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INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES :

Working Group on *Vitis* Genetic Resources
Thessaloniki, Greece, 29 April-1 May 1982

REPORT

IBPGR SECRETARIAT
Rome, 1983

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INTRODUCTION

1. A Working Group meeting on *Vitis* Genetic Resources, with specific attention to Europe, was organized by the International Board for Plant Genetic Resources (IBPGR)^{1/}. This meeting was co-sponsored by the Ministry of Agriculture in Greece, the European Association for Research on Plant Breeding (EUCARPIA)^{2/} and the FAO/UNDP European Co-operative Programme on Conservation and Exchange of Crop Genetic Resources (ECP-GR)^{3/}. The Office international de la vigne et du vin (OIV) agreed to participate formally.

2. The meeting was convened at the Cereals Institute, Thessaloniki, Greece, 29 April - 1 May 1982 and the following invited participants attended: Prof. L. Avramov, Dr. G. de Bakker, Ing. Agr. J. Borrego, Dr. B. Daris, Prof. M. Dokuzoguz, Prof. M. Fregoni, Prof. J.G. Hawkes and Prof. N. Karantonis. Prof. G. Alleweldt acted as Chairman and Dr. J.T. Williams and Ir. D.H. van Sloten, respectively IBPGR Executive Secretary and IBPGR Genetic Resources Officer, acted as technical secretaries. Dr. P. Huglin, Prof. Dr. P. Kozma and Prof. P. Spiegel-Roy were invited as participants but were unable to attend. In addition to the invited participants, a number of observers attended the meeting. A complete list of participants and observers is provided in Appendix I and the Agenda in Appendix II.

3. The welcome address was presented by Dr. J. Karayiannis, Director of the Cereals Institute. Thereafter Dr. J.T. Williams welcomed participants on behalf of the co-sponsors and briefly outlined IBPGR activities in general and specifically those on horticultural and industrial crops, including *Vitis*. He drew particular attention to: (i) the need to maintain representative variability and not simply collections of old cultivars which may in some cases have a narrow genetic base and (ii) the need to maintain collections for utilization even if *in vitro* techniques become practicable for conservation. He also referred to an IBPGR Working Group which met specifically to agree upon descriptors from 10-12 September 1979 in Rome, Italy. The report of that meeting had stimulated international activity with regard to the harmonization of existing *Vitis* descriptor lists (see also paras 15-19). The representative of the OIV, Prof. M. Fregoni, delivered a message from the President of the OIV that further cooperation with FAO and IBPGR would be heartily welcomed. Prof. Fregoni also informed the meeting that the OIV Commission on viticulture is developing a programme on genetic resources and that the 1982 OIV General Assembly would devote a full session to the discussion on *Vitis* genetic resources^{4/}.

1/ *Vitis* has been given first priority for the IBPGR Mediterranean programme.

2/ As a special meeting of the EUCARPIA Gene Bank Committee.

3/ As a Crop Working Group within the framework of the ECP-GR.

4/ During the 62nd General Assembly of the OIV, 30 August-4 September 1982, the following papers were presented at the meeting of Commission I. Viticulture:

- Collection et conservation des ressources génétiques et recommandations pour une action en matière de *Vitis vinifera* (D.H. van Sloten);
- Réflexions sur la conservation et l'évaluation des ressources des genres de vignes (G. Alleweldt);
- Opérations de conservation des ressources génétiques de la vigne effectuées en France (P. Huglin, R. Pouget et P. Truel);
- Situation du problème de conservation des ressources génétiques en Union Soviétique. Travaux en cours ou à réaliser dans un proche avenir (G. Golodriga).

Following this discussion the General Assembly adopted two resolutions on genetic resources. One urged OIV member countries to increase their efforts to safeguard *Vitis* genetic resources and the other supported the adoption of the descriptor list developed in cooperation with the IBPGR and UPOV.

REPORT

REVIEW OF EXISTING COLLECTIONS IN EUROPE

4. The IBPGR Secretariat, in cooperation with the Executive Secretary of the ECP-CR, had sent a questionnaire in 1982 to all institutes in Europe (including Turkey and Israel) holding major collections. Despite the relatively short notice, the response was encouraging and the information was presented to the Working Group for revision and addition.

5. The representatives of the OIV informed the meeting that a similar survey among OIV member countries from throughout the world had been recently initiated. The Working Group recommends that the collation of information on existing worldwide collections should be a combined IBPGR and OIV effort with a view to issuing a joint directory.

REVIEW OF COUNTRY ACTIVITIES ON COLLECTING

6. Participants were asked to outline national activities on the collection and maintenance of old cultivars and wild species. A summary is provided below:

Bulgaria: Although there is a national genetic resources programme, fully detailed plans for the collection of old cultivars and wild material have not yet been developed.

Federal Republic of Germany: The Bundesforschungsanstalt für Rebenzüchtung Geilweilerhof has been given national responsibility for the description of all materials in collections in the FRG. Investigations are in progress to see if certain samples can be stored as seeds.

Greece: A national programme has been started with support from IBPGR. In 1981 survey commenced and old cultivars will be transferred to institutes for maintenance and documentation.

Hungary, Bulgaria, Romania, Yugoslavia: Official cooperation has been agreed upon by governments for the collection and conservation of *V. sylvestris*.

Italy: There are a number of existing collections and in 1981 a mechanism was established to coordinate the work. The collections do not include many old cultivars and there is a need to collect those that are not commercially propagated.

Portugal: Work at present is uncoordinated, scattered over several institutes and the collection of old cultivars has not been started.

Spain: Material is maintained in several institutes but only the Departamento de Viticultura y Enología, Finca "El Encin", Madrid describes the samples. Further collection of old cultivars has not been organized nationally.

Turkey: Collection has been under way for a number of years and there are a number of institutes maintaining material. It is the responsibility of the national genebank (ARARI, Menemen, Izmir) to document the material - but this work is awaiting a minimal list of descriptors. Wild species have not yet been included in the programme.

Yugoslavia: A number of collections exist in each national republic and centrally in Belgrade. The work is coordinated through a national commission. At present only *V. vinifera* is collected and maintained.

Other countries: Coordinated national programmes for systematic collection of old cultivars and wild species were not reported, except for the USSR.

ADDITIONAL COLLECTING ACTIVITIES

7. The IBPGR Working Group which met in 1979 recommended a list of global collecting priorities with emphasis on wild species of the gene pool. The present Working Group agreed to note these and record the continued need of the IBPGR to accord priority as follows: first to China, North India and Nepal; second to Afghanistan, Pakistan and Near Eastern countries; and third to the Caribbean.

8. The Working Group was asked to specifically address the needs for collecting in the Mediterranean basin and other European countries and the following priorities for *V. vinifera* and wild *V. sylvestris* were agreed:

Priority 1	Cyprus, Greece, Israel, Lebanon and Turkey
Priority 2	Algeria, Egypt, France, Italy, Libya, Morocco, Portugal, Spain and Tunisia
Priority 3	Albania, Bulgaria, Hungary, Romania and Yugoslavia
Priority 4	Austria, Czechoslovakia, Federal Republic of Germany, Luxembourg and Switzerland

9. It was agreed that:

- i) collecting should be initiated by the countries listed in para 8 above;
- ii) there is an utmost importance for the characterization of existing collections which will lead to clear lists of synonyms and the elimination of redundant duplicates, (for further details see paras 15-19); and
- iii) collecting of local *Vitis* genetic resources on a national scale should be undertaken simultaneously with characterization.

10. As noted in para 6, the IBPGR is presently supporting a ten-year project in Greece, organized by the Greek Gene Bank and the Institute of Viticulture, on exploration, collection, characterization, documentation and conservation of *Vitis* germplasm. Similar projects should be initiated urgently, especially in the countries accorded highest priority in para 8.

DUPLICATION OF COLLECTIONS

11. Until the tasks outlined in para 9 are completed, recommendations cannot be made on this subject.

METHODS OF CONSERVATION

12. The Working Group recognizes the need for field genebanks (also called "clonal repositories") on a national basis in order to conserve, characterize, evaluate and document collections of clonally propagated crops such as grapes. These field genebanks also provide easy access to material for plant breeding.

13. Alternative methods of conservation were discussed and the current knowledge on seed storage, *in vitro* culture and pollen storage was reviewed.

i) Seed storage

Some positive experience on seed storage at 0°C was reported in the Federal Republic of Germany and possibly in the USA. It was recommended to limit seed storage for the moment to wild species and that further research on this subject should be encouraged. It was emphasized that the seeds collected for storage should be in the physiological ripe stage and dried slowly at 15°C and 15 percent relative humidity.

ii) In vitro storage

In vitro storage of genetic resources seems promising. The IBPGR published a consultant report on "Tissue Culture Storage for Genetic Conservation" in 1980^{1/}, which reviewed the current state of knowledge on this subject. Following this review, it was agreed to undertake a survey of institutes involved with relevant research and the subsequent IBPGR report was published in 1982^{2/}. The latter report describes activities being carried out on a large number of crops, including *Vitis*. The IBPGR has also supported preliminary studies on *in vitro* conservation of *Vitis* in Australia^{3/}. The Working Group recommends that the institutes working on tissue culture for genetic conservation of *Vitis* collaborate for the standardization of: (a) methods of culture, (b) methods of storage, and (c) assessing and certifying sanitary conditions.

iii) Pollen storage

Experiments in the Federal Republic of Germany indicate that pollen can be stored from two to three years at -20°C. Further research is required.

14. The Working Group proposes that a symposium should be held in two to three years time to address seed storage, pollen storage and *in vitro* techniques for genetic conservation. The attention of OIV, IBPGR and EUCARPIA is drawn to the need for such a symposium.

CHARACTERIZATION, EVALUATION AND DOCUMENTATION

15. Following the report of the IBPGR Working Group on descriptors in 1979, activities on descriptors had markedly increased and coordinated activities between the OIV, UPOV (International Union for the Protection of New Varieties of Plants) and the IBPGR were initiated to arrive at *Vitis* descriptor lists which were as closely related as possible.

16. The meeting agreed on a minimal list for the characterization of genetic resources consisting of 21 descriptors (Appendix III). Although the IBPGR, OIV and UPOV final descriptor lists will be slightly different from each other, since they are serving different purposes, both descriptors and descriptor states will be cross-referenced to those used in the other descriptor lists.

17. The IBPGR descriptor list, incorporating the minimal list for characterization, will be issued together with the passport descriptors in the agreed IBPGR format. The Working Group agreed to accept the IBPGR passport descriptors and also to ask the OIV to incorporate a few of these into its list.

18. With reference to the characterization descriptors (para 16), the Working Group recommends that these be used worldwide to describe collections.

19. Example varieties for descriptor states are provided in the descriptor lists. Although the Working Group recognized that these example varieties do not include all possibilities it was agreed that they should be used. After two to three years a meeting could be held to pool the knowledge gained on other possible example varieties and suitable modifications could be made.

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- ^{1/} Withers, L.A. Tissue Culture Storage for Genetic Conservation. AGP:IBPGR/80/8, 1980 91 pp.
^{2/} Withers, L.A. Institutes Working on Tissue Culture for Genetic Conservation - A revised list. AGP:IBPGR/82/30, 1982 104 pp.
^{3/} Barlass, M. & K.G.M. Skene. Long-term storage of grape *in vitro*. FAO/IBPGR Plant Genetic Resources Newsletter (in preparation). 1983

QUARANTINE

20. The Working Group agreed that there are no major quarantine problems for the international transfer of germplasm and that within Europe there are no general difficulties to transfer breeding material. However, the attention of the OIV is drawn to the need for countries to modify existing national laws relating to quarantine in order to permit the acceptance of shoot tips in culture for ready transfer of disease-free material.

FRAMEWORK FOR FUTURE ACTION

21. All participants agreed that the interests of OIV, EUCARPIA and IBPGR in genetic conservation are best served by maximum cooperation and that this should lead to the urgent initiation of as much work as possible on collection, conservation and documentation of *Vitis* genetic resources.

22. Although a coordinated programme, especially in the Mediterranean basin would rate a high priority, the Working Group agreed that it is too early to address this. The most urgent tasks are outlined in para 9 and these are national responsibilities. Each country should have their collections described, include in them all old cultivars, give attention to the wild species in the country and attempt international collaboration.

23. In order to carry out the national work several training needs were recognized. The training courses on genetic conservation at the University of Birmingham, UK, covering collection, conservation, evaluation and documentation were noted. In addition the OIV is asked to consider the possibility of organizing an international symposium on ampelography with emphasis on characterization of collections. Sponsorship for such a symposium (4-8 weeks) would rest with governments, OIV and any other sources.

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1/ From 1 January 1983, IBPGR Executive Secretary, Dr. J.T. Williams has also assumed responsibility as Executive Secretary of the ECP-GR.

2/ IBPGR member until 31 December 1982.

3/ Until 1 March 1983.

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AGENDA

Address of Welcome	Dr. J. Karayiannis (Cereals Institute)
Introduction	(i) Dr. J.T. Williams (IBPGR)
	(ii) Prof. M. Fregoni (OIV)
Review of existing collections in Europe	
Review of country activities on collecting	
Additional collecting activities	
Duplication of collections	
Methods of conservation	
Characterization, evaluation and documentation	
Quarantine	
Framework for future action	

AGREED MINIMAL DESCRIPTORS FOR CHARACTERIZATION^{1/}

Descriptor	IBPGR code no.	OIV code no.	UPOV code no.
Young shoot: form of tip	4.1.1	001	3
Young shoot: intensity of anthocyanin of tip	4.1.2	003	5
Young shoot: prostrate hairs of tip	4.1.3	004	6
Shoot: erect hairs on the nodes	4.1.4	011	13
Tendrils: distribution on the shoot	4.1.5	016	22
Mature leaf: size	4.1.6	065	30
Mature leaf: number of lobes	4.1.7	068	32
Mature leaf: shape of teeth	4.1.8	076	40
Mature leaf: general shape of petiole sinus	4.1.9	079	41
Mature leaf: prostrate hairs between the veins (lower side)	4.1.10	084	48
Mature leaf: erect hairs between the veins (lower side)	4.1.11	085	49
Inflorescence: sex of flower	4.2.1	151	56
Bunch: size	4.2.2	202	58
Bunch: length of peduncle	4.2.3	206	60
Berry: size	4.2.4	220	62
Berry: shape	4.2.5	223	64
Berry: skin colour	4.2.6	225	66
Berry: flesh colour	4.2.7	230/231	71
Berry: particular flavour	4.2.8	236	74
Seed: presence in berry	4.3.1	241	77
Seed: transversal ridges on side	4.3.2	244	-

^{1/} Full details on descriptor states are provided in the descriptor lists of IBPGR, OIV and UPOV.

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