

**Report of a  
Working Group  
on *Prunus***

**Held in Lund  
24-27 May 1983**

**UNDP/IBPGR EUROPEAN  
COOPERATIVE PROGRAMME  
FOR CONSERVATION AND  
EXCHANGE OF CROP  
GENETIC RESOURCES**



**International Board for Plant Genetic Resources**



**United Nations Development Programme**



AGPG:IBPGR/83/67  
July 1983

EUROPEAN COOPERATIVE PROGRAMME FOR THE CONSERVATION  
AND EXCHANGE OF CROP GENETIC RESOURCES

Prunus Working Group

REPORT  
of the first meeting of the Working Group  
held at the Nordic Gene Bank, Lund, Sweden,  
24-27 May 1983

UNDP - IBPGR

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, which was established by the CGIAR in 1974, is composed of its Chairman and 15 members; its Executive Secretariat is provided by the Food and Agriculture Organization of the United Nations. The basic function of the IBPGR, as defined by the Consultative Group, is to promote 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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Corrigenda for:

UNDP/IBPGR European Cooperative Programme for Conservation and Exchange of Crop Genetic Resources.

Report on a Working Group on Prunus: held in Lund, 24-27 May 1983.

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1 para 3, line 7. Change "heading 5" to "Section 2".

2 2.1 para 5 should be deleted and substituted with:

It is recommended that a procedure should be followed which should actively involve the designated country contacts to the ECP/GR, as links to all the collections in their countries. On receipt of the required data the country contacts should transmit it to the Secretariat of ECP/GR, so enabling the Secretariat to monitor progress, before passing it out to the appropriate crop coordinators for collating and scrutiny. Finally the crop coordinators should transmit the assembled lists, through Professor Fernqvist (who was designated general coordinator) to the Nordic Gene Bank (which agreed to act as the European data base for Prunus) for registration. This scheme is shown in diagrammatic form in Appendix IV together with a time schedule and the list of crop coordinators.

3 para (i), line 2. Change 'designation' to 'designated'.

4 2.4. (i) line 1. Change to 'In stage 1 of the production of an European Inventory, list accessions etc.

5 1st para, line 6. Change 'plan' to 'play'.

## INTRODUCTION

Following the agreement for Phase II of the European Cooperative Programme for the Conservation and Exchange of Crop Genetic Resources (ECP/GR) to be organized on the basis of crop working groups, priorities were identified by the Scientific Advisory Committee of Phase I and endorsed by the Governing Board meeting in Brussels in October 1982. A high priority was accorded to Prunus. Accordingly, a Working Group was convened, 24-27 May, at the invitation of the Nordic Gene Bank. A list of the participants is shown in Appendix I.

The participants were warmly welcomed to the Nordic Gene Bank by its Director, Dr. Kjellqvist, who spoke, in his opening remarks, of the great interest of the Gene Bank in Prunus germplasm in Scandinavia. The Working Group was grateful for the visit to wild cherry populations in eastern Scania, and the Fruit Research Institute, Baltgaard on 26 May, and to the Fruit Research Institute, Alnarp on 27 May.

The principal purpose of the meeting was defined by Dr. J. Holden - representing the ECP/GR Secretariat - as the formulation of a detailed work plan for the ECP/GR on Prunus genetic resources for Phase II of the programme, 1983-85 and Phase III, 1986-88. The intentions are that the work plan shall be the basis for collaborative action in participating countries and that it shall be recommended to Governments by IBPGR - the operating agency - with requests for the implementation by appropriate genebanks or institutes within the countries, of the Recommendations set out under heading 5. The terms of reference of the Working Group, as set out in the Report of the 3rd Annual Meeting of the Governing Board of ECP/GR, December 1982, are reproduced in Appendix II.

## REPORT

### 1. Aims of the Project

The Working Group made recommendations with the objective of realizing the aims of the Project as set out below:

- 1.1 The complete documentation of European Prunus collections with respect to passport and characterization data using the IBPGR standard descriptor lists.
- 1.2 The registration of these data in computer data bases.
- 1.3 Full and effective data exchange between genebanks or collections and between genebanks and breeders and research workers.
- 1.4 The detection of replications of accessions.
- 1.5 The rationalization of national collections by agreement between participating countries with consequent elimination of waste of resources in the maintenance, characterization and evaluation of redundant accessions.
- 1.6 The identification of gaps in the representation in the European collections of Prunus germplasm, wild and cultivated, which is under threat of destruction or serious erosion.
- 1.7 The planning of further collecting in the light of 4.6 above.

- 1.8 The raising of the level of expertise in genebank/collection staff through the provision of training in appropriate skills.
- 1.9 The promotion of the free exchange of germplasm between genebanks/or collections and between genebanks/collections and breeders.

## 2. Recommendations

The recommendations of the Working Group are given below. They are ordered in the same sequence as the aims of the Project given under heading 1 above.

### 2.1 Documentation

The Working Group recommended that the programme should be restricted to the conservation of basic genetic resources represented by wild forms, landraces and old cultivars which are threatened by extinction or severe erosion and that breeder's material should only be included when an acceptable justification is provided.

The Working Group noted, that in response to the questionnaire circulated by IBPGR on 24 February 1983 to members of the Working Group, and on 1st March to all official country contacts, replies were received from ten countries. The data had been summarized by the Secretariat and were presented to the meeting in tabular form, giving estimates of numbers of accessions, their degree of documentation and of the severity of erosion in wild forms, landraces and old cultivars of Prunus avium, P. domestica, P. persica, P. amygdalus and P. armeniaca. Despite the fact that the data were incomplete in geographical distribution and in species representation, it was received with appreciation since it provided a valuable impression of the magnitude of the problem as well as of the status of Prunus genetic resources in some of the European countries. The Working Group recommended that immediate attention be given to the documentation of individual accessions.

The Working Group noted that some descriptor lists are available, others are in an advanced stage of preparation, especially for cherries, plums and peaches. In addition, the IBPGR list of descriptors for apricot is in need of a major revision and the IBPGR publication on almond requires minor modification. It recognized the need for the IBPGR to integrate its work on descriptors with all European activities, in order to produce widely acceptable standard lists for the use of ECP/GR. It recommended, therefore, that immediate action be taken to publish such agreed descriptor lists in accordance with the procedure detailed in Appendix III.

The Working Group considered at some length the most effective way of achieving the registration of data in a central data base. It had in mind the general problems of obtaining replies to questionnaires and of conveying its own sense of urgency to curators of collections and genebanks, and to the general problems of the transfer of data which is largely in manual records.

It recommended that a procedure be followed which should actively involve the ECP/GR country contacts as links to all the collections in their countries and that they, in turn, should link with proposed crop coordinators. The crop coordinators would transmit the assembled data, through Prof. Fernqvist (who was designated as general coordinator) to the Nordic Gene Bank which agreed to act as a Central Data Base. (The scheme is shown in diagrammatic form in Appendix IV together with a time schedule and the list of crop coordinators.)



The Working Group carefully considered the problems of obtaining information by questionnaire and recommended that information transfer should take place in two stages:

(i) A request by questionnaire for basic data consisting of a list of accession names, the designation purpose of each accession (for example dessert variety, rootstock etc.), and the indication of country of origin. A copy of the questionnaire is attached as Appendix V.

(ii) When the basic data have been processed at the central data base and obvious redundant replicates have been identified, countries of origin of the various lines will be asked to supply full passport data and such characterization, and evaluation data as may be available. The Working Group recommended that as a general principle, characterization data should be provided by the country in which the accession originated or, alternatively, by the country where the variety is most widely used.

The Working Group recommended that collaborators try to observe deadlines for the completion of stage 1 in the establishment of the central data base (Appendix IV A).

## 2.2 The establishment of computer data bases

The Working Group considered that the benefits to be derived from the registration of genebank and collection data in a microcomputer data base are too well known to require reiteration here. However, it also recognized that there are difficulties in many countries in achieving this aim and recommended that the genebank directors and curators of collections take advantage of the technical advice available from IBPGR and the Nordic Gene Bank who have kindly offered to serve as the central data base for Prunus with the assistance of the IBPGR.

## 2.3 Data exchange

The Working Group recognized that requests for information, whether from the Secretariat in the form of questionnaires or from other curators are often difficult to meet when data has to be copied in manuscript or typescript. Nevertheless, free and rapid data exchange is essential to achieving the aims of the Programme and for this reason the Working Group recommended that funding authorities in participating countries give urgent consideration to the provision of suitable equipment for the computer documentation of their collections so that exchange in magnetic form will be possible. Where country collections are dispersed, the possibility of a simple mobile unit, transportable by car, should be considered.

The Working Group considered the question of compatibility between computer systems in relation to data exchange between genebanks/collections and between them and the central data base at the Nordic Gene Bank and accepted the assurance from Dr. Yndgaard that where problems did occur they could be solved by the Nordic Gene Bank acting in an advisory capacity.

It further recommended that the country contacts be kept fully informed of developments so that lines of communication be opened and maintained through them, to achieve coordination between collections within countries.

## 2.4 Redundant accessions

The Working Group wishes to stress that the establishment of a European data base for Prunus is not an end in itself but a step towards the longer term objectives. Of these, the Working Group regards the identification of replicates of the same material in different collections of great importance. It recommended that the Nordic Gene Bank, acting as the central data base, should:

(i) In stage one of the production of an European Inventory list of accessions according to name, number and from the limited data provided on each, select one or more accessions according to prime source, and

(ii) request full data on the reduced list. From this it should be possible to produce a detailed European Inventory for use in rationalizing collections.

## 2.5 Rationalizing collections

*+ Prunus  
and seeds  
collections*

After the production of a detailed European list of Prunus accessions, the Working Group recommended that ECP/GR should call a meeting for each crop at which country representatives should jointly agree on responsibilities for maintaining accessions in their collections, bearing in mind the need to ensure conservation of each genotype in at least two countries, on the one hand, and on the other the need to reduce the size of the European conservation effort as much as possible.

The Working Group further recommended that whenever possible material should be maintained in its country of origin, particularly so in the cases of wild material, and that Governments should endeavour to provide resources for this purpose.

The Working Group further recommended that all curators of genebanks/collections should give at least two years' notice, through the Secretariat to other curators, of intention to grub accessions from their collections.

*seeds  
orthodox*

The Working Group, recognizing the particularly difficult problems of cost, land, labour and diseases associated with the maintenance of Prunus collections as orchard trees, recommended that member Governments and IBPGR should stimulate research into the long-term storage of seed and to cryo-preservation methods for budwood and pollen.

## 2.6 Collecting

The Working Group wishes to reiterate the basic principle that further accessions of material into collections should only occur when that material is thought to be of value, to be absent from the rationalized European Prunus collection (see 5.5.1 above) and to be under serious threat of erosion or destruction. It was strongly of the opinion that genetic diversity in the form of wild populations is best conserved in situ and that this should be the preferred option in the absence of threat.

The Working Group recognized two categories of collecting which may be required and recommended that this be coordinated as follows:

(i) Emergency collecting to rescue material which from the experience of the members of the Working Group is known to be threatened with destruction. The detailed recommendations are given in Appendix IV.

(ii) Following analysis of geographical origin of the material listed in the Inventory of European Prunus germplasm by the central data base, areas of diversity which are seen to be under-represented, should be collected. This will require careful planning on a collaborative basis, both for the collecting operation and for the maintenance of the collected material. The Working Group considered that the ECP/GR Secretariat should plan an active coordinating role in this work.

## 2.7 Training

The Working Group is aware that within present limitations of staffing, equipment and other resources, barriers can exist in many institutes to the implementation of the recommendations set out above. It recommended that:

(i) Countries should endeavour to meet these needs of the programme as part of their commitment to inputs in kind, and

(ii) that needs which cannot be fulfilled in this way should be notified to the Secretariat who will endeavour to arrange collaborative action between participating countries, for example, in the provision of training in special skills, or when this is not possible, by the provision from the Programme central funds.

## 2.8 Exchange of Germplasm

The Working Group drew attention to the explicit statement in the formal Projet Documents, signed by participating Governments, that a necessary prerequisite to participation is a commitment to make available to all other participating countries the germplasm in their possession.

The Working Group recommended that directors of genebanks and curators should actively promote the utilization of the genetic resources in their care by breeders and research workers.

The Working Group considered the operation of plant quarantine regulations in relation to the free exchange of germplasm. It fully recognized the necessity for quarantine restrictions on movement but could not identify any absolute barriers to exchange arising from quarantine regulations, and recommended that curators and others should be meticulous in their observation of such regulations.

The Working Group recorded its appreciation of the excellent arrangements and facilities provided by the Director and Staff of the Nordic Gene Bank for all aspects of this Meeting.



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APPENDIX II

TERMS OF REFERENCE FOR ECP/GR WORKING GROUPS

(Extract from Report of Third Annual Meeting of the Board of ECP/GR)

1. To organize joint activities between sub-regional groupings and countries.
2. To collect information on germplasm material available in European genebanks of the crop(s) concerned, and study this information with the aim of identifying redundant duplicates and gaps in the collections.
3. To organize or stimulate collecting trips to fill the gaps in existing collections.
4. To agree on measures to conserve the crop germplasm material in long-term and/or medium-term storage.
5. To arrange for the regeneration of material so that minimal change takes place in its genetic composition.
6. To organize or stimulate characterization and preliminary agronomic evaluation of accessions, using accepted descriptors.
7. To see that acquired data are stored in an acceptable way in computers, using agreed descriptors and data management systems.
8. To arrange for the compilation of catalogues for the crop(s) concerned.
9. To encourage free exchange of germplasm between genebanks and between genebanks and plant breeders.
10. To propose and/or organize individual or group training activities.
11. To encourage close links between those dealing with plant genetic resources and plant breeders.

PREPARATION/REVISION OF DESCRIPTOR LISTS

1. Coordinators of descriptor lists were nominated as follows:

Almond:	Dr. R. Gülcan
Apricots:	Prof. R. Guerriero
Cherries:	Dr. H. Schmidt
Peaches:	Prof. E. Bellini
Plums:	Dr. D. Cobianchi

2. ECP/GR Secretariat to approach Drs. Guerriero, Cobianchi and Bellini to seek their agreement.

Cherry

- |       |   |                        |
|-------|---|------------------------|
| (i)   | ECP/GR sends copies of draft descriptor lists for comment to ECP country contacts for distribution to appropriate workers in their countries (IBPGR Secretariat to distribute to other appropriate workers outside Europe) by | July 1983              |
| (ii)  | Comments directly returned to coordinators by   | Oct. 1983 <sup>*</sup> |
| (iii) | Coordinators incorporate comments as necessary and return final descriptor list to IBPGR by   | Nov. 1983              |
| (iv)  | IBPGR arranges printing. Publication  | Spring 1984            |

Almond, Apricot, Peach and Plum

- |       |  |                        |
|-------|--|------------------------|
| (i)   | Lists to coordinators for revision to standard IBPGR format by   | June 1983              |
| (ii)  | Coordinators send revised lists to IBPGR by  | August 1983            |
| (iii) | ECP/GR sends revised lists for comment to ECP country contacts for distribution to appropriate workers in their countries (IBPGR Secretariat to distribute to other appropriate workers outside Europe) by | Sept. 1983             |
| (iv)  | Comments directly returned to coordinators by  | Nov. 1983 <sup>*</sup> |
| (v)   | Coordinators incorporate comments as necessary and return final descriptor list to IBPGR.  | Dec. 1983              |
| (vi)  | IBPGR arranges printing. Publication   | Spring 1984            |

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\* Suggest: Failure to return comments be interpreted as agreement with descriptor list as circulated in draft.



APPENDIX IV

EUROPEAN PRUNUS DATABASE

Stage 1

A. Suggested Timescale

Listing of varieties/accessions with minimum descriptors  
and initial detection of redundant accessions

	ACTION
1. (a) Type report and associated papers.	ECP/GR
(b) Contact designated crop coordinators: Seek agreement, find alternatives; amend report as necessary	1/9/83
2. Full distribution of report, questionnaire, list of country contacts, covering letter etc. to:  All members of Working Group All country contacts from countries with <u>Prunus</u> collections. Other country contacts for information	ECP/GR 1/10/83
3. Return of completed questionnaires to country contacts	Curators 1/1/84
4. Data from country collections through ECP/GR	Country contacts
5. Assembled data sent to each crop coordinator by ECP/GR	1/3/84
6. Preparation of lists of accessions, by country, listed in alphabetical order. Obvious replications revealed. Send or take to general <u>Prunus</u> coordinator.	Crop coordinators 1/6/84
7. Begin compilation of European <u>Prunus</u> database. Identification of obvious redundant replicates.	Nordic Gene Bank 1/7/84

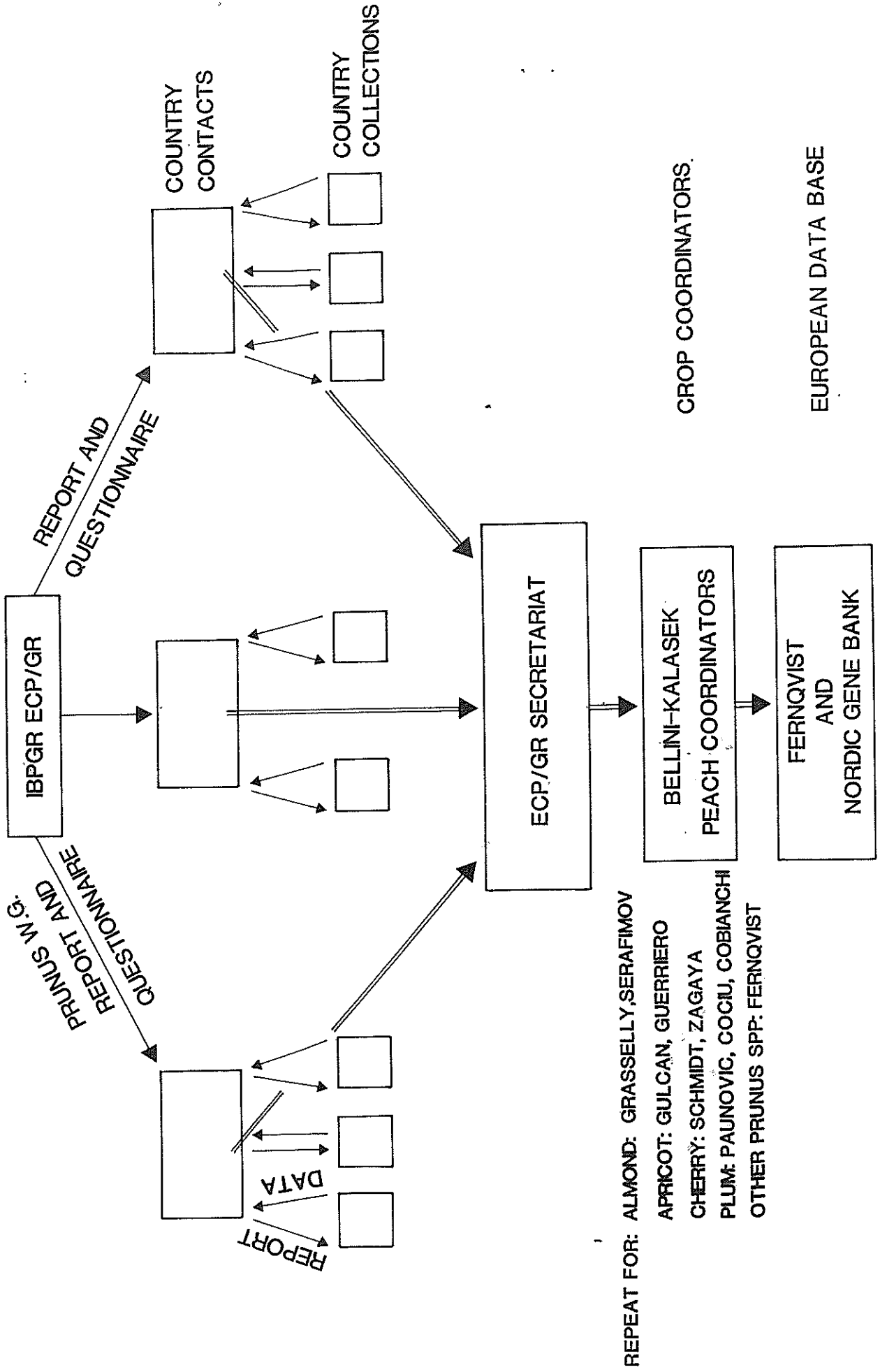
Stage 2

- |  |                            |
|--|----------------------------|
| 1. Return of printouts listing varieties by country of origin via country contacts, requesting full passport data and data characterization and evaluation as available. | Nordic Gene Bank<br>ECP/GR |
| 2. Return of full data via country contacts to Nordic Gene Bank.   |                            |

The Working Group felt that the assignment of target dates at this time, is impracticable for stage 2.

EUROPEAN PRUNUS DATABASE

B. Revised Information Flow Chart (stage 1)



EUROPEAN PRUNUS DATABASE

C. Proposed Crop Coordinators

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QUESTIONNAIRE

Genebank/Institute/Collection (please give full address and telex number)

Curator/Person responsible:

List of individual accession of Crop .... 1/

Cultivars or other designation	Crop classification	Fruit use	Plant use	Origin where collected or bred
	Complete this column by using the following code.	ditto	ditto	Use full names or abbreviations of country names for use with IBPGR descriptor lists
	For plums:	(0) = no use (1) = scion cultivar -- dessert (2) = scion cultivar-processing (including distilling) (3) = Dual or multi-purpose consumption	(0) = no use (1) = Clonal rootstock (2) = Clonal interstock (3) = seedling rootstock (4) = Ornamental/pollinator (pollinator) (5) = Dual or multipurpose use (6) = Botanical (wild) species (7) = Other (specify)	
	(1) European group			
	(2) Chino-Japanese group			
	(3) Hybrids			
	(4) Other (please specify)			
	For cherries:			
	(1) Sweet cherries			
	(2) Sour cherries			
	(3) Hybrids			
	For peaches:			
	(1) peaches			
	(2) nectarine			

1/ Separate questionnaires will have to be completed for almond, apricot, cherry, peach, plum and other Prunus species.

APPENDIX VI

RECOMMENDATIONS ON EMERGENCY COLLECTING

These recommendations were prepared by Prof. R. Bernhard after consultation with several members of the Working Group.

Three levels of priority are recognized and the recommendations are grouped accordingly.

Priority 1: Destruction of small orchards, gardens and hedgerows by urbanization or the trend to larger mechanized arable farming units.

1. ? Apricot populations in the area of Naples. These populations, usually of seedling origin contain great diversity and are under severe threat.

to see in FRA 2. Wild forms of P. armeniaca and P. brigantiaca in the southern part of French Alps.

to see with location 3. Old Peach cultivars, often of seedling origin in farm gardens in (i) Central and Northwest France, (ii) upper Rhone Valley - France and Switzerland, and (iii) Rhine Valley - Germany.

4. Bitter almonds are being progressively replaced by modern sweet almond varieties in all Mediterranean countries. A collection of the chief ecotypes of bitter almonds is needed to preserve their variation, particularly that of their root systems.

Priority 2: Erosion of local populations, less severe than Priority 1.

answered 1. Wild populations of Apricots and Almonds in Turkey. Much diversity in many local ecotypes under threat in an area important for its position between the Middle East and Europe.

Prunus 2. Diploid euro-asiatic Prunus species in Romania showing great diversity. (Cerasifera ressutiensis, etc.).

Prunus 3. Hexaploid P. domestica and P. insititia in Yugoslavia.

Priority 3. Erosion suspected but position less clear and requiring study.

to see 1. Sweet Cherries in Spain where self-fertility, very early and late maturity and exceptional firmness of flesh are known to occur.

Prunus 2. Sweet Cherries in diverse local forms on some of the Greek islands.

? 3. Wild forms of Cherries with waxy leaves in the forests of Tunisia.

General points

1. The question of minimum sample size is recognized as a problem of great importance which must be resolved if collections are to be kept to a manageable size and yet diversity preserved.
2. Collecting requires the skills of a pomologist, a taxonomist and an ecologist in cooperation.
3. A collecting programme should make provision, for 2 visits to each site each year for 2-3 successive years before the range of variation can be adequately assessed.
4. Careful planning is required at the recipient station so that material may be grafted as it is received.
5. Material is best conserved in the country of collection.

Further recommendations on the implementation of these identified needs are thought to be beyond the scope and time available to the Working Group and the matter is referred to the Secretariat for consideration.