

# THE ECP/GR

*Introduction to the*  
**European Cooperative  
Programme  
for Conservation  
and Exchange of  
Crop Genetic Resources**



International Board for Plant Genetic Resources



United Nations Development Programme

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The ECP/GR

An Introduction to the  
European Cooperative Programme for the Conservation  
and Exchange of Crop Genetic Resources

UNDP-IBPGR

## Background

The International Board for Plant Genetic Resources (IBPGR) is an autonomous international scientific organization under the aegis of the Consultative Group on International Agricultural Research (CGIAR). The IBPGR was established in 1974; its Executive Secretariat is provided by the Food and Agriculture Organization of the United Nations. The basic function of the IBPGR is to promote and coordinate an international network of genetic resources centres to further the collection, conservation, documentation, evaluation, and use of plant germplasm and thereby contribute to raising the standard of living and welfare of people throughout the world. The Consultative Group mobilizes financial support from its members to meet the budgetary requirements of the Board.

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The creation and development of the European Cooperative Programme for Conservation and Exchange of Crop Genetic Resources required the cooperation and input of international agencies, Governments of the countries and scientists from all over Europe.

The concern for conservation of crop genetic resources in Europe grew naturally following a long history by scientists, breeders and institutions collecting, maintaining and using crop germplasm. There were, historically, four milestones in these activities: the work of Vilmorin in the last century in France and the Weibullsholm collection of pea in Sweden, the pioneer work of N. I. Vavilov from the 1920s in the USSR, and the Commonwealth Potato Collection from the 1930s in the UK.

By the 1960s and early 1970s substantial crop genetic resources collections were being built up in Czechoslovakia, Democratic Republic of Germany, Federal Republic of Germany, Hungary, Italy, Poland, Turkey, the UK and others.



Vavilov

In the past, plant breeders frequently discarded materials that were of no further interest in their breeding programmes because such materials could always be obtained again from those areas of the world recognized as centres of diversity. However when concern was expressed in the 1960s that these reservoirs of diversity were being eroded and materials in some areas -- particularly the Mediterranean and the Near East -- were being lost at an alarming rate, the need became apparent for the careful husbanding of the resources already in collections and for their long-term conservation.

In 1961 EUCARPIA formulated the concept of a series of genebanks for the major ecological zones of Europe. These emerged as new centres in Bari, Italy (funded by the Italian Government), Braunschweig-Völkenrode (funded by the Federal Republic of Germany) and a centre which was funded by the five Nordic countries. In 1975 EUCARPIA recommended that these should be linked to genebanks of the COMECON countries, such as those in Hungary, Poland and USSR.

Support for all these endeavours came from a number of international meetings: for example, the FAO/International Biological Programme Technical Conference in 1968 and 1973 and the UN Conference on Man and the Environment in 1972.

However there was a need for a more formalized approach which would assist the countries without germplasm activities in developing their own programmes. This was recognized by the UNDP following a Conference on Security and Cooperation in Europe held in Helsinki in 1975.

Whilst these ideas were being formulated, the International Board for Plant Genetic Resources had been created in 1974 by the Consultative Group on International Agricultural Research, the latter a group of donor countries sponsored by FAO, UNDP and the World Bank. The IBPGR was charged with the establishment of an international network of activities and as expected began to draw into its network a number of the European institutes. This was inevitable because several of the European institutes were involved with international work; for instance the ZICuK collection in the German Democratic Republic has worldwide representation of materials; there were historic international collections of potato in the UK; cotton, sorghum and millet in France; and Italy was widely involved in the Mediterranean especially in North Africa and also held Ethiopian and Southwest Asian materials. (At the same time IBPGR was providing assistance to national

programmes in Cyprus, Greece, Portugal, Spain and Turkey.)

All these developments made it clear that scientific expertise in Europe could be mobilized to assist in the transfer of technology to other parts of the world; at the same time the acquired expertise within Europe could be consolidated so as to benefit European countries at a lower level of genetic resources activity.

In order for this to occur certain principles had to be agreed upon: the free availability of germplasm (and the data relating to it) as part of man's heritage and the equal partnership basis of cooperation.

The purpose and goals of the ECP/GR were defined during a series of meetings from 1977-79 between UNDP, FAO and the EUCARPIA Gene Bank Committee which culminated in a Consultation attended by European Governments in Rome in 1979. This recognized a number of sub-regional activities which were to be drawn into a wider programme and agreed that measures be put into effect to develop the programme as soon as possible. A UNDP/FAO mission subsequently prepared the organizational outlines of ECP/GR, which were accepted unanimously by the Governments in December 1979. The ECP/GR became operational in 1980.



### Outline of the Programme

The purpose of the ECP/GR is to create a workable, mutually-beneficial system and to exploit as much as possible the cooperative ties that result.

The ECP/GR has the following objectives:

- (1) To facilitate:
  - (a) direct contact between workers engaged in genetic resources activities,
  - (b) unhindered exchange of plant genetic resources,
  - (c) establishment of information and documentation systems and data exchange between genebanks;
- (2) To place at the disposal of all interested plant scientists, up-to-date information on collections of both seeds and living plants held by public institutions and private breeders in Europe;
- (3) Establish for specific crops joint activities including:
  - (a) expeditions to collect genetic variants not held in existing collections,
  - (b) characterization and evaluation of germplasm

### Crops under ECP/GR

Budget limitations require that of the many crops which are grown in Europe, only a handful can be considered for adequate attention by the ECP/GR. In the early stages of the programme, decisions had to be made on which crops would best be served by a cooperative Europe-wide approach. The process was completed during Phase II and took into consideration the needs of all the participating countries.

A preliminary list of priority crops was established in Phase I by a Scientific Advisory Committee (SAC). This group of scientists gathered together the crop priorities already in use by various regional genetic resources programmes (COMECON, EUCARPIA, the Nordic countries, IBPGR) and formulated a list, which was further narrowed (by the SAC) to Allium, aromatic and medicinal plants, barley, beet, forages, grape, oat, pea, potato, Prunus, rye and Vicia faba. The SAC considered that ongoing work by regional programmes (COMECON, EEC, IBPGR) adequately covered Brassica, Capsicum, maize and wheat. Additionally, four special interest crops were selected for review due to their particular importance in some countries: Citrus, cotton, sunflower and tobacco.

IBPGR formed Working Groups on the three crops -- barley, forages and Prunus -- classified by SAC as high priority. At the first meeting of a group called the Technical Consultative Committee (TCC) (a body of scientists appointed to meet three times in Phase II to review activities and advise on policy) it was recommended that Allium, oat and sunflower should be the other three, bringing to six the number of crops under ECP/GR.

It was agreed that two Working Groups from Phase I (on pea and rye) should remain as Working Groups in Phase II since they are well established in lead institutes (pea at the Nordic Gene Bank and rye at the Plant Breeding and Acclimatization Institute). It was felt they had sufficient momentum from Phase I without the need for additional direct support from the ECP/GR in Phase II.

No action was recommended by the TCC on aromatic and medicinal plants in view of the lack of documented evidence of widespread genetic erosion. The coordination of activities on these plants will be undertaken by other organizations including EUCARPIA.

### Working Groups: Purpose

The ECP/GR was organized to facilitate cooperation between countries, but additionally it was designed to mobilize new action on specific problems. The Working Group does both; it is the backbone of the ECP/GR.

Working Groups are composed of crop specialists who are invited to serve chiefly for their scientific expertise. They are drawn from different European regions and are often members of other genetic resources programmes organized by IBPGR, EUCARPIA, COMECON and the EEC. Duplication of effort is thereby avoided and maximum integration is achieved. To give added effectiveness to Working Groups, they are usually hosted by institutes specializing in the crop. These institutes may also assume leading roles in carrying out the plans of action drawn up by the Working Groups.

## Phases of the Programme

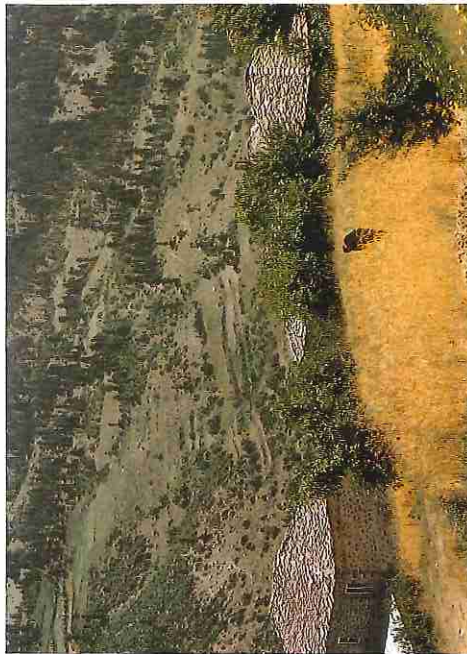
The ECP/GR is being developed in three Phases, each lasting for three years.

**Phase I (1980-1981).** This Phase, financed solely by UNDP and executed by FAO, was a preparatory stage in which the programme aims were outlined and the organizational framework was brought into operation. Contacts between institutes were initiated or enhanced as a result of meetings of eight Crop Working Groups. In addition, many of the countries appointed a National Coordinator responsible for coordinating within his country those activities relevant to the ECP/GR. An additional, indirect result of Phase I has been the stimulation to funding and organization of genetic resources activities by a number of countries. A major component was to start the training of scientists from various countries in genetic resources.

**Phase II (1983-1986).** More practical work began in Phase II. At the express wish of Governments, the ECP/GR came under the aegis of the IBPGR. It is treated as a special project with its own identity and funding. The IBPGR began managing the day-to-day activities of the ECP/GR and has provided back-stopping financial support. The Executive Secretary of the IBPGR became also the Executive Secretary of the ECP/GR; he is also chief of the Crop Genetic Resources Centre of FAO, ensuring that liaison between IBPGR and FAO is maintained. In this Phase the programme is financed half by the participating countries and half by UNDP and it is envisaged that intergovernmental cooperation is to be more fully developed. The choice of crops to be given attention by the ECP/GR was finalized and six Crop Working Groups were established. A Directory of crop genetic resources in European institutions, first published in Phase I, will be updated in Phase II.



Phase III (1986-1989). Participating Governments have given agreement to the principle that the ECP/GR will become a self-supporting entity funded solely by the countries participating when Phase II and UNDP support comes to an end. It is expected that by the end of Phase II (1986), many activities such as the registration of available information in data bases, the identification of redundant duplicate accessions in genebanks, the production of crop inventories and the rationalization of collections for each major crop will be largely completed. Subsequently, gaps will be filled in European collections by either selective collecting or the acquisition of samples from other parts of the world to increase representation in the collections. Characterization studies on accessions will have moved ahead in Phase II but at variable rates in different countries, necessitating continuation in Phase III. Training of individuals and groups will continue.



## Working Groups: Objectives and results

Six Working Groups considered the status of existing European collections and produced detailed plans of action for the remaining five years of the Project (Phases II and III). After agreement, these plans are actively promoted by the ECP/GR Secretariat. Below is a list of functions of Working Groups -- and examples of results obtained.

The documentation of existing collections, the establishment of a computer data base leading to the production of an European inventory of the conserved germplasm;

The following institutes have agreed to act as data bases:

Groupe de Laboratoires et Services de la Minière (INIA), Guyancourt, France (Medicago - perennial species)

Zentralinstitut für Genetik und Kulturpflanzenforschung, Gatersleben, German Democratic Republic (barley).

Institut für Pflanzenbau und Pflanzenzüchtung der Bundesforschungsanstalt für Landwirtschaft, Braunschweig-Völkenrode, Federal Republic of Germany (oat and Poa spp.)

Cereal Research Institute, Szeged, Hungary (cultivated species of sunflower)

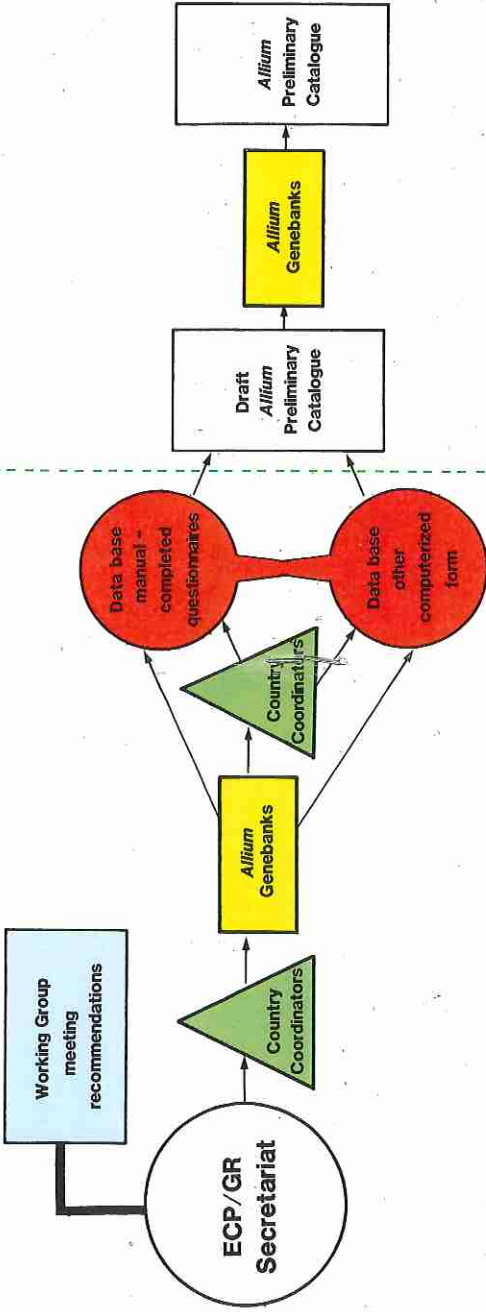
Research Centre for Agrobotany, Institute for Plant Production and Qualification, Tápószéle, Hungary (Allium spp. and Bromus spp.)

Laboratorio del Germoplasma, Consiglio Nazionale delle Ricerche, Bari, Italy (Lolium - annual species, Phalaris spp. and Vicia spp.)

Plant Breeding and Acclimatization Institute, Radzikow, Poland (Dactylis spp., Festuca spp. and rye)

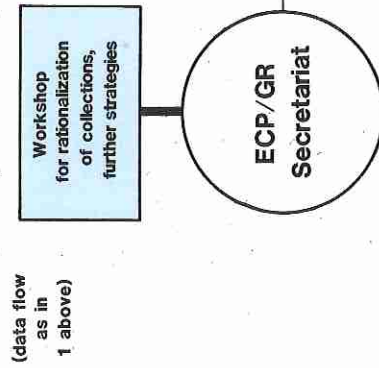
Instituto Nacional de Investigaciones Agrarias,

## 1. Registration of basic passport data

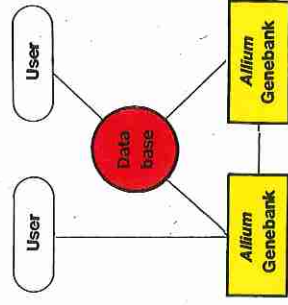


## 2. Checking and completing draft

## 3. Registration of all data



## 4. Objectives



Example of an ECP/GR network for implementation of data bases: Allium spp.



Badajoz, Spain (Trifolium subterraneum), Vicia spp. and Medicago - annual species)

Nordic Gene Bank, Lund, Sweden (Phleum and Prunus)

Federal Agricultural Research Station, Changins, Switzerland (Trifolium pratense)

National Vegetable Research Station, Wellesbourne, UK (Allium)

Welsh Plant Breeding Station, Aberystwyth, Wales, UK (Lolium multiflorum, L. perenne and Trifolium repens)

Institute of Field and Vegetable Crops, Novi Sad, Yugoslavia (wild species of sunflower)

The production of standard descriptor lists;

Crops covered (and year of publication) Peach (1985)\*, Plum (1985)\*, Almond (1985)\*, Apricot (1985), Cherry (1985)\*, Oat (1985) and Sunflower (1985).

The promotion of an effective data exchange network;

An ECP/GR Workshop on Exchange of Information was held in autumn, 1984, at the Plant Breeding and Acclimatization Institute, Radzikow, Poland

The rationalization of collections (elimination of unnecessary duplicates);

\* Initiated and written in collaboration with Commission of European Communities - EEC

The data bases will publish during 1985 the first preliminary catalogues of European collections (of ECP/GR crops). After publication, workshops are planned to survey the major collections and compare them for unique accessions.

The identification of gaps in collections and the promotion of further selective collecting where necessary (i.e. where germplasm is under threat of loss);

E.g., the Forages Working Group specified urgent collecting needs in most European countries; the Prunus Working Group identified three levels of priority and consequently the ECP/GR, through IBPGR, supported collecting missions in Yugoslavia (begun in 1984).

Stimulation of systematic acquisition of characterization data and, when appropriate, the cooperative evaluation of quantitative characters;

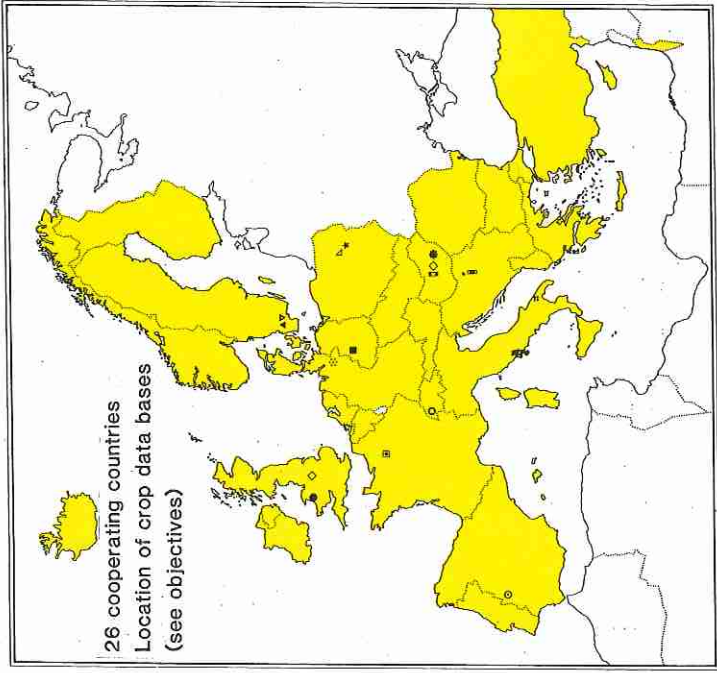
Promotion of characterization (an expensive and time-consuming process) is based on a rationalized inventory of unique accessions, and is planned for later in the Programme.

Support training needs of genebank personnel so as to facilitate implementation of the plan for each crop.

Training has been supported on an individual basis (e.g., a documentation officer from Yugoslavia was trained at the Nordic Gene Bank) and on a group basis (e.g., students from 10 countries in Europe have been trained in forage genetic resources at the Welsh Plant Breeding Station)

**Location of crop data bases**

- ◻ Eye Phalaris spp. ::
- Barley Lolium (annual spp.),  
Vicia spp.
- ▲ Prunus Medicago  
(perennial spp.)
- ◇ Allium Bromus spp. \*
- ▣ Sunflower (cultivated species) Dactylis spp.: \*  
Festuca spp.
- ▤ Sunflower (wild species) ●  
Trifolium repens,  
Lolium perenne,  
Lolium multiflorum
- ⊘ Oat ⊙  
Trifolium subterraneum,  
Medicago  
(annual spp.)
- ⊙ ECP/GR Sec't. ○  
Trifolium pratense
- ▽ Phleum spp. ▽



**Member Countries of the ECP/GR**

The following countries are members in Phase II of the European Cooperative Programme for Conservation and Exchange of Crop Genetic Resources:

- |                     |                  |                |
|---------------------|------------------|----------------|
| Austria             | Germany,         | Poland         |
| Belgium             | Federal Republic | Portugal       |
| Bulgaria            | Greece           | Spain          |
| Cyprus              | Hungary          | Sweden         |
| Czechoslovakia      | Iceland          | Switzerland    |
| Denmark             | Ireland          | Turkey         |
| Finland             | Israel           | United Kingdom |
| France              | Italy            | Yugoslavia     |
| Germany,            | Netherlands      |                |
| Democratic Republic |                  |                |

### Country coordinators

Countries belonging to the ECP/CR name scientists to help coordinate implementation of programmes in their respective countries. The following is a list of country coordinators:

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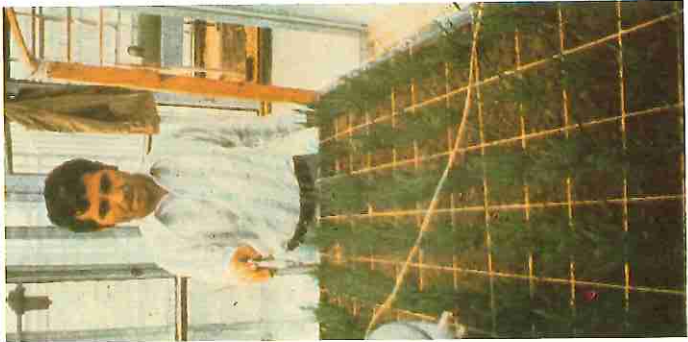
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Paragraphs

- page 1: N.I. Vavilov (Prof. F. Kh. Bakhteyev, Moscow)  
page 3: Berley (F. Botts|FAO)  
page 6: Collecting in Greece (IBPGR)  
page 7: (clockwise from upper right):  
Sunflower (FAO)  
Peach (IBPGR)  
Peanut (IBPGR)  
Oat (IBPGR)  
computer research assistant at IBPGR (IBPGR)  
Tissue culture study (IBPGR)  
Characterization and evaluation studies (IBPGR)  
page 16: (clockwise from upper right):  
Long-term seed storage (ZIGUK  
German Democratic Republic)  
Fly pollinating onions for seed  
production (NRS, Wellesbourne, UK)  
Student in postgraduate training  
course (University of Birmingham, UK)  
Evaluation study of Prunus avium  
(ARARI, Turkey)

Acronyms used in the text

COMECON - Council for Mutual Economic Assistance  
EEC - European Economic Community  
EUCARPIA - European Association for Research  
on Plant Breeding  
FAO - Food and Agriculture Organization  
of the United Nations  
IBPGR - International Board for Plant Genetic  
Resources  
SAC - Scientific Advisory Committee (of the  
ECP/ER)  
TCC - Technical Consultative Committee (of  
the ECP/ER)  
ZIGUK - Zentralinstitut für Genetik und Kultur-  
pflanzenforschung (German Democratic  
Republic)