachim Keller
	Italy	Vito Miccolis
	Latvia	Līga Lepse
	Macedonia (FYR)	Rukije Agic
	Netherlands	Chris Kik
	Norway	Ingunn Molund Vagen
	Poland	Teresa Kotlińska
	Portugal	Aida Reis
	Spain	Cristina Mallor Gimenez
	United Kingdom	Dave Astley
	Chair's quota	Slovenia
Observers	Latvia	Ieva Žukauska
	Poland	Marta Olas

European *Allium* Database (EADB)

The EADB was re-built in 2007 to support the work of the AEGIS *Allium* "Model Crop" Group and the EU GENRES project EURALLIVEG. The database was constructed using only data of available accessions for seed taxa and data for all vegetatively propagated material. Working Group discussions on the application of AEGIS to the collections of *Allium* seed-propagated material identified the need to develop a restricted access EADB, limited to the Working Group members and containing data for all accessions within the ECPGR national collections.

Recommendations

1. Database manager will contact all curators of *Allium* collections within ECPGR to request full passport data sets for their material **(by end of 2009)**.
2. National *Allium* Working Group members return data in EURISCO format to database manager **(by end of March 2010)**.
3. Database manager rebuilds EADB 2010 **(by end of June 2010)**.

Identification of Most Appropriate Accessions (MAAs)

The *Allium* Working Group (AWG) was one of the AEGIS Model Crop Groups, but the development of the AEGIS workplan was restricted to the vegetatively propagated crops. Therefore, the AWG agreed to initiate work on the development of Most Appropriate Accessions for the sexually propagated *Allium* collections. The two main seed-propagated crops are onion and leek. It was agreed to use the smaller leek collection as a test case for the identification of putative duplicates in support of the identification of MAAs.

Recommendations

1. The EADB 2010 will be used to identify putative duplicates in the leek collection by comparing passport data **(by end of December 2010)**.

2. A list of putative duplicates will be sent to AWG members, particularly ECPGR leek curators, for comment with a request for additional information on specific national duplicate accessions (**by end of January 2011**).
3. ECPGR leek curators and other AWG members, as appropriate, to return comments to database manager (**by end of April 2011**).
4. Discussion will take place on duplicates and MAAs at the AWG meeting in 2011. Time and place for the AWG meeting to be arranged.

MAAs for wild taxa

There are about 700 species of *Allium*. The AWG agreed it is not a priority, and maybe not necessary, to define MAAs for all *Allium* taxa, and, therefore, agreed to target subgroups for the identification of MAAs. The interest in landraces and wild relatives will provide an opportunity to collaborate in Phase VIII with the *In situ* and On-farm Network.

Recommendations

1. Develop lists of crop wild relatives firstly for the onion and the leek/garlic alliances, secondly for minor *Allium* crops in use and in development and circulate to AWG members. Action Joachim Keller and Chris Kik (**by end of April 2010**).
2. The EADB 2010 will be used to identify putative duplicate accessions of these taxa by comparing passport data (**by end of October 2010**).
3. The EADB 2010 and the target lists of taxa will be used to direct and prioritize the collection of wild taxa and minor crops within the National Programmes. Discussion will take place in preparation for the development of an action plan for targeted collecting at the AWG meeting in 2011.
4. The AWG Chair will consult with the Coordinator of the *In situ* and On-farm Network in order to assess the level of expertise they could offer in this area and to collaborate in an ongoing programme. Action: Chair (**by end of June 2010**).

Definition of national landraces

Landraces of *Allium* crops have been collected in many of the ECPGR national programmes. The AWG agreed that it is not clear whether these recorded accessions represent all available landraces within the national boundaries.

Recommendations

1. National AWG members will be asked by the AWG Chair to provide information about landraces in their national area in order to assess the representation in collections and the extent of diversity currently conserved and the need for further collection of landraces. (**Chair to send letter by end of March 2010**).
2. National AWG members will send their information and comments on the status of landraces in their national programme to the *Allium* WG Chair (**by end of December 2010**).
3. The AWG Chair will analyse this information in consultation with the AWG members and present a report to the AWG meeting in 2011.
4. The landrace report will be used to direct and prioritize the collection of this material within the National Programmes.

Allium portal

The AWG recognizes the importance of the wider international *Allium* community and so is keen to promote collaboration and information distribution through the development of a global *Allium* portal.

Recommendation

1. Chris Kik will investigate the technical possibilities for an *Allium* portal to enhance the links between what is currently a fragmented global *Allium* community (**by end of June 2011**).

Safety-duplication

Safety-duplication is an ongoing requirement of the conservation programme and we will review the status of safety-duplication in national collections.

Recommendations

1. The AWG Chair will contact national AWG members to request an update on the level of safety-duplication within their national collections (**by end of March 2010**).
2. National AWG members will respond on the level of safety-duplication **by end of July 2010**.
3. The AWG Chair will provide an update of genebanks currently willing to act as black box safety storage to national *Allium* WG members (**by end of March 2010**).

Cryopreservation

The proto-network for cryopreservation of garlic established in course of the EURALLIVEG project will continue working within the project and will promote this technology to other *Allium* collections. At the completion of EURALLIVEG there will be inevitably the question of longer-term sustainability of the proto-network. Further research input is needed to extend cryopreservation to other target taxa, such as shallot.

Recommendations

1. A small project was submitted to the Competitive AEGIS Grant scheme call to include the Banco Português de Germoplasma Vegetal (BPGV) Braga, Portugal, into the proto-network for cryopreservation.
2. The proto-network for cryopreservation applied for participation in the EUROGENEBANK project (submitted under the Seventh Framework Programme (FP7) - Infrastructures Call), to extend cryopreservation to other target taxa such as shallot.

Virus elimination

Virus elimination is one of the most important tools to improve the phytosanitary status of the plants in the collections. This has been emphasized by some national programmes.

Recommendations

1. The AWG Vice-Chair will assess the requirement for training in virus elimination in order to gauge the level of financial and training resources that would be required to carry out such a programme (**by end of April 2010**).
2. The AWG Vice-Chair will ask the laboratories already working on this matter if they are prepared to be active in such a training programme (**by end of January 2010**).

WORKING GROUP ON *BRASSICA*

Ferdinando Branca and Noor Bas

Participants

Working Group members	Austria	Helmut Reiner
	Croatia	Zdravko Matotán
	Denmark	Gert Poulsen
	Greece	Aikaterini Mavrona
	Italy	Ferdinando Branca
	The Netherlands	Noor Bas
	Norway	Magnor Hansen
	Portugal	Violeta Lopez
	Romania	Maria Calin
	Russian Federation	Anna Artemyeva
	Serbia	Janko Červenski

Introduction

A. Mavrona explained that in 2003–2008 new collecting missions have been carried out in Greece. She will send the passport data of the “old” and “new” collections to the European *Brassica* Database (BrasEDB) manager. The status of the old collection is unclear and she will try to assess the storage conditions and the germination capacity of the material.

Gert Poulsen reported that he is working again at NordGen (formerly Nordic Gene Bank) and is involved with all agricultural crops except cereals.

Reports of status of national collections have been received from Poland and Greece.

Recommendations

- A. Mavrona will send the passport data of the old and new collections in the Greek Genebank to the database manager.
- The database manager will include the passport data of the Croatian *Brassica* collection from EURISCO in the BrasEDB.
- Ferdinando Branca will send the passport data of the *Brassica* collection of the Department of Horticulture and Food Technology (Dipartimento di OrtoFloroArboricoltura e Tecnologie Agroalimentari, DOFATA), Catania University, to the database manager.

Progress of the workplan

Task sharing and capacity building

- It was agreed that more frequent contact between *Brassica* Working Group members would be useful. F. Branca has installed a Facebook Group named *Brassica* WG where all WG members can put on information for common use and to have a platform for discussions.
- The exercise to be carried out by Charlotte Allender, Helmut Reiner and Noor Bas on identification of possible MAAs in the European *Brassica* collection has been completed and was reported at the AEGIS meeting in Radzików, Poland, July 2008 and in this VEGNET meeting.

- Concerning genetically modified organisms (GMOs), A. Artemyeva reported that the N.I. Vavilov Research Institute of Plant Industry, St. Petersburg (VIR) started a special lab to check if material is contaminated by GMOs.
- Concerning hybrids, C. Allender reported that she is running a 3-year project, testing protocols on regeneration procedures of hybrid Brussels sprouts.

Documentation

- The BrasEDB has been updated in 2008 with passport data of all collections that were not yet present in the BrasEDB, but present in EURISCO. Recent passport data from Pontevedra, Spain have been received and included.
- Probable duplicate groups within the *Brassica rapa* collections have been identified and can be found in the BrasEDB in the “find” field.

Recommendation

- All members are encouraged to inform the database manager of necessary corrections in the probable duplicate groups. (**All, March 2010 and continuing**).

Characterization and evaluation

- The questionnaire on traits which are important for evaluation has been sent to all WG members. Only three answers have been received. The questionnaire will be sent again.
- The minimum descriptor list, defined during the RESGEN project for *B. oleracea*, *B. rapa* and *B. napus* has been sent to all WG members.

Recommendation

- The questionnaire on traits which are important to evaluate will be sent to WG members who have not responded (**Noor Bas, December 2009**).

The *Brassica* project in Phase VIII

The project proposal on “morphological and nutraceutical characterization of *B. rapa* and of wild *Brassica* species” has been approved by the Steering Committee. The progress of the project was discussed. Thirty accessions of wild *Brassica* species (n=9) have been requested by Noor Bas from three genebanks (CGN, HRI, IPK). These have been planted out in the field at DOFATA, Catania. These will be characterized according to descriptors yet to be determined in the *Brassica* WG meeting in March 2010 in Catania.

For *Brassica rapa*, 100 accessions will be selected by the database manager using the following criteria: 1) absence of information in any of the fields cultivar group; accession name; country of origin; 2) different collection holders; and 3) availability. The selected accessions will be sent to Anna Artemyeva, VIR for identification and morphological characterization. Other characterization and evaluation activities will be carried out by other members. This will be decided at a later time.

Recommendation

- F. Branca will contact Eduardo Rosa and Antonio de Haro to find out if they can evaluate the wild *Brassica* and *B. rapa* material for glucosinolates.

Information from non-attending members

A statement was received by the Chair from M. Elena González-Benito (Professor, Coordinator of the Plant Germplasm Bank at the Technical University of Madrid (Universidad Politécnica de Madrid, UPM) and Fernando Latorre (ECPGR National Coordinator for Spain) on the status of the wild *Brassica* collection of UPM. This collection was created by Professor Cesar Gómez-Campo who died in September 2009. The note says that the collection is well preserved. However, it is not available for the time being due to internal reorganizations and changes in the international legal framework regulating access to genetic resources.

The Group was grateful for receiving this news. However, concern was expressed regarding the uncertainty of the date when the collection will be available again. It was also stressed that part of the collection was collected with funds provided by the International Board for Plant Genetic Resources (IBPGR, now Bioversity International) and the European Commission.

Recommendations

- The Group will collect all information regarding wild *Brassica* collections carried out with international funds (**All, before March 2010**).
- An invitation will be made to the WG member from Spain, or a representative, to attend the next WG meeting in March 2010 and to be prepared to discuss this item (**F. Branca, December 2009**).

In situ and on-farm conservation

Sicilian wild Brassica species

Ferdinando Branca informed the *Brassica* WG members about the *Brassica* case study carried out within the EU project "An integrated European *In Situ* management workplan: implementing Genetic Reserves and On-farm concepts" (AEGRO). The case study focuses on Sicilian wild *Brassica* species (n=9). The objectives are:

1. collection of species and population distribution data existing in various information systems,
2. prioritization of species and populations for *in situ* conservation,
3. recommendation of sites suited to establish genetic reserves for *Brassica* in the EU,
4. development of species-specific guidelines for genetic reserves design, management and monitoring,
5. establishment of a demographic and genetic baseline for a single *Brassica* genetic reserve,
6. compilation of the national legal framework related to *in situ* management, annotation of the legal and organizational national framework and development of recommendations for a national strategy for *in situ* management,
7. contribution to the establishment of a European integrated workplan for *in situ* management of crop wild relatives.

The work carried out during two years permitted the team to identify the following accessions listed in the European *Brassica* Database (BrasEDB) (Table 1).

Table 1. *Brassica* accessions listed in the BrasEDB

Taxon	No. of accessions
<i>B. bioniana</i>	1
<i>B. drepanensis</i>	5
<i>B. incana</i>	39
<i>B. insularis</i>	25
<i>B. macrocarpa</i>	9
<i>B. rupestris</i>	19
<i>B. rupestris</i> subsp. <i>glaucescens</i>	1
<i>B. rupestris</i> subsp. <i>hispida</i>	5
<i>B. villosa</i>	14
<i>B. villosa</i> subsp. <i>bioniana</i>	7
<i>B. villosa drepanensis</i>	1
<i>B. villosa</i> subsp. <i>tinei</i>	3

In the same database, species and accessions of brassicas widespread in the Mediterranean area were also recorded (Table 2).

Table 2. *Brassica* accessions widespread in the Mediterranean area, listed in the BrasEDB

Taxon	No. of accessions
<i>B. balearica</i>	4
<i>B. bourgeau</i>	5
<i>B. cretica</i>	34
<i>B. cretica</i> subsp. <i>aegeae</i>	25
<i>B. cretica</i> subsp. <i>cretica</i>	38
<i>B. cretica</i> subsp. <i>laconica</i>	12
<i>B. montana</i>	46
<i>B. hilarionis</i>	4
<i>B. tournefortii</i>	17

For wild *B. oleracea* it was not possible to quantify the number because of the presence of both wild and cultivated forms. Subsequently sites were identified and located of wild Sicilian *Brassica* species, such as *B. incana*, *B. rupestris*, *B. macrocarpa* and *B. villosa* which have been monitored since December 2007. During the visits, in addition to plant monitoring it was possible to ascertain the plant phenological stages; in some cases seed samples were collected and stored in glass containers at room temperature and humidity-controlled conditions and placed in the register of the collections of wild brassicas of DOFATA in Catania. In order to initiate activities for molecular and biomorphological characterization, necessary to identify the discriminatory features, seed samples were sown of the five species mentioned above.

Kale (*Brassica oleracea* var. *acephala*)

Zdravko Matotan presented the activities carried out on kale in the framework of the South East European Development Network on Plant Genetic Resources (SEEDNet), financially assisted by the Swedish International Development Cooperation Agency (Sida). The executing agency is the Swedish Biodiversity Centre (CBM). Albania, Croatia, the Federation of Bosnia and Herzegovina, Kosovo, Macedonia (FYR), Montenegro, the Republic of Srpska, Serbia and Slovenia are the partners involved in this project.

From the 102 accessions of local kale collected by all partners in the project during 2007, 90 accessions were planted out in the joint field collection at the Institute for Adriatic Crops in Split, Croatia. During the joint meeting of project partners in Split on 29 and 30 November 2007, descriptors were developed. In January 2008 chosen and marked plants were characterized and evaluated. On the basis of morphological and biological characteristics as well as geographical distribution, 16 accessions were regenerated in isolation cages during

2008. Seeds produced from these accessions were prepared for storage in the genebank and will be used for testing the population stability. During 2009 all project partners organized collecting expeditions and 95 accessions of kale were collected in the region (12 from Croatia, 4 from the Republic of Srpska, 59 from the Federation of Bosnia and Herzegovina, and 20 from Montenegro). Ten accessions will be regenerated and prepared for long-term storage in national genebanks. Activities of the project have been presented at national and international conferences and published in professional and scientific journals.

The project is a very good example of cooperation for the preservation and protection from perennial loss of local populations in the region. Joint field collection of collected material and joint descriptions during the vegetation phase of planted material is a good way to share experience and knowledge between project partners and to improve cooperation.

AEGIS

No specific discussion took place on the subject of AEGIS in the parallel meetings of the *Brassica* WG.

Conclusion

The progress made is in line with the workplan defined at the second VEGNET meeting in Olomouc, Czech Republic, June 2007.

It was decided that the next meeting of the *Brassica* WG would be held on 2–4 March 2010 in Catania, Italy, following an offer made by F. Branca.

WORKING GROUP ON CUCURBITS

María José Díez, Katarzyna Niemirowicz-Szczytt and Willem van Dooijeweert

Participants

Working Group members	Albania	Sokrat Jani
	Armenia	Gayane Sargsyan
	Bulgaria	Lilia Krasteva
	Germany	Ulrike Lohwasser (representing Baerbel Schmidt)
	Poland	Katarzyna Niemirowicz-Szczytt
	Russian Federation	Tatyana Piskunova
	Spain	María José Díez

Introduction

The parallel session of the Cucurbits Working Group (CWG) started with self-introductions of the attending members. The member from Armenia was attending a meeting of the Group for the first time.

The main objective of the meeting was to discuss the implementation of AEGIS in the CWG. At the end of the meeting other issues related with the Working Group were discussed. Gayane Sargsyan and Tatyana Piskunova presented short reports about the status of the Cucurbit collections in Armenia and the Russian Federation respectively. They will send to the Chair the written reports about their collections. A short report about the current status of the Cucurbit collections in Poland was prepared by Teresa Kotlińska and Katarzyna Niemirowicz-Szczytt, and one about the Cucurbit collections in Bulgaria by Lilia Krasteva and Stefan Neykov.

Safety-duplication

Background

The importance of safety-duplication of the collections was discussed and it was pointed out that there are funds allocated to this activity in the CWG's budget for Phase VIII. The status of safety-duplication of the European collections of Cucurbits, reviewed in previous meetings, was updated with data from the collections of Armenia and the Russian Federation. Until now, approximately half of the Bulgarian collection has been sent to the Centre for Genetic Resources, the Netherlands (CGN) under a black box arrangement. The case for improving safety-duplication of other collections was stated and the members from Albania, Armenia, Bulgaria and the Russian Federation showed their interest in promoting the establishment of entire or partial safety-duplication of their collections. They agreed to contact their respective National Coordinators and directors to obtain permission.

Workplan

Action	Carried out by	Date by when action should be completed
Implementation of safety-duplication for the collections of Albania, Armenia, Bulgaria and the Russian Federation	Members of the four countries, Chair and Vice-Chair	End of February 2011

Technical minimum standards

Background

According to AEGIS, the responsibilities of the WGs in relation to the development of the technical minimum standards are listed as follow:

- Collecting methodology
- Regeneration methodology
- Preparation for storage
- Storage conditions
- Seed quality and viability monitoring.

In the CWG, actions were carried out in order to start on the development of the technical minimum standards. A questionnaire was sent to the members and answers were received from seven of them. However, as stated in the Quality System for AEGIS document, a template will be provided by the ECPGR Secretariat in order to facilitate the process. It can be also facilitated by incorporating the developments made by the Model Crop Groups, particularly *Brassica*. The questionnaire developed by the *Brassica* WG will be sent to all VEGNET WGs in order to enter all information of different WGs in one table. This action will be coordinated at the VEGNET level. The activities planned by the CWG will therefore start when the template is received from the ECPGR Secretariat and the complete overview is ready.

Workplan

Action	Carried out by	Date by when action should be completed
Circulate the overview elaborated by all VEGNET WGs	Chair and Vice-Chair	When the overview is available
Comment on the template on operational management and decide on common protocols	All members	CWG meeting in October 2010
Send the common protocols agreed in the meeting to non-attending members	Chair and non-attending members	November 2010
Send the comments to the Chair	Non-attending members	March 2011
Compile answers received from non-attending members and produce an updated version of the protocols	Chair and Vice-Chair	May 2011
Circulate the final protocols to all members: Technical minimum standards	Vice-Chair	January 2012

Documentation and information

Background

The first task discussed was the improvement of the quality of the holders' databases. Some members said that it is very difficult and sometimes impossible to improve the quality, mainly for two reasons: data are no longer available and resources in personnel and budget are insufficient. In any case, it was suggested to at least improve the data quality of the accessions collected in the future. Plans for improving the quality of the European Central Cucurbits Database (ECCUDB) were developed and each member was given the task of

sending new passport data to the DB manager. Regarding characterization data, it was suggested that each member send the available data of his/her institution to the ECCUDB. At present, characterization data of *Cucumis sativus* and *Citrullus lanatus* are available in the ECCUDB. The characterization data of the core collection of *Cucurbita pepo* of the Instituto de Conservación y Mejora de la Agrodiversidad Valenciana (COMAV) are also included. The characterization data are those included in the minimum descriptor lists for melon, cucumber, watermelon and *Cucurbita* spp. already developed by the CWG in previous meetings. The discussion about the minimum descriptor list for *Lagenaria* was postponed until the next meeting, due to the lack of experts at this meeting.

Workplan

Action	Carried out by	Date by when action should be completed
Improve the quality of the holders' databases	All CWG members	Continuously
Provide characterization data for the ECCUDB	All CWG members	End of March 2010
Introduce characterization data into the ECCUDB	All members send data to the DB manager	End of May 2010
Characterization data introduced into the ECCUDB	Chair and DB manager	End of June 2010
Update the ECCUDB with evaluation data	All CWG members	End of 2011 and ongoing
Identify taxonomic experts in cucurbit crops to help in the classification. Upload this information in the ECCUDB	All CWG members	Ongoing activity

Most Appropriate Accessions (MAAs)

Background

The selection of the MAAs was already discussed in the last ad hoc meeting of the CWG held in Warsaw in October 2008. In that meeting some examples on how to select the MAAs were explained by María José Díez based on the collection of *Cucurbita pepo* of the COMAV and by Willem van Dooijeweert on the case study developed by the *Brassica* WG. In that meeting it was decided to start the selection of the MAAs with melon. Some countries selected their own MAAs from their collections, including almost the entire collection. During the current meeting and after the opinion given by some people in the plenary session, the need for the selection of the MAAs was discussed. Some partners thought that almost all the accessions have to be included; others argued that only a representation of the variability included in the collection has to be selected and included as MAAs. The conclusion was to work on selection of the MAAs in melon, developing the secondary criteria and making the selections in each collection. After reviewing the results obtained in melon we will start with the development of secondary criteria for the other crops if needed.

Workplan

Action	Carried out by	Date by when action should be completed
Prepare a draft of secondary criteria for selecting the MAAs in melon	Chair and Vice-Chair	September 2010
Discuss about secondary criteria	All partners	CWG meeting in October 2010
Send the agreed secondary criteria to the non-attending members	Chair	November 2010
Receive the answers	Non-attending members	January 2011
Circulate the new version	Chair	February 2011
Produce the final secondary criteria	Chair and Vice-Chair	March 2011
Select MAAs in each genebank	Holders of melon accessions	December 2011
Study the results of MAAs of each member and enter them in the database	Chair and DB manager	To be decided
Identify possible duplicates in the ECCUDB	DB manager	To be decided

In situ* and on-farm conservation and management*Background**

On-farm conservation was also discussed during the second VEGNET meeting held in Olomouc in June 2007. In this meeting it was agreed to compile information about institutions conducting on-farm activities on cucurbit crops in the countries which are members of the CWG. Until now, compilation of these activities has been done and uploaded into the ECCUDB by the members of Spain and The Netherlands. In Spain there are many different institutions (regional and provincial, Universities, non-governmental organizations and others) involved in these activities. It was planned to continue with these activities in each country.

Workplan

Action	Carried out by	Date by when action should be completed
Compile information about institutions involved in on-farm conservation of cucurbit crops in each country	All CWG members	June 2010

WORKING GROUP ON LEAFY VEGETABLES

Kateřina Smékalová and Rob van Treuren

Participants

Working Group members	Czech Republic	Kateřina Smékalová
	Israel	Alex Beharav
	The Netherlands	Rob van Treuren
	Russian Federation	Larisa Shashilova
	Slovenia	Jelka Šustar-Vozlič
	Spain	Jaime Cebolla Cornejo

Current status of the Working Group

Since the VEGNET meeting in Olomouc in 2007, representatives from Cyprus, Ireland, Slovakia, Switzerland, and the Nordic Gene Bank left the Leafy Vegetables Working Group (LVWG), while representatives from Spain and the Russian Federation were welcomed as new members. Valérie Cadot (France) moved to another position and is no longer working on leafy vegetables. Since currently France has no National Coordinator, no replacement has so far taken place officially. Since the last VEGNET meeting in 2007, “silent” WG members were contacted directly by mail or phone to inquire about their commitment to the WG. Absence of collections of leafy vegetables in their country or insufficient ability to communicate in the English language were given as the main reasons for the absence of activity. If no direct contact could be established with silent WG members, National Coordinators were approached for assistance in establishing communication. However, no response was received from any of the National Coordinators that were approached.

Action

The communication problem with part of the WG was reported in the last WG progress report prepared for ECPGR. It was thereby recommended that National Coordinators should be made aware of their responsibility to nominate suitable candidates for Working Groups. The LVWG Chair will include this issue again in the next LVWG progress report for ECPGR.

Progress of the EU GENRES project on leafy vegetables

The EU GENRES project on leafy vegetables is progressing according to schedule. The International *Lactuca* Database (ILDB) has been updated and three new databases (Spinach, Chicory and Minor Leafy Vegetables) were developed. The databases can be accessed online via <http://documents.plant.wur.nl/cgn/pgr/LVintro/>. Data on characterization, evaluation and utilization that were generated within the project have been linked to the databases. Safety-duplication arrangements were established for the collections of a number of project partners for which such a system has so far been lacking. A start was made with the identification of gaps within the newly established databases.

Action

The project will be continued according to the project workplan and will be finalized **at the end of 2010**.

Publication of descriptor lists for lettuce

At the previous VEGNET meeting in Olomouc in 2007 it had been decided to spend the remaining budget of Phase VII for an ECPGR publication on descriptor lists for lettuce. However, this item was removed from the workplan because in 2008 these lists were published in Horticultural Science (Prague).²

Action

None.

Extension of national collections with modern cultivars

Commercial cultivars that have been dropped from (national) variety lists are potential candidates to extend the diversity of genetic resources collections. Uptake of such cultivars has so far received little attention from the majority of national programmes, most likely due to the absence of a strong breeding industry for leafy vegetables in most European countries. However, once every five years a selection of relevant lettuce varieties from the common European variety list, covering the preceding five-year period, is made by the Centre for Genetic Resources, the Netherlands (CGN) in cooperation with national breeders. This selection is not limited to Dutch cultivars. Recently, 71 lettuce varieties were selected from a total of 784 cultivars included in the common European variety list covering the period 2002-2006.

Action

No specific workplan was made. Extension of CGN's collection with modern lettuce cultivars is part of the Dutch national programme. WG members are encouraged to examine their national variety list and to ensure that the important national cultivars are conserved.

Uptake of characterization and evaluation data in databases

Characterization and evaluation data have been collected for many collections but are not publicly available in most cases. Within the EU GENRES project, a start was made on linking data sets (as downloadable Excel files) generated within the project to the Leafy Vegetables Databases. This could be extended with data from national programmes that were generated outside the GENRES project.

Action

No specific workplan was made. Because access to characterization and evaluation data is currently an issue in new international cooperative initiatives (e.g. in the new EU proposal EUROGENEBANK), it was decided to await further developments concerning this topic.

Assistance of breeding companies in regeneration of accessions

Removing backlogs in regeneration is one of the elements in the EU GENRES project on leafy vegetables. In addition, cooperation in regeneration with breeding companies may be considered by countries for which a close link exists between genebanks and the breeding industry. So far, this was found to be a realistic option only in the Netherlands. The offer of Dutch breeding companies to assist in the regeneration of accessions from other collections than CGN has thus far received limited response.

² Křístková E, Doležalová I, Lebeda A, Vinter V, Novotná A. 2008. Description of morphological characters of lettuce (*Lactuca sativa* L.) genetic resources. Horticultural Science (Prague) 35:113-129.

Action

No specific workplan was made. Assistance in regeneration by the breeding industry is part of the Dutch national programme. WG members are encouraged to consider whether assistance of Dutch breeding companies for regeneration is an option for their collections. Rob van Treuren will continue to act as potential intermediary.

Regeneration protocols and minimum descriptors for *Asparagus* and other minor leafy vegetables

Minimum descriptor lists for minor leafy vegetables (*Eruca* and *Valerianella*) were developed in the EU GENRES project but are not yet available on the ECPGR Web site. Minimum descriptors for *Asparagus* are still to be developed. It was agreed that holders of *Asparagus* collections would be contacted to inquire what descriptors are being used. From this overview the minimum list of descriptors will be developed. At the same time an overview of the regeneration protocols that are in use by these collection holders will be made.

Actions

Rob van Treuren will contact ECPGR to make the descriptor lists for *Eruca* and *Valerianella* available on the ECPGR Web site **before the end of 2009**. Kateřina Smékalová will carry out the work on the *Asparagus* descriptor list and regeneration protocols, which is **to be finalized in 2010**.

Extension of the databases

Available *Lactuca* accessions from Israel have not yet been included in the ILDB. Also for Spain, gaps probably exist in the Leafy Vegetables Databases.

Action

Rob van Treuren will send the format file for data exchange to Alex Beharav, who will return the file with data from his collection **before the end of 2010**. Jaime Cebolla Cornejo will examine the Leafy Vegetables Databases and complement them where appropriate **before the end of 2010**.

Status overviews of collections

Prior to the meeting, brief status overviews of collection sizes and the number of available, regenerated and safety-duplicated accessions were requested from the WG members. A summary of the data will be made by Kateřina Smékalová and included in the present meeting report.³

Action

Kateřina Smékalová will make a summary of the status overviews and will approach WG members for updates **before the next WG meeting**.

³ This summary is included as Annex I, pp. 28-31.

Minimum standards for genebank operations

It was agreed that the questionnaire developed by the *Brassica* Working Group will also be used for leafy vegetables in order to obtain an overview of the methods used by different collection holders. Because of the workload experienced by the *Brassica* WG members in filling in the questionnaire, it was decided to split the questionnaire into two parts. The first part will include the more general genebank operations and the second part the description of (crop-) specific procedures in more detail. On the basis of the received data and the *FAO/IPGRI Genebank Standards*, a list of suggested minimum standards will be developed that will be discussed and finalized during the next WG meeting.

Action

The two parts of the questionnaire will be sent sequentially to all WG members in 2010. At the end of 2010 all data received will be combined and compared. A list of suggested minimum standards for leafy vegetables will be developed during 2011, which will be discussed and **finalized at the end of 2011**. Rob van Treuren will coordinate this action (see also the report of the discussion about network-related issues during the meeting).

Most Appropriate Accessions (MAAs)

Because the Working Group on Leafy Vegetables deals with several different crops and because of the anticipated workload associated with the identification of MAAs, it was agreed to follow a stepwise workplan, starting with lettuce and spinach. As a first step each WG member will closely examine the collections for which he/she is responsible in order to develop a shortlist of potential AEGIS accessions. These accessions will be selected based on the criteria “public availability” and “reliability of origin data”, while the selection of “internal duplicates” will be avoided as much as possible. Apart from these three minimum criteria, WG members are free to use additional criteria in the selection of potential AEGIS accessions. The accessions that each WG member is willing to include as part of the European collection, provided they are compatible with their country decision, will be combined in a common list **before the next WG meeting in 2011**. During that meeting there will be discussion on how to identify and deal with potential duplicates and which criteria will be used for the identification of MAAs. After the next WG meeting, a start will be made with the identification of potential AEGIS accessions for chicory and minor leafy vegetables collections, using the experience obtained with lettuce and spinach.

Action

Rob van Treuren will coordinate this action. It is planned that **at the end of Phase VIII (December 2013)** the following actions will be completed: finalization of the identification of MAAs for lettuce and spinach and finalization of the identification of potential AEGIS accessions for chicory and minor leafy vegetables.

Next Working Group meeting and workshop on molecular markers

The next LVWG meeting is planned for October/November 2011. It was decided to combine this meeting with the planned workshop on molecular characterization protocols for lettuce (see Annex II, p. 32 for the workshop description).

Action

Rob van Treuren will communicate with Jelka Šustar-Vozlič regarding the organization of the meeting and workshop in Slovenia.

Summary of workplan till the end of Phase VIII

Date	Activity	Responsibility
Dec. 2009	Descriptor lists for <i>Eruca</i> and <i>Valerianella</i> available on the ECPGR Web site	Rob Van Treuren
Dec. 2009	Compilation of status overviews of collections	Kateřina Smékalová
Dec. 2010	Data of available <i>Lactuca</i> accessions from Israel included in the databases	Alex Beharav
Dec. 2010	Gaps for Spanish accessions in the Leafy Vegetables Databases identified and filled	Jaime Cebolla Cornejo
Dec. 2010	Descriptor lists and regeneration protocols available for <i>Asparagus</i>	Kateřina Smékalová
Dec. 2010	Data on genebank operations available from collection holders	All WG members
Dec. 2010	Finalization of the EU GENRES project	Project consortium
Oct. 2011	Updated status overview of collections available	Kateřina Smékalová
Oct. 2011	List of suggested minimum standards for genebank operations developed	Rob Van Treuren
Oct. 2011	Potential AEGIS accessions identified for lettuce and spinach	All WG members
Oct./Nov. 2011	WG meeting and workshop on molecular markers in Slovenia	Jelka Šustar-Vozlić and Rob Van Treuren
Dec. 2011	List of minimum standards for genebank operations finalized	All WG members
Dec. 2013	Most appropriate accessions identified for lettuce and spinach	All WG members
Dec. 2013	Potential AEGIS accessions identified for chicory and minor leafy vegetables	All WG members

Annex I. Status of leafy vegetables collections in December 2009

The following tables, compiled by Kateřina Smékalová, are based on data received from members of the Leafy Vegetables Working Group prior to the meeting:

- A. Number of accessions
- B. Number of available accessions
- C. Number of regenerated accessions
- D. Number of safety-duplicated accessions

A. Number of accessions

Species	ALB	BGR	CZE	DEU	ESP	GBR	HUN	ISR	NGB	NLD	POL	SVN	Total
<i>Asparagus</i> spp.			16	33			8	8			423		488
<i>Atriplex</i> spp.	2			62			71		21		11		167
<i>Cichorium</i> spp.	12	16	47	692	199	62	63	40	2		10	2	1145
<i>Cynara</i> spp.				20			3						23
<i>Eruca</i> spp.	2			142	152		14	63		17			390
<i>Chenopodium</i> spp.				959									959
<i>Chrysanthemum</i> spp.			1										1
<i>Lactuca sativa</i>	11	802	833	1031	921	1240	477	12	32	1621	352	206	7538
wild <i>Lactuca</i> spp.	1		587	101		178	21	4125	2	1128	40	23	6206
<i>Lepidium</i> spp.			1	117			11				6		135
<i>Portulaca</i> spp.				16									16
<i>Rheum</i> spp.			42				67				8		117
<i>Rumex</i> spp.	2			53			73				19		147
<i>Spinacia</i> spp.	9	196	17	214	61	125	94		86	475	27		1304
<i>Taraxacum</i> spp.													0
<i>Tetragonia</i> spp.			15	15			18						48
<i>Valerianella</i> spp.				34			2				2		38
Total	39	1014	1559	3489	1333	1605	922	4248	143	3241	898	231	18722

B. Number of available accessions

Species	ALB	BGR	CZE	DEU	ESP	GBR	HUN	ISR	NGB	NLD	POL	SVN	Total
<i>Asparagus</i> spp.			6	29			7	8			nd		50
<i>Atriplex</i> spp.	2			43			68		21		nd		134
<i>Cichorium</i> spp.	6	5	7	654	81	46	63	0	2		nd	2	866
<i>Cynara</i> spp.				16			3						19
<i>Eruca</i> spp.	1			131	2		14	63		16			227
<i>Chenopodium</i> spp.				958									958
<i>Chrysanthemum</i> spp.			1										1
<i>Lactuca sativa</i>	11	503	740	958	861	887	465	12	32	1570	nd	185	6224
wild <i>Lactuca</i> spp.	1		196	87		56	21	158	2	1026	nd	0	1547
<i>Lepidium</i> spp.			1	115			11				nd		127
<i>Portulaca</i> spp.				15									15
<i>Rheum</i> spp.			6				64				nd		70
<i>Rumex</i> spp.	1			44			73				nd		118
<i>Spinacia</i> spp.	5	145	14	196	25	122	87		86	387	nd		1067
<i>Taraxacum</i> spp.													0
<i>Tetragonia</i> spp.			15	12			18						45
<i>Valerianella</i> spp.				25			2				nd		27
Total	27	653	986	3283	969	1111	896	241	143	2999		187	11495

nd = no data

C. Number of regenerated accessions

Species	ALB	BGR	CZE	DEU	ESP	GBR	HUN	ISR	NGB	NLD	POL	SVN	Total
<i>Asparagus</i> spp.	2		0	nd			7	0			nd		9
<i>Atriplex</i> spp.				nd			68		21		nd		89
<i>Cichorium</i> spp.	6	8	7	nd	19	52	63	0	2		nd	2	159
<i>Cynara</i> spp.				nd			3						3
<i>Eruca</i> spp.	1			nd	2		14	0		16			33
<i>Chenopodium</i> spp.				nd									0
<i>Chrysanthemum</i> spp.			1										1
<i>Lactuca sativa</i>	11	560	797	nd	170	907	465	0	32	1570	nd	191	4703
wild <i>Lactuca</i> spp.	1		387	nd		58	21	1771	2	1026	nd	1	3267
<i>Lepidium</i> spp.			1	nd			11				nd		12
<i>Portulaca</i> spp.				nd									0
<i>Rheum</i> spp.			21				64				nd		85
<i>Rumex</i> spp.	1			nd			73				nd		74
<i>Spinacia</i> spp.	5	190	14	nd	11	128	87		86	387	nd		908
<i>Taraxacum</i> spp.													0
<i>Tetragonia</i> spp.			15	nd			18						33
<i>Valerianella</i> spp.				nd			2				nd		2
Total	27	758	1243		202	1145	896	1771	143	2999		194	9378

nd = no data

D. Number of safety-duplicated accessions

Species	ALB	BGR	CZE	DEU	ESP	GBR	HUN	ISR	NGB	NLD	POL	SVN	Total
<i>Asparagus</i> spp.			0	4			1	0			0		5
<i>Atriplex</i> spp.	0			19			14		3		0		36
<i>Cichorium</i> spp.	0	8	0	209	62	25	6	0	2		0	0	312
<i>Cynara</i> spp.				8			0						8
<i>Eruca</i> spp.	0			35	0		1	0		16			52
<i>Chenopodium</i> spp.				24									24
<i>Chrysanthemum</i> spp.			0										0
<i>Lactuca sativa</i>	1	560	38	300	691	499	136	0	23	1570	0	0	3818
wild <i>Lactuca</i> spp.	0		1	46		55	0	0	2	1026	0	0	1130
<i>Lepidium</i> spp.			0	42			1				0		43
<i>Portulaca</i> spp.				2									2
<i>Rheum</i> spp.			0				16				0		16
<i>Rumex</i> spp.	0			11			25				0		36
<i>Spinacia</i> spp.	2	190	0	78	14	116	19		42	387	0		848
<i>Taraxacum</i> spp.													0
<i>Tetragonia</i> spp.			0	2			0						2
<i>Valerianella</i> spp.				20			0				0		20
Total	3	758	39	800	767	695	219	0	72	2999	0	0	6352

Annex II. Workshop on molecular characterization protocols for lettuce

Background

Molecular characterization of plant genetic resources (PGR) continues to play an important role in PGR management. However, many different technologies are being used, even within a single crop. Moreover, a large number of different marker loci is usually available per technology. As a result, different studies mostly generate different molecular datasets that cannot be related to each other. However, the importance of the ability to integrate different datasets has increased substantially within the field of PGR management because of enhanced cooperation between genebanks. In particular, this applies to the implementation of the AEGIS philosophy. For example, the ability to compare accessions from different genebank collections will support the identification of most appropriate accessions and the further optimization of the genetic diversity within the AEGIS collection. Because a common molecular characterization protocol is currently lacking for lettuce, the development of such a protocol will be the main aim of the workshop. Issues to be addressed will include choice of marker technology (neutral/functional, ease of use, platform dependence, costs), choice of marker loci (resolving power, genome coverage), data management (ease of access and comparison) and experimental design (sample sizes and standard references).

Objectives

Development of a unified molecular characterization protocol for lettuce

Workplan

Activities

- Inventory of molecular marker technologies in use for lettuce
- Identification of key experts involved in molecular characterization of lettuce
- Workshop directed to recommendations for a unified molecular characterization protocol

Expected output

- Overview of marker technologies in use for lettuce
- Overview of strengths and weaknesses of the different technologies
- Recommendations for a unified molecular characterization protocol
- Written report on the project results

Timetable and budget

- 2010: Inventory of marker technologies and identification key experts (*pro memoria – no budget allocated*)
- 2011: Workshop with invited key players

Project coordination

WG Chair and Vice-Chair

WORKING GROUP ON SOLANACEAE

Willem van Dooijeweert and Marie-Christine Daunay

Participants

Working Group members	Armenia	Karine Sarikyan
	Austria	Wolfgang Palme
	Azerbaijan	Saida Sadaqat Sharifova
	Estonia	Ingrid Bender
	France	Marie-Christine Daunay
	Italy	Giambattista Polignano
	The Netherlands	Willem van Dooijeweert
		Gerard van der Weerden
	Romania	Gicuta Sbîrciog
	Russian Federation	Irina Khrapalova
	Turkey	Lerzan Gül Aykas

Introduction

After a short welcome by the Chair (W. van Dooijeweert, The Netherlands) and Vice-Chair (M.C. Daunay, France), all attending members briefly introduced themselves.

The members for Albania, Bulgaria, Czech Republic, Germany, Greece, Poland and the United Kingdom attended the VEGNET meeting but chose to attend other WG sessions.

The Chair emphasized that members of the Solanaceae Working Group (SOLWG) were representing their country and not only their own institute. He realized that in Phase VIII much input is required of the members and urged everybody who was not able or had no time to fulfil tasks, to contact the Chair or Vice-Chair in order to search for solutions.

Interaction with National Coordinators

A round table discussion focused on the interaction of each participant with their respective National Coordinator (NC). The majority of the members reported of a good information exchange about ECPGR issues, the interaction being generally optimal when the NC is located in the same institute as the ECPGR member. Representatives from Austria and Romania mentioned poor interaction with the NC and France was reported to be without an NC at the moment.

Recommendations

- In order to strengthen the link between ECPGR members and their NCs, it was decided to provide all NCs with the SOLWG reports from now on in two ways: (i) Chair and Vice-Chair will send the official report to all members and NCs, and each member will separately provide their NCs with an individual summary of the meeting.
- Concerning AEGIS, the important role of the NCs was emphasized since it is their responsibility to inform all relevant national institutions about their potential participation in AEGIS as associated members. Additionally, the ratification of the Memorandum of Understanding (MoU) must be coordinated by the NC with the relevant national administration. Therefore, it is important that ECPGR members remind their NC of their duties.

Solanaceae databases

Three database managers out of four attended the meeting. Each of them presented the current state of the art of the database (DB) for which they are responsible.

Tomato DB

It was made available and searchable online at the end of 2007. In 2009 an extra option was added which makes it possible for end-users to find probable duplicates. The taxonomic nomenclature used by the stakeholders was reviewed and transformed into the taxonomy used by GRIN and Mansfeld. The original taxonomy used by the donors was entered into a new field entitled "Received As". Also the minimum morphological descriptors agreed upon by the WG (available online at http://www.ecpgr.cgiar.org/Workgroups/solanaceae/Solanaceae_descriptors.pdf) were added and the fields were made searchable online. So far, the DB includes characterization data for the collections from the Czech Republic, Estonia and the Netherlands.

Eggplant DB

The structure and the software used have been revised. The output is an improved end-user interface, including easily searchable passport data, minimum morphological descriptors and access to pictures of many accessions. Modifications have been made according to what was agreed at the previous meeting in Olomouc, Czech Republic (June 2007). New fields for both the MLS status (species belonging or not to the Multi-Lateral System) and AEGIS status have been added as well. The content of the Eggplant DB will be limited to accessions belonging to subgenus *Leptostemonum* with a few exceptions, including pepino (*Solanum muricatum*) for which the accessions with evaluation data will be kept in the database.

Capsicum DB

The content of the DB was presented in terms of completeness of major passport fields and consistency with EURISCO content. Since the DB was made available on the Internet, the DB manager requested twice, by email, missing passport data from relevant SOLWG members. It seems there must have been technical problems because none of the attending members remembered having received these requests. The fields for the minimum morphological descriptors and AEGIS are not included in the DB yet.

Recommendations

- The Eggplant and Tomato DBs have reached an advanced stage of development. The *Capsicum* DB needs the inclusion of the minimum morphological descriptors and of the AEGIS fields. The *Physalis*, *Cyphomandra* and Pepino DB manager will be informed about the progress of the other crop DBs and requested to upgrade those he is responsible for, to similar standards.
- The DB managers will extract the data given by each donor in an Excel file and send this specific part back for checking and updating the information in order to improve the quality and quantity of the data given. Especially the fields "Origin country" and "Donor number" need to be checked. This action to improve the quality of the Solanaceae databases is scheduled to be completed before the next meeting of the SOLWG, planned in March 2011.
- The DB managers will send a template of the minimum morphological descriptors to all members of the SOLWG. All WG members are requested to translate their characterization data into the minimum descriptors where possible and send the data back using the template provided.

- If relevant and possible, the DB managers are recommended to submit a short paper to *Solanaceae Newsletter*, an electronic leaflet edited by Cornell University, to inform the Solanaceae scientific community about the state of the art of European DBs and the facilities they offer.

AEGIS

General issues

AEGIS issues were summarized and discussed. The whole Group reconfirmed the importance of AEGIS and the intention to work according to AEGIS as much as possible. However, since not all topics in the AEGIS concept are completely clear, it was decided to move forward in a step-by-step approach. After having summarized AEGIS issues, in particular the Memorandum of Understanding (MoU) and Most Appropriate Accessions (MAAs), the discussion brought forward the importance of first updating the European Central Crop Databases (ECCDBs) and further improving the quantity and quality of the information they contain: 1) country of origin is often confused with the donor country; 2) passport data should be completed when possible, in particular with donor numbers which help in identifying MAAs.

Recommendation

- The actions to be undertaken to improve the quality of the DBs are described in the above section "Recommendations" for the Solanaceae databases.

Memorandum of Understanding (MoU)

All members were asked about the signature process of the MoU in their country. Azerbaijan, Estonia and the Netherlands have already signed. Turkey, Italy, Austria and Armenia are in the process of signing. For France, Romania and Russian Federation, the attending members could not provide information.

Recommendation

- Whatever the state of the MoU signatures, all members are requested to discuss MoU issues with their NC, with the following specifications:
 - **MoU already signed:** make sure the NC contacts the relevant institutions in order to get their agreement to become an AEGIS associate member.
 - **Signature on the way:** make sure the signature process is finalized and make sure the NC contacts the relevant institutions in order to get their agreement to become an AEGIS associate member.
 - **Unknown status of MoU signature:** emphasize the importance of MoU signature to the NC, make sure the signature process is started and make sure the NC is aware that afterwards he/she will have to contact the relevant institutions in order to get their agreement to become an AEGIS associate member.

Identification of Most Appropriate Accessions (MAAs)

A round-table discussion concluded that the most efficient strategy is the following: DB managers will use the passport data of the ECCDB to identify potential unique accessions as well as potential duplicates and submit this first list to each WG member, for confirmation and/or corrections.

Recommendations

- The status of each accession can be proposed by the DB manager in various different ways: (i) by sorting out the relevant passport fields or (ii) by using algorithms if available. The next step is to send each WG member an Excel file for analysis and refinement of the status of the accessions of his/her germplasm.
- The responsibility of each WG member will be to ensure that this file is analysed by the respective stakeholder and then to correct, confirm or complete each accession's status. These issues will be discussed at the 2011 meeting.
- The way to move forward regarding the set of probable duplicate accessions will be discussed at the 2011 meeting. Several criteria can be used to choose MAAs (e.g. on the basis of the passport data, and/or via extra research like growing and comparing accessions together, and/or via molecular analysis) and the best criteria or set of criteria has to be decided.

A Quality System (AQUAS)

A first overview of seed storage and regeneration is available in the report of the ad hoc meeting of the SOLWG held in Bari, Italy, September 2004.⁴ This overview needs to be updated and completed in order to adapt to the AEGIS AQUAS requirements.

Recommendations

- The Chair and Vice-Chair will incorporate all the already available information into a questionnaire template as elaborated by the *Brassica* AEGIS Model Crop Group. The information already obtained by the *Brassica* WG from many stakeholders will be copied. As the issue of getting information about genebank operating protocols is common to all six VEGNET WGs, it was decided to coordinate this task at VEGNET level before the next first meeting of a VEGNET Working Group (March 2010, *Brassica* WG). The VEGNET Coordinator and Vice-Coordinator will schedule this task for each WG of VEGNET.
- When the complete overview of genebank management protocols is ready, it will be used in the next SOLWG meeting planned in March 2011, for the discussion about common management standards for the WG. The attending members agreed that as many generic standards as possible and only few species-/crop-specific standards must be used.

Safety-duplication

Safety-duplication is a very important part of AQUAS. It is needed to ensure the safety of germplasm at all times. It is also a requirement for any AEGIS accessions. An update of the safety-duplication status of the germplasm of each stakeholder will be acquired via the AQUAS questionnaire, and will reveal the targeted actions to be undertaken during Phase VIII. A small part of the SOLWG budget was reserved to improve the coverage of safety-duplication.

Recommendation

- Each SOLWG member will receive the AQUAS questionnaire and will be requested to inform the Chair and Vice-Chair about potential problems concerning safety-duplication of their germplasm. If needed, members can obtain financial support for labour, packages and mailing the seed, if they want to send safety-duplicates to another institute under a

⁴ Daunay MC, van Dooijeweert W, Maggioni L, Lipman E, compilers. 2006. Report of a Working Group on Solanaceae. *Ad hoc* Meeting, held jointly with the Fifth Meeting of the EGGNET Project, 17 September 2004, Bari, Italy. International Plant Genetic Resources Institute, Rome, Italy.

black box agreement. The funds provided cannot be higher than a few hundred euro per applicant.

Public awareness

An important concern of the SOLWG is related to public awareness. An outstanding example was given by the Austrian member of the SOLWG, W. Palme, who reported about the 2009 display of and information on several cultivated Solanaceae. A set of accessions representing the diversity of the targeted species (eggplant, tomato, *Cyphomandra* and *Physalis*) was donated by several SOLWG members and grown at the Vegetables Department, Höhere Bundeslehr- und Forschungsanstalt für Gartenbau (HBLFA) in Schönbrunn, Vienna, Austria. An overview was given of all the activities ranging from field visits, presentation of fruits, and culinary workshop to an exhibition in an Art Museum. Austria's initiative is an excellent example of how the awareness of the importance of genetic resources by growers, gardeners and public interest can be successfully raised.

Recommendations

- Non-governmental organizations (NGOs) are often closer to the public audience than other institutions. Therefore each member of the SOLWG will be asked to provide a list of the NGOs active in their country for vegetable genetic resources. A questionnaire concerning this matter will be sent out by the Austrian member.
- This list will be published on the SOLWG Web site as an ongoing activity. During the meeting of 2011, actions to improve public awareness with the help of NGOs will be discussed.
- Important achievements of the SOLWG and/or outstanding inputs of individual members should be published in the *Solanaceae Newsletter*. The SOLWG Vice-Chair has good cooperation with the newsletter and will coordinate this topic. All members are requested to provide material of interest for publication.
- The 2009 Austrian initiative deserves being summarized, and submitted for publication in *Chronica Horticulturae*, the quarterly journal of the International Society for Horticultural Science (ISHS).

Conclusions

- At the extraordinary meeting of the Vegetables Network Coordinating Group meeting held 18 April 2008 in Wageningen, The Netherlands, in preparation for the Eleventh ECPGR Steering Committee meeting, it was planned to have a SOLWG meeting in 2011.⁵ After an inventory of the offers to organize this meeting, it was agreed to hold it in March 2011 at the Aegean Agricultural Research Institute (AARI) in Izmir, Turkey.
- The agenda of the next meeting will deal with the 2010 achievements of the SOLWG and the planning of the tasks to be fulfilled during the rest of Phase VIII.

⁵ See the "PROJECT PROPOSALS ECPGR SOLANACEAE WORKING GROUP FOR PHASE VIII" (http://www.ecpgr.cgiar.org/SteeringCommittee/SC11/Budgets/SolanaceaeWG_ProjectProposa1_PhaseVIII.pdf)

Workplan 2009-2010

General

Topics detailed	Actions	Foreseen achievements	Time schedule	Members involved
Communication between SOLWG members and their National Coordinator (NC)	Members report individually to their NC about the Third VEGNET Meeting (Catania, Nov. 2009)	Awareness of NC of ECPGR and AEGIS matters	ASAP after return home	All members having attended VEGNET 2009 meeting
	Members remind their NC to ask national institutions for MoU associate membership	MoU associate members identified for each country	To be launched after MoU is signed by NC or relevant national office	All members

Progress Solanaceae databases

Topics detailed	Actions	Foreseen achievements	Time schedule	Members involved
Improve quality of passport data	Send extracted Excel file to each member for updating and improving data quality	Improved quantity and quality of passport data in order to identify unique accessions and duplicates (and later, MAAs)	Next meeting, March 2011	DB managers and all members
New fields to be added	Adapt structure of DB to include new fields for minimum descriptors, possible duplicate, MAA, species name as provided by the stakeholder	Databases upgraded for the AEGIS concept	Next meeting, March 2011	DB managers of <i>Capsicum</i> , <i>Physalis</i> , <i>Cyphomandra</i> and Pepino
	Provide members with a template of minimum descriptors to be filled in and sent back to DB managers	Inclusion of searchable morphological descriptors	Ongoing	DB managers and all members

AEGIS

Topics detailed	Actions	Foreseen achievements	Time schedule	Members involved
Memorandum of Understanding	Contact NC about status of MoU in each country	Better overview of countries who are going to participate in AEGIS and better informed NC	January 2010	Members of countries who have not signed the MoU
Associate member to Memorandum of Understanding	Inform NC that associate members to MoU need to be identified	Institutes sign associate membership to MoU	After signature of MoU by the country	Members of countries who intend to sign or have signed the MoU

AEGIS (cont.)

Topics detailed	Actions	Foreseen achievements	Time schedule	Members involved
Identification of probable unique accessions and probable duplicates	Passport data in the Solanaceae Databases will be sorted.	Probable unique accessions and probable duplicates will be identified	Next meeting, March 2011	Database managers
Search for probable unique accessions and probable duplicates	An Excel file per collection holder, with the accessions' status proposed by the DB managers will be sent to each WG member	Improved list with probable unique accessions and probable duplicates identified	Next meeting, March 2011	All members
Towards the definition of AQUAS for the SOLWG: first step	Survey of genebank management protocols. The Brassica template will be filled with all available information and sent again to all members to check and fill in.	First overview of all institutions seed regeneration and conservation protocols: made available online	Next meeting, March 2011	Coordinated at the Network level. After finishing the complete list of all institutions in the Vegetable Network, members will be asked to update the file
	Define generic and crop-specific standards	Define protocols for minimum quality management	2011-2013	All members
Improve safety-duplication	Survey of remaining not duplicated collections, identification of bottlenecks and find solutions	See Wageningen 2008 project proposals for SOLWG (project B): all collections safety-duplicated	Phase VIII	Chair and Vice-Chair, all members

Solanaceae genetic resources, scientific and public awareness

Topics detailed	Actions	Foreseen achievements	Time schedule	Members involved
An overview of NGOs per country	Each member will be asked to provide information about NGOs in their country. A complete list will be published on the SOLWG Web site.	Good overview of all NGOs in Europe dealing with Solanaceae in order to seek future cooperation to improve public awareness	March 2011	Chair + one member of the WG
Communication of SOLWG with the scientific and horticulturists' community	Publish papers on important achievements of the SOLWG or SOLWG members, e.g. in the <i>Solanaceae Newsletter</i> and <i>Chronica Horticulturae</i> (ISHS)	SOLWG achievements known worldwide and referred to (CCDBs, minimum descriptors, minimum standards for regeneration and conservation, etc.)	Phase VIII	All members coordinated by Vice-Chair
Communication with the general public	Members share information by writing articles in general journals, by organizing special events	Public better informed about Solanaceae Genetic Resources and international actions.	Phase VIII	All members coordinated by Vice-Chair

WORKING GROUP ON UMBELLIFER CROPS

Emmanuel Geoffriau and Charlotte Allender

Participants

Working Group members	Belgium	Hervé De Clercq
	Czech Republic	Pavel Kopecky
	France	Emmanuel Geoffriau
	Germany	Thomas Nothnagel
	Russian Federation	Tatyana Khmelinskaya
	Sweden	Kerstin Olsson
	United Kingdom	Charlotte Allender

Discussion

- Chair and Vice-Chair election: Emmanuel Geoffriau (France) and Charlotte Allender (United Kingdom).
- Overview of the results from questionnaires sent to members (9 questionnaires received):
 - there is a good level of activity at various levels: regeneration, characterization/evaluation, documentation, distribution, with also good working and long-term collection practices;
 - the comparison of data with EURISCO data shows a discrepancy which stresses the need for a reference and updated database. The Umbellifer Working Group has decided to use the European Umbellifer Database (EUDB) as reference database;
 - there is an urgent need for safety-duplication actions as a significant percentage of umbellifer accessions are not duplicated; this is a priority;
 - several members support AEGIS implementation and the need for deeper work on wild relatives;
 - the main problems raised are: the lack of resources for regeneration, the lack of funding (and secure funding), and data management.
- In order to keep significant activities on minor Umbellifer crops, it was previously proposed to have minor crop “leaders” but it was finally decided by partners to inform each others on minor crops activities.
- Charlotte Allender is the new EUDB manager.
- The Phase VIII workplan was discussed and confirmed by the members.
- The wild relatives project, for which funding was accepted by the ECPGR Steering Committee, was discussed, and a review of member propositions and expertise in this field was done.
- Opinion of members on their interest in AEGIS was asked and discussed. Three areas where AEGIS should be expected to bring added value compared to the current situation were identified:

- for the end-user: availability of samples, access to a variability as large and representative as possible, accessions with a minimum of characterization data (AEGIS accessions would have the priority for characterization);
- for genebanks: share responsibilities, improve practices, identify respective duties based on a list of accessions (globally do less, but better);
- for mankind: priority should be put on accessions of European origin, with a focus on landraces and wild material that are by nature linked to a territory.

Recommendations

Update of the European Umbellifer Database (EUDB)

The EUDB was last updated in 2007. A survey of the Working Group (WG) in October 2009 revealed discrepancies between the data in EURISCO and the accessions available within each country. In order to make progress on other recommendations, it is vital that the data on the European umbellifer collections are as complete and up to date as possible.

Recommendation

WG members are requested to forward up to date information on available accessions to the EUDB database manager, so that an updated version can be made available.

Action

EUDB manager (Charlotte Allender) to contact all WG members to request updated information, with data to be collated in a new version of the EUDB **by the end of 2010**.

Safety-duplication

The 2009 survey also showed that not all collections are safety-duplicated. This is an obvious area of concern and the WG agreed that efforts should be made to improve the situation.

Recommendation

Compilation of a list of genebanks which can offer storage of safety-duplicate samples under a "black box" system under recommended long-term storage conditions. This will then be circulated to WG members to enable them to make arrangements for long-term storage of duplicates.

Action

WG Chair to compile list of genebanks and circulate to the WG **by March 2010**. Safety-duplications will be arranged **by the end of 2010**.

Wild relatives project

The WG supported the proposal by the Chair to carry out a project on wild relatives of umbellifer crops. The exact scope of the project will depend on the contributions that WG members will be able to make (further discussions with WG members not present are required) but will include the following actions:

Task	Timescale	Partners
Review of material in collections and in some <i>in situ</i> locations	2010	Emmanuel Geoffriau Charlotte Allender Pavel Kopecky Teresa Kotlińska + other WG members
Selection of common taxonomic system and identification of accessions	2010-2011	Emmanuel Geoffriau Charlotte Allender + other WG members
Characterization of accessions (e.g. vegetative and floral parts, ploidy)	2011-2012	Emmanuel Geoffriau Thomas Nothnagel Pavel Kopecky Teresa Kotlińska + other WG members
Ecogeographic surveys and prospection/collection of wild relatives	2011-2012	Emmanuel Geoffriau + other WG members

Action

WG Chair to contact members in 2010 to further define the details of the project and the distribution of tasks and funds.

AEGIS

In the second VEGNET meeting (Olomouc, 2007), it was decided to implement AEGIS on Umbellifer crops to i) avoid duplication of efforts and improve coordination, ii) share responsibilities and define clear conservation duties, iii) make accessions more easily available to users. In the present, third meeting in Catania, members felt that the added values of AEGIS need to be identified in order to help its implementation (see above). It was decided to implement AEGIS on carrot as a model and common crop to test selection criteria. A proposal was submitted to ECPGR to be funded under the AEGIS grant scheme.

Task	Timescale	Partner
EUDB update	End 2010	C. Allender + members (see recommendation for update of the EUDB)
Tasks under the grant project		
- carrot database analysis	April 2011	C. Allender and E. Geoffriau
- list of putative selection criteria	July 2011 (workshop 1)	7 project partners
- assessment of accessions	November 2011	7 project partners (allotted sections)
- validation of selection criteria	December 2011	7 project partners
- genebank protocols	(workshop 2)	
- putative list of carrot MAAs	March 2012	C. Allender
- final report	March 2012	C. Allender and E. Geoffriau
Common genebank practices	2012	WG members + other relevant genebanks
Agreement on a common protocol	2013	
List of carrot MAAs and proposal for a quality system	2013	WG members + other relevant genebanks

Technical expertise progress

Two Umbellifer WG meetings are planned in 2011 and 2013. Two additional meetings have been proposed in 2010-2011 with the proposed AEGIS project described above. The WG felt that these would be valuable opportunities to visit other genebanks and collections and exchange technical expertise. A shortlist of hosting institutions was collated during the WG meeting.

Recommendation

The location of each of the WG meetings will be decided after the outcome of the AEGIS project proposal is known.

Action

Project coordinator (Charlotte Allender) to advise WG members of proposal status as soon as possible. WG Chair to approach individual members to assign WG meeting locations.

Minimum descriptors

Characterization is often carried out using different descriptors. In order to ensure comparability between datasets, it would be advisable to agree on a list of minimum descriptors. This list will not preclude the use of other sets of project-specific descriptors.

Recommendation

Compilation of a draft list of minimum descriptors and circulation to the WG for discussion and improvement.

Action

WG Chair to contact WG members **in 2010** to discuss further.

APPENDICES

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Appendix I. Acronyms and abbreviations

AARI	Aegean Agricultural Research Institute, Izmir, Turkey
AEGIS	A European Genebank Integrated System
AEGRO	An integrated European <i>In Situ</i> management workplan: implementing Genetic Reserves and On-farm concepts
AWG	<i>Allium</i> Working Group (ECPGR)
BPGV	Banco Português de Germoplasma Vegetal (Portuguese Plant Genebank)
BrasEDB	European <i>Brassica</i> Database
BWG	<i>Brassica</i> Working Group (ECPGR)
CCDB	Central Crop Database
CGIAR	Consultative Group on International Agricultural Research
CGN	Centre for Genetic Resources, the Netherlands, Wageningen
CIFA	Centro de Investigación y Fomento Agrario (Agricultural Research and Training Institute), Córdoba, Spain
CNR	Consiglio Nazionale delle Ricerche (National Research Council), Italy
COMAV	Centro de Conservación y Mejora de la Agrodiversidad Valenciana (Institute for Conservation and Improvement of Valencian Agrodiversity), Valencia, Spain
CRI	Crop Research Institute, Prague-Ruzyne, Czech Republic
CWG	Cucurbits Working Group (ECPGR)
DOFATA	Dipartimento di OrtoFloroArboricoltura e Tecnologie Agroalimentari, Università di Catania (Department of Horticulture and Food Technology, Catania University), Italy
EADB	European <i>Allium</i> Database
EC	European Commission
ECCDB	European Central Crop Database
ECCUDB	European Central Cucurbits Database
ECPGR	European Cooperative Programme for Plant Genetic Resources
EGGNET	EGGplant Genetic Resources NETwork
EU	European Union
EUCARPIA	European Association for Research on Plant Breeding
EUDB	European Umbellifer Database
EURISCO	European Internet Search Catalogue
FAO	Food and Agriculture Organization of the United Nations
GIGA	Global Information on Germplasm Accessions
GMO	Genetically modified organism
GRIN	Germplasm Resources Information Network (United States Department of Agriculture/ Agricultural Research Service)
HBLFA	Höhere Bundeslehr- und Forschungsanstalt für Gartenbau (Horticultural College and Research Institute) Schönbrunn, Vienna, Austria
HRI	Horticulture Research International, Wellesbourne, United Kingdom (<i>now Warwick HRI</i>)

IBPGR	International Board for Plant Genetic Resources, Rome, Italy (<i>now Bioversity International</i>)
IFVC	Institute of Field and Vegetable Crops, Novi Sad, Serbia
IGV	Istituto di Genetica Vegetale (Institute of Plant Genetics), Bari, Italy
IHC	International Horticultural Congress
ILDB	International <i>Lactuca</i> Database
INRA	Institut National de la Recherche Agronomique (National Institute for Agricultural Research), France
IPGR	Institute for Plant Genetic Resources "K. Malkov", Sadovo, Plovdiv, Bulgaria
IPGRI	International Plant Genetic Resources Institute (<i>now Bioversity International</i>)
IPK	Leibniz Institute of Plant Genetics and Crop Plant Research, Gatersleben, Germany
ISHS	International Society for Horticultural Science
LVWG	Leafy Vegetables Working Group (ECPGR)
MAA	Most Appropriate Accession
MCPD	Multi-crop Passport Descriptors
MLS	Multi-Lateral System
MOS	Most original sample
MoU	Memorandum of Understanding
NC	National Coordinator
NCG	Network Coordinating Group (ECPGR)
NCPGRU	National Centre for Plant Genetic Resources of Ukraine, Kharkiv, Ukraine
NGB	Nordic Gene Bank, Alnarp, Sweden (<i>now the Nordic Genetic Resource Center, NordGen</i>)
NGO	Non-governmental organization
PGR	Plant genetic resources
RIVC	Research Institute for Vegetable Crops, Skierniewice, Poland
SC	Steering Committee
SCVIC	Scientific Center of Vegetable and Industrial Crops, Daracert, Armenia
SEEDNet	South East Europe Development Network on Plant Genetic Resources
Sida	Swedish International Development Cooperation Agency
SINGER	System-wide Information Network for Genetic Resources
SMTA	Standard Material Transfer Agreement
SNP	Single nucleotide polymorphism
SOLWG	Solanaceae Working Group (ECPGR)
UPM	Universidad Politécnica de Madrid (Technical University of Madrid), Spain
VEGNET	Vegetables Network (ECPGR)
VIR	N.I. Vavilov Research Institute of Plant Industry, St. Petersburg
WG	Working Group

Appendix II. Agenda

Third meeting of the ECPGR Vegetables Network 10-12 November 2009, Catania, Italy

Monday 9 November 2009

Arrival of participants

Tuesday 10 November 2009

- 8.30 – 10.30** **Plenary session – Introduction**
- Welcome address and opening remarks (*Rector, Dean, National Coordinator, Convener, D. Astley,*) 30 mins
 - ECPGR developments and EURISCO (*L. Maggioni*) 30 mins
 - AEGIS – general introduction, Strategic Framework, etc. (*J. Engels*) 30 mins
 - Discussion in plenary 30 mins
- 10.30 – 11.00 *Coffee break*
- 11.00 – 13.00** **Plenary session**
- AEGIS Memorandum of Understanding (*L. Maggioni*) 20 mins
 - Discussion in plenary 40 mins
 - AEGIS – Most Appropriate Accessions intro (*J. Engels*) 20 mins
 - *Brassica* WG experience on MAAs 20 mins (*Brassica WG rep*)
 - *Allium* WG experience on MAAs 20 mins (*Allium WG rep*)
- 13.00 – 14.30 *Lunch*
- 14.30 – 16.30** **Parallel session**
- Discussion in plenary 40 mins
 - Working Group discussions in parallel 60 mins
- 16.30 – 17.00 *Coffee break*
- 17.00 – 19.00** **Plenary and parallel meeting**
- AEGIS – Documentation WG experience (CGN) 30 mins
 - Discussions in plenary 30 mins
 - Working Group discussions on MAAs and Documentation in parallel 60 mins

Wednesday 11 November 2009

- 8.30 – 10.30** **Plenary session**
- AEGIS – Quality System (AQUAS) (*J. Engels*) 20 mins
 - *Brassica* WG experience on QA 20 mins (*Brassica WG rep*)
 - *Allium* WG experience on QA 20 mins (*Allium WG rep*)
 - Discussion in plenary 30 mins
 - WGs develop workplans and identify Network-related issues
- 10.30 – 11.00 *Coffee break*
- 11.00 – 13.00** **Parallel session**
- WGs develop workplans and identify Network-related issues

13.00 – 14.00	<i>Lunch</i>
14.00 – 16.00	Plenary session <ul style="list-style-type: none">• Presentation of the individual WGs AEGIS programme (20 mins/WG)
16.00 – 16.30	<i>Coffee break</i>
16:30 – 18.00	Plenary session Discussion on issues of Network-wide interest and Conclusions
18.00 – 22.00	<i>Social dinner</i>

Thursday 12 November 2009

7.30 – 12.30	Excursion to Etna Park
8:30 – 14:30	Drafting of the report (<i>only Chairs, Vice-Chairs and ECPGR Secretariat are involved in the drafting</i>)
12.30 – 13.30	<i>Lunch at restaurant</i>
14.20 – 17.00	Plenary meeting. Discussion and approval of report
18.30 – 19.30	<i>City tour – historical centre of Catania</i>
19.30 – 21.30	<i>Dinner in town</i>

Friday 13 November 2009

Departure of participants

Appendix III. List of participants

Third meeting of the ECPGR Vegetables Network 10-12 November 2009, Catania, Italy

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