



newsletter for Europe

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About this Newsletter

Bioversity International is one of the 15 Centres of the Consultative Group on International Agricultural Research (CGIAR). Bioversity's vision is that: "People today and in the future enjoy greater well-being through increased incomes, sustainably improved food security and nutrition, and greater environmental health, made possible by conservation and the deployment of agricultural biodiversity on farms and in forests."

Bioversity's Regional Office for Europe provides the Coordination Secretariats for the European Cooperative Programme for Plant Genetic Resources (ECPGR) and for the European Forest Genetic Resources Programme (EUFORGEN).

Bioversity publishes two issues of the Newsletter for Europe a year. This Newsletter is intended to serve as an informal forum for the exchange of news and views, and to create closer ties within the genetic resources community in Europe. Previous issues are available from the Bioversity Web site: www.bioversityinternational.org

A Russian version of this Newsletter is being produced and disseminated in collaboration with the N.I. Vavilov Research Institute of Plant Industry (VIR), St. Petersburg.

We invite you to send your ideas and contributions for this Newsletter to Bioversity's Regional Office for Europe by Email to bioversity-europe@cgiar.org. Please send all contributions for Issue 37 by **10 October 2008**.

EVOLTREE completes two years of activity



*Beech tree growing in extreme environmental conditions, central Italy.
Photo: B. Vinceti, Bioversity International*



www.evoltree.eu

The repository of genomic resources installed at the Austrian Research Centers GmbH – ARC in Vienna, operational since December 2007, is holding the materials made available by EVOLTREE members and hosts, to date, a total of 38 complementary DNA libraries for trees (*Quercus*, *Fagus*, *Pinus*, *Picea*); insects (*Lymantria*) and fungi (*Glomus* and *Laccaria*). These are available and accessible via the EVOLTREE web portal. A framework agreement regulating access to and delivery standards of the material stored at the repository centre has been agreed upon and signed by all partners.

Key features of mycorrhizal fungi have been unveiled. These fungi establish a symbiosis with roots and have been fundamental to land colonization by plants. The advance of genomic research has led to the sequencing of the largest fungal genome so far (*Laccaria bicolor*). The full gene inventory has enabled the singling out of gene sets involved in the colonization of the root system by fungi and the identification of unknown mechanisms that are fundamental in the establishment of the mutualistic relationship between *Laccaria bicolor* and its hosts.

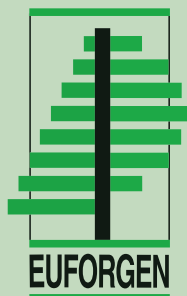
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EVOLTREE is now entering its third year of activity, showing significant progress, despite the very challenging objectives and the large scientific community involved in this Network of Excellence. A fundamental goal of EVOLTREE is to predict biotic responses of forest ecosystems to climate change, and, in particular, to understand whether critical traits in trees and associated organisms can evolve fast enough to cope with the changing environment. Trees and forest ecosystems are particularly suitable to investigate the molecular basis of adaptation because they show large genetic and phenotypic variation and present a low level of domestication.

After 24 months, knowledge and information on the mechanisms that regulate key adaptive traits (e.g. bud burst and bud set, leaf shape, drought resistance) have

been generated, organized and archived. EVOLTREE scientists have contributed to the development of a large database containing genetic and genomic resources. This contains partial DNA sequences of genes for oaks, pines, beech, Norway spruce, insects and mycorrhizal fungi in the form of more than 200 000 expressed sequence tags (EST). Candidate genes in model tree species (from the genera *Pinus*, *Populus* and *Quercus*), as well as insects and fungi, have been identified for traits of adaptive significance. Single point mutations were explored in 65 candidate genes of adaptive traits belonging to six tree species (*Pinus pinaster*, *Pinus sylvestris*, *Pinus halepensis*, *Picea abies*, *Quercus petraea*, *Populus nigra*). Sequences from different genotypes are also available for mycorrhizal fungi (*Lymantria dispar*, *L. monacha* and *Laccaria bicolor*).

EUFORGEN Scattered Broadleaves Network meets in Norway



Representatives from 27 countries met in Drøbak, Norway on 20-22 May to discuss progress made by the Scattered Broadleaves Network in its activities. The meeting also agreed on future steps for the finalization of the Network activities before the end of the current phase of EUFORGEN in 2009.

Norway, which is now hosting the Liaison Unit of the Ministerial Conference on the Protection of Forests in Europe (MCPFE) in Ås, was the perfect location to discuss the relevance of genetic variation in marginal populations of scattered broadleaves and the role these populations have for the development of gene conservation strategies on a European scale.

During the meeting, working groups developing common action plans for scattered broadleaves in Europe presented their updates and reviewed gene conservation units proposed by 18 countries, to be included in a pan-European network of these units.

The purpose is to link the most valuable *in situ* gene conservation units within the distribution range of a given tree species in Europe by selecting only a few units from each country. As a first step, the Network is selecting gene conservation units for ash (*Fraxinus excelsior*), wild cherry (*Prunus avium*), black poplar (*Populus nigra*), white elm (*Ulmus laevis*), wild pear (*Pyrus pyrastrer*) and wild service tree (*Sorbus torminalis*). The work will be finalized by the end of 2008 and a publication, targeted to policy-makers and managers, will be developed based on it.

During the meeting, participants were also updated on the progress made by the EUFGIS Expert Group in the development of pan-European minimum requirements and data standards for gene conservation units of forest trees. All of the EUFORGEN Networks will be able to provide feedback on the next draft version of the two documents during the summer.

The Network members also decided to develop a review chapter on experiences gained from restoration projects and the use of genetic resources of scattered broadleaves for this purpose in Europe. The chapter will be included in a publication on forest genetic resources and forest management, which will be developed jointly by all the EUFORGEN Networks.

In addition, a seminar on genetic diversity of marginal tree populations was presented during the meeting and the ensuing discussions also addressed the role of these populations in the face of climate change. In this regard, the Network discussed the role of provenance trials, how forest reproductive material could be moved to facilitate the adaptation of trees to climate change and the impact of photoperiod on tree growth.

The summary report of the meeting is available at the EUFORGEN website (www.euforgen.org).



Network members during a field trip.
Photo: O.T. Westengen, NordGen, Norway

EVOLTREE achievements

(continued from page 1)

This achievement has been made possible through international collaboration between the U.S. Department of Energy Joint Genome Institute (DOE JGI) and European research institutions, including one EVOLTREE partner, the National Institute for Agricultural Research in Nancy, France. The results were published in Nature (6 March 2008).

A particularly challenging task EVOLTREE members are tackling is the full sequencing of a conifer species, an objective that currently still looks unachievable. Some EVOLTREE partners are also members of an international steering committee established to obtain support for and to coordinate an international effort aimed at overcoming the technical barriers to this ambitious target.

Finally, EVOLTREE seems to be responding well to the questions posed by policy-makers, contributing to enhancing their level of understanding on issues related to climate change and forest ecosystems. A first stakeholder group meeting of EVOLTREE was held in Mandelieu-Nice, France on 7-8 February 2008, back to back with the EVOLTREE annual meeting. Several invited scientists from EVOLTREE presented overviews of their specific areas of work to the stakeholders. The objective was to illustrate the current level of knowledge acquired in different scientific areas related to forest tree genetics and genomics and to highlight the practical applications to the stakeholders. A full report of the event and copies of the presentations are downloadable from the EVOLTREE website (www.evoltree.eu under "Dissemination-Stakeholder Group").

New MCPFE work programme under development

In January 2008, the Liaison Unit of the MCPFE process (Ministerial Conference on the Protection of Forests in Europe) moved from Warsaw to Oslo, following the hand-over of the responsibility for its coordination from Poland to Norway at the fifth Ministerial Conference in Warsaw in November 2007.

The new Liaison Unit organized an expert level meeting in Oslo on 7-8 May 2008 and initiated discussions on actions to implement the commitments of the Warsaw Conference. The meeting discussed a draft work programme, developed by the General Coordinating Committee (Germany, Norway, Poland, Slovakia, and Spain), and shared information on forest policy issues in Europe and at the global level. In addition to proposing actions to implement the Warsaw commitments, the draft work programme also includes actions to define the strategic direction of the MCPFE process in order to facilitate discussions on the future role of the MCPFE process and as a means to continue the dialogue and cooperation on forest policy in Europe.

The new work programme is divided into five programme elements, i.e. 1) sustainable forest management and climate change; 2) wood mobilization and sound use of wood; 3) multiple forest ecosystem services, including forests and water; 4) regional-global cooperation and partnership; and 5) cross-cutting activities. Actions proposed under each programme element mainly include those in which the Liaison Unit Oslo has a leading role. For this reason, many delegates from the participating countries and observer organizations expressed their interest in including additional actions into the work programme. The revised version of the work programme is likely to include

an annex for such actions and this will be further discussed at a later stage. Actions for continuing the implementation of the earlier Ministerial commitments were also largely missing from the draft work programme, although the Warsaw Declaration also reinforced the implementation of earlier commitments made.

Regarding the strategic direction of the MCPFE process, the meeting concluded that the Liaison Unit Oslo should assign a small group of external experts to assessing the progress made and obstacles faced in implementing the commitments made by the five Ministerial Conferences. This was based on the decision by the ministers responsible for forests, as part of the Warsaw Declaration. The external review should be finalized by the end of 2009.

Simultaneously with the external review, the meeting agreed to establish a working group to explore the potential added value of and options for a legally binding agreement on forests in the pan-European region. The working group should also provide its findings by the end of 2009. Before the meeting reached an agreement on establishing the working group, a long discussion took place. Some delegates pointed out that the Warsaw Declaration does not provide a clear mandate for a legally binding agreement, although ministers of several countries had suggested at the Warsaw Conference that European countries could explore this avenue, as negotiations on the legally binding instruments on forests have failed at the global level within the UN Forum on Forests (UNFF). Others stressed that the working group should first carefully analyze both benefits and drawbacks of a legally binding agreement before identifying any options for proceeding in this regard. Several delegates were also in favour



Norway maple (*Acer platanoides*).

Photo: M. Bozzano, Bioversity International

of postponing exploring the possibility for a legally binding agreement until the external review had been completed.

In general, most of the delegates were in favour of finding new and innovative ways of continuing the fruitful collaboration on forests in Europe instead of drafting additional declarations and resolutions for the next Ministerial Conference. However, it was noted that the MCPFE process should also explore other options rather than just focusing its efforts on one single option, i.e. the legally binding agreement in Europe.

The MCPFE process has highlighted the importance of forest genetic resources in many Ministerial Conferences. Most recently, as part of the Warsaw Declaration, European countries agreed to maintain and enhance the biological diversity of forests, including their genetic resources, through sustainable forest management. Therefore, if the countries later decide to initiate a negotiation process for developing a legally binding agreement on forests

in Europe, the agreement is also likely to address forest genetic resources to support the implementation of the Convention on Biological Diversity.

As part of the work programme, the MCPFE process also agreed to collaborate closely with FAO, the UN Economic Commission for Europe and the European Commission (EC) in finalizing preparations for the Pan-European Forest Week on 20-24 October 2008. It is planned that the EC will host a one-day event in Brussels on 20 October and that FAO will host all other sessions in Rome on 21-24 October. The final programme for Forest Week is currently under preparation and will be announced soon (see www.europeanforestweek.org).

The MCPFE process will continue the discussions on its activities and the work programme during the next expert level meeting which will be held in Geneva, Switzerland on 12-13 November 2008. Further information is available at the MCPFE website (www.mcpfe.org).

Developing an information system on gene conservation units of forest trees



The EUFGIS (Establishment of a European Information System on Forest Genetic Resources) project has continued its efforts to harmonize minimum requirements for dynamic gene conservation units of forest trees and data standards for these units at pan-European level. These two elements are crucial building blocks for the establishment of the European information system on forest genetic resources which is the overall goal of the project.

In October 2007, the project organized a workshop which discussed the need for such requirements and standards, as well as the overall status of documentation efforts on forest genetic resources in Europe (see NL35, page 8). The workshop also made several recommendations and these were further discussed in Denmark by a small expert group, including representatives from all EUFORGEN Networks and the UN Food and Agriculture Organization (FAO).

The project partners and the expert group met for a second time in Avignon, France on 8-9 April 2008 to discuss draft documents for the minimum requirements and the data standards which were developed after the workshop. The purpose of the minimum requirements is to provide guidance on what kind of conservation areas or gene reserve forests will meet criteria for long-term, dynamic gene conservation at pan-European level. The requirements also serve as a check list for selecting gene conservation units to be included in the EUFGIS information system.

The minimum requirements are based on the concept of dynamic gene conservation, which emphasizes the maintenance of evolutionary processes within tree populations rather than trying to preserve the present genetic diversity as such. The dynamic gene conservation units should be predominantly located in autochthonous forests within the natural distribution range of a tree species in Europe. However, the requirements also recognize that artificial but dynamically evolving tree populations (*ex situ*) can contribute to dynamic gene conservation in some cases.

The draft minimum requirements highlight that gene conservation should be clearly stated as one of the management goals of relevant areas. This means that silvicultural techniques are applied, as needed, to favour genetic processes maintaining long-term viability of those tree populations which are identified as targets for gene conservation. The required management of the units does not prevent the units from being used for production of timber or other forest-based products or providing various services. Therefore, the gene conservation units can be located in protected areas, production forests or any other type of forests. Seed stands

can be considered as gene conservation units but only if they otherwise meet the minimum requirements.

The draft minimum requirements further include clear guidelines for the minimum size of a unit in terms of population size as well as recommendations on how countries should organize the monitoring of the units. Each gene conservation unit should have a sufficient number of effectively mating and reproducing trees to prevent reduction of genetic diversity. The number of trees should be high enough to reasonably assume that sexual reproduction takes place randomly and that the level of relatedness among the next generation of trees is as low as possible. The sufficient number of reproducing trees is dependent on the biology of a given species, density and spatial arrangement of trees, as well as biotic and abiotic conditions. The expert group is now continuing its discussion on the exact minimum number of reproducing trees required for different tree species before a gene conservation unit can be included in the information system.

The project partners in Austria, Denmark, France, Slovakia, Slovenia and the UK will now start testing the draft minimum requirements and data standards while collecting information on their gene conservation units of forest trees. Biodiversity International has also started developing a test version of the information system. The expert group will have its third meeting in Slovenia in early October 2008 to discuss the experiences learnt during the process and to finalize the draft minimum requirements and data standards.

Further information on EUFGIS is available at the EUFORGEN website (www.euforgen.org).



A beech (*Fagus sylvatica*) stand in central Italy.
Photo: J. Koskela, Biodiversity International

LAFORGEN promotes conservation and use of forest genetic resources at Latin American Forestry congress

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LAFORGEN - the Latin American network that promotes Forest Genetic Resources - is a peer-research community that aims to enable the conservation and sustainable use of forest genetic resources in Latin America and the Caribbean, by facilitating communication among researchers and promoting collaborative research and joint actions. A group of 16 persons from eight Latin American countries initiated the network during a workshop in Cali, Colombia in September 2006, organized by Bioversity International and financed by the Spanish Institute for Agricultural Research (INIA). Today LAFORGEN has more than 75 members from 18 countries, a number that is steadily increasing. At present,

Bioversity International coordinates the network.

During the Fourth Latin American Forestry congress (CONFLAT), a three-yearly congress supported by FAO, IUFRO and ITTO, held this time in Mérida Venezuela on 2-5 April 2008, LAFORGEN members organized a side-event to represent the theme of conservation and sustainable use of forest genetic resources. The side-event was organized in the framework of Bioversity's forestry project: *Strengthening regional collaboration in conservation and sustainable use of forest genetic resources in Latin America and Sub-Saharan Africa*, which is financed by INIA and co-financed by the Forest Research Center (CIFOR) of INIA, and Bioversity. The Laboratory of Forest Seeds (INDEFOR) of the University of the Andes (ULA) Mérida, Venezuela hosted the event, and it was co-financed by the Tropical Agricultural Research and Higher Education Center (CATIE) Costa Rica and the Forest Genetics Unit - Bariloche of the Argentinean Institute of Agricultural Technology (INTA). In total 40 persons participated from Argentina, Brazil, Colombia, Costa Rica, Mexico and Peru and from a diverse spectrum of working areas including population genetics, *in situ* conservation, breeding, agroforestry, germplasm propagation and conservation, seed collection and plantation forestry.

Since genetic resources are not always as tangible as other important components of forest management and conservation like silviculture, species diversity etc., the main objective of the LAFORGEN side-event at CONFLAT was to demonstrate the role of conservation and use of forest genetic resources in forest management and conservation. Leonardo Gallo (Argentina), Carlos Navarro

(Cost Rica), Lino Valera and Vicente Garay (Venezuela) presented case studies on conservation and sustainable use of forest genetic resources and its implications for forest management and conservation. Next, the participants discussed specific research activities in the region in which LAFORGEN can play a significant role as a regional platform.

An issue that arose among the participants was the importance of developing cases that demonstrate a clear application of genetic diversity studies. These applications are not always clear and there is a need to show policy-makers and other groups of influence that research and conservation of forest genetic diversity is an essential component in forest management and conservation projects. The participants further stressed the need to develop common standards of passport data and tree species' stand descriptors that can be used among LAFORGEN member countries. Finally there was a request for sampling guidelines that can be used to elaborate population genetic studies of specific tree species, genera, or functional groups.

The side-event was successful in raising awareness about the theme of forest genetic resources and facilitated communication and collaboration between researchers from different countries. Some important research topics requiring attention at a regional level came to light during the side-event and are recommended to be followed-up by LAFORGEN members in joint actions. More information about LAFORGEN and its members is presented at www.lafor-gen.org. Persons interested in participating in LAFORGEN can contact Maarten van Zonneveld (m.vanzonneveld@cgiar.org). More information about the Fourth CONFLAT congress can be found at www.conflat.org



Top: Forestry faculty of the University of the Andes (ULA) Mérida, Venezuela. Photo: J.M. Salcedo, Bioversity International

Bottom: The researchers that initiated LAFORGEN in Cali, Colombia, September 2006. Photo: Bioversity International

Grain Legumes Working Group gathers in Lisbon



Pisum sativum flowers.
Photo: L. de la Rosa Fernandez,
CRF INIA, Spain

The ECPGR Working Group (WG) on Grain Legumes met for its Fourth meeting in Lisbon, Portugal on 16-17 November 2007, as a Satellite meeting to the Sixth European Conference on Grain Legumes. The Conference discussed progress in legume knowledge, particularly the first outputs from the EU Grain Legumes Integrated Project (GLIP), ending in 2008, which lead the research on nitrogen-fixing plants. GLIP provided some support for the ECPGR Satellite meeting, including a budget for the registration fees of some participants, a meeting room and lunch on the first day.

The ECPGR Satellite meeting was attended by representatives from 17 member countries and several other observers from the Grain Legumes Conference.

Review of progress was made for various crops and their databases. The ECPGR *Phaseolus* Database (Austria) was shown to include limited characterization data (for only 3% of the accessions). To overcome this limitation,

an effort is being made to include pictures of the relevant accession traits. European Faba bean accessions were shown to represent 50% of the global collections. The ECPGR Faba bean Database (France) is closer to completion. Several accessions (17%) need urgent regeneration, a few orphan collections were identified and very limited safety-duplication could be recorded. Molecular characterization is in progress. The ECPGR *Cicer* Database (Portugal) needs to be updated. Safety-duplication of chickpea is not advanced and in some cases, there is urgent need of regeneration (Albania, Bulgaria and Portugal). The ECPGR Lens Database (Turkey) includes data from eight countries, but has not progressed since 2001, due to lack of data sent by partner institutions. A call for better collaboration was made. The ECPGR *Pisum* database (UK) is currently being rebuilt from contributions representing 42 collections from 26 countries and should be placed on-line in the early summer of 2008. The ECPGR Soybean Database (Russian Federation) was reported to contain 11 000 entries, mostly from VIR (> 6000). The DB has the potential to include larger international collections, such as from USDA (18 000) and China (12 000). However, it is to be verified whether the DB can be maintained in Russia, since difficulties in finding necessary resources for its maintenance were reported.

A common issue was the lack of safety-duplication and the Group invited countries to offer suitable space. Portugal offered to host safety-duplicates in the genebank in Braga. Macedonia FYR mentioned its decision to safety-duplicate its collection at the Svalbard Seed Vault (see article on page 15).

The Network had previously been mobilized to respond to the offer made by the Trust for support in the regeneration of germplasm collections. Urgent needs for regeneration

were expressed by Albania, Azerbaijan, Bulgaria, Georgia, Hungary and Portugal. The need to regenerate and maintain collections of homozygous lines containing well identified genes, as well as collections of local European landrace populations was identified. Upcoming regeneration activities were also considered ideal to score at least the most essential characterization data. Flowering time, a relevant trait for adaptation to climate change, will be scored under the coordination of Portugal. Portugal also offered to coordinate an initiative to monitor presence/absence of relevant grain legume insect pests in Europe. Additionally, Andrea Carboni (Italy) offered to coordinate the search for a new determinate habitus for common bean. Regeneration of *Vicia faba* would also monitor pollinators and flower morphology. Maria José Suso (Spain) offered to provide contacts with experts in this area. Finally, Mike Ambrose (UK) together with Siyka Angelova (Bulgaria) offered to coordinate scoring of the "lodging" in pea which is still a high priority trait for breeders.

Considering that Pea is not a mandate crop for CGIAR collections, and in the absence of a focal point, it was decided to form a *Pisum* Genetic Resources Consortium (PeaGRIC), with the aim of creating a single portal for the *Pisum* research community, to develop an international reference collection of *Pisum* and to facilitate agronomic and molecular characterization of the reference collection. The consortium is open to registration and members of the WG were invited to join (reference M. Ambrose).

A similar proposal was under development for a Faba bean Genetic Resources International Consortium (FababeanGRIC) (reference Gérard Duc).

Mike Ambrose was reconfirmed as Chair of the Group and Gérard Duc as Vice-Chair.

Steady progress with AEGIS

During the past six months special attention has been paid to a number of activities within AEGIS that will eventually facilitate the future smooth running of the virtual genebank system.

A Strategic Framework for the Implementation of a European Genebank Integrated System (AEGIS) was published in hard copy and is also available electronically (www.ecpgr.cgiar.org/AEGIS/AEGIS_home.htm).

The draft Memorandum of Understanding (MoU), that will provide the formal basis for the operation of AEGIS, has been further revised, based on discussions with the AEGIS Advisory Committee, as well as with the ECPGR Steering Committee. The MoU is proposed for endorsement at the next ECPGR Steering Committee meeting in Sarajevo (for MOU content details see NL 35, page 5).

A discussion paper on the development of a quality management system for AEGIS has also been prepared in preparation for the meeting of curators and database managers of the four AEGIS model crops during the first week of July 2008 in Radzików, Poland. Participants will discuss a draft methodological framework and a draft data collecting tool for the assessment of operational costs of genebanks before and after the implementation of AEGIS. An economist from International Food Policy Research Institute (IFPRI), one of Bioversity's sister centers, will assist developing the framework and tool.

The AEGIS Coordinator also participated in a number of meetings, to further increase awareness on AEGIS, to discuss the less well understood principles with participants and to receive feedback on the practicability of some of the concepts.



Joint ECPGR-DIVERSEEDS-BIOVERSITY workshop

The Thematic Network on Inter-regional Cooperation of the European Cooperative Programme for Plant Genetic Resources (ECPGR), in close collaboration with the EC funded project Diverseseeds (Networking on conservation and use of plant genetic resources in Europe and Asia) and Bioversity International, organized a joint workshop of crop genetic resources Regional Networks at Bioversity in Rome, from 3-5 December 2007. The aim of the workshop was to assess the changes in the environment (FAO International Treaty (IT), Global Crop Diversity Trust, etc.), in which the Networks operate, revisiting existing Network concepts and strategies, elaborating suggestions for new or improved approaches of regional genetic resources Networks and identifying formal channels of communication and cooperation among Regional Networks.

A new role for the Regional Networks

The meeting recognized the added values and benefits to partners related to conservation and use of PGR that are being provided by Regional Networks. These include capacity development, developing common regional information systems, providing a discussion forum for access and benefit sharing arrangements/agreements, providing an environment for formal and informal cooperation and ensuring that the weakest partners in a given region become actively involved in the global system.



Participants in the joint ECPGR-DIVERSEEDS Inter-regional workshop. Photo: F. di Paolo, Bioversity International, Rome, Italy

Strong Networks as the interface between national and global systems

The alignment of the Regional Networks' objectives towards a contribution to the creation of the global system is seen as an important step in best positioning the Networks to be visible in the global arena and to receive support from international agencies and instruments. Coordination of the Networks' activities at the global level would help the Networks to focus on global system objectives; to take advantage of successful ideas, tools and mechanisms developed by individual Networks; to identify common interests and create synergies by collaborating across borders; and to facilitate the IT ratification process in countries through the sharing of knowledge and experience from countries that have already ratified the IT.

Recommendations

It was recommended that an appropriate forum be established to facilitate coordination among the Networks as part of the global system. With the aim of ensuring effective and sustainable Regional Networks and to increase their visibility and recognition in the regional and global context, it was recommended that the Regional Networks: participate in FAO Commission and the Governing Body meetings; sharpen strategies towards breeding and development (linking conservation and use and research); and link up with the Global Forum on Agricultural Research (GFAR), the Global Plan of Action (GPA) development process and nature conservation programmes.

The executive summary of the meeting is available at the ECPGR website (www.ecpgr.cgiar.org) under Networks.

DIVERSEEDS First International meeting

DIVERSEEDS is a scientific networking project, supported in full by the EC, with the objective of improving cooperation on conservation and use of plant genetic resources between Europe and Asia. The first international meeting was held at Bioversity on 4-7 December 2007. Participants from all Diverseseeds partner countries attended a roundtable with Secretariat staff of the Governing Body of the International Treaty at FAO on Treaty related matters. During the second day the selection of key issues for inter-regional dialogue (Europe-Asia) was discussed and during the afternoon the participants joined the ECPGR-DIVERSEEDS-Bioversity International Inter-regional Workshop.

The third day consisted of a technical workshop; the key issues identified were addressed in three working groups, which reported back to the plenary. On the last day the next steps for the inter-regional cooperation on priority issues were discussed, as well as public awareness items, including a short documentary film, as well as plans for the second year, such as an open online e-conference. For more information see: www.diverseeds.eu

Second Inter-regional Cooperation Network meeting

The Inter-regional Cooperation Network Coordinating Group met for the second time on 6 December 2007 in Maccarese, Italy, at Bioversity International headquarters, to review the outcome of the workshop on crop genetic resources networks and its impact on the ECPGR Inter-regional Network and to make plans for Phase VIII of ECPGR.

The Regional Networks' workshop held on 3-5 December (see article above) identified a possible new role for the ECPGR Network on Inter-regional Cooperation in the near future. In particular, it seemed that "sharing of responsibilities" should receive the highest priority. It would be a natural role for the ECPGR Network to transfer to other regions the same view that is prevailing in Europe with regard to the sharing of tasks, material and information. Facilitating and promoting the ratification and implementation of the International Treaty (IT) could therefore be an area of relevance, also considering that when a larger number of countries implement the IT, this will also have an impact on the European region. Along these lines, a contribution of 10 000 euro, recently offered by Germany, will be used to organize an inter-regional network meeting to bring together experts from Europe and the respective region, to exchange experiences on how to make germplasm available to the Multilateral System and how to facilitate the use of the Standard Material Transfer Agreement (sMTA) within a country.

Exchange of information across the Networks, with special reference to the various ongoing Network projects and activities, was highlighted as a constant need. A role was identified for ECPGR in establishing a web portal that could offer information on ongoing activities within the Networks and therefore constitute a platform for finding partners for cooperation. It was agreed to explore which European institution could provide such a Web portal. At the same time, the ECPGR Secretariat will compile, with the help of the Bioversity Regional offices, a list of contacts of the PGR Regional Network coordinators and will maintain this list on the ECPGR website.

Another useful area for cooperation highlighted in the preceding workshop, was "in situ and on-farm conservation and management", which is an area where Europe could benefit from the experience of other regions. It was noted that "on-farm conservation" in many cases would correspond to "participatory plant breeding" in developing countries. It could therefore be a strategic area to attract donors that would be interested in linking conservation and development through use. It was agreed that this item should be highlighted for further consideration, especially in collaboration with the ECPGR In situ and On-farm Conservation Network.

A full report of this meeting is available from: www.ecpgr.cgiar.org/Networks/Inter_reg_coop/inter_reg_coop.htm

Cereals Network meets in Turkey

The Second meeting of the Cereals Network took place on 21-24 April 2008 in Foça, Izmir, Turkey, site of the ancient Ionic Phokaia, renowned for its clean sea waters and for hosting a colony of monk seals. The meeting, organized with the support of the Aegean Agricultural Research Institute (AARI), Menemen, gathered 61 members from 33 countries and a total of 80 participants. Ukraine was represented as a full ECPGR member for the first time. Observers from CIMMYT, ICARDA and from Morocco and Russian Federation also attended. Helmut Knüpfper, Germany, guided the meeting in his capacity of Cereals Network Coordinator.

The three Cereals Working Groups (*Avena*, Barley and Wheat) reviewed their progress in the participating countries during Phase VII of ECPGR, focusing on organizational structures, facilities and methods used, description of the collections, germplasm distribution, specific use of accessions, documentation and core collections. They also redefined their priorities for Phase VIII. A number of issues raised by the working groups will be dealt with jointly at the Network level. Network activities related to Rye, Triticale, Maize and Minor cereals were also discussed, with presentations of invited experts and review of the status of existing ECPGR databases. The participants were also informed about Crop

Strategies developed by the Global Crop Diversity Trust and other issues of relevance to genetic resources of cereals.

The *Avena* Working Group (WG) reported progress in the collection of endangered wild species (*A. insularis* in Italy, *A. murphyi* and *A. prostrata* in Spain). It benefited from three EU-funded projects, covering characterization and evaluation of European *Avena* genetic resources, development of *in situ* management plans for wild relatives and screening of oat material for quality in human consumption. Attention in the near future will focus on regeneration of wild species and *Avena* genetic stocks.

The Barley WG recognized the strong need for the updating and sustainable maintenance of the European Barley Database (EBDB), not only as a prerequisite for the AEGIS process, but also as a one-stop-shop for information for researchers and breeders. It agreed to review the level of utilization of the Barley Core Collection and of results obtained. It recommended using the Svalbard Global Seed Vault for safety-duplication of barley accessions. A list of wild relatives in Europe for *in situ* conservation planning will also be compiled.

In the Wheat WG, the European Wheat Database recently improved its functionality with links to pedigree and allele databases. The presence of characterization data is of high value, but the countries were requested to provide their data more actively.

The Cereals Network demonstrated throughout the meeting that there was significant interest and readiness in taking the AEGIS ideas and principles forward. All WGs agreed that an up-to-date Central Crop Database was a necessary prerequisite for starting the AEGIS process for their respective crops. The *Avena* WG made steps towards the identification of Most Appropriate Accessions (MAAs) and discussed the methodology to create a European *Avena* Collection. The Barley WG

agreed to start by updating the European Barley Database and discussing criteria for the selection of MAAs. The Wheat WG suggested that genebank managers should start preparing lists of MAAs as potential AEGIS accessions. The AEGIS Coordinator clarified a number of issues regarding the principles and philosophy of AEGIS that may have been interpreted in different ways.

The need to ensure that precise genetic stocks are sustainably maintained was brought into the discussions from the Crop Strategies on Wheat, Barley and Oats. The WGs on Wheat and Barley will assess existing European collections of genetic stocks in the public domain, since they are important resources for breeding and for crop plant research. Capacity building is essential since cytogenetic skills are required if genebanks take on the commitment to conserve genetic stocks. A thematic meeting on precise genetic stocks on the Network level is planned for Phase VIII.

Emphasis was also put on pre-breeding, specifically targeting climate change and plant responses to biotic and abiotic stresses, but also the nutritional value of crops. The Barley WG will lead an initiative on the Network level, thus reviving a pre-breeding initiative with FAO, starting with a thematic meeting in the near future with the intention of developing joint projects.

The Network agreed that all three WGs should be given equal priority during Phase VIII of ECPGR, and a justified request to proceed in this way will be submitted to the ECPGR Steering Committee.

All the Chairs and Vice-Chairs were reconfirmed and Jens Weibull (Sweden) was elected as new Vice-Chair of the *Avena* WG. A report of the meeting will be made available on the ECPGR website.

An interesting excursion to AARI in Menemen and the historical site of Bergama (Pergamon), where also many crop wild relatives were found to grow, concluded the meeting.



Hordeum spontaneum.

Photo: H. Knüpfper, IPK, Gatersleben, Germany

EPGRIS3 on Multilateral System registration procedures and ECCDB-EURISCO relationship

As part of the EPGRIS3 project (www.epgris3.eu), a self-funded initiative for PGR Documentation in Europe (see issue 34, page 9), a meeting was held on 13-14 March 2008 at the Central Office of the Federal Agency for Agriculture and Food (BLE) in Bonn, Germany. Three project activities were on the agenda, specifically to discuss opportunities arising from the existing plant genetic resources information infrastructures in Europe for: 1) the registration procedure for European material under the Multilateral System (MLS) of the International Treaty for Plant Genetic Resources (IT); 2) the reporting procedure under the Standard Material Transfer Agreement (SMTA) of the MLS of the IT for European providers; and 3) the relationship between EURISCO

and the European Central Crop Databases (ECCDBs). The EURISCO Advisory Group and other EPGRIS3 activity partners (participation in EPGRIS3 activities is open to self-funded experts who can offer a contribution to the specific activities) participated in the meeting.

A proposal was made to adopt new descriptors in EURISCO that would enable the registration, through the European National Inventories, of accessions that are part of the MLS and of those that are part of AEGIS (see Figure 1). The EURISCO catalogue would then serve as a regional interface for Europe to report on material included in the MLS to the Treaty Secretariat.

Discussions also focused on suitable additional descriptors that would enable EURISCO to serve as a regional infrastructure to record germplasm transactions taking place in Europe and therefore to serve as a reporting mechanism on concluded SMTAs to the IT Secretariat.

Technical issues were thoroughly discussed and suitable solutions proposed. The possible implementation of these mechanisms will be tabled for discussion at the ECPGR Steering Committee meeting in September 2008. If agreed, and based on its future outcomes, this ECPGR

initiative could be reported to the Governing Body of the International Treaty as an example that could be used also by other regions.

The issue of the relationship between EURISCO and the ECCDBs was introduced by a presentation illustrating the discrepancies among these two documentation systems. The status of development of the 60 existing ECPGR databases was also reported, showing that ECCDBs contain data for nearly 750 000 accessions, but only 12 databases (20%) contain partial sets of characterization data. It was noted that ECCDBs have different roles from EURISCO and obtain data from different sources. This would explain some of the data discrepancies (i.e. historical data are sometimes included in ECCDBs; only a selection of national data are included in EURISCO, at the discretion of the individual countries). It was agreed that the objectives of the ECCDBs will need to be more precisely defined in order to better serve the needs of the ECPGR Working Groups. It could also be useful to define ECPGR quality criteria for ECCDBs, as well as to envisage formal agreements between ECPGR and the European institutions hosting the databases, ensuring an appropriate maintenance and update. Under the leadership of Theo van Hintum (CGN, the Netherlands), EPGRIS3 activity partners agreed that the best way forward would be to draft a "Vision paper for a European PGR information and documentation landscape". This document could serve as a foundation to create a consensus within the ECPGR Networks, in order to move in a common direction for the establishment of a more efficient PGR documentation and information environment in Europe. A session of the next ECPGR Steering Committee meeting will be dedicated to discussing documentation issues along these lines.

MLS and AEGIS registry status descriptors for EURISCO	
MLS Status	(MLSSTAT)
The coded status of an accession with regards to the Multilateral System (MLS) of the International Treaty on Plant Genetic Resources for Food and Agriculture. Provides the information, if the accession is included in the MLS.	
0 – not part of the MLS	
1 – part of the MLS	
If the MLS status is unknown, the field stays empty	
AEGIS Status	(AEGISSTAT)
The coded status of an accession with regards to the European Genebank Integrated System (AEGIS). Provides the information, if the accession is conserved for AEGIS.	
0 – not part of AEGIS	
1 – part of AEGIS	
If the AEGIS status is unknown, the field stays empty	

Figure 1. Proposed descriptors to register the MLS and AEGIS accessions in the EURISCO catalogue.

11th Steering Committee meeting planned in Sarajevo

Phase VII of ECPGR (2004-2008) is coming to a close. The 11th ECPGR Steering Committee (SC) meeting, planned for 2-5 September 2008 in Sarajevo, Bosnia and Herzegovina, will be the occasion for the Committee to visit the latest country to have recently joined the Programme, thus becoming the 40th member of ECPGR.

The SC will review the progress and achievements of the nine Networks and will set the scene for Phase VIII of ECPGR. For the first time, Networks will submit targeted project proposals with expected outputs and milestones and the SC will allocate specific Network budgets comprising funds for meetings (75%) and for project activities (25%). All activities will focus on the ECPGR priorities for Phase VIII, as defined in the 10th meeting held in Riga in 2006: 1) task sharing (AEGIS) and capacity building; 2) characterization and evaluation; 3) *in situ* and on-farm conservation and management; and 4) documentation and information.

Plans for the future implementation of AEGIS will be one of the highlights of the meeting. A draft Memorandum of Understanding for the establishment of AEGIS will be presented for endorsement by the Committee. An entire session of the meeting will be dedicated to documentation and information and a background document proposing a "Vision for a European PGR Information Landscape" will be tabled for discussion. Other highlights will be the discussion on a draft ECPGR strategy for collaboration with the EU, the presentations by the Global Crop Diversity Trust on areas of future collaboration and the address by the representative of the Russian Federation to the meeting, aimed at strengthening collaboration of ECPGR with this non-member country. Overall, this meeting is rich in expectations for the definition of a constructive future direction of ECPGR.

EURISCO Advisory Group meeting



The Fourth meeting of the EURISCO Advisory Group (EAG) was held on 12 March 2008, with the participation of the EAG members, and the ECPGR and EURISCO Coordinators. The participants attending the EPGRIS3 meeting to be held on the following two days (see article, page 9) were also welcome to intervene in the discussions. The meeting was held and organized by the Central Office of the Federal Agency for Agriculture and Food (BLE) in Bonn, Germany.

The objectives of the meeting were to analyze the status of EURISCO and to make plans for its technical and organizational progress. At the meeting several presentations were made and from the discussions six decisions were attained.

Decision 1

It was agreed that a footnote should be included in the website and in the Memorandums of Understanding (MoUs) that are in the process of being renewed. The footnote will explain all the categories of Plant Genetic Resources that are expected to be in EURISCO, specifically including ornamentals and genetic stocks, such as *Arabidopsis* research material

(and excluding forest genetic resources).

Decision 2

It was agreed that a statement of objectives would be included in the MOUs and on the Web, indicating which users EURISCO aims to serve.

Decision 3

It was agreed that the EURISCO Team should propose a number of indicators of quality and success for EURISCO and submit this list for comments to the EURISCO Advisory Group.

The EAG agreed that the 2008 workplan should focus on the following list of important actions for EURISCO, to be addressed, in some cases, through the EPGRIS3 initiatives and by the respective activity leaders:

1. Continue supporting National Inventories (NIs) and National Focal Points (NFPs):
 - a. The remaining countries should be included, giving Turkey priority, considering its large number of accessions, followed by: Albania, Belgium, Croatia, Malta and Moldova;
 - b. A manual for the National Inventory Focal Points needs to be prepared, explaining how to compile a National Inventory.
2. Seek integration into EURISCO of additional mechanisms in support to the International Treaty:
 - a. Standard Material Transfer Agreement (sMTA) reporting procedure (EPGRIS3 activity);
 - b. Registration procedure for the Multilateral System;
3. Intranet-uploading mechanism to be revised and improved;
4. Improve access to accurate information in EURISCO:
 - a. Taxonomy data. Need guidelines on how to resolve the issue of taxonomy (EPGRIS 3 activity);
 - b. Need to re-run the taxonomy checker and continue providing reports of errors to the NFPs, for them to

forward these to the individual contributing genebank curators to improve the quality of their original data.

5. Further improve the website management and search components (highest priority);

Decisions 4 and 5 focused on the preparation of the 2008 workplan and a draft workplan with concrete actions for 2009-2011, on the basis of the above list of important actions. The 2009-2011 workplan will be circulated through the ECPGR Documentation & Information Network Coordinating Group (NCG), to be submitted as a proposal for Phase VIII to the ECPGR Steering Committee.

Decision 6 was related to the role and future of the EAG, which has agreed to hand over its EAG function to the Documentation & Information NCG. The chair of the Group will draft the new terms of reference for this group, operating also as EAG and including the governance of EURISCO. These documents will be circulated to the new NCG and to the ECPGR Secretariat for comments and will be included among the background documents for the next ECPGR Steering Committee meeting for endorsement.

At the closing of the meeting, the Chair of the session reiterated the Group's satisfaction on the achievements and developments of the EURISCO activities and catalogue, and congratulated the EURISCO Team on the new website. Words of encouragement to keep up the good work were pronounced.

The minutes of the EAG meeting can be consulted on-line (www.ecpgr.cgiar.org/Networks/Info_doc/bonn_minutes_final.pdf). The new website and its search functionalities will soon be available for feedback.

For further information on EURISCO, please contact Sónia Dias (s.dias@cgiar.org).



New home page of the EURISCO website.
Image: Biodiversity International

European genetic resources of *Cynara* spp - the CYNARES Project

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An inflorescence of the
"Pertosa" variety.
Photo: M. Pagnotta, UNITUS,
Viterbo, Italy

Artichoke (*Cynara cardunculus* var. *scolymus*) is an economically important vegetable crop in Europe. It is particularly important in Italy, which leads the current global production of artichoke (50 130 ha), followed by Spain (18 600 ha) and France (10 200 ha). *Cynara* spp. genetic resources are native to the southern Mediterranean which is considered the origin of its domestication.

The plant is used not only as a food but also medicinally: it has anticarcinogenic, anti-HIV, antioxidative and choleretic properties. Its wild progenitor, the wild cardoon (*C. cardunculus* var. *sylvestris*), gave rise to two crops: the artichoke and the cultivated cardoon. While the former is vegetatively propagated, the latter is propagated by seeds. The existence of this complex primary gene pool, containing the wild progenitor and the two crops showing different reproductive strategies, is unique among crop species, making the study of gene pools and germplasm differentiation particularly interesting for the utilization of *Cynara* genetic resources.

Within this framework, the AGRIGEN-RES 063 CYNARES project is financed by the European Union, beginning in July 2007 and ending in June 2011 (see Figure 1). The project is coordinated by the University of Tuscia (UNITUS), Italy, with the participation of Italian, French and Spanish partners, and with Bioversity International as a member of the Steering Committee.

The project aims to collect, conserve, characterize, and utilize potential *Cynara* diversity, in accordance with the Convention on Biological Diversity (CBD), the FAO Global Plan of Action (GPA) for PGRFA, and the International Treaty (IT). The specific aims of the project are:

- **Germplasm collection and rationalization of *Cynara* germplasm**, led by the Instituto Técnico y de Gestión Agrícola, S.A. (ITGA), Spain. Already available in existing collections are 196 lines of artichoke, 34 of cardoon and 55 of wild cardoon; additional material is also being collected.

The germplasm is currently being distributed among the partners and duplicated by them in order to have a complete series in each of the European countries involved in the project.

- **Plant and DNA conservation and vegetative multiplication**, led by the National Research Council (IGV-CNR), Italy. The germplasm will be conserved in field genebanks and seed stores (where applicable); a DNA bank is being established to facilitate collection screening. The most promising lines will also be conserved *in vitro*.

- **Germplasm characterization** is being undertaken by UNITUS, Italy with emphasis on the establishment and sharing of standardized protocols of analysis. The germplasm is being evaluated at the morphological, molecular and biochemical level. Biochemical assays of important nutraceutical compounds

will be undertaken and the differences assessed in the different varieties.

- **The constitution of a European research network on *Cynara***. The CYNARES network will be developed through the above actions and will also include the development of an interactive web-based documentation catalogue, led by the National Agency for New Technologies, Energy and the Environment (ENEA), Italy. A website with all the germplasm data and protocols will be established. The network will focus on the dissemination of information obtained during the project and value-adding to *Cynara* accessions/varieties to promote their utilization and on-farm conservation. This will be supported by the development of a website as well as field activities. The implementation of the network will be led by Bretagne Biotechnologie Végétale (BBV), France.

Assessment of the nutritional and pharmaceutical value of artichoke, through its biochemical characterization, will assist private operators, national and European organizations promoting the value of artichoke for human health. Knowledge of the main characteristics and the fingerprinting of the collected genotypes will be extremely useful for their utilization as pre-breeding resources or directly in farmers' fields. The results of the project will include the registration and patenting of the germplasm, which will be made available to farmers through extension services of the participating countries. Each country will be responsible for conserving the germplasm originating in those countries, although the DNA will be stored at the DNA Bank in Bari, Italy. These results will also contribute to an overall conservation strategy in the participating countries, incorporating protection of the wild species, plant cultivated populations and traditional crop varieties where they have evolved, together with their preservation in genebanks.

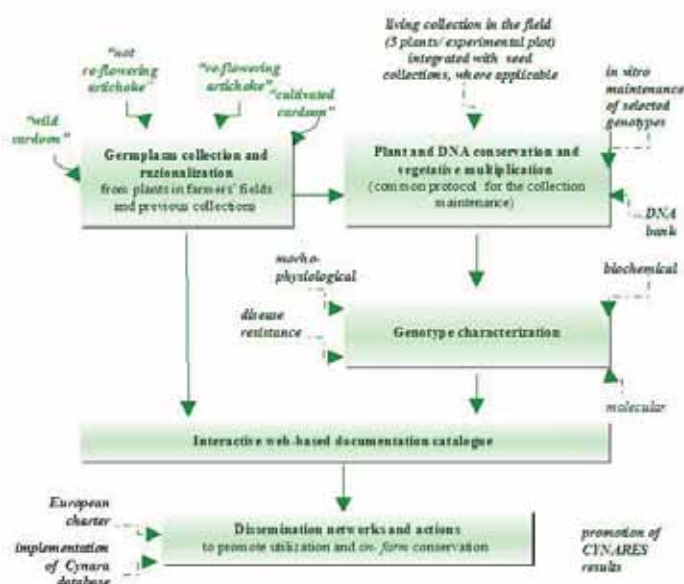


Figure 1. European genetic resources of *Cynara* spp (the CYNARES project).

Bridging the gap between agricultural policy and health

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Above: Women growing African leafy vegetables for market in Senegal.
Photo: T. Johns, Biodiversity International

Below: Berries of *Carissa edulis*, Kenya. The fruit is a rich source of vitamin C, it is an important traditional food in rural areas and has potential as a crop.
Photo: P. Maundu, Biodiversity International



Deficiencies in vitamins and minerals pose limited concern in Europe. While conditions such as diabetes, cancer and cardiovascular disease are linked with diets low in diversity of fruits, vegetables and other quality foods and over-abundant in calories, we tend to associate malnutrition with Sub-Saharan Africa (SSA) or other developing regions. As changing food habits, sedentary lifestyles and obesity lead to new health problems all over the world, a rich heritage of traditional foods and cuisine offer common solutions in both Europe and Africa.

Biodiversity International works with its partners to revitalize the use of agricultural biodiversity to improve diets and provide economic opportunities for urban and rural populations. In Europe Biodiversity is spearheading a project on the conservation of small berries such as *Ribes* (current), *Rubus* (raspberry, blackberry), *Lonicera* (blue

honeysuckle), *Sorbus* (rowan, mountain ash) and *Vitis* (grape) in collaboration with the N.I. Vavilov Institute in St. Petersburg and their evaluation for micronutrient, antioxidant and antidiabetic properties with the Centre de Recherche Public Gabriel Lippmann (CRPGL) in Luxembourg (see NL35, page 7).

Likewise programmes underway in SSA include evaluation of the composition of underutilized vegetables, fruits, legumes and coarse cereals, but also recognize the urgency for their promotion, production support and market development. In September 2007, Biodiversity and the West African Health Organization (WAHO)—a specialized agency of the Economic Community of West African States (ECOWAS)—organized a two-day workshop in Burkina Faso that, for the first time, brought together the health and agriculture sectors to discuss the gradual abandonment of local traditional foods and the

renewed role they must play in improving nutrition and health. More than 40 representatives from international, regional and national institutions participated, including farmers' groups.

Several priority issues to be addressed jointly by the health and agricultural sectors were identified. Foremost is the inventory and scientific evaluation of all the traditional and indigenous crops available in the region, and participants made a strong plea for funds to carry out this research. Information about the nutritional benefits of both cultivated and wild-gathered species will provide a powerful tool for raising awareness of and increasing demand for nutritious traditional foods. The workshop concluded with the adoption of national and regional advocacy action plans.

Such was the impact of the meeting that shortly thereafter, Benin convened a national stakeholder meeting involving the agriculture, health and other development sectors with the aim of addressing some of the issues raised during the workshop. Biodiversity is having similar success in facilitating national policy discussions in Kenya and has organized promising traditional food working groups in Tanzania, Uganda and Senegal.

In Africa the stark consequences for a large poor population eating simplified diets dependent on imported staples such as rice, wheat, sugar and vegetable oil underlines the impact that promotion of local and culturally-acceptable traditional crops can have on the livelihoods of small-scale farmers and marketers while adding essential diversity to people's diets. In Europe producers and consumers do have more options, but traditional crops likewise offer important economic, cultural and health benefits.

Convention on Biological Diversity (CBD)

The 9th Conference of the Parties (COP9) of the Convention on Biological Diversity (CBD) was held in Bonn, Germany during the second half of May. This meeting was especially relevant for those concerned with agricultural and forestry genetic resources because the CBD programmes of work in both areas were reviewed at the Conference together with the work on implementing the Global Strategy for Plant Conservation. As well as strong country delegations with some key genetic resources experts, seven participants from Biodiversity International attended part or all of the Conference.

Among the major achievements of COP9, the Earth Negotiations Bulletin (www.iisd.ca/biodiv/cop9/) cited the adoption of a roadmap for the negotiation of an International Access and Benefit Sharing Regime, the adoption of scientific criteria and guidance for marine areas in need of protection and the adoption of a resource mobilization strategy for the Convention.

The debate on biofuels had a very large impact on the discussions on the agricultural biodiversity programme of work. The final decision on agricultural biodiversity (biofuels were dealt with in a separate decision) emphasizes the importance of adopting an ecosystem approach, includes a section on development of appropriate climate change adaptation and mitigation strategies, and invites parties to strengthen capacity for implementing the work programme and further develop methods for assessing and monitoring status and trends in agricultural biodiversity.

Forest biodiversity discussions were also influenced by concerns over biofuels and by the vigorous debate over release of genetically modified (GM) trees. Other important issues discussed were land tenure, control of trade in illegal timber and forest products and the expected impacts of climate change.

During COP9, Biodiversity International launched two major new initiatives. The first – in collaboration with five countries and a number of international agencies (Armenia, Bolivia, Madagascar, Sri Lanka, Uzbekistan, BGCI, BLE, FAO, IUCN, UNEP-WCMC) – was the release of a new source of information to support the conservation and use of crop wild relatives (www.cropwildrelatives.org). This portal contains information from the countries and the international agencies on crop wild relatives species distribution, conservation and use. The second initiative was the launch of the major new public awareness initiative on the importance of agricultural biodiversity "Diversity for Life" which will run through to 2010 with activities in many countries (for further information on the "Diversity for Life" campaigns, please contact Ruth Raymond, Head of the Public Awareness Unit: r.raymond@cgiar.org).

From NGB to NordGen

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The banner of the Nordic GENEResources publication, depicting livestock, crops and forest trees, which are all part of NordGen's mandate.

Photo: Nordic Genetic Resources Center (NordGen), Alnarp, Sweden

The Nordic countries have joined forces to conserve the biological cultural heritage of the region for several decades. In January 2008 the Nordic Genetic Resource Center (NordGen) was established as an institution under the Nordic Council of Ministers and forms the core of Nordic cooperation on plant, farm animal and forest genetic resources. The work previously performed by the Nordic Gene Bank (NGB), Nordic Gene Bank Farm Animals (NGH) and Nordic Council for Forest Reproductive Material (NSFP) are now continued and further developed through NordGen for all three sectors. Jessica Kathle is the managing director of the new institution.

NordGen - Plants

In 1979 the former Nordic Gene Bank was founded as the centre for conservation, characterization and utilization of plant genetic resources in the Nordic countries.

NordGen - Plants conserves and documents the genetic variation of Nordic plant species useful for agriculture and horticulture. The material stored in the genebank is available for plant breeding, research and any other *bona fide* use. Its activities also foster rational cooperation between the Nordic countries in their efforts to use plant genetic resources for plant breeding and crop improvement research. NordGen - Plants participates in international cooperation on the conservation and use of plant

genetic resources and also serves as a technical advisor for the Nordic countries in connection with international negotiations.

NordGen has a seed store containing more than 32 000 seed samples. About 7 000 of these are breeding varieties, old landraces and wild populations of cultivated crops that have been collected over the years in the Nordic countries. The rest are a special research collection developed by Nordic plant scientists over the last century. Since NordGen - Plants' mandate has been plant genetic resources of Nordic originals; it should not have any duplicates in common with other European collections and can be considered to have been rationalized from its beginning. NordGen - Plants is situated in Alnarp, Sweden, with 30 employees.

Svalbard Global Seed Vault

In order to minimize the risk of losing important genetic material, a long-term safety seed storage, the Svalbard Global Seed Vault (SGSV), in the permafrost of Svalbard, offers all the worlds' seedbanks a safety-duplication storage facility (see article, page 15). Not only is NordGen storing the Nordic seed samples, but it is also responsible for the operation and management of the SGSV, as part of an agreement with the Norwegian Ministry of Agriculture and Food and the Global Crop Diversity Trust.

NordGen - Farm Animals

The former Nordic Gene Bank Farm Animals was established in 1984 to raise the level of awareness regarding the importance of the conservation and sustainable development of farm animal genetic resources. Another important task was to facilitate Nordic cooperation between various stakeholders in the fields of genetic resource management, business development and policy-making. NGH also worked to be an active partner with international breeding and genetic conservation organizations.

These main tasks will be continued under NordGen, with the added value of a better Nordic cooperation, including synergy effects of common administration, information activities and an even broader focus on international policy-making and public awareness. NordGen - Farm Animals is situated in Ås, Norway, with three employees.

NordGen - Forest

The Nordic Council for Forest Reproductive Material (NSFP) was established in 1970 and was formally approved by the Nordic Council of Ministers in 1995, to promote and improve the supply of plants and seed to forestry in the Nordic countries. Seed and plant supply includes practical and administrative aspects, genetics and breeding, as well as the development of policy issues in regards to

genetic resources. The Nordic cooperation in conservation and sustainable development of our forests now continue under NordGen, situated in Ås, Norway. Most of the NordGen - Forest work is organized through workshops and network meetings, with three half-time employees.

New approach

NordGen has a new approach to working with genetic resources, with more focus on international networks and cooperation, a broad information strategy and stronger emphasis on sustainable use. Examples of the first focus area are NordGen's projects on genebank activities in Central Asia, South-East Africa, the Baltic and Balkan countries, as well as its central role in developing the Nordic strategy for regulations of global exchanges of farm animal genetic resources. With regard to its information strategy, NordGen will use SGSV as an opportunity to reach policy-makers and the general public to raise awareness on the importance of high diversity within genetic resources and thereby increase the demands for high ethical standards in commercial breeding programmes. NordGen wants to secure diversity through both an *ex situ* and *in situ* conservation strategy and a strategy of utilization in direct collaboration with commercial companies, farmers, museums and small-scale users.

Svalbard Global Seed Vault opens

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The polar nights had just ended when the Svalbard Global Seed Vault officially opened on the 26 February this year. The Norwegian Prime Minister, Jens Stoltenberg, and Nobel Peace Prize-winning environmentalist Wangari Maathai placed the first seeds in the vault during the opening ceremony. The project has received unprecedented media coverage in the field of plant genetic resource science and policy, and it has already gained a position as a global icon for biodiversity conservation.

The purpose of the Seed Vault is to be the ultimate security net for the world's plant genetic resources for food and agriculture. The project will play an important role for long-term safeguarding of PGRFA as part of a dynamic network of *ex situ* collections. It offers free back up storage for seed accessions held in conventional genebanks around the world.

The Norwegian Government established the Seed Vault as a service to the world community. The management and operation of the Seed Vault is carried out according to a three-party agreement: It is owned and administered by the Norwegian Ministry of Agriculture and Food; the Global Crop Diversity Trust provides support for the ongoing operations, as well as funding for preparation and shipment of seeds from developing countries and in-trust collections held by International Agricultural Research Centres; the Nordic Genetic Resource Center (NordGen) manages the facility. An international advisory council (including representatives of the Governing body of the International Treaty, of FAO, CGIAR, the Trust, etc.) oversees the management and operation.

The building and its location are spectacular. Nevertheless, the facility itself is based on appropriate and cost-effective

architecture and technology. The Seed Vault is located on the arctic archipelago Svalbard at 78 °North. Three vault chambers sit at the end of a 125-metre tunnel carved out of a mountainside. The vaults are maintained at -18 °C by means of a locally powered 10 Kw compressor, while the permafrost ensures a back up temperature at a maximum of -4 °C. The Seed Vault is located just 1,5 kilometers from the airport of the Norwegian settlement "Longyearbyen" and the seed boxes are scanned there before transport to the vault. The facility is kept under surveillance by means of motion, gas and temperature detectors. Before shipment to Svalbard the depositors must submit a minimum of information (descriptors) about each seed sample in the box. This information is both enclosed in the boxes and made publicly available through the "Seed Portal" at www.nordgen.org/sgrsv. As an example there are already more than 72 000 samples of *Oryza* (rice and wild relatives of rice) from more than 100 countries stored in the Seed Vault.

All holders of PGRFA are welcome to use the Seed Vault for back up of their collections. NordGen liaises with potential depositors with respect to the material and schedule for deposition. A Standard Deposit Agreement that lays

out the terms and conditions for depositing seed samples in the Seed Vault is concluded with all depositors. The act of depositing seed samples in the Seed Vault does not affect property rights to the material. Apart from the minimum set of information that must accompany the samples, "black-box" conditions apply and only the depositor will be able to withdraw their own samples. On the other hand the depositors are required to distribute samples of their own stocks' samples of accessions in line with the principles laid out in the International Treaty on Plant Genetic Resources for Food and Agriculture.

The initiative has intergovernmental endorsement by the FAO Commission of Genetic Resources for Food and Agriculture. It is created in the context of the International Treaty, which provides for countries to cooperate to promote the development of an efficient and sustainable system for *ex situ* conservation, and the project aims at close integration with other regional and global efforts such as the European AEGIS project, the SGRP of the CGIAR and the projects managed by the Global Crop Diversity Trust. The Seed Vault aspires to become a cornerstone in this emerging global conservation system.



The entrance to the Svalbard Global Seed Vault.
Photo: M. Tefre, Global Crop Diversity Trust

Why Russia needs the “Doomsday” seed vault

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Seeds are packed and boxed for shipment to Svalbard.
Photos: The International Institute of Tropical Agriculture (IITA), Nigeria

Most scientists working with genetic resources know the name of Nicolai Vavilov, the founder of a global PGR collection in Russia. The purpose of this collection was to supply the country's population with food. Foreign colleagues valued the contribution of Vavilov and his followers most highly. “None other European country, but Russia carries on such a large-scale work accumulating and studying wild plants from the whole planet for practical utilization and breeding purposes. Even if the Russians manage to fulfil only a part of these grandiose plans, their contribution to the world's plant science will still be enormous” (Grave, Lawrence, 1934).

All subsequent activities of the Vavilov Institute justified its founder's policy for the utilization of Russia's collection-PGR collected on the five continents are the world's common heritage. The world's community is well aware of VIR's participation in setting up various national collections or of VIR accessions being used in breeding activities in Russia and abroad.

The first genebank, constructed for VIR in 1976, satisfied the requirements for germplasm storage. However, under the cold war, it could not guarantee the collection's safety. Thus, a decision was taken to establish an additional seed store in Yakutia under permafrost conditions, but this plan was hampered by socio-political changes in the country.

When, in the mid 1980s, Norway proposed to use one of the mines in Svalbard for an international seed depository on the terms of political impartiality and free access, VIR was among the 144 genebanks which expressed their willingness to contribute over 25 000 accessions from the national collection (about 10 000 cereals, 5 000 pulses, 3 000 forages and 7 000 other crops) to the world's community.

Implementation of this venture was delayed by political discussions on germplasm ownership, absence of a sound legal basis and technical constraints of storage opportunities (limited to 300 000 accessions).

Eventually, in February 2008, the Svalbard Global Seed Vault opened its doors for the first parcels of seeds from different national and international genebanks. By now, about 250 000 of almost 4 million accessions have been deposited, but this is just the initial step. This instalment included the first thousand accessions from the Russian collection prepared by VIR's staff and sent in time for the inauguration.

In the complex situation of the modern world there are no warrants that could guarantee complete safety of the global heritage-the priceless *ex situ* collections of PGR accumulated and preserved for many decades by our predecessors, sometimes at the cost of their lives. Our mission is to save this legacy from losses and convey it to future generations intact or even supplemented with new material. Such a noble task may be accomplished only by joint efforts and the “Doomsday” seed vault will serve us as a pledge in achieving this goal.

Safeguarding agricultural heritage in Macedonia FYR for future generations

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Fruits and vegetables in Macedonia FYR were once recognizable for their strong, rich flavour. Whenever foreign guests enjoyed our local meals and salads they were delighted with the smell of “real” food. At least, that was the situation twenty to thirty years ago. Since then, agriculture has taken the leading position in the national economy, production has become more intensive and local landraces have been replaced by hybrids and varieties that are demanded on the world market. Macedonia FYR has thus lost more than 2000 of its traditional varieties and landraces, if we compare today's varieties with those recorded under the USDA project carried out at the end of the 1970s. Only a small

percentage of them can still be found in the remote villages.

The SEEDNet programme, that commenced 2004, created solid conditions for the establishment of an *ex situ* genebank and the introduction of procedures for good genebank management in Macedonia FYR (see article, page18). Thus, Macedonia FYR recently established a National Gene Bank for Plant Genetic Resources (PGR) at the Institute of Agriculture in Skopje. It is equipped with modern capacity for 10 000 accessions, documented and stored long term. The Gene Bank activities involve six institutions active in the collection and utilization of old varieties and crop wild relatives collected from householders

and spontaneous flora. The Institute of Agriculture holds base and active collections, while safety-duplicates will be conserved at the Svalbard Global Seed Vault.

The idea to create a safe storage for the world's germplasm was warmly welcomed by the Government of Macedonia FYR and by its academic society. Conscious of the fact that there will be no second chance to preserve this precious material, the Institute of Agriculture was among the first to communicate with Svalbard. Following signature of the Agreement between the Institute of Agriculture and the Royal Norwegian Ministry of Agriculture, the first shipment of 400 accessions is on its way to be stored for future generations.



Long-term storage conditions at the National Gene Bank.
Photo: M. Sekulovski, Foundation Agro Center for Education (FACE), Macedonia FYR

2008 - International Year of the Potato

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Left: King Frederick II of Prussia checking the potato cultivation of his farmers. Photo: Robert Warthmüller, 1886 (Potato Museum, Munich, Germany).

Right: Andean cultivated potatoes. Photo: CGN, the Netherlands

The General Assembly of the United Nations has declared 2008 International Year of the Potato (IYP), following the proposal of Peru to focus world attention on this “gift of the gods”.

The potato was probably domesticated about 8 000 years ago in the Andes near Lake Titicaca. After wheat, rice and maize, potato is now the world's 4th staple crop. Potatoes produce more food, more quickly, than any other major crop. Besides carbohydrates, the potato has one of the highest protein contents among root and tuber crops and is rich in vitamin C. In temperate climates one hectare of healthy potatoes can yield over 40 tons of fresh tubers and in the tropics farmers can harvest up to 25 tons within 90 days. The potato is well suited to places where land is limited and labour abundant. It can provide income and employment for poor farmers and rural communities.

The goal of the IYP is to raise awareness of the importance of this crop (and agriculture in general) by:

- 1) addressing issues such as hunger, poverty and threats to the environment;
- 2) emphasizing the biological and nutritional attributes of this crop;
- 3) promoting its production, processing, consumption, marketing and trade.

The IYP can contribute to the UN Millennium

Development Goals to reduce poverty, hunger and child mortality, improve maternal health and ensure environmental sustainability. For the latter goal, multiple challenges need to be overcome on plant pests and diseases, yield, climate change and natural resources degradation. The growing human population leads to shrinking farm size and intensified land use in developing countries, causing soil erosion and ecological imbalances with pest and disease outbreaks. The IYP will focus attention on solutions for sustainable production to stop the loss of natural resources. Furthermore, farmers need improved varieties (of potato, as well as other crops), requiring access to genetic resources which need to be conserved and at the same time made available to researchers and breeders in a responsible and equitable way (International Treaty on Plant Genetic Resources).

The Food and Agriculture Organisation of the UN (FAO) wants to promote the potato crop in the fight against hunger and poverty, to supplement grains in the human food basket. The demand for potatoes is already growing in developing countries and there is good potential for increasing production and consumption. The IYP is a first step (www.potato2008.org/en/events/).

One of the major events of the IYP has been the global conference “Potato science for the poor”, organized in Cusco (Peru), including a dialogue with farmers at Cusco's Potato Park (see article on page 17). Another unexpected announcement was (Reuters, 17-04-2008): “More than half a million Bangladeshi troops have been ordered to eat daily 125 grams of potatoes in an attempt to ease the impact of surging rice and wheat prices. Potatoes are not traditionally on the menu for Bangladesh's 140 million people.”

From European history, the first attempts to introduce this crop are known to have occurred in the 18th century, when leaders in France and Germany tried to promote potato production and consumption. However, there was a strong cultural resistance against it. In 1756, Frederick II of Prussia even ordered the cultivation of the potato to be introduced (the so-called “Kartoffelbefehl”). This plant appeared to be the solution to cycles of endemic famine, caused by reduced grain yields during the Little Ice Age, which lasted till the mid 19th century. It enabled Frederick to feed his people and be successful in the following battles. In Northern Europe in particular, smallhold farmers favoured the new crop.

After the Great Irish Famine (1845-1849), caused by the destruction of the potato crop by late blight (*Phytophthora*

infestans), resistance genes were introduced from the Mexican *Solanum demissum*, which were overcome by new strains of the pathogen. Fungicides have enabled potato production so far. Currently, researchers are identifying resistance genes in wild potato species as well as Andean cultivated species. The challenge will be to utilize these genes in a sustainable way.

From about 1925 onwards, potato genetic resources have been collected for breeding purposes and are being maintained in genebanks. However, they maintain only a part of the total available potato genetic diversity. Climate change will affect the countries of origin and will, for example, threaten a part of the natural habitats of wild potatoes. Also cultivation of Andean varieties may become a problem due to delayed rains reducing the growing period. New Andean varieties, adapted to a shorter growing season, may be needed. Also late blight is occurring more often. To prevent the use of pesticides, some Peruvian farmers try to escape the disease by cultivation at higher altitudes.

The IYP should not only promote the potato crop but also raise awareness of the changes to come for its genetic resources.

A reference list is available from the author.

Food for the future

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Potatoes are easy to take for granted, but in fact they are the most important tuber crop in the world. Today, hundreds of millions of people in the developing world depend on potatoes for their survival. And as world food prices for cereals climb ever higher, prices for potatoes stay stable.

China is currently the world's largest producer of potatoes, growing over 70 million tonnes per year. Almost 213 million tonnes of potato are grown to eat every year; more than half comes from developing countries.

Because of the importance of the potato, the United Nations (UN) named 2008 as the International Year of the Potato (IYP), following its nomination to the UN by the Government of Peru. The UN Resolution notes that the potato is a staple food in the diet of the world's population. It affirms the need to focus world attention on the role that the potato can play in providing food security and eradicating poverty.

Needless to say, the International Potato Center, known by its Spanish acronym CIP, is taking advantage of this opportunity to further the cause of the potato. CIP worked



Potatoes are an essential part of the diets of Peruvian farmer families, who maintain potato diversity very much as part of their daily lives. Photo: International Potato Center (CIP), Peru

with the Food and Agriculture Organization (FAO), to co-sponsor a four-day workshop in March 2008 in Cusco, Peru.

Over the past several decades at least three distinctions can be seen in the developing world: an agriculturally based world, a transforming world and an urbanized world, each of which requires different strategies and tactics for agriculture to contribute to development. The conference explored the role of potato research and the development of potato-based systems in these three different worlds.

The first session of the Cusco workshop dealt with increasing potato productivity in agriculture-based countries. These countries feature many farm families that use potato for subsistence or for their connection to the domestic commodity market. Among the priorities for this world is research to support a productivity increase for these farmers.

In transforming countries, potato systems are characterized by very small farms that are intensively managed and by a widening rural-urban poverty gap. The second workshop session looked at ways to sustainably manage intensive systems, achieving productivity increases

while minimizing health and environmental risks.

In a major innovation, the third day involved a visit to the nearby Potato Park, which is a conservation initiative driven by a group of Andean communities. Conference participants interacted with the producers, learning how the farmer-researchers themselves are dealing with issues of genetic diversity, conservation, production, research and indigenous knowledge.

Urbanized countries need to look at increasing social and environmental sustainability of potato-based systems. By definition agriculture plays a reduced role in urbanized countries but it is a sector where comparative advantage is important. In these countries domestic food markets are transformed, especially by the penetration of supermarkets, niche market exports and production specialized by timing, particular varieties or value added products. The challenges here are linking smallholders to the new food markets and providing good jobs.

The results of the sessions form the basis of a long-term strategy for the scientific challenges and opportunities in the future development of this essential crop.

www.cipotato.org

What are Jalca Chips?

"Jalca Chips" are a snack made from Andean native potatoes. The potatoes used to produce this snack are a selection of more than 3,800 ancient varieties domesticated by pre-Inca societies.

The "Jalca Chips" PROJECT

Despite the nutritional benefit of these varieties and their resistance to drought and frost, as well as pests and diseases like potato blight, the production has decreased in recent decades. Farmers are increasingly shifting towards conventional yellow potato varieties that are known by the consumers and that can more easily be sold on the market. So, knowing that there is an increased interest in exotic, tasty and natural products, scientists of the International Potato Center (CIP) began experimenting by making potato chips out of native potatoes. They discovered that many of these varieties were delicious and, because of their high dry matter content, absorbed much less oil than typical potato chips during frying. Thirty varieties were selected for their good frying qualities and attractive shapes and colours, and nutritional value. CIP is currently engaged in a "Jalca Chips" marketing strategy that benefits both farmers and consumers as well as helping to conserve biodiversity. Today there is much hope that the product will enhance the interest in native potatoes in general and provoke new marketing opportunities that will allow small-scale farmers to benefit from future expansion of native potato production. To find out more, consult the Global Facilitation Unit's (GFU) Species brochure on Andean potatoes (www.underutilized-species.org/species/brochures/Andean%20potatoes.pdf).

SEEDNet enters Phase II



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The South East European Development Network on Plant Genetic Resources (SEEDNet) is continuing to strengthen collaboration and develop PGR capacities in southeast Europe, under the coordination of the Swedish Biodiversity Centre and with the financial support of the Swedish International Development Cooperation Agency (Sida).

During the first three years of the SEEDNet programme, significant progress was made in the area of PGR conservation and utilization.

Most of the partner institutions successfully contributed to the establishment of formal national PGR structures and paved the way for political commitment and governmental funding for PGR activities. Several new seed genebanks were established in the region (see article on page 15) and the existing ones were upgraded and equipped to international standards. Field genebanks for fruit and *Vitis* were also established by several partner institutions.

The national crop working groups inventoried and collected PGR material in their respective countries. Sixty institutions/departments were identified as PGR collection holders in the region and 82 individual collections were surveyed for accessions. Almost 12 000 accessions of local landraces were collected, a quarter of which are being regenerated, multiplied and placed under long-term storage. Registration of passport data is on-going and some of the newly established genebanks have also uploaded data to the EURISCO catalogue.

The SEEDNet regional crop working groups prepared

strategies and mandate species lists for their collaborative work and 12 common working group projects were initiated (see NL34, page 15). A new working group on documentation was established by the SEEDNet Regional Steering Committee (RSC) and set into operation at the beginning of 2008.

During the meeting of the SEEDNet RSC in Durrës, Albania on 1-2 April 2008, a workplan for the coming three years was adopted, based on the original objectives of SEEDNet.

Capacity building, work on the genebank collections, increased collaboration and task sharing within the regional working groups will be the main activities during Phase II. Much of this will be achieved through projects carried out in Phase I. Preparation for membership of AEGIS will be an element of all activities.

The RSC stated that SEEDNet had developed into an excellent network and was sound base for future collaboration, which should be maintained. Models for future operation and funding will be elaborated during the second Phase.

www.seednet.nu



Croatian National Coordinator for Vitis, Edi Maletic and a farmer in front of a field genebank with autochthonous *Vitis* accessions, Croatia.
Photo: Eva Thörn, Swedish Biodiversity Centre, Alnarp, Sweden

Vavilov Frankel award winners in 2008

<http://news.biodiversityinternational.org/index.php?itemid=2128>



Biodiversity International's Board of Trustees recently approved the 2008 Vavilov-Frankel Fellowships for research into agricultural biodiversity. Enoch G. Achigan-Dako, of Benin, will study watermelon and its wild relatives with a view to improving conservation and use of genetic diversity. Dorin Gupta, from India, plans to mine the genome of *Medicago truncatula* (barrel medic) in search of markers that can be used in lentil breeding. The Fellowships are intended to advance the careers of young scientists from developing countries by enabling them to carry out relevant, innovative research outside their own countries. The research must also be valuable and applicable to the home country.

Dorin Gupta of the CSK Himachal Pradesh Agricultural University of India, will carry out a study entitled "Mining of *Medicago truncatula* EST-SSRs for use in genetic improvement of *Lens*", looking for markers in medic that could help to identify useful genes in lentil, especially wild relatives. Dorin believes that molecular markers will improve the efficiency of lentil breeding by enabling her and other breeders to target genes of interest. The work will be carried out at the University of Melbourne (Victoria), Australia, under the supervision of Paul Taylor. This Fellowship is supported by the Grains Research and Development Corporation (GRDC), Australia. The Fellow will be co-supervised by Ashutosh Sarker, a lentil breeder at ICARDA, Delhi and Prem Mathur from Biodiversity.



For most people watermelon (*Citrullus lanatus*) is first and foremost a juicy, refreshing fruit associated with hot summer days. In west Africa, however, there are species of *C. lanatus* and its close wild relative *C. colocynthis* that have bitter, inedible flesh. Both species are widely used as sources of proteins, vitamins and oil, and also provide an income for small farmers. Enoch Gbenato Achigan Dako from Benin, PhD student at the University of Abomey Calavi, plans to use molecular tools to characterize various species of melon collected in Africa and elsewhere and use the data to build a better tree of family relationships among the various groups. This will help to conserve and to make use of that genetic diversity, for example by breeding new watermelon varieties with seeds appropriate for infant food, an increasingly important use in sub-Saharan Africa. Enoch's work will be carried out at the Institute of Genetics and Crop Plant Research (IPK, Gatersleben), Germany, under the supervision of Frank R. Blattner. This Fellowship is made with the support of Pioneer Hi-Bred International, Inc. The Biodiversity supervisor will be Yasuyuki Morimoto.

A full press release is available at <http://news.biodiversityinternational.org/index.php?itemid=2128>

FAO Climate Change workshop identifies research questions

In February 2008, FAO and Bioversity International held an international workshop on "Climate Change and Biodiversity for Food and Agriculture". The aim of the workshop was to contribute to the on-going international debates on climate change, food security and biodiversity.

To further examine the knowledge gaps and research questions that were identified at the workshop, the Bioversity-coordinated "Platform for Agrobiodiversity Research" prepared a synthesis document, that is available from the Platform's website (www.sgrp.cgiar.org/CurrentSGRPInitiatives/Platform.htm). The document provides a basis for further discussion on the knowledge needed and research that should be undertaken to ensure that biodiversity in agriculture contributes most effectively to climate change adaptation and mitigation strategies at all levels.

The questions and research topics identified are mostly concerned with issues which involve multiple components of the ecosystem rather than

with specific elements such as animal, crop, forest or fish genetic diversity.

As noted in the synthesis report of the workshop, participants highlighted that the reports of the Intergovernmental Panel on Climate Change (IPCC) Working Groups pay little attention to biodiversity for agriculture and food, even though they recognize the importance of subsistence and smallholder agriculture as storehouses of unexplored biodiversity.

The workshop participants further concluded that:

- Conservation of biodiversity and maintenance of ecosystem structure and function are important for climate change adaptation strategies, due to the protection of genetically diverse populations and species-rich ecosystems necessary for sustaining local livelihoods; and
- Agrobiodiversity conservation should be made a basic component of climate change adaptation strategies.

A series of research questions that were identified concern what biodiversity in

agriculture might contribute, how, when, where and in what ways it might do so and, most importantly, who might be involved in use of biodiversity as part of climate change management activities. Other general questions include:

- What is the relationship of climate change to other human-induced pressures on ecosystems – nature, extent and consequences of interactions and how one might disentangle the different pressures and consequences?
- Are there critical thresholds above which things change differently?
- What time lags can we expect to see in agro-ecosystem responses?
- What is the impact of species extinction on agro-ecosystem maintenance?

A synthesis report of the workshop was prepared to inform FAO's High Level Conference on World Food Security and the Challenges of Climate Change and Bioenergy (see Letter from the Regional Director on page 20), to be held 3-5 June 2008 at FAO in Rome (www.fao.org/foodclimate/expert/em8.html).

Forthcoming meetings

9-12 September 2008

18th Eucarpia General Congress. Modern Variety Breeding for Present and Future Needs. Valencia, Spain. www.eucarpia.org/

9-12 September 2008

IV Balkan Symposium on Vegetables and Potatoes. Plovdiv, Bulgaria. www.4bsvp.org

5-14 October 2008

IUCN World Conservation Congress: A Diverse and Sustainable World. Barcelona, Spain. <http://cms.iucn.org>

22-29 October 2008

UN-FAO/ECE European Forest Week 2008. Rome, Italy. www.fao.org

25-26 October 2008

World Potato Exhibition/Esposizione delle Patate dal Mondo. Torriglia (Genova), Italy. www.quarantina.it

6-8 November 2008

IUFRO International Conference "The European Forest-Based Sector: Bio-Responses to Address New Climate and Energy Challenges?" Nancy, France. www.iufro.org/events

1-12 December 2008

United Nations Climate Change Conference COP 14. Poznań, Poland. <http://unfccc.int/meetings/items/2654.php>

Publications and announcements

www.bioversityinternational.org/Publications/index.asp

Building the Market Chain. Emmer in Turkey. An ancient cereal maintained by mountain farmers. Bioversity International. 2007. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1272

ECPGR Report of a Working Group on Cucurbits. First meeting, 1-2 September 2005, Plovdiv, Bulgaria. Díez, M.J., W. van Dooijeweert, L. Maggioni and E. Lipman, compilers. 2008. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1282

EUFORGEN Conifers Network, Report of the fourth meeting (18-20 October 2003, Pitlochry, United Kingdom). Koskela, J., C.J.A. Samuel, Cs. Mátyás and B. Fady, compilers. 2007. Bioversity International. www.bioversityinternational.org/publications/pubfile.asp?ID_PUB=1286

FAO/Bioversity Plant Genetic Resources Newsletter No. 152, December 2007. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1281

Geneflow 2007. Bioversity International. www.bioversityinternational.org/publications/Pdf/1259.pdf

Statistical analysis for plant genetic resources: clustering and indices in R made simple. Handbooks for Genebanks, No. 9. Grum, M. and Atieno, F. 2007. Bioversity International. www.bioversityinternational.org/Publications/pubfile.asp?ID_PUB=1283

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Letter from the Regional Director for Europe

Dear Reader,

During the first week of June, more than 40 heads of state and government ministers gathered in Rome under the auspices of the UN Food and Agriculture Organization (FAO) to discuss world food security and agriculture. The high-level attendance reinforced the sense of urgency of the current global food crisis, associated with uncertainty and speculation about its causes. The conference subtitle "challenges of climate change and bioenergy" suggests the nexus between these two factors and the food crisis. The preparations for the conference, in fact, originally focused on these two issues. A summary of the FAO workshop on climate change and biodiversity for food and agriculture is given on page 19 of this Newsletter. But the issues discussed at FAO underlying the crisis, of what is basically access of people to food, go much wider than climate change and biofuels.

The conference made significant progress on short-term actions but failed to resolve some of the wider, long-term challenges. Short-term commitments were made to fund urgent emergency relief food needs. Export bans, imposed by a number of the food-exporting countries, were discussed and some countries promised to re-open their exports. This may have immediate effects on lowering food prices. Many developing countries also underlined the

role of agricultural subsidies and restrictive import regulations and called for their elimination. A deal on world trade in agriculture is a distant prospect that went beyond the aspirations of this conference. The conference could have helped to rationalize policies on biofuels, but there was too wide a divergence between opinions expressed, and the "de facto summit" remained split over bioenergy. The need to accelerate agricultural productivity growth and scientific research was also highlighted.

In fact, the FAO conference made a good start on the most significant of long-term goals: a second green revolution. Some argued that this would be harder to achieve than the first: there are big issues of water scarcity, high costs of fertilizers and controversial debates on the role of genetically modified organisms. Undoubtedly, the conference contributed to the recognition of research into "new seeds" for food security. This could well be an important message from the summit to the plant genetic resources community. A few months ago, seeds or plant genetic resources (PGR) were rarely mentioned in any public policy debate.

The activities reported in this Newsletter relate to the wider issues discussed at FAO in many ways. Research into new seeds is based on solid knowledge about PGR, the result of their characterization, evaluation, conservation, documentation and management. Innovative

approaches to the sustainable use of genetic diversity in plant breeding, in farmers' fields and in afforestations are equally important.

One example in many is the European Union funded initiative on artichoke (see page 11). Functional properties of certain compounds in the plant for human nutrition and health are studied through biochemical analyses. The new knowledge will add value to the accessions and varieties stored in genebanks, which will in turn facilitate their use and conservation on-farm. In southeastern Europe, tremendous progress on PGR has been made in recent years, partly through the SEEDNet, funded by Sweden (see page 18). The Network has collected thousands of accessions of local landraces and the most unique ones are being regenerated, multiplied and placed under long-term storage. ECPGR reports a number of accomplishments on Grain Legumes (see page 6) and Cereals (see page 8). To promote sustainable use of pea genetic resources, the Grain Legumes Working Group has decided to form a small consortium that will develop an international reference collection and facilitate its agronomic and molecular characterization. These are just some of the important, practical initiatives that ultimately contribute to the food chain, providing us with a better choice of healthy and nutritious food.

Obituary

Martyn Ibbotson, Head of Genetic Resources and Kew Sponsorship Team, Department for Environment, Food & Rural Affairs (Defra), UK

It is with great sadness that I report the sudden and tragic death of Martyn Ibbotson in a traffic accident on the evening of 9th June. Martyn became Head of Genetic Resources Group at Defra in the summer of 2003 and quickly became familiar with the raft of policies, issues and stakeholders across the UK and internationally. As Chairman, and on behalf of the UK Plant Genetic Resources Group, I would like to pay tribute to his strong interest and support for the Group in his role as UK National Focal Point. Martyn was a skilled negotiator and was always quick to offer suggestions or reformulation of text or to point out a point of law or jurisdiction. Martyn's adept leadership was most appreciated in developments following the ratification of the International Treaty (IT) in 2005 and the agreement on the sMTA in 2006. It was a pleasure to work alongside him on the process of engaging with the UK stakeholder community on implementing the Treaty. We will all miss a valued colleague and friend.



Mike Ambrose, Chairman UKPGRG