

REPORT OF THE

**Held in Rome
8-9 March 1979**

**FAO/UNDP GOVERNMENT CONSULTATION
ON THE EUROPEAN COOPERATIVE PROGRAMME
FOR THE CONSERVATION AND EXCHANGE
OF GENETIC RESOURCES FOR PLANT BREEDING**



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

RER-75/035
Meeting Report

FAO/UNDP GOVERNMENT CONSULTATION
ON THE
EUROPEAN COOPERATIVE PROGRAMME
FOR THE
CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING
Rome, 8 - 9 March 1979

UNITED NATIONS DEVELOPMENT PROGRAMME
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ROME, 1979

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The copyright in this book is vested in the Food and Agriculture Organization of the United Nations. The book may not be reproduced, in whole or in part, by any method or process, without written permission from the copyright holder. Applications for such permission, with a statement of the purpose and extent of the reproduction desired, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

© FAO 1979

CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. PRELIMINARIES	1
III. PROCEEDINGS	2
IV. PROPOSALS	4
V. DECISIONS	4
<u>APPENDIX I:</u> PRIOR CONSULTATIVE MISSIONS AND DISCUSSIONS (1975-1978)	7
<u>APPENDIX II:</u> PARTICIPANTS AND OBSERVERS	8
<u>APPENDIX III:</u> AGENDA	12
<u>APPENDIX IV:</u> BACKGROUND PAPER FOR GOVERNMENT CONSULTATION MEETING FAO, ROME 8-9 MARCH 1979	13
PART I INTRODUCTION	15
PART II BACKGROUND	16
PART III INSTITUTIONAL FRAMEWORK	19
PART IV INPUTS	19
PART V OBJECTIVES	19
PART VI WORK PLAN	21
<u>ANNEX I</u>	22
<u>ANNEX II</u> EUROPEAN COOPERATIVE PROGRAMME FOR THE CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING	23
ANNEX III UNDP EUROPEAN COOPERATIVE PROGRAMME FOR THE CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING	24
ANNEX IV UNDP EUROPEAN COOPERATIVE PROGRAMME FOR THE CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING	25

I. INTRODUCTION

1. At a meeting convened in June 1975 by the UNDP European Office, Geneva, the concept of a European Cooperative Project on the Conservation and Exchange of Genetic Resources for Plant Breeding (ECP-GR) was identified as a project that would be very pertinent to the UNDP's endeavour to establish cooperation between East and West European countries.
2. In August 1977, the UNDP approved a preparatory phase for the project with FAO as the Executing Agency. Funds were allocated for the appointment of a Coordinator to assist in the formulation of the project document for the proposed ECP-GR and in bringing the project into operation.
3. In the event, the timetable set for the completion of preliminaries could not be kept and the UNDP extended the period of preparatory assistance for a further twelve months. It ends in July 1979.
4. The Work Plan for the preparatory phase included a round of consultations with relevant personnel of governments in many European countries, discussions with representatives of regional, sub-regional and national programmes on plant genetic resources to see how they could be linked to the proposed ECP-GR and the preparation of a draft project document as well as draft rules for the Steering Committee that was contemplated to coordinate the ECP-GR.
5. Missions that have been undertaken by the Acting Coordinator (Ms. E. Bennett, FAO), Consultants and others and meetings that have been attended to further the development of the proposed ECP-GR are listed in APPENDIX I.
6. The meeting reported here was convened by FAO to acquaint government delegates, representatives of plant genetic resources organizations, and observers with the present position of the proposed ECP-GR and to get a consensus on what the follow-up should be.
7. The Meeting was held at FAO, Rome, from 8 to 9 March 1979. Participants are listed in APPENDIX II.

II. PRELIMINARIES

8. Dr. O. Brauer, Director, Plant Production and Protection Division, FAO, opened the Meeting by asking delegates to elect a Chairman.
9. Dr. H. Skov (Denmark) was elected unanimously.
10. Invited by the Chairman to elect a Vice-Chairman and Rapporteur, the Meeting elected Dr. J. Dumanovic (Yugoslavia) and Dr. K.S. Dodds (FAO), respectively.
11. The Meeting adopted the proposed Agenda (APPENDIX III).
12. The Chairman invited Dr. Brauer to give the Opening Address. In doing so, Dr. Brauer reminded the Meeting that if a way could be found to get the many organizations in Europe with an interest in gene banks to work cooperatively within an integrated system, inestimable benefits would accrue for plant breeding.
13. He welcomed the delegates on behalf of the Director-General of FAO and the Assistant Director-General for Agriculture, FAO, and wished the Meeting success in its deliberations.
14. The good wishes for the success of the Meeting were echoed by Dr. D. Lascu, UNDP Headquarters' Representative.

15. He thanked the representatives of governments and other delegates on behalf of UNDP for their collaboration during the complex preparatory phase of the proposed ECP-GR. He assured the Meeting that the UNDP was committed to help with the establishment of such a project which would be of benefit to all countries.

16. The Chairman asked Ms. E. Bennett (Acting Coordinator) to describe briefly the technical aspects of the preparatory phase for the ECP-GR. Ms. Bennett said that many changes had occurred since the joint meeting of the EUCARPIA Gene Bank Committee/FAO/UNDP was held in Braunschweig-Völkenrode in October 1975 in order to evaluate the genetic resources work being carried out in Europe. Four sub-regional groups were now active in Europe - the EEC group of nine countries, the COMECON Council for Mutual Assistance consisting of seven countries, the newly established Nordic Gene Bank of five countries and the Mediterranean Regional Programme in which thirteen countries participate, of which eight are European. These organizations could provide a basis on which to build an ECP-GR if a way could be found to coordinate their activities. The aim should be to make good any shortcomings in facilities, ensure that genetic data systems at present employed be made intercompatible through conversion programmes, and work towards the free exchange of plant genetic resources not only between European nations but also between them and the Third World.

III. PROCEEDINGS

Certain Genetic Resources Programmes

17. Because the proposed ECP-GR must be considered in the light of a clear understanding of what is already being done in Europe and adjacent regions to conserve and exchange genetic resources, on the first day of the Meeting the Chairman invited Dr. G. de Bakker, Vice-Chairman of the International Board for Plant Genetic Resources (IBPGR), to speak about this organization.

18. Dr. de Bakker explained that 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 CGIAR in 1974, is composed of 15 members from 13 countries; its Executive Secretariat is provided by FAO. The basic function of 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 mobilises financial support from its members to meet the budgetary requirements of the Board.

19. On the second day of the Meeting, the Chairman invited the delegates from the EEC, the Nordic Group, the Mediterranean Regional Programme and the COMECON Representative to speak about their respective activities.

20. Dr. H. Van der Borg, Coordinator, EEC Expert Group on Genetic Resources and Plant Resistance, said that a particular interest of the Group was the utilisation of genetic resources for resistant breeding. The work programme for the next three years embraced all aspects of genetic resources activities. Attention would be paid to unifying descriptors and descriptor states for which purpose crops had been divided into eleven groups. Help would be given to EEC gene banks for storage facilities and plant collection. Meetings and workshops would be arranged to consider the problems raised by cross-fertilised crop plants, the evaluation of disease resistance and other characters and problems concerning seed exchange. Plans were in the making for collecting expeditions in the USSR and China. Collaboration would be sought with the Nordic Group especially through its Danish members who were also members of the EEC.

21. Dr. E. Kjellqvist, Director of the Nordic Gene Bank said that although the Gene Bank was only inaugurated formally on 1 January last, it was in fact fully operative. He drew the attention of delegates to the small pamphlet about the Gene Bank that had been distributed. The Nordic Group - Denmark, Finland, Iceland, Norway and Sweden - was ready to collaborate in every way possible to further the conservation and exchange of plant genetic resources.
22. Ms. Erna Bennett, FAO, spoke about the Mediterranean Regional Programme which has been supported by IBPGR for the last three years and in which thirteen countries participate.
23. It was a region with big differences between countries in levels of development and with wide climatic differences. Nevertheless, very good progress was being made with genetic resources activities, particularly plant collecting. Wherever possible, members with different nationalities were included in collecting teams to stimulate an international outlook. More than 5 000 accessions, mainly cereals and grain legumes, were entered in the Gene Bank at Bari which was acting for the time being as the central store for the region. Meanwhile gene banks had been established in Spain and Portugal and one was planned for Libya. Training personnel was a strong feature of the Regional Programme.
24. Ms. Bennett added that the first Regional Meeting of the Mediterranean Germplasm Programme had been held at FAO from 5 to 7 March, preceding the present meeting.
25. Speaking through an interpreter, Professor Staikov said that COMECON countries collaborate in genetic resources activities by means of a technical Scientific council. Academician D. Brezhnev, Director of the N.I. Vavilov All-Union Scientific Research Institute of Plant Industry, Leningrad, is the Coordinator.
26. Each country sends two delegates to the Council which meets once a year. Reports are given on the year's work and plans are considered for the future. There are four main types of activities: (i) training through study tours arranged in two or more of the countries; (ii) the development of crop descriptors; (iii) unification of the data processing system; and (iv) long-term storage of the genetic resources. Working groups are arranged on these activities by specialists.

The Proposed European Cooperative Project for Genetic Resources

27. The proposed European Cooperative Project for Genetic Resources (ECP-GR) was considered by the Meeting using a Background Paper on the subject, collated by Ms. Erna Bennett, FAO, as the basis for discussions. They extended over the two days of the Meeting and their substance is in the Proposals and Decisions stated below in this Report.
28. After a short review of happenings since the idea of the ECP-GR was promulgated, the document describes the objectives of the proposed project, draws attention to the need for close collaboration with other organizations concerned with plant genetic resources and suggests how the project should be run.
29. Several amendments to the text were recommended by the Meeting and incorporated in the document. The Meeting then approved it with the exception of references to a Steering Committee in Part III, Institutional Framework (APPENDIX IV).
30. The Meeting was of the opinion that much more detailed information about the role of the Steering Committee, membership, frequency of meetings, functions and duties, would have to be provided before a decision could be taken as to whether or not it should be an organ of the proposed project.

31. A separate document giving draft rules of procedure for the Steering Committee of the proposed ECP-GR was placed before the Meeting but in view of the Meeting's reservations about the formation of the Steering Committee itself, this document was held in abeyance.

32. A technical report dated January 1979 "On the feasibility of a European regional genetic resources information network (ERGRIN)" prepared by the TCD Applied Research and Consultancy Group, Dublin, Ireland, was presented to the Meeting.

33. Dr. J.T. Williams, Executive Secretary, IBPGR, said that the Board's experience with the development of a genetic resources information network, EXIR, by the Information Systems/Genetic Resources Laboratory (IS/GR), University of Colorado at Boulder, USA, should be borne in mind. The states of data themselves were found to limit the development of easy inter-communication, and in his view it would be many years before standard procedures for evaluation could be introduced.

34. In view of the technical nature of the ERGRIN report, it was not discussed in detail by the Meeting. Each delegate received a copy for close study.

IV. PROPOSALS

35. The following three proposals were submitted to the Meeting:

(i) The Polish delegate expressed the importance to activities in this field of using as far as possible existing organizations concerned with plant genetic resources, specifically the EUCARPIA Gene Bank Committee.

(ii) The IBPGR observer presented a proposal stating that "In view of the fact that several governments represented at this meeting are substantial donors to the IBPGR, and UNDP and FAO are co-sponsors of the Consultative Group (*) which is the parent body of IBPGR, it is proposed that representatives should consider agreeing to the European Programme being part of the IBPGR programme. In this way Europe will be an integral part of the world network of genetic resources activities. The IBPGR has substantial experience in developing and organizing regional programmes, and agreement to this proposition would avoid unnecessary duplication of effort."

(iii) The Nordic delegations proposed that "the UNDP will be asked to take a coordinating role and under its regional programme for Europe and under the concept of the UNDP European Cooperative Programme (ECP) finance a coordinator. The coordinator will from a central office point, during two years continue to examine the possibility for inter-governmental cooperation including organizational cooperation in Europe in the field of plant genetic resources. The ultimate objective will be to set up a permanent headquarters for this European Cooperative project, as has been done for another UNDP project and - if possible - in connexion with organizations having similar purposes. During the examination period close contacts would be kept with all institutions present at this meeting, including the IBPGR which has a global mandate."

36. The Meeting recommended that these proposals should be given further consideration by the means stated below in paragraph 40., item (d) of section V. DECISIONS

V. DECISIONS

37. The Meeting approved the urgent need to establish a European Cooperative Project for the Conservation and Exchange of Genetic Resources for Plant Breeding with a minimum of further delay, along the lines of the Background Paper as presented and amended at this consultation.

(*) Dr. D. Bommer, Assistant Director-General for Agriculture, FAO, reminded the Meeting that UNDP, FAO and the World Bank are co-sponsors of IBPGR.

38. This document was recognised as a good analysis of the present state of development of cooperation in the field of genetic resources in Europe, but should include references to foreseeable future contributions-in-kind by participating countries and financial implications in general.

39. The Meeting expressed its wish that UNDP in collaboration with FAO nominate a coordinator to complete this task, and, in addition, specifically to:

- (a) in consultation with representatives of European governments and of European and other appropriate scientific bodies make recommendations concerning the composition and function of organs for the operation of the project, including a Steering Committee and an Executive Committee;
- (b) consider necessary links with other appropriate international organizations;
- (c) recommend how formal relations between existing sub-regional programmes in the region should be established;
- (d) consider the three proposals submitted to the Meeting with a view to recommendations.

40. The Meeting resolved to convene in early December 1979 at Geneva, documents to be distributed two months prior to that date. It therefore expressed the wish that UNDP extend Preparatory Assistance accordingly.

41. There being no other business, the Chairman closed the Meeting, with a word of thanks to FAO and the UNDP for the accommodation and facilities provided and to the employees who gave administrative services.

APPENDIX I

PRIOR CONSULTATIVE MISSIONS AND DISCUSSIONS (1975-1978)

June	1975	UNDP European Office, Geneva
October	1975	Joint meeting: EUCARPIA Gene Bank Committee/FAO/UNDP
January	1976	Meeting of representatives of FAO/IBPGR/UNDP and EUCARPIA Gene Bank Committee
March	1976	UNDP/FAO Mission (Pichel/Sjögren) to EEC/HQ, Brussels
April	1976	UNDP/FAO Mission (Pichel/Sjögren) to Paris - Ministry of Foreign Affairs, INRA and OECD
February	1977	Collective Consultation Meeting, Geneva, with seventeen countries representatives
November	1977	UNDP/FAO Meeting, Geneva, (Andersen, Petitpierre, Persson, Erna Bennett)
December	1977	Meeting at FAO (Pichel, Lamberts, Erna Bennett)
	1977 - 1978	Visits to the following countries to discuss the proposed European Cooperative Project for Genetic Resources, by either Dr. H. Lamberts (Consultant - 3 months), Mr. R.J. Pichel, or Ms. Erna Bennett. Belgium, Bulgaria, Cyprus, Czechoslovakia, Federal Republic of Germany, France, German Democratic Republic, Greece, Hungary, Iceland, Italy, Ireland, Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, USSR, U.K., Yugoslavia.

APPENDIX II

PARTICIPANTS AND OBSERVERS

1. BELGIUM

Dr. C. POPULER,
Chef de Section,
Station de Phytopathologie,
Avenue Maréchal Juin 13,
B-5800 GEMBLoux.

2. BULGARIA

H.E. Lyuben DJILIANOV,
Minister Plenipotentiary,
Permanent Representative of
the People's Republic of
Bulgaria to FAO,
Embassy of the People's
Republic of Bulgaria,
ROME.

Prof. G. STAIKOV,
Director General,
Institute of Introduction and
Genetic Resources,
SADOVO
(District of Plovdiv).

3. CZECHOSLOVAKIA

Dr. V. FISER,
Federal Ministry of Agriculture
and Food,
Tesnov 17,
PRAGUE 1.

4. DENMARK

Dr. H. SKOV,
Chief of Administration,
Statens Planteavlkontor,
Kongevegen 83,
2800 LYNGBY.

5. FEDERAL REPUBLIC OF GERMANY

Dr. R. JORDENS,
Bundesministerium für Ernährung,
Landwirtschaft und Forsten,
Postfach,
D-5300 BONN 1.

6. FINLAND

Dr. O. REKOLA,
Chief Inspector of Agriculture,
Ministry of Agriculture and Forestry,
Hallituskatu 3A,
00170 HELSINKI, 17.

7. FRANCE

Dr. R. CASSINI,
Maître de Recherches INRA,
Station de Pathologie Végétale,
INRA-CNRA,
Route de St. Cyr,
78000 VERSAILLES.

8. GREECE

Dr. E. SKORDA,
Deputy Director,
Cereal Institute,
THESSALONIKI.

9. HUNGARY

Dr. M. SIMO,
Assistant to the Permanent
Representative of Hungary to FAO,
Via di Monteverde 53,
00151 ROMA.

Dr. P. VANDOR,
Counsellor,
Permanent Representative of Hungary to FAO,
Via di Monteverde 53,
00151 ROMA.

10. IRELAND

Dr. P. GRIFFIN,
Chairman,
Irish National FAO Committee,
Department of Agriculture,
Agriculture House,
Kildare Street,
DUBLIN 2.

11. ITALY

Dr. E. PORCEDDU,
Director,
Germplasm Laboratory,
c/o University Campus,
Via Amendola 165/A,
70126 BARI.

12. NETHERLANDS

Dr. H. LAMBERTS,
Director,
Foundation for Agricultural
Plant Breeding,
P.O. Box 117,
WAGENINGEN.

13. NORWAY

Dr. L.R. HANSEN,
The National Seed Council,
Moervn 12,
1430 ÅS.

14. POLAND

Prof. Dr. J. SZYRMER,
Deputy Director,
Plant Breeding and Acclimatization
Institute,
Radzikow,
WARSAW.

15. PORTUGAL

Prof. J.M.P. DA SILVA,
Director,
Instituto Nacional de Investigacao
Agraria,
Rua das Janelas Verdes 92,
LISBON.

Dr. M. MOTA,
Department of Genetics,
Estacao Agronomica Nacional,
OEIRAS.

16. ROMANIA

Dr. P. CELAN,
Deputy Permanent Representative
of the Romanian Socialist
Republic to FAO,
Via Nicoló Tartaglia 36,
00197 ROME.

17. SPAIN

Dr. M.A. BUENO,
Director,
Banco de Germoplasma,
INIA,
Finca "El Encin",
Ap. 127 Alcala de Herares,
MADRID.

Dr. Luis MELLADO,
INIA,
General Sanjurjo 56,
MADRID.

Dr. Jesus MIRANDA DE LARRA,
Permanent Representative of Spain to FAO,
Via di Monte Brianzo 56,
00186 ROME.

18. SWEDEN

Dr. I. ECKERSTEN,
Agricultural Counsellor,
Royal Swedish Embassy,
Piazza Rio de Janeiro 3,
00161 ROME.

Dr. C.G. JUNBACK,
Ministry of Agriculture,
Fack,
S-10320 STOCKHOLM.

Prof. L. KAHRE,
Swedish Seed Testing and Certification
Institute,
S-17173 SOLNA.

19. SWITZERLAND

Dr. M. INGOLD,
Adjoint de Direction,
Station Fédérale de Recherche Agronomique,
CH-1260 NYON.

20. TURKEY

Dr. K. ALPMAN,
Chief,
Turkish Gene Bank,
A.R.A.R.I.,
P.O. Box 9,
Menemen,
IZMIR.

21. USSR

Dr. V. BOGATYREV,
Embassy of the Union of Soviet
Socialist Republics,
Via Gaeta 5,
00185 ROME.

22. U.K.

Dr. J.D. HAYES,
Scientific Adviser,
Agricultural Research Council,
160 Great Portland Street,
LONDON, WIN 6DT.

23. YUGOSLAVIA

Dr. J. DUMANOVIC,
Maize Research Institute,
P.O. Box 89,
11018 ZEMUN.

24. UNITED NATIONS DEVELOPMENT PROGRAMME

Dr. E. ABERG,
UNDP Consultant,
Department of Plant Husbandry,
Swedish University of Agricultural Sciences,
75007 UPPSALA.

Dr. R.G. KNUTSSON,
Liaison Officer,
UNDP European Office,
Palais des Nations,
GENEVA.

Dr. D. LASCU,
UNDP HQ Representative,
One UN Plaza,
NEW YORK, N.Y. 10016.

Dr. A. PERSSON,
Senior Liaison Officer,
UNDP European Office,
Palais des Nations,
GENEVA.

25. FOOD AND AGRICULTURE ORGANIZATION

Dr. E. BENNETT,
Genetic Conservation & Information,
Crop Ecology and Genetic Resources Unit
Plant Production and Protection Division
FAO/HQ, Rome.

Dr. D.F.R. BOMMER,
Assistant Director-General,
Agriculture Department,
FAO/HQ, Rome.

Dr. O. BRAUER,
Director,
Plant Production and Protection Division
FAO/HQ, Rome.

Mr. R.J. PICHEL,
Chief,
Crop Ecology and Genetic Resources Unit
Plant Production and Protection Division
FAO/HQ, Rome.

OBSERVERS:

26. EEC

Dr. H. VAN DER BORG,
Coordinator,
EEC Expert Group on Genetic
Resources and Plant Resistance,
Mansholtlaan,
6708 PA WAGENINGEN,
NETHERLANDS.

27. EUCARPIA

Dr. E. PORCEDDU,
Director,
Germplasm Laboratory
C/-University Campus,
Via Amendola 165/A
70126 BARI.

28. IBPGR

Dr. G. DE BAKKER,
Vice-Chairman,
International Board for Plant
Genetic Resources,
c/o The Crop Ecology and Genetic
Resources Unit,
FAO/HQ, Rome.

Dr. J.T. WILLIAMS,
Executive Secretary,
IBPGR,
Crop Ecology and Genetic
Resources Unit,
FAO/HQ, Rome.

29. NORDIC GENE BANK

Dr. E. KJELLQVIST,
Director,
Nordic Gene Bank,
Fack,
22101 LUND 1,
Sweden.

30. CONSULTANT

Dr. R.H.W. JOHNSTON,
Manager,
Trinity College Dublin,
Applied Research and Consultancy Group,
18 Westland Row,
DUBLIN 2,
Ireland.

31. RAPPORTEUR

Dr. K.S. DODDS,
Coordinator,
IBPGR SW Asia Programme (REM-31),
c/o The Crop Ecology and Genetic Resources Unit,
FAO/HQ, Rome.

APPENDIX III

AGENDA

<u>8 March:</u>	10.00	Election of Chairman, Vice-Chairman and Rapporteur Opening address: FAO Opening address: UNDP Technical statement
	10.45	INTERVAL
	11.15	Discussion on the Background Paper
	13.00	LUNCH
	14.30	Discussion - continued
	15.30	INTERVAL
	15.45	Discussion - continued Discussion of technical report
	17.30	CLOSE FOR DAY
<u>9 March:</u>	10.00	Continuation of discussion
	11.00	INTERVAL
	11.15	Constitution of a Steering Committee
	13.00	LUNCH
	14.30	Presentation of draft rules of procedure for Steering Committee
	15.45	Recommendations (of Steering Committee)
	17.30	CLOSE

APPENDIX IV

United Nations Development Programme (UNDP)
Food and Agriculture Organization (FAO)

BACKGROUND PAPER FOR GOVERNMENT CONSULTATION MEETING
FAO, ROME 8-9 MARCH 1979

Project on
CONSERVATION, EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING

BACKGROUND PAPER ON EUROPEAN COOPERATIVE PROGRAMME ON THE
CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING

PART I INTRODUCTION

1. More than two-thirds of the world's collected reserves of plant germplasm are maintained by European institutions. The present document outlines FAO/UNDP proposals for a cooperative programme involving, in the first instance, European countries and closely associated neighbouring countries in a collective effort to evaluate and document existing collections, and through full and free exchange of germplasm and of genetic data relating to it, to attain a more rapid rate of crop improvement on a world scale by the maximum use of available genetic resources and scientific manpower than is possible by uncoordinated and independent activities. To attain these objectives close links will be established with the developing global network organized by FAO and IBPGR (International Board for Plant Genetic Resources - for a note on its origins see Part I, para 7).

2. There is very considerable variation from country to country and crop to crop in the spectrum of germplasm available to plant breeders in Europe. In some countries and for some major crops, plant breeders work with germplasm collections of no more than several hundred accessions, while in other countries this may be as much as several thousand. For the same crops, on a regional or global level, as many as ten thousand or fifty thousand germplasm accessions exist. It is clear, therefore, that were this full range of germplasm to be made available to breeders throughout Europe and, as a consequence of links with the global network, throughout the Third World, a very considerable increase in the rate of varietal improvement could be immediately effected. It is the objective of the present proposal to outline the mode in which this enlargement of the spectrum of breeding materials can be organized and guaranteed on a continuing basis through the European Cooperative Programme for the Conservation and Exchange of Genetic Resources for Plant Breeding, and the international programmes with which it shall establish the closest possible cooperative links.

3. The European Cooperative Programme for the Conservation and Exchange of Genetic Resources for Plant Breeding, assisted in its preliminary stages by UNDP, will constitute the European part of the global network which FAO and IBPGR are developing. Within this network, inter-regional links will serve the double purpose of:

making available the full resources of world germplasm collections to European plant breeders and plant scientists;

making available to plant breeders in less developed regions of the world the very considerable genetic resources maintained in European collections.

Thus, full-scale cooperation at a world level within a truly international network of genetic resources programmes is foreseen.

4. The concept of European Cooperative Programmes was introduced by UNDP in 1975. It is based on the principle of promoting national efforts and national institution building in European countries - utilising national IPF ^{1/} funds in those countries which are eligible - to such a state that all European countries may participate equally and adequately in Europe-wide, and eventually international, activities.

^{1/} IPF (Indicative Planning Figure) funds are those funds made available through UNDP to developing countries on the basis of Country Programmes decided jointly in consultation between UNDP and the country concerned.

5. As has been shown in (2) above, all-European cooperation in the conservation and exchange of genetic resources for plant breeding offers greatly enhanced possibilities of crop varietal improvement and it is, therefore, expected that European countries not receiving UNDP assistance (non-IPF-receiving) will wish to participate also in the programme. A number of such countries have already indicated this.

6. For these reasons, and to ensure maximum possibility of success, UNDP has agreed to support the European Cooperative Programme during a take-off phase by providing not only for the services of a Coordinator and information specialist as required, but also such consultants as may be needed during the preparatory phase. These shall have the task of acting as the nucleus of, and preparing plans for, a service which will, subsequent to the UNDP-assisted take-off phase, be supported by appropriate Trust Funds where necessary, but which shall principally function through existing institutions and programmes.

PART II BACKGROUND

1. All over the world man's crops are continually improving, but genetic potential for crop improvement has been, in many crops, only minimally exploited till now. It is important that crops continue to improve not only in yield but above all in quality because world population, on the one hand, is increasing and likely to do so for some time yet to come, while the agriculturally active population is, at the same time, decreasing.

2. Plant breeders approach the problem of crop improvement with a list of objectives to be met, such as high yield, good quality, high response to soil fertility, good adaptation, resistance to diseases, and so on. Desirable characteristics are then built together using suitable plant breeding techniques until the best possible combination of characteristics is obtained.

3. The raw materials used by the plant breeder in producing new and better varieties are characteristically rich in genetic variation, and their genetic potential is high. They are collectively described as genetic resources, and consist of the genetically variable primitive varieties, or landraces, that mankind cultivated before the advent of scientific plant breeding, as well as the important variation in gene combinations introduced by plant breeding in many crops.

4. As agriculture is modernised, and new varieties replace old, valuable genetic resources are in danger of becoming rare or of being lost, and only great diligence in locating them and collecting them in far-flung regions, and great care in conserving them and using them, can guarantee the success of future plant breeding.

5. In modern times, plant breeders have drawn heavily on primitive traditional cultivars for improving new varieties. But such genetically variable landraces now face extinction under the advance of more productive and more uniform new varieties that have replaced them. The steady depletion of the reserves of genetic diversity represented by innumerable local and traditional varieties, with its grave implications for the future, were first recognized by a few perceptive botanists and agricultural scientists in the 1940s and 1950s, but systematic large-scale efforts aimed at conserving genetic resources only began somewhat later.

6. Recognising that the rapid disappearance of older varieties could well limit the ability of the plant breeder to respond in the future to the needs of a changing world, with more and more pressure on the land available for agriculture, FAO set up two Panels of Experts, one on Plant Exploration and Introduction and the other on Forest Genetic Resources. These Panels were established as a follow-up of the recommendations of the 1963 FAO Conference, and were to advise the Organization how genetic conservation might best be carried out and where it was most urgently needed.

7. By 1970 many individual, institutional and governmental efforts were under way, but even so the advance of genetically uniform new varieties was fast outstripping the pace of exploration and collection. As a consequence it was therefore recognised that much of the world's reserves of plant germplasm were no longer to be found in cultivation and existed only in collections. Some perennial crops, such as tree fruits, no longer cultivated and not yet existing in collections, stand in particular danger. Furthermore, it was clear that the full potential of plant material already held in collections was still unrealised since the majority of accessions had been insufficiently evaluated to be of use to plant breeders, confirming the often stressed view that germplasm collections, however large, are relatively useless until their evaluation. In the light of these circumstances it was evident that the many different programmes under way could effectively contribute to a truly international genetic conservation effort only if they could be linked in a worldwide collaborative and coordinated network. Accordingly, at the initiative of the Technical Advisory Committee (TAC) of the Consultative Group on International Agricultural Research (CGIAR), the International Board for Plant Genetic Resources (IBPGR) was established with the mandate to create such a network, coordinate its activities, and to mobilize financial support for genetic conservation programmes wherever they are needed. IBPGR is one of a series of international agricultural research programmes supported by CGIAR, and its Executive Secretariat is provided by FAO.

8. At the same time, since 1966, European plant breeders through their organization EUCARPIA (European Association for Research on Plant Breeding) have sought to strengthen their international contacts to promote genetic conservation in Europe. Its Gene Bank Committee was established in 1968 and, stimulated by its activities, gene banks were established at Bari (Italy) and Braunschweig (FRG), whilst a Nordic Gene Bank has just been established at Lund. Each of these banks serves a distinct major agro-ecological zone. In addition, a cooperative Dutch/German programme has been established at Braunschweig and Wageningen for the Maintenance of potato germplasm. Recently a gene bank for wild species has been established at Kew. There is also the Izmir gene bank in South West Asia which has already established cooperative limits with European countries. These institutions have played an important role in western Europe and the EEC in stimulating and guiding actions aimed at the better conservation and utilization of plant germplasm. In eastern Europe plant germplasm is the object of high priority attention by appropriate government ministries in most countries and some eastern European gene banks enjoy high international repute.

9. During the last four years the Eucarpia Gene Bank Committee has been working to establish collaborative relations between gene banks throughout the whole of Europe. Perhaps the most significant aspect of this part of the work of Eucarpia is its programme of cooperative screening which is already operative, and plans for cooperative exploration and division of conservation responsibilities which are now being drawn up.

10. It is appropriate at the present stage of their development to amalgamate these separate though closely related, efforts. Inter-institutional cooperation such as has been developed by Eucarpia will, it is proposed in the present project, be supplemented and strengthened by inter-Governmental links. The aim is, in short, to construct a new dimension in the organization of plant breeding by permitting direct access on the part of every plant breeder to the germplasm of the entire continent by slotting together existing germplasm and plant breeding programmes, thus making possible a previously unattainable level of plant breeding efficiency.

11. At the suggestion of FAO and of some European countries, UNDP decided to assist in the above effort. Some countries, both those receiving UNDP aid and those not receiving such assistance, have already made certain provisions for national inputs to the programme. An assessment of the prevailing situation, with regard to the conservation, documentation and use of genetic resources in Europe, has been made, partly by means of a questionnaire conducted by the Eucarpia Gene Bank Committee and partly through UNDP-supported action by FAO in most European countries. UNDP has already participated in a series of Eucarpia Gene Bank Committee meetings and this participation led to a Collective Consultation in Geneva in February 1977 which concluded with a series of unanimous recommendations outlining the basis for further cooperative action (Annex I).

12. It is a central concept of this proposal that the European Cooperative Programme, within the developing FAO/IBPGR global network, should have a major impact on plant breeding programmes throughout the Third World.

13. It is envisaged that each country shall contribute towards the project through the insertion of its existing activities in a coordinated regional programme and that, subsequent to a preliminary UNDP-assisted take-off period, an appropriate Trust Fund may be established to maintain a coordinating function in Europe with the objectives of:

- (i) supporting, strengthening or creating, as appropriate, national units effectively to participate in the regional programme;
- (ii) providing unrestricted access to genetic data relating to all germplasm collections in Europe and, through links within the FAO/IBPGR global network, all world germplasm collections, and to this end;
- (iii) stimulating a major effort to describe and document all existing genetic resources collections in Europe, and consulting with specialists with the aim of assembling and coordinating a genetic data exchange service along lines which will be detailed in a separate document (Annex II);
- (iv) providing to European plant breeders a coordinating function that will avoid unnecessary duplication of effort in fields of exploration, evaluation and plant breeding. Special attention might be paid in this regard to local genetic material, such as land races, etc.;
- (v) special attention will be paid in this regard to coordinating the collection and evaluation of old traditional, particularly perennial cultivars in Europe which stand in special danger of genetic extinction;
- (vi) encouraging joint activities in all fields related to the evaluation of plant genetic resources and their maximum employment in breeding programmes;
- (vii) encouraging research on important open problems relating to genetic resources management, such as establishing the most economic conditions for the long-term preservation of germplasm, either as seed or in tissue culture; the size of germplasm collections in relation to genetic variability and the maintenance of known important gene combinations; and the development of quarantine concepts affecting the exchange of germplasm material;
- (viii) establishing the fullest possible cooperative links between Europe and other regions of the world, not least the developing countries, for the exchange of plant germplasm and genetic data relating to it, specifically through effective integration with the global network;
- (ix) coordinating and joint planning of germplasm collecting expeditions and,
- (x) organizing training facilities, seminars, exchanges of personnel and expertise and other similar activities in such a way as to encourage the fully integrated development of plant breeding in Europe, and in other parts of the world through cooperative links with international programmes.

14. The proposed structure of the European Service is outlined in the following section (part III of this document).

PART III INSTITUTIONAL FRAMEWORK

1. The European Genetic Resources Service is envisaged as comprising a coordinator and a skilled data specialist, with appropriate secretarial and technical assistance.
2. The coordinator's task would be to maintain contact between cooperating governments and institutions, and to service the activities of a Regional Steering Committee and such other meetings as considered necessary for the coordinated functioning of the programme.
3. The Regional Steering Committee would consist of nominated representatives of participating governments empowered to take decisions regarding the programme, and would serve to direct its ongoing work, normally meeting once a year.
4. An advisory panel consisting of recognized specialists drawn from such groups as the Eucarpia Gene Bank Committee, the CMEA Consultative Group on Genetic Resources, the Nordic Gene Bank Board, the EEC Expert Group on Genetic Resources and Plant Resistance, IBPGR, and bodies of similar status shall provide guidance on scientific and technical matters related to the programme, and could be referred to as necessary.
5. In order to facilitate day-to-day development and coordination of the programme, each country will nominate a National Coordinator to be its contact on technical and organizational matters. Some countries have already nominated a National Coordinator (Annex III).
6. Since genetic data relating to the germplasm collections of Europe are maintained according to a variety of systems, one of the first tasks of the programme shall be to resolve the problem of interfacing diverse existing systems in such a way as to provide complete intercompatibility of data and, in the long run, to evolve a standard data format, so that genetic data can be made available for retrieval in response to users requests throughout Europe and, eventually, throughout the world by way of cooperative links with the global network.

PART IV INPUTS

1. It is envisaged that during an initial take-off period of provisionally 2 years, the programme shall be financed by UNDP funds.
2. At the end of the UNDP-assisted take-off period the programme would be reviewed, and subject to the agreement of participating countries, would then be supported by a Trust Fund composed of contributions from participating countries and other interested regional or inter-Governmental organizations. In the case of national contributions a weighting system may be employed.
3. Calculations of contributions in kind would be based upon such institutions, personnel and services as, already existing, would be mobilised within the framework of the European Cooperative Programme as defined in outline above, and to be defined in detail in a draft Project Document for signature by participating countries.

PART V OBJECTIVES

1. The long-term objectives of the Programme are the establishment of a coordinated and integrated European genetic resources network for plant breeding, which will make possible the following:
 - (i) The full and free exchange of all plant genetic material - subject only to such legal restrictions as affect a limited range of protected materials (Annex IV) - and related genetic data between all European countries and, through links with the FAO/IBPGR global network, the rest of the world.

- (ii) The organization of consultations on a regular basis between specialists in the field of genetic resources and plant breeding who shall review progress on problems related to the conservation, exchange and utilization of genetic resources, in such a way as to avoid unnecessary duplication of effort and to maintain the highest possible degree of coordination between plant breeding objectives on the one hand, and the availability of germplasm on the other. Particular attention will be paid to the collection and evaluation of old traditional, particularly perennial, cultivars in Europe, which stand in special danger of genetic extinction.
- (iii) The joint organization of cooperative evaluation programmes for all plant breeding materials maintained in gene banks in Europe and eventually, through cooperative links with the global network, in other regions of the world, by the strengthening of on-going cooperative evaluation programmes already operative bilaterally or multilaterally, or by the creation of new ones.
- (iv) During the take-off period of the European Cooperative Programme, to take the necessary steps to perfect links between the European Programme and similar programmes elsewhere, so as to create a sound basis for complete international cooperation.

2. Short-term objectives may be defined as follows:

- (i) The establishment of a Steering Committee and the appointment of a Coordinator.
- (ii) The completion of the inventory already begun of all technical and manpower resources existing for collaboration within this programme in the participating countries of Europe.
- (iii) The initiation of a programme aimed at stimulating and increasing coordinated efforts to evaluate germplasm collectively throughout Europe and to achieve the full documentation of existing germplasm collections.
- (iv) Appointment of information consultants with the task of analysing precise technical and manpower requirements to ensure the control of genetic resources information flow to users, of formulating means by which genetic data available in Europe relating to germplasm collections may be rendered intercompatible and exchangeable, and making proposals for the necessary services to meet this end.
- (v) The development of collaborative links with genetic conservation programmes in all parts of the developing world, primarily within the FAO/IBPGR global network, with the objective of establishing full and free exchange of germplasm and genetic information related to it throughout the world.
- (vi) Through meetings of the Steering Committee and other meetings as may be considered necessary to determine what formal agreements shall be required in the future to ensure the fullest coordination of activities, the maintenance of basic collections, and the free exchange of seed and plant material in the region, and through links with the global network, throughout the world, particularly with developing countries.
- (vii) To identify training requirements at different levels and to establish training facilities in Europe for scientists and scientific workers from Europe and other regions outside Europe within the context of regional and inter-regional cooperative activities.

PART VI WORK PLAN

Completion of a study on the organization and feasibility of a centralised genetic data exchange programme	December 1978
Completion of a European Inventory of technical and manpower resources available for involvement in this programme	February 1979
Government Consultation Meeting at which decisions will be expected on, <u>inter alia</u> : (a) establishment of a Steering Committee; (b) preparation of draft Rules of Procedure for the Steering Committee;	March 1979
Appointment of Coordinator	March 1979
Steering Committee Meeting at which: (a) Rules of Procedure finalized; (b) Draft Project Document finalized; (c) Work Plan approved.	July 1979
Decisions/Actions relating to equipment/organization needs at national/regional level.	August 1979
Final approval and signature of Project Document	September 1979

ANNEX I

The Collective Consultation, which met in Geneva in February 1977, agreed to the following conclusions:

1. Acknowledged the world-wide importance of the Conservation of Genetic Resources for Plant Breeding and recognized that international cooperation could ensure this objective.
2. Supported the idea of strengthening this cooperation between the European countries within the concept of the UNDP European Cooperative Programme.
3. Welcomed the steps already undertaken by UNDP/FAO and EUCARPIA in preparing genetic resources cooperation.
4. Urged UNDP/FAO undertake all necessary steps in order to accelerate the formulation of the Project Document and its submission to the Governments for their comments and approval, bearing in mind the wider aspects of the project and specifically its importance for developing countries.
5. Stressed that cooperative efforts are the responsibility of sovereign governments and, further, urged that all efforts should be made by participating countries to facilitate and strengthen this cooperation by making available such data, information and material as is necessary to ensure better coordination and results.
6. Endorsed the concept of cooperation in genetic resources along the lines described in the Background Paper as modified by the meeting, and the establishment of the Steering and Scientific Advisory Committees.
7. Supported the recruitment initially for one year of a Coordinator financed from UNDP regional funds to assist UNDP/FAO, the Steering Committee and Scientific Advisory Committee during the project formulation, whose headquarters would for the time being be in FAO, Rome.
8. Undertook that interested Governments would nominate by 15 April 1977 National Coordinators to be the focal point on technical and organizational matters, and who would maintain contact with the relevant competent authorities in their countries.
9. Recommended that the Coordinator, when appointed, in consultation with UNDP/FAO and other relevant authorities, convene a first Steering Committee meeting as soon as possible, in order to assist the Executing Agency to produce a Draft Project Document. The Coordinator would prepare a Background Paper for discussion in consultation with FAO and other relevant bodies.
10. Urged that as soon as a Draft Project Document is ready a Steering Committee will be called to consider and possibly approve suggested action.
11. Recognized that although it is not possible at this stage to formulate a precise budget for the project period proper, it is envisaged that the cost of the coordinating function will be modest and UNDP would hope that the Governments involved would have a positive attitude towards the project and its implications in ensuing years (as far as budgetary practice of countries permits).
12. It is understood that FAO, as Executing Agency, and providing secretariat services to IBPGR, will make sure that the European Cooperative Programme will be linked with other similar regional undertakings within the overall network of gene centres being developed by IBPGR with the cooperation of FAO and other organizations.

EUROPEAN COOPERATIVE PROGRAMME
FOR THE
CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING

GENETIC DATA EXCHANGE

The following considerations are pertinent to establishing and maintaining an all-European genetic data exchange:

1. A major problem is the diversity of computer hardware in participating countries.
2. Research centres in different countries are at different levels of development, and any system of genetic data exchange must allow for equal accessibility, whatever the level of technical development.
3. A history of inter-institutional cooperation already exists in the region, despite political barriers.
4. Sub-regional programmes, such as the Nordic, the EEC and the CMEA, already exist, and provide a basis for cooperation at an all-European level.
5. ECP genetic data exchange, though collaborating fully with similar international, regional, sub-regional or national programmes, should function autonomously.
6. The diversity of hardware and levels of development in the participating countries gives rise to problems in the generation of input. The problems are (a) a standard set of descriptors does not yet exist, though this may not be very far distant, and (b) collections in different countries are sometimes centralized, sometimes dispersed, though usually with some degree of national coordination.
7. Some degree of sub-regional coordination also exists within the Nordic, the EEC, the CMEA and the Mediterranean groups of countries.
8. By providing for mini-computers at centres not already in possession of computer hardware, a coordinated network of major and minor centres could be constructed at minimum cost, centres already equipped with standard computer hardware becoming major centres.
9. Access to genetic data could be at various levels, e.g. (a) postal enquiry, (b) telex enquiry, (c) telex enquiry on-line with advance time booking, and (d) on-line VDU via the telephone system. The system should be such as to encourage up-grading of modes of access.
10. Demands for genetic data would probably be seasonal, peaking in winter. Input of up-dating data would be arranged to peak in the summer, so that a relatively constant level of activity could be maintained.
11. Provision of a supply of "clean data" and conversion programmes would be the task of specialist consultants familiar with input formats and protocols in the region as well as in the sub-regional programmes.

ANNEX III

UNDP EUROPEAN COOPERATIVE PROGRAMME FOR THE
CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING

NOMINATED NATIONAL COORDINATORS

BULGARIA

Dr. G. Staikov,
Director-General,
Plant Introduction Institute,
Sadovo District,
Plovdiv.

CYPRUS

Dr. Vlassios Krentos,
Agriculture Research Institute,
Nicosia.

DENMARK.

Mr. Halvov Skov,
The State Husbandry Crop Office,
Kongevejen 83,
2800 Lyngby.

GREECE

Dr. Elpis Skorda,
Institute of Cereals,
Thessaloniki,
Greece.

HUNGARY

Dr. Pela Keresztesi,
Academician, Director-General of
Forest Scientific Institute,
Budapest.

ITALY

Dr. E. Porceddu,
Direttore, Laboratorio del
Germoplasma,
Via G. Amendola 165-A,
70126 Bari.

POLAND

Dr. M.J. Szyrmer,
Deputy Director,
Plant Breeding and Acclimatisation
Institute
Radzikow, n. Warsaw.

SPAIN

SWEDEN

Dr. Lennart Kahre,
Statens Centrala Frökontrollanstalt,
Bergshamra,
Solna.

SWITZERLAND

Dr. Marcel Ingold,
Station de Recherches Agronomiques
de Changins,
CH-1260 Nyon.

TURKEY

Mr. Kasif Temiz,
Director,
Regional Agricultural Institute,
at Menemen,
Izmir.

U.K.

Dr. J.D. Hayes,
Agricultural Research Council,
160 Great Portland Street,
London, W1N 6DT.

UNDP EUROPEAN COOPERATIVE PROGRAMME FOR THE
CONSERVATION AND EXCHANGE OF GENETIC RESOURCES FOR PLANT BREEDING

EXCHANGEABLE GERMLASM: A PROPOSED DEFINITION

1. In the course of discussions in various European countries in which varietal protection legislation is in force it is becoming clear that any proposed programme aiming at the free exchange of plant germplasm on a continental or a world scale must include provision for certain restrictions in the case of protected or proprietary germplasm material. The question that the present definition attempts to resolve is, "What kind of restrictions are expected to apply to what kind of germplasm material and how far should such restrictions be permitted to apply?"
2. Varietal protection laws exist in both eastern and western Europe but it is important to note that while in western Europe the difference between publicly financed plant breeding and privately financed plant breeding corresponds to the difference between plant breeding institutes on the one hand and commercial breeding companies on the other, in eastern Europe both plant breeding institutes and commercial breeding companies are publicly financed. Thus, within the context of inter-governmental agreements such as those envisaged in the European Cooperative Programme, there would appear to be a distinct difference in status in commercial breeding companies in western and eastern Europe. Discussions may be necessary on the status within the European Cooperative Programme of private plant breeding companies.
3. Plant germplasm passes through a number of reasonably well-defined stages after collection. A first division might be as follows:
 - (a) Original collections, land races, populations, ecotypes. Germplasm at this first stage is heterogeneous.
 - (b) The initial collections described in (a) above are sorted and sub-divided into samples of more uniform composition and may be described as lines, selections, families and, at this stage, germplasm is first inserted into breeding programmes.
 - (c) Breeding materials, i.e. genetic material resulting from crosses, selection, segregation.
 - (d) Selections showing desirable characteristics and reasonable uniformity which will eventually form nucleus material; breeders' stock.
 - (e) Released or commercial varieties.
4. On the basis of the above approximation of stages of genetic improvement of plant material, only that stage represented by (e) would be subject to legal restrictions arising from varietal protection laws, though category (d) might be subject to some restrictions. All the other categories, i.e. (a), (b) and (c) should, therefore, comprise what may be regarded as freely exchangeable germplasm.
5. It is, therefore, proposed that the above initial division of germplasm material provide the basis for discussions which should define with greater precision exchangeable and non-exchangeable germplasm within the context of restrictive varietal protection laws.