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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

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TECHNICAL COMMITTEE**Thirty-Sixth Session
Geneva, April 3 to 5, 2000****MATTERS ARISING FROM THE 1999 SESSIONS OF THE TECHNICAL WORKING
PARTIES TO BE DEALT WITH BY THE TECHNICAL COMMITTEE***Document prepared by the Office of the Union*

1. This document summarizes, in its Annex I, matters arising from the 1999 sessions of the Technical Working Parties (hereinafter referred to as “the TWPs”) that have to be dealt with by the Technical Committee (hereinafter referred to as “the Committee”). They include important subjects discussed or decisions taken by the TWPs, communicated to the Committee

- (a) for information and for a possible decision to be taken by the Committee;
- (b) for information;
- (c) for discussions planned by the Committee under separate agenda items.

The headings of the various items are listed on pages 1 and 2 of the Annex.

2. To shorten references to the various TWPs and the BMT in this document, use is made of the following codes which are also used to designate their documents:

TWA: Technical Working Party for Agricultural Crops;
TWC: Technical Working Party on Automation and Computer Programs;
TWF: Technical Working Party for Fruit Crops;
TWO: Technical Working Party for Ornamental Plants and Forest Trees;
TWV: Technical Working Party for Vegetables;
BMT: Working Group on Biochemical and Molecular Techniques and DNA Profiling in Particular.

[Annex follows]

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PARTIES TO BE DEALT WITH BY THE COMMITTEE**

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I. MATTERS FOR INFORMATION AND FOR A POSSIBLE DECISION TO BE TAKEN BY THE COMMITTEE

Revision of the General Introduction

1. The TWA, TWC, TWV, TWF and TWO discussed draft working document TC/35/13 concerning the revision of the General Introduction, which was a revised version of document TC/35/9 drawn up on the basis of comments received on document TC/35/9 and discussions at the meeting of the Editorial Committee on March 24 and 25, 1999, and at a meeting of a small *ad hoc* group which met in Geneva on May 10 and 11, 1999. Following comments received on document TC/35/13 and discussions at an *ad hoc* meeting held on October 1, 1999, in addition to the discussions in the TWPs, document TC/35/15 was distributed for comments. The revisions resulting from comments received on the latter document have been reproduced in document TC/36/6. The main points of discussion in the TWPs and the *ad hoc* meetings are summarized below.

2. Exclusion of open questions from the main document: In the TWA, several experts pointed out that there were a number of open questions in the main document of the General Introduction which would take many years to settle. Items that needed further discussion or more detailed explanations should not therefore be included in the main text, but treated in a separate collection of documents. The main document should deal with basic principles on which consensus was currently possible among member States. Accordingly the main document would be kept for a relatively long time, while the separate documents dealing with details would be prepared in due course. The separate documents could then be updated from time to time following discussion in the Technical Committee and other UPOV technical forums without the basic document being affected.

3. List of complementary documents: The TWA discussed the list of documents complementing the General Introduction (Annex II of document TC/35/13). The list contained both documents that had already been prepared or adopted and documents that had not yet been prepared. Some documents would not be ready for a few years yet and so would not be kept on the list. Some experts in the TWA were in favor of listing the documents that might take a long time to finalize. That kind of list would help clarify what kind of issues should be included. Other experts were concerned that tentatively proposed titles of documents might prejudice the preparation of the complementary documents; the preparation of the document should take into account the maturity of the discussion. In addition, the list should not mean that all the documents on it needed to be prepared; some might be removed as a result of discussions. The Chairman of the TWA concluded that the list would be kept, taking into account the above concerns.

4. Procedure for adoption: The TWA discussed the need to seek advice from legal experts and to have the General Introduction adopted by the Council. Many experts pointed out that the new General Introduction should also be discussed in the Administrative and Legal Committee (CAJ) and, because of its importance and the basic interpretation of Articles 7 to 9 (1991 Act) of the Convention, should indeed be finally adopted by the Council. As for the timing of the request for advice from the CAJ, some experts considered that the documents might be sent to the CAJ for comments while discussions were going on in the Technical Committee and various

Technical Working Parties, whereas others stressed that, in order to avoid confusion, the documents should be further discussed by technical experts before they were submitted to the legal experts.

5. Length of document and explanatory notes: Many experts of the TWA preferred a short basic document with long additional explanatory notes. It was therefore planned that the basic document would comprise only the main text without any explanatory notes, while the first document of the collection of detailed additional documents would repeat the main text and expand it with explanatory notes.

6. Objectives of the UPOV Test Guidelines: Several experts of the TWA and TWV insisted on the need to balance the two objectives of the UPOV Test Guidelines of establishing variety descriptions in a standardized form and assessing DUS in a standardized manner. The experts in the TWC proposed that the assessment of distinctness and the description should be split to avoid misunderstanding.

7. In the TWA, the expert from Australia repeatedly questioned the objectives of the UPOV Test Guidelines. Referring to document TC/35/9 (the previous version of the working document for the General Introduction), he pointed out that the position taken on the UPOV Test Guidelines weakened their role in the assessment of DUS. Several experts replied that, after a harmonized description had been achieved, the objective of the UPOV Test Guidelines was to judge distinctness in a standardized way, but that not all the information needed for distinctness was included in the Test Guidelines, for example the minimum distance needed in the different states of characteristics. The expert from Australia, who had attended the *ad hoc* meeting, drew attention to the significant change in the title from “General Introduction to the Guidelines for the Conduct....” to “General Introduction to the Assessment of Distinctness, Uniformity and Stability of New Varieties of Plants.” The new General Introduction served not only as an introduction to the UPOV Test Guidelines, but as an introduction to DUS tests in general. The TWA concluded that the revised General Introduction would therefore cover the basic principles for the description of varieties and for the assessment of DUS, and that those two objectives of the UPOV Test Guidelines should be specifically stated.

8. New approach to characteristic type: Some experts of the TWC wondered if it was necessary to keep the approach to characteristic type. They said that the proposal for paragraphs 43 to 45 of document TC/35/13 did not help for statistical purposes, and that it would be better to record characteristics as ordinal and nominal. Other experts considered that the document proposal was a good compromise between the crop experts and statisticians and that further details could be included in document TGP/8. For Handling of Visually Assessed Characteristics (TGP/10) the TWC considered that, from the statistical point of view, there were only four types of characteristic, Quantitative and Qualitative. Among the quantitative characteristics there were continuous and discontinuous, and among the qualitative there were ordinal and nominal. One expert proposed including something about true quantitative, non-true quantitative and qualitative characteristics in a special annex to the main document. The expert from UPOV explained that the task of the Working Party was to provide tools for crop experts and that the classification of the characteristics by crop experts could not be changed. Finally, the Working Party agreed to have a set of four separate documents dealing on the one hand with distinctness and on the other hand with uniformity; both of them would be divided into quantitative and qualitative characteristics (see also paragraphs 97 and 98 of this document).

9. New variety selected from existing varieties or populations: The TWA discussed the protection of a subgroup screened from existing varieties or populations. The TWA basically agreed to the relevant sentence of the remark in paragraph 25 of the proposed General Introduction (TC/35/13), “the improvement of the uniformity is not considered sufficient to assess distinction.” It noted that, accordingly, a subgroup selected from protected varieties or a local population that had already been regarded as part of common knowledge could not be protected. It also noted, however, that further consideration of the matter would be needed, especially in relation to landraces or new species.

10. The TWV also discussed how to treat a new variety selected from existing varieties or populations. It should be clear that a subgroup selected from (protected) varieties would not be protected if the difference from the original variety was only in the degree of uniformity. However, the question was how a new variety selected from “(local) population” should be handled. The main questions were the following:

(i) how the term “variety of common knowledge” should be defined, especially in conjunction with populations that were not uniform;

(ii) what kinds of case with regard to the selection of a new variety from a population could be accepted for the protection of the new variety; in particular, how distinctness and uniformity criteria between a new variety and the original population were to be applied;

(iii) how in practice a candidate variety could be compared with local populations that were regarded as part of common knowledge.

11. The TWV noted that this issue had been discussed at the previous session of the Administrative and Legal Committee (CAJ) and would be dealt with in the “Common Knowledge” document (TGP/3).

12. Common Knowledge (TGP/3): The TWF and TWO discussed whether the availability of living material was the main criterion for deciding whether a variety or plant material formed part of common knowledge. Proposals for further clarification can be summarized as follows: the material must be available with reasonable effort to the testing authority itself, or the authority must be able, in the case of import restrictions, to ask other authorities to do the test; the material must be living so that the authorities may grow it and compare it with the candidate variety, so if only dead herbarium material is available or only a variety description, detailed though it may be, that will not be enough to form part of common knowledge; the material does not need to have a name; unnamed clonal material or material sold under the species’ name forms part of common knowledge; the material must not just exist but be known, so material found only in a wild or remote place does not form part of common knowledge; the probability of the existence of certain plant material is not enough for discovered plant material to be declared no longer new or forming part of common knowledge; the material sold or marketed; only varieties, not populations; material of failed applications if material has been sold; plant collections in botanical gardens, public parks; not only official register but also professional register, breeders’ catalogues; worldwide search; selling from breeder to propagator is sufficient, the knowledge of professionals is sufficient, not requiring also consumer knowledge; selling via Internet. There

were some open questions: does material have to have a description? Does a description based on wild forms establish common knowledge? What about laboratory collections or germ plasm in gene banks?

13. For the above purpose all experts would send comments and proposed definitions of what they considered to be common knowledge to the expert from the United Kingdom for the preparation of a document by the end of January 2000. The Working Party was aware that legal aspects were involved and information of a too-general nature might be given. It also referred to its discussion on the subject of new species (see paragraph 14 below). A similar question would arise when denominations had to be checked or reference varieties selected.

14. Discovered and developed: Still on the topic of common knowledge, the TWF and TWO considered whether material discovered in the wild could be protected, and how much breeding development was necessary. Two cases could be taken: (i) seed from plants discovered in the wild is collected by a breeder and sown, and plants are selected for the development of a new variety; and (ii) the breeder selects in the wild, plants or plant material from wild plants, grows the plants and develops a promising plant by vegetative propagation into a new variety without further crossing.

15. The TWF and TWO agreed that in the first case there was no doubt that the resulting variety would qualify for protection if it fulfilled the DUS requirements. In the second case the situation was not so clear, as the variety developed normally would ultimately contain plants identical to the plant selected in the wild. If the national authorities did not allow protection in the second case, the TWF would understand it to mean that for all species that were vegetatively propagated new varieties resulting from plants selected from the wild would be excluded from protection, and that could not be the wish of the drafters of the UPOV Convention. The second case would thus also have to be accepted as a possible way of achieving protectable new varieties.

16. With regard to the treatment of wild material as a source of variation for the creation of new varieties, the TWO considered it important for the breeder to have done some breeding: the mere selection of plant material discovered in the wild was not enough; there had to have been some further development. The fact of selecting a clone in the wild and working on it to make it into a vegetatively propagated variety was interpreted differently: where the breeder could prove sufficient development, a number of national authorities would grant protection to the material, even if in an extreme case the plant material of the variety did not show morphological differences in relation to the material originally selected. Certain member States would however insist on some morphological differences before accepting such a variety for protection, and would only consider development sufficient if it led to a change in one of its characteristics.

17. The TWO also discussed the statement in the General Introduction according to which “A candidate variety can only be compared with other varieties or plant material that fulfill the same uniformity requirements.” This means that a cross-pollinated candidate can only be compared with other cross-pollinated varieties or populations (landraces) that fulfill the same uniformity requirements. A vegetatively propagated candidate variety can only be compared with other vegetatively propagated varieties or material or with self-fertilized varieties for which the same uniformity requirements are applicable. It cannot be compared with cross-pollinated varieties or cross-pollinated populations or landraces. The TWO failed to reach a final conclusion on how to

handle the selection of a clone from a self-fertilized landrace that would not fulfill the uniformity requirements for designation as a variety, or the selection of a clone from a vegetatively propagated landrace which, because of mutations, would normally be a mixture of several slightly different clones (e.g. in shallot, garlic or artichoke). The Working Party also failed to come to a final conclusion on how to handle the selection of a clone from a described form in the wild. Here it was a question not only of whether the described wild form would have to be part of the comparison, but also of what was considered sufficient breeding or development. While some experts could in an extreme case accept a variety in which individual plants showed no morphological difference from the clone selected from the wild form, provided that the breeder could prove sufficient development, others would require some morphological change before the variety could be protected. For some experts selection alone could constitute sufficient breeding, while for others the creation of the situation in which the selection took place would be required, a condition that could not be fulfilled by mere selection in the wild.

18. Prescreening: The experts of the TWV stressed that the information for prescreening should not be limited to grouping characteristics selected from the Table of Characteristics. For example, some characteristics that were not in the Table of Characteristics (e.g., growth type in Rose and Lettuce) were used for grouping in the UPOV Test Guidelines.

(See documents TWA/28/22, paragraphs 24 to 36, TWC/17/13, paragraphs 43, 46, 50 and 68, TWV/33/15, paragraphs 48 to 51, TWF/30/14, paragraphs 22 to 27, and TWO/32/9, paragraphs 24 and 25)

Inclusion of Technical Information in the UPOV-ROM

19. The TWA, TWC, TWV, TWO and TWF discussed the inclusion of technical information in the UPOV-ROM. Most experts strongly favored inclusion, taking into account the necessary workload in the national offices.

20. Extent of data provision: The majority of the participants in the TWPs agreed to include grouping characteristics, or characteristics from the Technical Questionnaire concerning grouping characteristics (section 5), and additional information (section 7). Some experts of the TWA supported the idea that the information on the most similar varieties (section 6) in the Technical Questionnaire could be included in the UPOV-ROM, while several recognized its limited usefulness. Considering the opinion that it is easier for some national offices to provide full information on all characteristics because of the existing data sets in their database systems, the TWV decided to propose that the national office could also provide additional information. In the TWC, some experts were also in favor of including full variety descriptions, but they did consider that the workload could be a problem, as it could cause delays in the submission of the information for the UPOV-ROM. For the species for which there were no Test Guidelines as yet, and for countries wishing to submit full variety descriptions, free-text files could be used. The TWC agreed to include technical information in another code, different from the taxon code.

21. Confidentiality: Many experts of the TWA pointed out that the information on the pedigrees and formula of hybrids could not be provided because of its confidentiality. Experts in the TWF agreed that information considered confidential should be excluded.

22. Reliability of data: The other problem was the reliability of the information provided by applicants. There were clear differences in this regard between the TWPs. Experts of the TWA, TWF and TWC considered that non-officially-verified information provided by applicants concerning candidate varieties could be included in the UPOV-ROM even before the national office had verified it. If the information given in the Technical Questionnaire proved to be wrong on examination, it could be corrected afterwards. The Chairman of the TWC suggested that the breeder's information and one-year information from official testing could be included in a temporary file, and that when PBRs were granted it could be moved to a final field irrespective of whether it came from the breeder or from the office. The TWF and TWC also considered it useful to include a picture.

23. On the other hand, most experts of the TWV insisted on the need for information to be verified by the national office and to be confined to information on protected varieties. The expert from the United States of America explained that in his country information on applied varieties was confidential before the grant of rights. The TWV decided to propose that the technical information contained in the UPOV-ROM be limited to protected varieties.

24. National legislation relating to payments for the information: The TWV and TWF also discussed possible problems relating to legislation requiring payment for access to technical information and for the furnishing of test reports to other countries. Some experts proposed that the UPOV-ROM should be issued in two different versions - with technical information and without. The UPOV-ROM containing technical information should be available only to national offices. Other experts insisted that all information should be made available to the public, according to the general principle of intellectual property rights (especially patents), and that the essence of the innovation should be open to the public as long as protection was granted. Some experts at the TWC meeting proposed that only information from the Technical Questionnaire should be included in the UPOV-ROM, and that full descriptions could be made available to national offices on request. The TWC wondered about the possible misuse of full descriptive information.

25. Inclusion of addresses of applicants: In the TWV, the expert from ASSINSEL suggested adding the addresses and telephone numbers or e-mail addresses of applicants or maintainers. The expert from the United States of America stated that the addresses and telephone numbers of applicants could not be provided because of their confidentiality. The Office of UPOV explained that several countries had already provided such detailed information on applicants for the UPOV-ROM.

(See documents TWA/28/22, paragraphs 14 to 18, TWV/33/15, paragraphs 43 to 47, TWC/17/13, paragraphs 15 to 25, and TWF/30/14, paragraphs 14 to 16)

Taxon Code

26. The Working Parties noted Circular U2829 and made no remarks on it, except for one expert of the TWF, who expressed some doubts as to the need for a Taxon Code at all.

(See documents TWA/28/22, paragraph 37, TWV/33/15, paragraph 41, TWC/17/13, paragraphs 16 and 26, and TWF/30/14, paragraph 13)

Bulk Sample

27. The TWA, TWC and TWV noted that the Technical Committee had discussed the problem of bulk samples for the testing of characteristics (e.g., content of fragrance oil in lavender), especially in connection with the examination of uniformity, and that it had concluded that, if chemical characteristics were used for distinctness, they needed to be tested on a plant-by-plant basis for the assessment of uniformity. Several experts in the TWA pointed out that the principle for the handling of bulk samples should be clearly laid down in the revised General Introduction.

28. Several experts of the TWC and TWV reported that, practically speaking, some characteristics of chemical content, such as essential oil content, could not be assessed on a plant-by-plant basis. Others added that the high cost of some analyses made it impossible to repeat the work. However, they firmly insisted on the importance of keeping certain characteristics of chemical content in the UPOV Test Guidelines, because they were actually the main breeding target in some species. At the TWC meeting it was mentioned that the concept of “conformity” was used in one country, and the expert from UPOV explained that the groups had to be careful with that concept as opposed to uniformity. Considering the importance of the uniformity criteria and chemical characteristics, the TWV decided to request the TWC to develop a statistical method of estimating the uniformity of a variety from the data of several bulk samples. In addition, for that statistical method, the relationship between the number of the samples, the number of plants per sample and the probability of an error of judgement on uniformity needed to be analyzed. Some experts of the TWC considered that it was a matter of the risks involved, and a paper would be prepared quantifying the risk of taking one plant individually or a plant group, for different options of plant numbers and grouping, to be considered at the next TWC meeting.

(See documents TWA/28/22, paragraph 13, TWC/17/13, paragraph 45, and TWV/33/15, paragraphs 37 to 38)

Use of Electrophoresis in Cross-Fertilized Varieties

29. The TWA noted document TWA/28/13, introduced by the expert from the Netherlands. The document proposed that electrophoresis characteristics be used not only as supporting evidence but also as independent characteristics. He insisted on the following points:

(a) Electrophoresis characteristics in cereal crops could be regarded as being an expression of the genotype and as phenotypic characteristics providing information on protein. Those characteristics in general met the requirements of Articles 1 and 6 of the 1991 Act. It was becoming very difficult to refuse those characteristics on legal grounds (he also emphasized the difference between electrophoresis characteristics showing phenotypic (protein) information and DNA characteristics, which currently provided only information of DNA structure, but little phenotypic information.)

(b) The current arguments against the use of electrophoresis characteristics as independent characteristics, such as the reduction of minimum distance and the fear of piracy and

cosmetic breeding, were doubtful. Regarding minimum distance, in the case of some vegetatively propagated crops it was already quite small, and compared with them the minimum distance of electrophoresis characteristics seemed acceptable. Piracy and cosmetic breeding problems were a matter for the owner of the breeder's rights rather than the granting authority. The notion of essential derivation in particular provided the breeder with sufficient means to act against cosmetic breeding.

(c) Ryegrass was a very complicated case, because the expression of electrophoresis characteristics was not uniform and the only difference between the varieties was the frequency of alleles. However, there were already cases where that frequency was accepted as a characteristic in UPOV Test Guidelines.

30. The TWA also noted document TWA/28/17, introduced by the expert from France. The document showed an example of electrophoresis characteristics used as supporting evidence. They had been used as supporting evidence where testing experts were convinced that a candidate variety should be protected because of several small differences in conventional characteristics and a large difference in performance characteristics, i.e. yield. He also emphasized the following points:

(a) The effect of introducing new characteristics, especially on the quality of protection, should be carefully considered. The introduction of new characteristics, such as electrophoresis characteristics, might result in existing protection being destroyed. The national authorities were responsible for keeping a reasonable minimum distance of protection, i.e. the quality of protection.

(b) Where a testing expert was convinced of the distinctness of a candidate variety by several small differences in conventional characteristics and/or by a large difference in a normally not acceptable performance characteristic in a VCU trial, such as yield, he would need additional information to support his conviction. Electrophoresis characteristics could be adapted to that type of need as supporting evidence.

31. Position of breeders: The expert from ASSINSEL at the TWA restated the position of his organization. Breeders were worried that the introduction of electrophoresis characteristics would lead to (1) an extra burden on breeders to maintain the allele frequencies of their varieties uniform and stable, and (2) easier plagiarism and a weakening of the plant variety rights (PVR) system, as it would be very easy to "select" a "new variety" from an existing one. ASSINSEL had therefore requested that electrophoresis characteristics should not be introduced in DUS testing for cross-pollinated population species, especially ryegrass, even as supporting evidence, in order to avoid the destruction of existing protection. For self-pollinated species, the use of electrophoresis characteristics might be considered as supporting evidence where breeders agreed to their use.

32. Supporting evidence or independent characteristics: Several experts of the TWA questioned the difference between supporting evidence and independent characteristics in practice. Some took the position that, even where electrophoresis characteristics were used as supporting evidence, the final decision on distinctness was ultimately based on the electrophoresis characteristics. Where no significant differences were observed in electrophoresis characteristics used as supporting evidence, a candidate variety would fail to

establish its distinctness. What was the difference, then, between using electrophoresis characteristics as supporting evidence or as accepted independent characteristics? Electrophoresis characteristics that were used as supporting evidence would function in the same way as last-resort independent characteristics.

33. Need for clear conditions for the use of electrophoresis as supporting evidence: Several experts of the TWA argued that the example presented by the expert from France was based on the unique decision-making process for DUS in France, which placed great importance on the findings of a committee of experts. In that case testing experts examining electrophoresis characteristics relied on the judgement of the experts on the Committee. However, a lack of clear criteria was likely to lead to inconsistency and ambiguity in the use of electrophoresis characteristics. They therefore insisted on the need to specify the conditions for the use of electrophoresis characteristics and the criteria for the establishment of distinctness by the combination of conventional and other characteristics, and supporting evidence if the electrophoresis characteristics were to be used as supporting evidence in the UPOV system. Those general principles would ensure the consistent application of electrophoresis characteristics in countries that had a different approach to decision-making for distinctness.

34. Criteria for the selection of characteristics for DUS testing: The expert from the Netherlands on the TWA stated that electrophoresis characteristics would meet all the criteria for the selection of characteristics specified in the General Introduction as well as in the UPOV Convention, so, from the legal point of view, it would be very difficult to reject their use as independent characteristics. Some experts considered that the criteria in the General Introduction for the selection of characteristics should be amended to reflect the position on electrophoresis characteristics. The expert from the United Kingdom suggested that the prevention of plagiarism should also be taken into consideration for the selection of characteristics.

35. Preparation for further discussion: The TWA noted that there were several different views among the experts and member States on how to reach a decision on distinctness. It therefore decided to ask the experts from France and the Netherlands to jointly prepare a new document on the general procedure for establishing distinctness in the UPOV system, including supporting evidence and the use of electrophoresis characteristics.

(See document TWA/28/22, paragraphs 38 to 48)

Consequences of the Introduction of New Characteristics in DUS for Already-Protected Varieties

36. In the TWA, the expert from the United Kingdom presented a problem concerning the introduction of new characteristics for which breeders had not made their varieties uniform (because it was not required). In that case already-protected varieties might contain two or more subgroups with different expressions of new characteristics. For example, in the case of the introduction of electrophoresis characteristics, some already-protected varieties might have several subsets of plants with different electrophoresis band patterns. New characteristics should be carefully introduced so that they could not create sub-units of protection within already-protected varieties. The expert from the United Kingdom proposed to address this problem in the new General Introduction and to prepare a document for the next session concerning this protection problem. The TWO disagreed with the concept: in ornamental

species all obvious, visually assessable characteristics would be used for distinctness, whether they formed part of the Test Guidelines or not, so there would be no sub-varieties of ornamental varieties. If kept at all, the paragraph would require the addition of a clearer example, and should preferably be placed after paragraph 32 of the General Introduction.

(See documents TWA/28/22, paragraph 49, and TWO/32/9, paragraph 25)

Prescreening of Varieties

37. Definition of prescreening: First the TWA discussed the definition of the word “prescreening.” Some experts defined it as the detection of a subset of varieties that had similar characteristics to a candidate variety, which would correspond to the term grouping. Other experts explained that “prescreening” was not done to choose the most similar varieties, but to eliminate completely those that did not need to be compared with a candidate variety in the field, while grouping was regarded as the organization of subgroups in the reference collection on the basis of characteristics. Most experts eventually confirmed that prescreening was more than just grouping.

38. The TWF considered that for fruit crops the situation was quite different. In most member States the reference collection grown for fruit species, especially fruit trees, would contain all protected varieties, all varieties on the national list (if any), some of the varieties no longer grown and some other famous varieties. The reference collection might be combined with material in gene banks or in other countries, so the growing of a given variety was almost independent of a possible new candidate variety, and it was not common in fruit species to have a system of prescreening for the selection of varieties to be grown. Prescreening would only be done on paper, or even in the expert’s head. So the criteria for prescreening were identical to the criteria for grouping.

39. For some fruit crops (e.g. strawberries or raspberries) the situation might be more comparable to that for seed-propagated varieties. In that case there was a pre-selection of the varieties to be grown, which was partly done with the help of pictures of the varieties. However, prescreening in effect was grouping, as all varieties identified as being sufficiently distinct from the candidate were placed in a group that no longer needed to be compared with the candidate. Whether that other group was a group grown for other reasons (e.g. other candidates) or not grown at all made no difference, the candidate being compared only with varieties in its own group. In fruit trees the age of the tree might create problems, as it may be infected with disease or grow too old, and might need cleaning up or top work to permit comparison with candidate varieties.

40. Method of selecting comparable varieties in France: The expert from France gave a presentation on a method of selecting varieties comparable with a candidate variety, which was applied to maize in France. The method was an attempt at numerically evaluating the total difference between varieties by the aggregation of indexes of differences observed in all characteristics. The features of this method are as follows:

(a) The method is a multivariate analysis which evaluates aggregated difference resulting from all characteristics, instead of difference on a characteristic-by-characteristic basis.

(b) The difference observed in each characteristic is weighted depending on the observed difference in each characteristic, the genetic background (when known) of the characteristics, their susceptibility to environment, and the reliability of data (e.g., non-direct comparison data or side-by-side comparison data).

(c) Electrophoresis characteristics have been used as one kind of characteristic in this method. However, the method has been designed so that electrophoresis characteristics alone cannot lead to the conclusion that varieties do not need to be directly compared in the trial.

(d) After prescreening by this method in France, only 600 varieties of 2,000 existing maize varieties were tested in the field. The expert from France insisted that this type of method was indispensable for species with large reference collections.

41. Use of electrophoresis data in prescreening: The TWA noted that one of the research results presented at the last session of the BMT had shown that there was no good correlation between pedigree information or molecular distance and morphological distance. The finding raised questions on the usefulness of a molecular approach in “screening for distinctness.” Many experts insisted that all grouping characteristics should be accepted as characteristics for distinctness. If electrophoresis and DNA characteristics were not accepted as independent characteristics for distinctness, they should not be used as grouping characteristics. The expert from France argued that grouping or prescreening was based not only on characteristics for distinctness, but also on other information. He moreover stressed the advantages of molecular markers. Molecular characteristics were less influenced by environment and provided good information on genetic structure. He insisted that the possible application of molecular characteristics should be studied further. The Chairman concluded that the BMT should be asked to further discuss the use of molecular characteristics in prescreening.

42. Multivariate approach: The TWA and TWF discussed the possible use of a multivariate approach to variety testing, and they had different points of view on this subject. On the one hand, the expert from France on the TWA insisted on the necessity of discussing the possibilities of a multivariate approach in addition to a characteristic-by-characteristic approach to prescreening and for the judgement of distinctness. Considering the nature of minimum distance between varieties, it was more natural - instead of looking at each characteristic individually - to examine the minimum distance as the total difference between varieties, synthetically estimated from information on all characteristics. That approach would enable testing experts to establish distinctness for varieties that had small differences in several characteristics. Several experts raised concerns about the approach proposed by the expert from France, which contained concepts for distinctness that were completely different from the present one. One expert of the TWA pointed out that there was no great difference between a multivariate approach and genetic distance. Distinctness should not be established on the basis of information on the genetic structure and total difference, but rather on the basis of a clear difference in at least one characteristic. A further problem was the checking of uniformity. The summation of differences in several characteristics would make it impossible to assess uniformity. Assuming that uniformity should be maintained in the individual characteristics, checking would be troublesome and costly. The expert from France explained that assessment on the basis of multivariate analysis might be on a non-routine basis. Only where, for a new variety, distinctness could not

be determined with conventional characteristics would a multivariate approach be used. Finally, he offered to report to a future session on the result of further studies on the multivariate approach.

43. On the other hand, the TWF considered that the use of multivariate analysis would not be applicable, as for fruit varieties most characteristics were visually observed. The experts agreed that sometimes there was an overall impression of difference that might not be confirmed when going into detail. In an apple the fruit might be slightly more reddish, have some more flecks, a larger blush, etc. It would however be dangerous to distinguish varieties without being able to state in which characteristics they were distinct. If one once opened that door, there would soon be problems defending the decision, and many court cases would result.

44. Preparation for the next session: The TWA agreed to prepare a document entitled “Management of Reference Collection,” which would contain general guidance on prescreening and efficient management of reference collections. The document should reflect prescreening in breeder testing systems as well as prescreening and management of reference collections in the official government testing system.

45. Empirical survey of prescreening/grouping: The TWA also agreed to conduct an empirical survey of prescreening in order to collect information on the different prescreening/grouping systems in the member States and analyze how those systems worked. The expert from Denmark agreed to prepare a circular that would contain information on grouping characteristics for one variety of spring barley. The Office of UPOV would distribute the circular to member States. Each member State would provide the name of a variety similar to the variety chosen and have it screened by its own national prescreening/grouping system based on the information in the circular, and submit basic information on its national prescreening and on its reference collection system, e.g. its method for prescreening, the size of the reference collection, the size of the planting of the reference collection and the maintenance method for the reference collection.

(See documents TWA/28/22, paragraphs 50 to 58, and TWF/30/14, paragraphs 28, 29 and 32)

Example Varieties in UPOV Test Guidelines

46. Importance of example varieties in UPOV Test Guidelines: The TWA discussed whether a change in the availability of example varieties would lead to a revision of existing Test Guidelines. Several experts referred to the fact that example varieties had lost some of their importance in UPOV Test Guidelines. As UPOV membership expanded worldwide, the harmonization of example varieties was becoming impossible. Each member State needed to prepare its own set of example varieties for its national Test Guidelines.

47. Criteria of example varieties: availability of varieties: The TWA also briefly discussed how to define the availability of example varieties as one of the criteria for the inclusion of those example varieties in the UPOV Test Guidelines. It concluded that, in principle, example varieties should be available on the market. Varieties available only in a gene bank should not be chosen as example varieties.

48. Second set of example varieties in the UPOV Test Guidelines: The TWA and TWV noted that the expansion of UPOV membership necessitated a change in the way example varieties were selected for some Test Guidelines. Experts of the TWA who attended the Subgroup on Rice reported that, if all example varieties were to be tested in one place only, the Test Guidelines for Rice would contain only European varieties and no example varieties grown or well known in the main rice-producing area, namely the Asian region. Some experts insisted on the need for listing example varieties grown in different regions in order to show the usefulness of the Test Guidelines and to promote the active participation of new member States in the UPOV system. Several experts of the TWA preferred the addition, in a different column or in an annex, of an extra set of example varieties to be tested in a second testing location, if necessary, while they noted that there were still unsolved problems of how to ensure the suitability of example varieties in each State, especially with respect to quantitative characteristics. Some experts insisted moreover on the need to identify the location or country in which example varieties had been tested.

(See documents TWA/28/22, paragraphs 60 to 62, and TWV/33/15, paragraph 52)

Assessment of DUS of Hybrid Varieties with the Help of the Parent Formula

49. In the TWA, the expert from the United Kingdom introduced document TWA/28/16. The document presented the principle used for testing hybrid varieties of oilseed rape in the United Kingdom. In particular, the document proposed general principles and procedures for establishing the distinctness (and uniformity and stability) of hybrid varieties with the help of the parent formula. He proposed that the principles presented be applied to all hybrid varieties as general principles in the UPOV system.

50. The expert from France confirmed that the possibility of assessing the distinctness of hybrids using a prescreening system on the basis of the parent lines had for many years been accepted in France for maize and sunflower, and more recently for wheat and oilseed rape. The procedure was included in the last revision of the Test Guidelines for Maize, Sunflower and Rape Seed.

51. The expert from Germany reminded the experts that, in principle, distinctness should be judged on the hybrid itself. With that in mind, the parent formula should be used only for predicting the distinctness of hybrids, and only where detailed knowledge of the parent lines and the heritability of characteristics ensured the correctness of the prediction.

52. Provision of information on parent formulae by applicants: The Office of UPOV reported to the TWA on difficulties encountered in the use of parent formulae in the case of vegetables because applicants for vegetable varieties were not willing to provide their lines and information on the parent formulae. The expert from the United Kingdom explained that applicants could choose not to submit lines or the parent formula, which would simply make it more difficult to establish the distinctness of their varieties. He also emphasized that the usefulness of the lines and the parent formula for the assessment of DUS might differ between species, and that the use of lines and the parent formula would be advantageous where many hybrid varieties had been bred from a small number of inbred lines (as with maize). Some experts reported that the

submission of lines and the parent formula was necessary or obligatory for applications for hybrids in their countries.

53. Protection of components maintained by artificial methods: Several experts of the TWA referred to the need to establish rules for the protection of components produced or maintained by artificial methods. Although, fortunately, the case of the PGS systems seemed relatively simple, the further development of that approach could lead to more complicated cases. For example, a subgroup comprising plants with more uniform and superior characteristics would be screened from the population by an artificial method (e.g. herbicide resistance). If the subgroup could not be produced and maintained without any artificial method, could it be protected as a variety? The TWA recommended that a basic rule for this type of breeding and maintenance should be established in the near future.

54. Introduction of the proposed principles into the General Introduction: The TWA agreed to consider the proposed principles of the document as general principles in the UPOV system. It asked the expert from the United Kingdom to incorporate the basic principles into the draft of the revised General Introduction and/or to prepare a complementary document if necessary.

(See document TWA/28/22, paragraphs 65 to 71)

Duration of DUS Tests: Early Decision-Making for DUS Testing

55. The TWC and TWV discussed the possibility of shortening the period for DUS testing. Discussions in the TWC were based on document TWC/17/10, prepared by the expert from the United Kingdom. The document explored the statistical aspects of two possibilities of making decisions after one-year sowing. The first was the possibility of making decisions on the basis of a single sowing. In that case, it was considered that high standards would have to be set to ensure that a large difference in one year was not reduced to insignificance after a further year. The second possibility involved making decisions from sowings at two centers, which had also been discussed in the TWV. The TWC noted two options for combining the information from two locations. One could be to average variety means over the two centers and compare the average differences between varieties against an LSD based on the variety-by-center interaction. Some disadvantages to this approach were mentioned: it would not satisfy the UPOV requirement for a variety to be “*considered distinct if the difference has been determined in at least one testing place*”; there was the problem of defining how diverse centers had to be in order to represent separate environments; and the fact that the averaging of figures from various centers could dilute variety differences that existed in one center but were weak or absent in another. The other method proposed was to make decisions separately in each center, and to accept a difference as “clear and consistent” only if it were observed in both centers, otherwise a second year of growing would be necessary. For the assessment of uniformity the TWC noted that some thought had to be given to the way of making the assessment from one sowing.

56. Some experts of the TWV stressed that the arrangement of tests should be left to the judgement of the testing experts. For example, if a new variety showed highly uniform and significantly distinct characteristics, one test in one location might be enough for the assessment. One expert asked why only one test was usually required for ornamental species, while vegetable species required repeated tests in two similar growing seasons. Several experts stated that the

difference between vegetables and ornamental plants might arise from differences in their typical modes of propagation (ornamental plants – mostly vegetatively propagated varieties, vegetables – mostly seed-propagated varieties). Many vegetatively propagated varieties of vegetables did exist, however, if testing experts followed that explanation, one test might be sufficient for that kind of vegetable variety.

57. Several experts of the TWV and TWC commented on the experience of their countries. One expert of the TWV reported that, although one-year tests at testing stations were required as a minimum in his country, over 30% of new varieties had been required to have second-year tests because the one-year test was not good enough to make a judgement. He was convinced that it was not a strict principle that should be harmonized, but the reliability of the judgement. Other experts in the TWC mentioned their experience of changing from three-year trials to two-year trials in two locations, and having two trials, one as a main trial and the second as a back-up. The TWC agreed that a reduction in the duration of the field trials could serve to make decisions in one year, or in two years instead of three.

58. The TWV noted that trying to settle on one fixed principle for the arrangement of tests seemed impossible in view of the differences in national practice. The TWV and the TWC therefore agreed that the basic principle of requiring two-year tests in the same place should be kept as it was in the UPOV Test Guidelines, with differences in national practice or special situations being taken into account. Any deviation from this basic principle should be discussed in the preparation of individual Test Guidelines.

(See document TWV/33/15, paragraphs 32 to 36, and document TWC/17/13, paragraphs 75 to 77)

Questions on the Testing of Varieties of Fruit Species

59. The TWF discussed the suitability of the terms “maturity at harvest” and “maturity for consumption,” and whether the problem was one of understanding the English terminology. The expert from Germany informed the participants that in his country there were no problems in understanding the terminology. Some experts proposed three categories of maturity: harvest maturity, maturity for consumption and physiological maturity. Others said that a possible new terminology would depend on the future utilization of the crop in question (e.g. bananas are harvested when they are green, but sold when they are yellow). The expert from Israel pointed out that this topic was too complex and subjective and that there was no need to change the terminology in general, as all Test Guidelines had their own understanding of maturity, which could be explained in each Test Guideline. The Chairman summarized the above discussion by emphasizing that the understanding and meaning of the terms were more important than the actual words used.

60. The TWF noted that a new short and precise definition for “maturity” was needed, but that it was difficult to work it out for the time being. It was decided to leave it as it was until an appropriate suggestion could be made. In each individual Test Guideline, marking the characteristic “maturity” with (+) should give a clear definition of what was meant in practice.

(See document TWF/30/14, paragraphs 5 and 6)

Testing of Seed-Propagated Varieties of Ornamental Species

61. The expert from Germany expressed the opinion that a key question in the above field was in the relatively large difference in uniformity between seed propagation and vegetative propagation (cloning) within one and the same species. Further discussion and development were needed to improve the current situation. Some experts confirmed that there were problems, as many specialists from the seed industry had asked Offices a great many questions concerning UPOV's attitude in certain special cases. The specialists had submitted their problems and were awaiting advice and possible solutions. For example, some flower mixtures contained about ten types of plant with different colorations. To ask for protection for all of them was too expensive. One possible solution might be to protect only two or three types with the most predominant coloration. In conclusion the Working Party decided to continue discussing the issue together with its discussion of document TC/35/15.

(See document TWO/32/9, paragraph 16)

Special Cases in New Species

62. The expert from South Africa pointed out that her country was in a special position as it had provided the world with many new species. South Africa had received some applications for varieties bred from plants taken from the wild, but it was very careful to grant rights in such cases as it wanted to protect its gene population. Information on where the plant was obtained was always requested in the application. Unfortunately the problem was that it was possible to pick a plant in one State and file an application in another. It was very important to South Africa that there should be as clear a definition as possible, commonly agreed to by all member States, of what was a discovery and what was developed.

(See document TWO/32/9, paragraph 17)

Judgement of Phytoplasm or Endophyte

63. The TWA and TWV noted that the Technical Committee had discussed the judgement of phytoplasm or endophytes. The Technical Committee had recommended that any difference that might be caused only by a phytoplasm should not be used as the basis of distinctness, because infection by a phytoplasm closely resembled a virus infection.

64. The expert from Germany insisted that a difference solely due to a phytoplasm could be accepted from a legal viewpoint. The Working Party noted the discussion in the TWA on this matter, that the judgement of phytoplasm should be made on a case-by-case basis. The basis of the judgement should be whether the phytoplasm could easily be inserted and removed.

65. The TWO noted the report submitted by the experts from CIOPORA and discussed whether the grant of breeders' rights was possible and, if so, how it should be done technically. The experts from CIOPORA informed the Working Party that phytoplasm was not transmitted by

seed, so it needed to be introduced by some artificial method to propagate the living material. Phytoplasm could be nothing more than a “switch” turning the expression of a gene or group of genes on and off. Phytoplasm could be removed from the plant by heat treatment and meristem tissue culture or by other methods. It might soon be possible to patent phytoplasm as such.

66. It was mentioned that it would be possible to remove phytoplasm, do the DUS test, obtain plant variety protection and reintroduce the phytoplasm, but there was some doubt that the result would be the same at the beginning and at the end. Therefore, to obtain true results, Offices would have to test both phytoplasm-free material and material with phytoplasm for a given variety. In the case of the double test, several problems would have to be settled: it was more expensive; a double quantity of material for the DUS test would have to be provided (phytoplasm-free and with phytoplasm); what was to be done in a situation where the same variety was on the market but with different phytoplasm?

67. The Working Party agreed that it should deal only with phytoplasm-free material for the DUS test in general. Only the phytoplasm-free variety would form the basis of protection. Material with phytoplasm could also be presented in a reference collection, but only for making a description of the marketed material, which could be attached to the report. The description of the variety with phytoplasm would be done only as a service to avoid confusion in the market; it would not be part of the protection. For a transitional period only, if the phytoplasm-free material were not available, it might be necessary to compare material with phytoplasm. If phytoplasm-free material were available, the DUS testing of phytoplasm-free material would have to be done with phytoplasm-free material.

68. The TWO decided to request the Technical Committee’s advice on the suggestions reported above; it would also need legal advice, especially for a transitional period.

(See documents TWA/28/22, paragraphs 9 and 10, TWV/33/15, paragraphs 29 and 30, and TWO/32/9, paragraphs 16, 17 and 26 to 32)

Documents in Electronic Format

69. The participants in the TWC, TWF and TWO meetings required the availability of UPOV documents in electronic format. The expert from UPOV explained that sometimes the whole document was not available in electronic format, and the placing of incomplete documents on the UPOV Web page was unacceptable to the Office. Nevertheless, the experts were informed that some action would be taken to place the documents on the UPOV Web page.

(See documents TWC/17/13, paragraph 34, TWF/30/14, paragraph 11, and TWO/32/9, paragraph 14)

Development of the UPOV Web Page

70. The TWC and the TWO asked about future developments on the UPOV Web page. The expert from the Office of UPOV replied that there were some options under consideration; one could be to have two parts for UPOV documents, one for free access and the other available by

means of a password which would be supplied to member States only. The participants were asked to send the Web addresses of their national offices and other institutions involved in the granting of plant breeders' rights to the Office of UPOV so that the necessary links might be made.

(See document TWC/17/13, paragraph 35, and TWO/32/9, paragraph 14)

Discussion Groups – E-mail Bulletin Board

71. The TWC regretted the lack of success of the e-mail bulletin board. Some experts considered that it was necessary to set up a discussion subgroup to obtain better feedback, while others said that this kind of bulletin board should be managed by the Office of UPOV and then forwarded to the relevant expert. Nevertheless, participants considered that they had limited time for answering or analyzing problems outside their work.

(See document TWC/17/13, paragraph 34)

II. MATTERS FOR INFORMATION

Species to be Discussed in the BMT

72. On a request from the BMT, the Technical Working Parties discussed future action to be taken concerning the use of biomolecular techniques for the technical examination of varieties. The TWA and TWV chose a few priority species that could be taken up in discussions in the BMT. Considering the availability of data sets, the TWA decided to choose oilseed rape and wheat as priority species, while emphasizing that studies on other species would be accepted as well. Several experts insisted that studies on several different species for discussion at the next session of the BMT would deepen the understanding of the general application of molecular techniques. The TWV decided to choose lettuce and tomato in view of the existing research projects on those species.

73. The TWC focused on the development of statistical methods to assess uniformity when biochemical and molecular techniques were used. It noted that in that field of technology new techniques were launched every year, and that a compromise decision had to be made between a new technology that could last over time and one that was reliable for plant variety examination. Two techniques were finally selected for further work, namely microsatellites and AFLPs. The second issue, discussed by the subgroup, was which species the TWC should test. Considering the technical background available from the BMT and other Technical Working Parties, three crops were selected, roses, oilseed rape and ryegrass. The TWC also analyzed the present situation on the availability of information, and agreed to contact ASSINSEL, the international working group on ryegrass and the BMT. The specialist from Germany would contact the Canadian authorities to obtain information on oilseed rape. Meanwhile the subgroup suggested that simulated data provided by the Netherlands and the United Kingdom could be used to develop the first generation of statistical tools required by the BMT.

(See documents TWA/28/22, paragraphs 19 to 23, TWV/33/15, paragraphs 39 and 40, and TWC/17/13, paragraphs 36 to 41)

New Methods, Techniques and Equipment for the Examination of Varieties

74. The TWF noted document TWF/30/6 on the “Identification of Molecular Markers for Peach Variety Distinctness” and document TWF/30/7 on the “Identification of Peach Varieties Using Molecular Markers” and recommended that the Chairman of the BMT include them in the agenda of the BMT for the next session in 2000.

(See document TWF/30/14, paragraph 18)

UPOV-ROM Plant Variety Database

75. The TWA, TWC, TWF, TWO and TWV noted updated information supplied by the Office of UPOV on the UPOV-ROM Plant Variety Database. In 1998 (and in 1999), six UPOV-ROMs had been issued at two-month intervals. Further improvements had been made to the software in 1999. The new 2.03.07 version of the GTITM software used for UPOV-ROM supported networking and was fully compatible with Windows 95 and Windows NT. The JOUVE company declared the UPOV-ROM Y2K compliant, provided that the installation used to run the Database was itself Y2K compliant.

76. The UPOV-ROM already contains information from 29 member States, the 1997 OECD List of Cultivars eligible for certification and the list of varieties protected through the European Union Community Plant Variety Office (CPVO) in the database, and information from one member State and the European Common Catalogue of Varieties in pdf format. UPOV-ROM distribution is done directly by JOUVE. For the year 1999 there were about 50 subscribers at the annual subscription price of CHF 750 plus postage. In reply to a question from the expert from South Africa at the TWO, it was said to be legal to use the UPOV-ROM in a network or in contacts with private companies in so far as it was used by the national authorities. The expert from the Netherlands on the TWV requested the Office of UPOV to report any major changes affecting the UPOV-ROM to the users by e-mail or circular, and to arrange for each issue not to require reloading all the information every time. The Office of UPOV answered that it would act on the first request at once, but that it was not able to comply with the second.

(See documents TWF/30/14, paragraph 14, TWC/17/13, paragraph 15, TWO/32/9, paragraph 15, and TWV/33/15, paragraph 42)

Crop Inventory

77. In order to find out how far the number of characteristics actually used in each member State differed from the adopted UPOV Test Guidelines, how many and which of the non-asterisk characteristics had been selected and which additional characteristics had been used, the TWF agreed to select the species apple and to ask all member States to submit to the Office of UPOV the list of characteristics they actually used for the testing, including characteristics needed only

once or a few times in special cases. The Office of UPOV was asked to prepare a circular for that purpose. The item should be included in the agenda of the next meeting. The deadline for sending comments to the Office of UPOV was set at March 1, 2000.

(See document TWF/30/14, paragraph 12)

Novelty of Parent Lines of Hybrids

78. In the TWV, the experts from the CPVO reported on the result of a recent meeting of experts held at the CPVO concerning the influence of the commercialization of hybrids on the novelty of their parent lines. The interpretation of the CPVO on this issue (based on Article 10 of the Basic Regulation on Community Plant Variety Rights) was that the commercialization of a hybrid did not constitute commercialization of the parent varieties in terms of novelty. Because of that interpretation, the CPVO were receiving many applications for the protection of parent lines. The above-mentioned meeting at the CPVO concluded the opposite, namely that the commercialization of the hybrid would influence the novelty of parent lines. Revision of Article 10 of the Regulation was therefore required.

79. The TWV noted the two sides of the above argument. Typical grounds for the interpretation were that parent lines were not really commercialized when hybrid varieties were and that, because one parent line could be used in several different parent formulae of hybrid varieties, commercialization of one hybrid derived from the parent line should not be regarded as causing loss of novelty of the entire parent line. However, if the commercialization of hybrids did not influence the novelty of parent lines, the protection of the parent lines after expiration of the protection period for hybrids might enable its breeder in practice to double the real protection period of the hybrid.

80. Some experts reported differences among member States as to how the commercialization of hybrid varieties influenced the novelty of parent lines. Others reported that, because parent lines of vegetable hybrids were seldom traded, breeders of vegetable hybrids were not so eager to protect their parent lines as breeders of hybrids of agricultural crops were.

81. The TWV finally concluded that it would ask an appropriate forum of UPOV to discuss and provide its opinion on this issue.

(See document TWV/33/15, paragraphs 11 to 14)

Variety Denomination

82. In the TWV, the expert from the Netherlands and the CPVO reported that guidelines for variety denomination, which would be applied to all new varieties of both the EC Common Catalogue and Community Plant Variety Rights, were being drawn up by the CPVO. The significant purposes of the guidelines would be the following:

- (a) to allow the use of codes for variety denomination;
- (b) to base importance on written appearance rather than phonetic difference;

- (c) not to accept the use of the Latin names of any plant or common names within the same crop sector (e.g. not allow the common name of agricultural species for agricultural varieties, but allow common names of agricultural species for ornamental varieties)

In particular, it was stressed that a large influx of varieties with denominations in code from outside the European Union required a change of the practice regarding the use of codes for variety denomination.

83. Several experts from outside the European Union regretted that the guidelines were going to be adopted without any consultation of UPOV. In particular they were concerned about the use of codes, which was not permitted in the UPOV Recommendation. Finally, the Chairman requested the experts from the CPVO and the States concerned to inform an appropriate forum of UPOV of the proposed guidelines and to find an opportunity to discuss it in UPOV.

(See document TWV/33/15, paragraphs 15 and 16)

Uniformity Criteria in Measured Characteristics of Different Categories of Varieties

84. The TWA noted document TWA/28/9, prepared by the expert from Germany. The document showed the result of analyzing the degree of uniformity of rape seed varieties in Germany and France. A set of varieties treated as cross-pollinated varieties in the German DUS tests and treated as lines in France was compared for uniformity by the measurement of individual plants. The expert from Germany found no significant difference in the uniformity levels between varieties protected in France and those protected in Germany.

85. In the discussion, however, two differences in the two systems were pointed out: (1) the way in which “off-types” were treated in the trial (off-types were taken out and counted for the assessment of uniformity in France, while all plants were used for the assessment of uniformity by the measurement of individual plants in Germany); (2) different minimum distances applied for distinctness in connection with the level of uniformity tolerated. For example, for the characteristic of time of flowering in Germany, a smaller minimum distance was applied for distinctness and a relatively wider allowance for uniformity, with the measurement of individual plants, while in France a larger minimum distance was applied for distinctness and relatively tighter allowance for uniformity, with observations on plots. Discussions should continue with a view to reaching a better level of harmonization within UPOV member States on oilseed rape.

(See document TWA/28/22, paragraphs 63 and 64)

GM Varieties

86. The TWV recalled its decision to distribute a questionnaire on the DUS testing of GM varieties in member States. The draft questionnaire prepared by the expert from France was distributed as a room document. The expert explained that the proposed questionnaire focused only on technical issues, and specifically the special requirements and procedures of DUS tests for GM varieties, i.e. the management of plant material during and after the DUS tests and the

management of propagating material of GM varieties in reference collections. One expert proposed adding a question on the requirement concerning the transportation of propagating material of GM varieties. Finally, the Working Party decided to ask the expert from France to collect comments and prepare a revised questionnaire for the next session.

(See document TWV/33/15, paragraphs 23 to 26)

Image Analysis

87. The TWC and TWO noted document TWC/17/5 on FLORES - a pictorial database for prescreening purposes - prepared by the experts from the Netherlands. The system is an object-dependent system for image-matching ornamental varieties, where the feature extraction and matching depends on the type of object. It has user-driven segmentation tools in a cross-platform environment, using JAVA applets. It also makes provision for a direct link with a relational database. By allowing user-driven segmentation, the system can combine the expertise of man in determining the kind of object by controlling the segmentation and the computer capacity for quantitative comparison. Nevertheless, as the system shows the resulting most similar images, the user is always in control of the final decision. One limitation of the system is that it is not capable of obtaining an overall similarity for a variety. The system has been optimized for rose flowers and in the future it will be extended to other crops.

88. Different points of view were expressed at the TWO. Some experts had doubts about introducing the system in practice owing to its reliance on the quality of the equipment and the limited number of objects per variety considered, the main argument being that the use of misleading information was worse than the lack of information. Other experts saw positive features in the system: for example it gave the opportunity of making comparisons quickly with the databases of other States. They considered that national offices could use it as a method of prescreening to help find similar images in a digital reference collection. However the TWO finally decided that the system of image analysis was not sufficiently reliable for the time being, the possibility of errors being still too great. A method should be developed to eliminate the risk of error, and efforts should concentrate on the standardization of the means of submitting the image information. The trial would continue on a bilateral agreement basis.

89. Some experts at the TWC commented on their countries' work on image analysis. The expert from France mentioned that the project that was being developed in his country for rose, using color and physical appearance, was a neuronal network approach. There was another project on image analysis for seed quality. The expert from Germany said that in his country there were two projects which worked with colors and shapes, and the new approach enabled the experts from different field testing stations to work with the database in Hanover. The expert from the United Kingdom mentioned the VISOR project for carrots, which would be extended to leek. The expert from France agreed to prepare a summary report on image analysis for the next meeting of the Working Party. The UPOV expert pointed out that the Working Party had to be clear on the intended use of image analysis, namely whether it could be used for distinctness or prescreening or as supporting evidence only.

90. The TWC considered that it would be of interest to have a ring test to see the level of inconsistency and the standardization required, and also considered it very useful to know whether other member States were able to use FLORES or VISOR with their own data.

(See documents TWC/17/13, paragraphs 27 to 33 and 35, and TWO/32/9, paragraphs 8 to 12)

Incomplete Block Design. Reduction of Reference Collection

91. Incomplete block design: The TWC noted document TWC/17/8, prepared by the expert from Denmark. The document was a continuation of the work started the year before (see document TWC/16/12). TWC/17/8 showed the results of two years of field trials (1997 and 1998) of spring rape and mustard varieties, which were some of the major crops for DUS testing in Denmark, with many candidate and reference varieties grown each year, but where some difficulties had been encountered in establishing the distinctness of new candidates. All trials were laid out as alpha designs with three replicates. The expert concluded that incomplete block design was a better method than complete block design, but not as good as had been expected, apart from which the impact it would make on the decision had not been analyzed.

92. The TWC also noted document TWC/17/2, prepared by the expert from Poland. He explained the experiment on French bean, conducted in resolvable incomplete blocks in 1998, in which 40 varieties were tested, conducted in two replicates. The experiment was established as a resolvable incomplete block design with ten plots within every block. Five quantitative characteristics were used for the trial. The expert concluded that the effectiveness of incomplete block design depended on the characteristic involved, and was greater for those that were more influenced by the environment. The expert from UPOV pointed out that experts had to be aware that characteristics highly influenced by the environment were not suitable for assessing distinctness. Experts in the TWC mentioned other experience in the use of alpha design: sugar beet in the United Kingdom, peas in Poland and VCU trials in Germany.

93. The TWC agreed to keep on studying the possibility of alpha design for DUS assessment. It considered that it could be useful when the number of varieties on trial was very great, when decreasing the cost of the trials became a necessity and when there was not enough space to allocate to the field trial.

94. Reduction of reference collection: Owing to the increasing number of varieties included in the reference collections and the requirement of more space for field trials, different options for reducing the number of varieties under testing had been considered in the TWC and also in the TWA. The two Working Parties noted document TWC/17/11, prepared by the expert from United Kingdom, on the reduction of herbage DUS trial sizes. The expert explained that the method of allocating the control varieties to three groups, one of which was omitted cyclically from trial each year, had been chosen. Where data on a reference variety for the assessment of distinctness was missing, it was compensated by the use of data from two years before the test period. Uniformity was assessed by applying COYU to the incomplete table of variety (candidate and control) character standard deviations in the three-year test period. Candidate varieties were included in trial for the three years of their test period plus a fourth year, after which they joined the reference collection and were allocated to a group. The expert concluded that a small reduction in the stringency of distinctness and a slight increase in the stringency of

uniformity were expected because of a slight overcompensation in using two past years' data for one year of missing data from the test period in the distinctness testing, and also a reduction in the information on the controls used to compile the uniformity standard in the uniformity testing. Finally, she said that the national authorities of the United Kingdom had accepted the change to the new approach.

95. The TWC was informed by the expert from the Netherlands about a method to reduce the number of reference varieties on trial for ryegrass. The method consisted of measuring the variability of every characteristic in the collection. Each was then divided according to a "yardstick" calculated on the basis of the visually assessed characteristics. As a result, the reference collection appeared divided into blocks, with some varieties in each block. The varieties were allocated to the blocks according to a randomization of the reference collection every three years. The expert said that the method ensured that all variations in the reference collection would be covered by the end of the trial period. He added that the method was focused on important characteristics, that it had the potential for use in a one-year evaluation and that the reduction of the reference collection could be between one-third and two-thirds. Uniformity was not assessed; the expert from UPOV stressed that uniformity had to be considered in every new method under evaluation. The Chairman mentioned that it was very useful to have some information from one-year trials in order to keep the applicant informed on progress.

(See documents TWA/28/22, paragraphs 52 and 53, and TWC/17/13, paragraphs 54 to 66)

Handling Visually Assessed Characteristics

96. Application of a threshold model to a number of UPOV characteristics: The TWC noted document TWC/17/14, prepared by the expert from the Netherlands. The objective of the document was to show the results of the application of a threshold model to visually observed characteristics, and thereby to provide a better understanding and promote reconsideration of the notes that had to be used. The same information had been used, provided by France and Denmark. Results for the characteristic "Tendency to form inflorescences in the year of sowing" in tall fescue showed that category 4 was very narrow and as a consequence the distance between 2 and 6 was much smaller than between 4 and 8. The same characteristic for cocksfoot gave a similar picture. It was concluded for that characteristic that it would be better to choose time-points closer to visiting the trials. The other characteristics had been studied in the same way. The Working Party concluded that threshold methods were good for establishing whether the experimental division of a characteristic had to be reconsidered when revising the Test Guidelines of a given species, and that it was necessary to keep studying these methods.

97. Handling visually assessed characteristics: The TWC also noted document TWC/17/6, prepared by the expert from Germany. The document was a summary of the TWC documents dealing with different statistical methods for visually observed characteristics. The presentation focused on types of characteristic and the method that could be used for their evaluation. It considered the characteristics used for DUS in a different way from the crop experts. According to the proposal, the characteristics can also be quantitative and qualitative. Quantitative characteristics can be recorded on a ratio scale (classes of fixed size and with an exact zero point) or an interval scale (classes of fixed size without exact zero point); both of them can also be split into non-discrete and discrete. Qualitative characteristics can be recorded on an ordinal scale

(independent and non-exchangeable classes, different class sizes) or on a nominal scale (independent and exchangeable classes, different class sizes); neither of them can be other than discrete. A report followed on suitable methods for the assessment of distinctness and uniformity for each type of characteristic.

98. The Working Party noted that it was necessary to achieve agreement between statisticians and crop experts on denomination for characteristics, and solutions still had to be found for some situations. The expert from UPOV reminded the Working Party that it had to provide solutions for the different situations submitted by the crop experts, and common denominations for characteristics had to be agreed upon. The Working Party agreed to incorporate that section in the future document TGP/8 on the General Introduction to the Test Guidelines, and to circulate the table among the participants in the meeting for comment.

(See document TWC/17/13, paragraphs 67 to 74)

Telecommunications and Exchangeable Software

99. The expert from the United Kingdom on the TWC introduced document TWC/17/4 on developments in telecommunications within UPOV and TWC/17/7 on telecommunications, exchangeable software and contacts. The first document showed developments over the past two years: links from the UPOV Web page, the e-mail address list, TWC documents and the JAVA version of the COYD program, which permits exploration of COYD online. The second document contained information downloaded from the Website <http://www.bioss.sari.ac.uk/upov>. It included an e-mail list of participants in the different UPOV Technical Working Parties, exchangeable software used by member States, database management systems in use, a COYD online demonstration and an index of TWC papers from 1986 to 1998, in subject order. The Chairman encouraged the participants to look at the Web page. More countries were invited to supply information and to check the information they had given in the past. Changes and new information should also be sent by e-mail to Mr. Mike Talbot (United Kingdom) (e-mail: mike@bioss.sari.ac.uk). The information would also be available on the Internet (<http://www.bioss.sari.ac.uk/upov/>).

(See document TWC/17/13, paragraphs 34 and 35)

UPOV Questionnaire Concerning DUS and VCU Databases and Computer Systems

100. The TWC noted document TWC/17/3, prepared by the expert from Poland. It contained the answers from 16 countries to a questionnaire concerning DUS testing and VCU testing. The information was considered surprising, and the increase of the use of personal computer networks was highlighted. The Working Party agreed to repeat the questionnaire every two years. Some experts considered that harmonization was an important issue for member States, and it would become more relevant as the number of varieties grew and the exchange of reports became more frequent.

(See document TWC/17/13, paragraph 78)

DUST for Windows (DUSTNT)

101. The TWC noted document TWC/17/9, prepared by the expert from the United Kingdom, and welcomed the new version of the DUST program for Windows. The expert from the United Kingdom explained that the new program had an easy-to-use interface and offered the possibility of converting Excel files to ASCII files as used by the program. She said that the minimum specification PC needed to run the software was a 486 DX processor with 36MB memory and that it would run under either Windows 95 or Windows NT. The DUSTNT system could be obtained in three ways by contacting Dr. Sally Watson, Biometrics Division, Department of Agriculture for Northern Ireland, Newforge Lane, Belfast BT9 5PX, UK, Tel: (44) 1232 255292, Fax: (44) 1232 681216, e-mail: sally.watson@dani.gov.uk:

- through an FTP site from which the system could be downloaded via the Internet (www);
- by e-mail;
- by conventional land mail using floppy disks.

102. For the future, the development of an introductory tutorial and a user manual was planned. The program is currently available only in English. The Office of UPOV offered to inquire about translation of the text files for the development of other language versions.

(See document TWC/17/13, paragraphs 79 and 80)

[End of document]