

Update on international events

The fourth session of the Conference of the Parties to the Convention on Biological Diversity (COP4/CBD) took place 4-15 May 1998 in Bratislava, Slovak Republic. A Ministerial Roundtable was convened simultaneously to the opening plenary session of COP4 to promote an active dialogue among policy makers. Discussions of this group focused on integrating biodiversity concerns into sectorial activities and tourism as an example for integration and private sector participation in implementing the CBD's objectives. At the meeting of COP4, the need for the FAO Commission on Genetic Resources for Food and Agriculture (PGRFA) to complete negotiations on the revision of the International Undertaking (IU) on Plant Genetic Resources, including Farmers' Rights was emphasized. COP4 recommended that this be completed by the 1999 FAO Conference and returned to the CBD as a Protocol. COP5 will be held in the year 2000 in Kenya, where sustainable use and access to genetic resources will be two of the items discussed.

The 5th Extraordinary Session of the FAO Commission on PGRFA took place 8-

Regional symposia on implementation of the GPA

Sub-region	Date (1998)	Venue
Western & Central Africa	16-19 February	Cotonou, Benin
East & Southern Africa	17-22 May	Gaborone, Botswana
Central & West Asia & North Africa	22-25 June	Aleppo, Syria
Europe	30 June-3 July	Braunschweig, Germany
Latin America & the Caribbean	22-25 September	Cali, Colombia
Asia Pacific	5-9 October (tentative)	

12 June 1998. As the main body overseeing IU, negotiations continued on the revision of the IU to bring it in harmony with the CBD. Three outstanding issues continue to dominate the current IU negotiations: scope and access, benefit sharing and Farmers' Rights. The scope of what the IU will cover and the question of how access will be regulated is one of the dominant issues in the negotiations. Some governments would prefer to confine the scope of the IU to a relatively small number of critical food crops, possibly categorized on two or three lists, for whom the conditions of access vary. Other countries would like to have all plant germplasm associated with food and agriculture incorporated into the IU with "unrestricted access".

With regard to benefit sharing, some industrialized countries believe that developed countries are adequately compensated for their germplasm merely by having access (free or royalty-tied) to the information and breeding material created by open international exchange. Some developing countries consider this a "trickle-down" approach which does not adequately recognize the contribution of farming communities and national governments. Efforts to proportion the contribution and benefits from germplasm exchange and plant breeding have left all sides uncertain and frustrated. The European countries, as well as many developing countries, see a possible compromise in that the sharing of benefits would be realized through an active and sustained implementation of the Global Plan of Action (GPA).

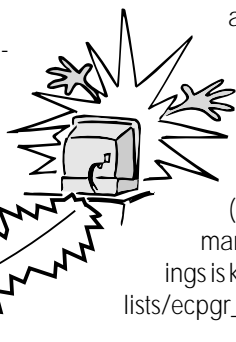
Despite the lack of consensus on policy issues at the global level, progress is being made in implementing the GPA at a more technical level. Attention is currently focused on a series of regional meetings taking stock of the implementation of the GPA adopted in June 1996 in Leipzig. In addition to the European Symposium being held 30 June - 3 July in Braunschweig, Germany, other meetings are being convened by FAO with assistance from IPGRI.

New ECP/GR listserver

This new listserver can be used to announce events (meetings, databases, collecting missions and emergency actions, vacancies, etc.) and to ask questions



ask questions



and discuss topics related to PGR. To subscribe, send an empty message to ecpgr_list@ngb.se, typing the word 'subscribe' on the subject line (exclude the quotation marks). An archive of the postings is kept at http://www.ngb.se/lists/ecpgr_list.



Central Crop Databases training workshop

A further nine Central Crop DataBase (CCDB) managers received training in establishing on-line access to CCDBs from the ECP/GR Internet Advisory Group during a training workshop held 18-21 February 1998 at the Nordic Gene Bank (NGB), Alnarp, Sweden. This course was the second in a series of three and was organized by NGB and IPGRI. It included a step-by-step demonstration of the conversion process of a CCDB into an Internet accessible database.

Since the establishment of the European Information Platform on Crop Genetic Resources (<http://www.cgiar.org/ecpgr/platform>), access to ECP/GR databases has significantly increased (databases currently available include *Agrostis*, *Avena*, *Barley*, *Brassica*, *Bromus*, *Dactylis*, *Festuca*, *Glycine*, *Lathyrus*, *Lolium*, *Phalaris*, *Phleum*, *Poa*, *Trifolium pratense*, *T. repens* and wheat). Many of these can be down-

loaded or searched on-line, or both. The aim of this workshop was to improve database managers' knowledge and reinforce their cooperation with the ECP/GR Internet Advisory Group, and to eventually make all the ECP/GR databases available on-line. Quality issues related to completeness of data sets and adding value to the databases by including evaluation data were also discussed extensively at the Workshop.

Suggestions for improving the establishment and maintenance of CCDBs were agreed on by the Workshop, namely that CCDB managers should: 1) seek advice from experts; 2) increase the use of standard formats for data exchange, (e.g. IPGRI/FAO Multi-Crop Passport Descriptor List); 3) gain support from ECP/GR in obtaining data; 4) include characterization and evaluation data; and 5) ask contributors to validate the data.

Suggestions were also given to im-

prove database access via the Internet, by: 1) seeking the advice of the Internet Advisory Group in writing HTML pages, optimizing the style and making the CCDBs available on-line; 2) seeking support, if needed, from documentation support centres such as the Centre for Genetic Resources, The Netherlands (CGN), NGB or the Information Centre for Genetic Resources (IGR/ZADI), for temporary on-line display of databases to be searched or downloaded; 3) making sure that the available versions of each database for searching and downloading are the same; and 4) providing (with the help of IPGRI, if necessary) a standard entry page for each CCDB and access via the European Platform.

CGN has offered to host a third workshop in this series, possibly to be held in 1999. However, funding still needs to be allocated during Phase VI of ECP/GR or identified from other sources.



Braunschweig '98: ECP/GR Steering Committee Meeting and symposium on implementation of the GPA in Europe

Progress made during Phase V of ECP/GR will be evaluated during the seventh ECP/GR Steering Committee Meeting, 29 June and 4-5 July 1998 in Braunschweig, Germany. The Committee will then revise ECP/GR objectives and structure and discuss proposals for a new phase of the Programme.

Items under discussion will include the strengthening of the Information and Documentation Network activities and the feasibility of enlarging the scope of the Programme to include new crops. The question of whether ECP/GR should engage in complementary activities, such as undertaking ecogeographic studies, supporting targeted collecting missions, implementing characterization and evaluation of *ex situ* collections, etc. will also be discussed.

The outcome of this meeting will define the way in which ECP/GR can best fulfill its mandate over the next few years and its role as the regional platform for implementing the Global Plan of Action (GPA) for Plant Genetic Resources for Food and Agriculture (PGRFA).

A Regional Symposium will be held during the intervening days 30 June - 3 July to assess progress made at the European level in implementing the GPA for PGRFA adopted in 1996 in Leipzig, Germany. The aim is to convene delegations from all European countries, including technical and policy expertise (see Issue 12, page 11).

A full report on the outcomes of these two meetings will be published in the next issue of the Newsletter.

Update on EC 1467/94

On 9 April 1998 a third call for proposals for EC 1467/94 was published in the Official Journal of the European Communities 98/C 111/12. This call for shared-cost projects and concerted actions follows the same scheme of the previous two with a closing date of 9 July 1998. Particular emphasis will be placed on proposals aiming at the characterization and utilization of genetic resources of farm animals. According to unofficial information, the budget allocation for this call is 2.5 million ECU.

Further information can be obtained from the following address:

"Call for proposals in the field of genetic resources in agriculture"
European Commission
DG VI, Directorate F.II
Loi 120 6/238
Rue de la Loi/Weststraat 200
B-1049 Brussels
Fax: (32-2) 296 30 29
E-mail: Richard.Hardwick@dg6.cec.be

Fifth meeting of the Avena Working Group



Participants at the Avena Network (photo: S. Bücken, BAZ).

The implications of the recent discovery of a new wild oat species raised much interest during the Fifth meeting of the ECP/GR Working Group on *Avena*, held 7-9 May 1998 in Vilnius, Lithuania. Prof. G. Ladizinsky explained that *Avena insularis*, which he found for the first time in southern Sicily, Italy, is the possible tetraploid progenitor of hexaploid oats. This finding is raising hopes that another hypothetical progenitor, a diploid wild oat, could still exist in undisturbed niches of the Mediterranean area. The Group emphasized the need for targeted collecting missions and for protection of unique endangered sites of wild oat relatives.

The database manager, Mr S. Bücken illustrated the continuing development of the European *Avena* Database (EADB), maintained at the Federal Centre for Breeding Research on Cultivated Plants (BAZ), Braunschweig, Germany. A recent highlight of EADB is the addition of passport data sets from the N. I. Vavilov Institute of Plant Industry (VIR), Russia, representing

nearly 11 000 oat accessions.

The EADB is now accessible on the Internet (<http://www.fal.de/bgrc/bgrce.html>) and in the near future it is planned to make additional evaluation data available on-line, as well as a taxonomic key with photographs and the list of taxonomic diagnostic characters.

The need to improve the quality of European collections and to consequently enhance mutual trust in the PGR community was an issue raised during the meeting. The Working Group on *Avena* offered to act as a pilot group by increasing the transparency of genebank operations through documenting internal routines. Information on the standards used by each participating genebank would then be circulated. A review committee nominated by the Group would then assist genebanks in improving their standards. If this proposal receives a positive reaction from genebanks and the ECP/GR Steering Committee, a taskforce will be established within the Group to formulate the Terms of Reference.

Second progress meeting of RESGEN CT95-34/35

The EU project entitled 'Genetic Resources of Potato' including the 'Conservation, characterisation and utilisation of secondary potato varieties for ecological production systems in Europe' is now midway. The project, which is a fusion of two project proposals, was initiated 1 March 1996 and is due to finish 28 February 2000.

On 5-6 March 1998 the second progress meeting for this project was held at the Institut National de la Recherche Agronomique, Station d'amélioration de la pomme de terre et des plantes à bulbes (INRA-Ploudaniel) in Brittany, France. The meeting was attended by representatives from the 12 participating contractors from Austria, France, Germany, Ireland, the Netherlands, the five Nordic countries and the UK as well as ECP/GR supported partners from the Czech Republic, Hungary, Poland, Russia and observers from Italy and Malta.

The involvement of non EU member countries in this project is being facilitated

by ECP/GR, who is covering travelling costs and supporting some research within the goals of the project, being implemented in east European institutes. These partners are contributing to the project by sharing their databases and undertaking additional virus cleaning, evaluation/characterization and documentation activities.

The participants reported on successful rejuvenation, virus cleaning, evaluation for diseases resistance and cryopreservation techniques. For ecological production, virus-free promising varieties have been multiplied by the Scottish Agricultural Science Agency (SASA), Edinburgh, UK and the Institut für Pflanzengenetik und Kulturpflanzenforschung (IPK), Gatersleben, Germany. These will be tested in ecological field evaluation trials in the third and fourth years of the project by NGOs in Austria (Arche Noah), Eastern Germany (Association for the Preservation and Re-introduction of Cultivated Plants) and the UK (Henry Doubleday Research Association).

A database on clonal potato stocks (cultivars and breeding lines) developed by SASA and another on wild and primitive species being developed at the Centre for Genetic Resources The Netherlands (CGN), Wageningen, were demonstrated at the meeting and are clearly progressing. Minor changes in the descriptors were discussed but as far as possible the descriptors have been adapted to the IPGRI/FAO Multi-Crop Passport Descriptors List as approved by the Central Crop Database managers in Budapest, Hungary (see Issue 9, page 3). Once complete, the databases will be made accessible through the Internet and provide a useful tool in identifying suitable potato material for breeders, scientists and conventional/ecological growers.

A more detailed description of the project is available from the web site (<http://www.cpro.dlo.nl/cgn/eupotato/>).

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Crop genetic resources conservation in Switzerland



Harvesting of trials at the Federal Research Station for Plant Production (RAC), Nyon (photo: G. Kleijer).

Switzerland is a country with a number of different regions, each with its own climatic conditions and topography. This is reflected in the great diversity of local varieties of cereals, fruit trees (particularly cherry), vegetable and forage crops. Each village, and many individual farmers cultivate local varieties which have been maintained for several decades.

This extensive diversity includes important ecotypes of forage species. Around 1.4 million hectares are used for grassland and pastures, and farmers are now being subsidized to use sustainable farming methods instead of intensive practices to ensure the conservation of forage crops. Until the 1940s, landraces of cereals (barley, rye, and wheat) were also cultivated. Today, only a few sites still exist in the Canton Valais where landraces, adapted to the alpine climate of the region are still grown, although there is now new interest in recultivating these.

Conservation of PGR in Switzerland is carried out by both public and private organizations. Some of the public organizations such as the Federal Research Stations have been working actively on this topic for more than 40 years. Private organizations initiated their activities 20 years ago. This decentralized approach requires a coordinating body to oversee the activities. In 1991, supported by the Federal Office of Agriculture, the Swiss Commission for the Conservation of Cultivated Plants (CPC) was created with representatives of private and public organizations. One of the first tasks of the CPC was to undertake an inventory of all organizations and institutes involved in describing species and the number of accessions conserved. These data were updated in 1996, revealing that 14 private and 13 public organizations are maintaining more than 19 000 accessions of 240 species.

Ex situ conservation is the main method of maintaining these collections through seed genebanks and field collections. Collecting activities and the establishment of genebanks have been initiated mainly in response to breeding programmes. Local varieties of cereals were first collected in 1900 by the Federal Research Station for

Plant Production (RAC), Nyon.

Old and local varieties of fruit trees are maintained in orchards, arboreta and field collections. Conservation of fruit trees is undertaken mainly by private organizations, the Swiss Association for the Protection of Fruit Heritage (Fructus) and 'Pro Specie Rara'. Exhibitions demonstrating the rich genetic diversity of fruit trees are held regularly, targeted at both the general public and at the governmental level, aiming at raising awareness of the importance of these collections. Another initiative by the private organization "Association for the safeguard of the 'Baroche' area" is promoting *in situ* conservation of the trees of Canton Jura. Farmers are encouraged to conserve old varieties in their orchards and to sell the fruit. 'Pro Specie Rara' is undertaking on-farm conservation by encouraging individuals to conserve landraces (particularly vegetables and cereals) in their gardens.

Of the 100 wild species of aromatic and medicinal plants found in Switzerland, 25 are included on the national red list of endangered species. RAC has initiated a breeding programme to study medicinal and aromatic species and to introduce them into mountainous regions where production of other crops is difficult. Accessions of these species are maintained in field collections or as seeds.

The future focus of the Swiss national PGR activities will be to promote *in situ* and on-farm conservation through specific projects. The CPC also aims to develop a detailed inventory of all accessions under long-term storage in Switzerland to provide a reference list. This will enable the identification of duplicates, rare varieties and genebanks under threat and will facilitate the characterization and evaluation of the collected material.

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Darwin Initiative/IPGRI training course

The third and final training course of the Darwin Initiative series on plant conservation was held 20 April - 8 May in Radzików in Poland. Hosted by the Plant Breeding and Acclimatization Institute (IHAR), this course focused on 'Documentation and Data Management of Plant Biodiversity collections'.

Subjects covered included PGR descriptors, data collecting, relational databases, data analysis, Geographical Information Systems (GIS) and the Internet. As for the previous courses, funding was provided by the UK Darwin Initiative through the University of Birmingham, by IPGRI, and by the Nordic Gene Bank (NGB).

Trainees from 15 countries of central eastern Europe and the Newly Independent States (NIS) of the former USSR attended this three week course, which was given in both English and Russian. Training was given in the form of lectures, intensive practical sessions and group discussions. To facili-

tate the training, a local area network was set up allowing each trainee to have individual access to a PC, the necessary software and full access to the Internet.

As something of a 'first' in this Darwin Initiative series, a CDROM was produced in the final week of the course and distributed to the trainees. This CD contained some 300 MB of course materials and public domain software.

Following training in HyperText Markup Language (HTML) and web site preparation, many of the participants took the opportunity to establish home pages for their respective institutes.



Participants at the training course (photo: W. Podyma, IHAR).

A weekend trip was also organized to the Biatowieza Primeval Forest and to a number of seed genebanks and forestry stands in the region.

The course was seen by the participants as playing an important role in helping national programmes to remain abreast of the rapidly changing progress in the area of documentation and communication.

VIR information system updated

Since its establishment in 1894, the N. I. Vavilov Institute of Plant Industry (VIR), St Petersburg, Russia has accumulated impressive quantities of data associated with the germplasm collections held there. Until recently, these data were recorded on cards and paper reports. As a result of a joint project between VIR and the Information Centre for Genetic Resources (IGR) at the German Centre for Documentation and Information in Agriculture (ZADI), Bonn, the VIR Information System (<http://www.genres.de/vir/>) has been recently updated.



Card documentation system previously used, soon to become a tool of the past (photo: T. Gass, IPGRI).

The objective of the first phase of the project (1994-1996) was to establish a VIR information system on the Internet, providing information (mainly passport data) about VIR's collections. In the second phase (1997-1999) more detailed information will be added to this system. The project, funded by the German Ministry for Food, Agriculture and Forestry, is carried out mainly through working exchange visits by scientists of the two institutes each year.

Following the most recent update, the system now provides information on the structure and history of the Institute. For each department and experimental station there is a short description available, including names and contact details of responsible scientists. A question and answer service also assists in making it more straightforward to contact VIR staff.

The most important part of the VIR Information System is the on-line database. Currently, the Institute holds more than 330 000 accessions, representing 2539 species within 304 genera of 155 botanical fami-

lies. To date, 250 000 accessions of these 330 000 accessions have been verified and access to the passport data of approximately 80% of this collection is now possible through direct searches on the Internet.

Access to the database is possible either by using a crops list or by using a search form for all three fields of the database. Decoding tables are also available by downloading zipped files. Over the last year, the site has had an average of about 1000 hits per month. The aim of this information service is to improve access to and use of the collections through increased availability of the related data. It is hoped that this system will provide a basis for further documentation tools to be built.

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Third *Picea abies* Network Meeting

The conservation of Norway spruce (*Picea abies*) genetic resources faces many challenges at a time when broadleaved species are becoming a priority within the national activities in many countries. This challenge was stressed during the third meeting of the *Picea abies* Network held 26-29 April 1998 in Opocno, Czech Republic.

The participants from 12 European countries reported that each country is either currently developing a national gene conservation strategy on *P. abies* or already has one in place. The main purpose of these strategies is to integrate gene conservation into the overall national forestry policy. Although no difficulties have been encountered during the development of these strategies, it was acknowledged that the practical implementation will require further support from the Network.

The participants noted that gene conservation of Norway spruce in the different regions of Europe has different objectives and subsequently requires different methods. For example, the main argument for gene conservation in central and eastern Europe is the threat to genetic diversity

posed by air pollution. The Czech Republic, Germany, Poland and Slovakia have reported on the decline of Norway spruce populations in affected areas. Genetic conservation of Norway Spruce in areas affected by air pollution was discussed in detail during the meeting and excursion.

Investigations carried out in Germany indicate that well adapted, indigenous stands show a higher level of tolerance to pollution. Studies have also revealed that considerable variation in this tolerance exists at both the species and individual level. On the basis of these results, genetic adaptability of Norway spruce needs to be further investigated in view of global environmental changes. These aspects should be taken into account when formulating the national gene conservation strategies.

The economic importance of Norway spruce and its wide use in afforestations was mentioned as the main argument for gene conservation in Belgium, Finland, Lithuania, Norway, Sweden and other countries. Here the main task is to ensure that sufficient genetic diversity is maintained in the managed Norway spruce stands for their dynamic development.

It was stressed by participants that a common information source/database of Norway spruce genetic resources is essential to monitor the progress made in each country and to provide up-to-date information on the coverage of the genetic variation in the distribution area by gene conservation measures. Using the Network's common minimum descriptors, summary information sheets will be compiled and linked to the national databases through the Network's Internet home page during the year. A bibliography on genetics, breeding and genetic resources of Norway spruce will also be established as a joint effort of the Network and the International Union of Forest Research Organizations (IUFRO) Working Party 2.02.11.

In addition to Norway spruce, Scots pine (*Pinus sylvestris*) was suggested as a model for the Network, since this species has a continuous geographic distribution and the gene conservation measures for both species are often very similar. It was agreed that the scope and name of the Network be modified to "Spruce and Pine Network" and this will be under consideration at the Steering Committee meeting.

Second meeting of the EUFORGEN Steering Committee

The next EUFORGEN Steering Committee meeting, consisting of the EUFORGEN National Coordinators, will be held 26-29 November 1998 near Vienna, Austria. Hosted by the country currently leading the Pan-European Process on the Protection of Forests, this meeting will review the first phase of EUFORGEN and outline future activities.

This will be the second EUFORGEN Steering Committee organized four years after the programme was established in October 1994.

Forest Ministers meet in Lisbon

The Third Ministerial Conference on the Protection of Forests in Europe was held in Lisbon from 2-4 June 1998 and was a further milestone in the pan-European process which includes the previous Conferences of Strasbourg (1992) and Helsinki (1994). The Ministers adopted a General Declaration and two Resolutions which resulted from an intensive and fruitful preparatory process involving signatory countries and interested UN Agencies and NGOs.

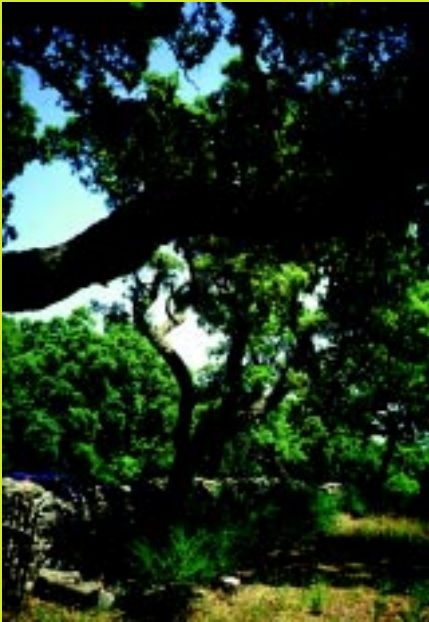
Emphasising the multiple functions of forests and recognizing the importance of their conservation and sustainable management, the Ministers committed to strengthening the partnership between society and the forestry sector and to promoting the sustainable management of forests.

Consequently, the "Lisbon Resolutions" address: 1) the enhancement of socio-

economic aspects of sustainable forest management; and 2) the adoption of pan-European criteria, indicators and operational level guidelines for sustainable forest management.

The Ministerial Conference was also an opportunity to take stock of the implementation of the Resolutions signed at the two previous conferences. Technical reports were provided by the institutions coordinating the implementation of these Resolutions (e.g. EUFORGEN reported on the implementation of the Strasbourg Resolution 2). Additional information was provided through preliminary results of a Europe-wide survey conducted by FAO and the UN Economic Commission for Europe. A detailed account and analysis of the results of the Third Ministerial Conference will be provided in the next issue of this Newsletter.

Meeting on cork oak and related evergreen oaks



Mediterranean Oak in Sardinia (photo: J. Turok, IPGRI).

Representatives from 11 countries across the Mediterranean region attended a joint meeting of the EUFORGEN *Quercus suber* (cork oak) Network and the Concerted Action EU/FAIR 1-CT 95-0202 project "European network for the evaluation of genetic resources of cork oak for appropriate use in breeding and gene conservation strategies". Countries which had not been present at previous Network meetings, including Cyprus, Greece, Malta and Turkey participated, in response to the opening of the Network to include related evergreen oaks.

The first part of the meeting, held 3-5 April 1998 in Le Lavandou, France, focused on progress made in the provenance experiment (Concerted Action). Almost all field trials have either been planted or are currently being established. Most countries reported difficulties in finding suitable, sufficiently homogeneous land. It was stressed that the experience obtained in establishing these trials should be well documented, since this information will be essential for the further management of these trials and in setting up similar experiments in the future. A technical handbook will be developed for this purpose, to which partner countries will contribute concise chapters from the most relevant areas of their experience and expertise. This will include genetics of cork oak, methodologies, collecting and raising of materials, establishment of trials, future evaluation and practical implications.

Participants also planned the joint evaluation of the trials and databases. Short-term observations will focus mainly on adaptation. Research on the adaptation of cork oak under different conditions is essential for developing regulations on the transfer and use of reproductive material.

During the second part of the meeting, representatives from each country reported on the national status of genetic resources of evergreen oaks and outlined the activities for their conservation and use. As agreed during the previous two Network meetings (June 1996, Sar-

dinia, Italy and February 1997, Almoraima, Spain), *Quercus ilex* (holm oak), *Q. coccifera* and *Q. alnifolia* should be included when considering genetic resources of *Q. suber*, since they represent a complex of closely related evergreen oaks with natural hybridization occurring between them. The Mediterranean region is important for genetic resources of evergreen oaks due to the rich diversity they represent and the key ecological role they play.

Evergreen oaks outside of the distribution area of cork oak (i.e. eastern and central part of the Mediterranean) grow in most situations as scattered, non-commercial species. Specific gene conservation programmes do not exist. They are currently not threatened as species but natural regeneration is, for various reasons, very difficult and thus the local maintenance of genetic diversity is threatened. Afforestation is usually carried out with material of local origin.

From discussions on the genetic resources of evergreen oaks, it was concluded that: (1) more knowledge should be obtained through research on these species; and (2) minimum standards (technical recommendations) should be developed for their gene conservation in the long-term. It was recognized that the approach to gene conservation of cork oak offers a very valuable reference but cannot be applied to all the evergreen oaks. National reports on the genetic resources of evergreen oaks will be published as part of the meeting Report.

Participants recommended that all Mediterranean oaks (evergreen and deciduous) be given attention in the future. The main arguments for including all Mediterranean oaks under the scope of the Network include: occurrence in the same ecosystems; similarity of threats and constraints to gene conservation; and natural hybridization between species and shared institutional responsibilities. Broadening the scope of the *Q. suber* Network to all Mediterranean oaks would also enable the Social Broadleaves Network to concentrate its efforts on temperate species (see Issue 12, page 2).

Multicrop collecting expedition to Uzbekistan

The National Genebank of Uzbekistan, the Uzbekistan Research Institute of Plant Industry, the N.I. Vavilov Institute of Plant Industry (VIR) and the Centre for Genetic Resources, the Netherlands (CGN) joined forces in August 1997 to undertake a collecting mission to Uzbekistan. The target species of this mission were *Allium* spp. (onion, garlic and wild relatives), vegetable *Brassica* spp., *Lactuca* spp., fruit-vegetables, *Malus* (apple) and some temperate grasses. Both cultivated and wild material were collected. Some duplicates of the material collected were deposited in the Uzbek National Genebank and others at VIR.

Uzbekistan is situated in the middle of the Central Asian Centre of origin where more than 40 crops originate, including apple, cotton, garlic, melon, onion, *Prunus* spp., spinach, walnut, several pulses and spicy plants. The expedition focused on mountainous areas situated north, east and southeast of Tashkent and in some mountains in the south near the borders with Turkmenistan and Afghanistan.

The differences in climate, soil and altitude has highly influenced the genetic diversity of a number of important crops. Wild relatives of several of the 40 crops may still be found, particularly in mountainous areas. Uzbekistan is also situated at the periphery of the distribution area of a number of other important crops, such as temperate grasses and pasture legumes, wild *Lactuca* spp. and *Tulipa* spp. In addition, landraces of several vegetables are still cultivated by local farmers.

The mission was successful and nearly 300 accessions of more than 45 species were collected from 48 localities. The expedition team travelled approximately 2500 km over a period of 26 days. More than 75% of the material was collected from the wild but some was also obtained from markets and living collections. For a summary of the

material collected, see box below. Herbarium specimens were not taken.

Broad phenotypic variation was observed in the field and this variation was reflected in the accessions collected. The 48 collection sites were of very different ecological zones and altitudes ranging from 250 to 1600 m asl., which also contributes to the extensive intra-specific diversity found in the region.

The material collected during this trip will enable three important base collections held at CGN, specifically *Allium*, *Brassica* and *Lactuca*, to be broadened by the addition of both wild and domesticated material. Current gaps in the *Allium* and *Lactuca* collections may also be filled, since a number of species currently not included or underrepresented were collected.

Interesting accessions were also collected for a number of perennial crops such as apple, garlic and tulip. The perennial nature of this material does not enable results to be obtained quickly and so positive effects may only be observed after 5-10 years.

For some of the collected material, further taxonomic identification is required, particularly for the wild species. These studies are needed for the accessions of *Allium*, *Lactuca*, *Tulipa* and some of the forages collected.

Cooperation between the expedition members of Uzbekistan, Russia and the Netherlands was excellent. A second expedition to Uzbekistan including mountainous areas around the Fergana Valley and in some of the neighboring countries is now under consideration.

A more detailed report on this collecting expedition will be published in the FAO/IPGRI Plant Genetic Resources Newsletter in the future.



Vegetable market where different types of garlic were collected (photo: L. van Soest, CGN).

Number of species and accessions collected

Genus/crop	Total species	Total accessions
<i>Lactuca</i> spp. (& relatives)	4/5	23
<i>Allium</i> spp.	13/14	63
<i>Brassica</i> spp.	3	10
<i>Malus</i> spp.	1?	66
<i>Tulipa</i> spp.	3/5	42
Grasses (<i>Gramineae</i>)	6/8	37
Other crops/species	11/14	51
Total	41/50	292

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SASA Cereal Cultivar Collection

The cereal cultivar collection held at the Scottish Agricultural Science Agency (SASA) was originally created in the late 1960s to undertake UK Distinctness, Uniformity and Stability (DUS) tests. Two important features of the collection are that the seed is authentic and is described in a standardized way, according to internationally agreed guidelines, such as the International Union for the Protection of New Varieties of Plants (UPOV).

This authentic seed is now used for the production of cultivar descriptions for Cereal Certification in Scotland, and at present there are 118 cereal cultivars certified in Scotland. The SASA collections contains over 3600 cultivars (predominantly barley, oats and wheat) including registered and commercially obsolete cultivars, breeder's lines and a small number of landraces.

The collection is split into two distinct parts; seed and dry plant material. The seed storage conditions take into account international genebank standards: 200-500 grains per sample of harvested seed are stored at -22°C and generally at a moisture content of less than 10%, but this is not reduced further before storage. Low density polyethylene screwcap bottles are used to facilitate frequent access. For the dried plant material, inflorescences are stored in card boxes and dissected inflorescences are mounted on herbarium cards. These mainly represent the definitive seed accessions of registered cultivars. Molecular techniques are used to check the identification of current seed lots but, as yet, molecular characterization of the collection is not routine.

Users of this collection include breeders, research and educational organizations and occasionally, other certifying authorities. Past requests have included those from the Plant Breeding and Acclimatization Institute (IHAR), Poland, to aid investigations into powdery mildew resistance and the Research Institute of Crop Production (RICP), Czech Republic, to investigate acidic and aluminium tolerant wheats. UK archaeologists have also been assisted by the curators of the collection in identifying samples, particularly of landraces, found at archaeological sites. The dried material

is mainly used for teaching and demonstration purposes.

A large part of the collection has been described for morphological and physiological characteristics. Of the registered cultivars, 90% have full descriptions, with 60-100 descriptors recorded for each. Data for the descriptors have been collated from herbarium cards and from field observations over a two year period. Material not reaching registered status is only partially described (10-20 descriptors).

Although the descriptive information is held predominantly as paper records, passport and administrative information is held electronically. The barley accessions have also been added to the European Barley Database (1996-1997)

within the framework of ECP/GR. In the future, it is intended that all descriptive data will be stored electronically to make this information more readily available and allow faster and more efficient access.

For more information on the cereal cultivar collection contact: B. Bulwer, Fax: +44-(0)131-244 8966; email: bulwer@sasa.gov.uk. For information on other SASA cultivar collections (Fodder and Oilseed, Potato, Peas and Vegetables), contact: N. Green, Fax: +44-(0)131-244 8939; email: green@sasa.gov.uk

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New collaboration in the Caucasus Region

The Caucasus region is one of the world's centres of crop diversification, as outlined by the work of N. I. Vavilov. It is the home of many numerous wild relatives of cultivated crops such as *Triticum araraticum*, *T. urartu*, *T. boeoticum* and many species of the genus *Aegilops* - ancestors of today's cultivated wheat and wild species related to cultivated fruit and nut crops such as almond, apple, apricot, cherries, grape, and many more. In remote areas farmers are still cultivating a wide diversity of crops, old varieties and landraces which have evolved with their environment and may harbour valuable traits for plant breeding and future food security.

The forests of the region include some of the most diverse and distinctive temperate conifers and broadleaved forests in Eurasia. These forests play essential environmental and socioeconomic roles, but are severely threatened by excessive cutting and other factors related to the high population pressure.

In recognition of the richness of the region's biological diversity, its value to humanity and the urgency of addressing its conservation and sustainable use, a workshop on PGR of the Caucasus Region was held 8-10 December 1997 in Tbilisi, Georgia. The Workshop brought together representatives of various governmental institutions involved in the conservation or utilization of crop and forest genetic resources of Armenia, Azerbaijan, Georgia and Russia, and representatives from the International Centre for Agricultural Research in the Dry Areas (ICARDA) and IPGRI.

The Workshop resulted in an analysis of needs and stakeholders in the area of forest genetic resources, *in situ/on-farm* management of wild relatives of crops and landraces, as well as the *ex situ* conservation of crop genetic resources.

The participants also identified a comprehensive set of activities that would address these needs. It is expected that the results of this workshop will add value to a number of biodiversity proposals currently under development in the region.

In the final declaration of the Workshop the delegates emphasized their will to increase the technical and scientific cooperation. A Regional Conference was established as a forum for the coordination of activities related to PGR.

Meetings

Medicinal and aromatic plants of the Mediterranean

The Mediterranean region houses about 10% of the world's total of flowering plants and ferns in 1.6% of the earth's land surface. Approximately half of these are endemic to the region and Medicinal and Aromatic Plants (MAPs) are an important part of this plant wealth. Portugal is particularly abundant in these species.

MAPs of the Mediterranean region were the focus of 300 participants from 21 countries at the 1st International Meeting on Aromatic and Medicinal Mediterranean Plants, held 24-26 April 1998 in Ansião, Portugal. Immediately following the meeting, the network on the "Identification, Conservation and Use of Wild Plants in the Mediterranean Region" (MEDUSA), held its third Regional Workshop, also in Portugal.

The meeting was funded by a number of sources, including organizations and private companies, NGOs, Foundations and the city councils of the region (Terras de Sicó). The two first days of the meeting were devoted to presentations and this was followed by a visit to the 1st International Fair of Aromatic and Medicinal Plants, Services and Natural Products (FIPAM 98) held 23-26 April in Conímbriga, near Ansião, which was attended by more than 20 000 people during the four day period.

Recommendations made at the meeting highlighted the needs for extensive information gathering to locate, characterize and maintain existing *ex situ* collections of MAPs to promote their sustainable utilization. The *in situ* conservation and management of ecosystems

containing priority MAP species needs to be promoted and information and indigenous knowledge on the wild species needs to be collated. The extent to which populations are under threat from genetic erosion also needs to be measured.

In light of the developing market for these species, the full spectrum of MAP uses needs to be investigated and information collated on processing techniques. Local codes of conduct relating to wild harvesting practices need to be reviewed with a view to their wider regional application, particularly as commercialization of these species increases. Domestication procedures need to be developed for low input sustainable practices, modern breeding and propagation methodologies. Marketing constraints need to be identified and existing trade information on priority species need to be enhanced for the sustainable exploitation of these species.

Although a large amount of information exists on MAPs, it is very fragmented. This needs to be gathered, assimilated and used to develop a regional strategy which could be further expanded through creating linkages with existing regional and global networks. Such a strategy and related development policies need to be in accord with regional development plans. The proceedings of the meeting will be published later in the year.

A second meeting is planned to be held in the year 2000 in Marseille, France. Prior to this, in June 1999, a meeting on the aromatic and medicinal plants of the flora of the Portuguese speaking countries will be held in Ansião, Portugal. The 2nd International Fair of Aromatic and Medicinal Plants, Services and Natural Products (FIPAM 99) will be located in Pombal, Portugal.

Mr E. Bettencourt
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Cryopreservation training course

Genetic resources of vegetatively propagated species, including numerous fruit trees, are traditionally maintained in field collections. There are however, several serious problems with field genebanks, since the collections are exposed to natural disasters, attacks by pests and pathogens and labour costs and requirements for technical personnel are very high. Additionally, distribution and exchange from fieldbanks is difficult, due to the vegetative nature of the material and the risk of disease transfer. Cryopreservation represents a very valuable option for the long-term conservation of these problem species. Conservation of genetic resources of numerous fruit trees and horticultural crops from Europe and the Mediterranean Region would benefit from the development and application of new cryopreservation techniques. Researchers from a number of institutes of eastern Europe and the Mediterranean Region have shown a high interest in acquiring these expertise.

In light of this need, a training workshop on the Cryopreservation of PGR was held 4-8 May 1998 at the Fruit Tree Research Institute in Ciampino, near Rome in Italy. The Workshop was co-organized and cosponsored by the Fruit Tree Research Institute and IPGRI, under the auspices of the Ministero per le Politiche Agricole and the Biotechnology Commission of the International Society of Horticultural Science (ISHS). Training inputs into the course were provided by staff from the Fruit Tree Research Institute, the University of Abertay Dundee, UK and IPGRI.

At the Workshop, 19 trainees from 16 countries of Europe and the Mediterranean Region received lectures and practical laboratory training in various cryopreservation techniques, including desiccation, vitrification and controlled rate freezing of genetic resources. The role of cryopreservation as a complementary strategy for conservation was also discussed, and advice given on research projects and suitable equipment.

Forthcoming Meetings

7-11 July 1998

Cereals for Human Health and Preventative Nutrition, Brno, Czech Republic.

19-25 July 1998

VII International Congress of Ecology, Florence, Italy.

20-26 July 1998

3rd International Symposium on the Taxonomy of Cultivated Plants, Edinburgh, Scotland, UK.

2-7 August 1998

XXV International Horticultural Congress, Brussels, Belgium.

9-16 August 1998

7th International Congress of Plant Pathology, Edinburgh, Scotland, UK.

10-15 August 1998

Eighteenth International Congress of Genetics, Beijing, China.

10-15 August 1998

VII IOPB Symposium: Evolution in Man-Made Habitats, Amsterdam, the Netherlands.

7-11 September 1998

X EUCARPIA Meeting on Genetics and Breeding of *Capsicum* and Eggplant, Avignon, France.

21-25 September 1999

XIII Congress of European Mycologists, Madrid, Spain.

21-25 September 1998

XV EUCARPIA General Congress: Genetics and Breeding for Crop Quality and Resistance, Viterbo, Italy.

27 September - 2 October 1998

Monocots II: Second International Conference on the Comparative Biology of the Monocotyledons and Third International Symposium on

Grass Systematics and Evolution, Sydney, Australia.

28-30 September 1998

Bast Fibrous Plants Today and Tomorrow, St Petersburg, Russia.

3-7 October 1998

11th International Crucifer Genetics Workshop, Montreal, Canada.

8-11 November 1998

New crops and new uses: biodiversity and agricultural sustainability, Phoenix, Arizona.

14-19 November 1998

3rd European Conference on Grain Legumes, Valladolid, Spain.

24-27 November 1998

International Symposium on Breeding of Small Grains, Kragujevac, Fed. Rep. Yugoslavia (Serbia and Montenegro).

Prebreeding in Wheat

Managing genetic resources not only involves conserving seeds and plants in genebanks or field collections, but also using these resources in breeding and variety improvement.

Breeders often question whether genebanks are optimal instruments for the provision of new and unexploited germplasm, while genebank curators do not always realise or benefit from the potential expertise available in the plant breeding community. This misunderstanding highlights the need for closer collaboration between the public and the private sectors within many fields, including germplasm enhancement, breeding research and technology, establishment of core collections and the maintenance of minor genes through recurrent selection etc.

One area requiring such collaboration is prebreeding. This is generally a long-term activity which private sector breeders can seldom afford to undertake and an activity for which public research institutes can rarely obtain funding. By combining efforts in a non-competitive way to undertake this work, both partners may achieve results faster and more cost effectively. For example, a Swedish prebreeding project,

initiated in 1985 and aiming at introducing new disease resistance genes from *Hordeum vulgare* ssp. *spontaneum* into cultivated barley is now beginning to yield commercial varieties.

There are similar opportunities for cooperation in wheat prebreeding. In 1996 wheat accounted for approximately 25% of the cereals grown in the Nordic countries, making it the second largest cereal crop in the region. Wheat has been bred traditionally in the Nordic countries for more than 100 years, focusing on improving baking quality, disease resistance properties and winter hardiness. Nordic wheat varieties have been competitive on the international market for some time. However, international competition is now increasing and new resistance genes as well as genes of other importance traits need to be introduced. Simultaneously, researchers throughout the Nordic countries studying wheat relatives wish to apply the results of their research. Application of these research results would serve to widen the genetic base of this crop and enhance the introduction of new genes.

With this in mind, the Cereal Working Group of the Nordic Gene Bank (NGB)

invited Nordic breeders from both public and private institutes, and researchers to participate in discussions 3 November 1997 concerning the value and importance of setting up a prebreeding programme in wheat. The meeting, involving 20 participants from all five Nordic countries took place in Alnarp, Sweden. The programme included presentations on experiences from the Swedish 'spontaneum' project, the transfer of novel resistance genes from rye and wild wheat relatives, molecular and cytogenetic studies of wild Triticeae in Iceland, marker assisted selection in cereals, and assessment of phenotypic diversity and breeding gains in Nordic spring wheat. Discussions considered ways and options to establish a network to accomplish the desired activities.

The participants agreed to set up a reference group to elaborate a project proposal to be submitted to national/regional donor agencies during 1998. Since the meeting, the Board of NGB has confirmed the importance of prebreeding activity and has provided additional funding for the reference group.

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Publications of Interest

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- Biodiplomacy: genetic resources and international relations.** Sanchez, V. and Calestous, J. (eds.). 1994. Acts Press, Nairobi, Kenya.
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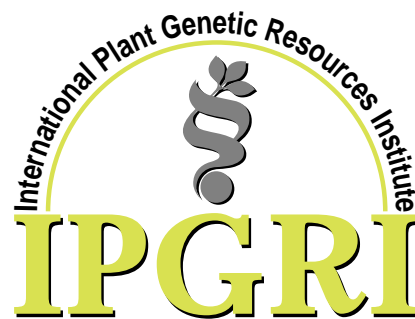
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About this Newsletter

The International Plant Genetic Resources Institute (IPGRI) is one of the 16 Centres of the Consultative Group on International Agricultural Research (CGIAR). IPGRI's goals are to further the study, collection, preservation, documentation, evaluation and utilization of the genetic diversity of useful plants for the benefit of people throughout the world. From its Headquarters in Rome, Italy and its Regional Offices in Benin, China, Colombia, India, Kenya, Malaysia and Syria, IPGRI promotes and coordinates the action needed for the conservation of genetic resources of these plants.

IPGRI publishes 5 Regional Newsletters covering the different regions of the world. They are intended to serve as an informal forum for the exchange of news and views, and to create closer ties between national programme scientists, researchers and other genetic resources workers.

We invite you to send your ideas and contributions for this newsletter to IPGRI's Regional Office for Europe. Please send all contributions for Issue 14 by 30 September 1998.



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