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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Twenty-Eighth Session
Ottawa, June 22 to 25, 1999

REPORT

adopted by the Technical Working Party for Agricultural Crops

Opening of the Session

1. The twenty-eighth session of the Technical Working Party for Agricultural Crops (hereinafter referred to as "the Working Party") was held at Ottawa, Canada, from June 23 to 25, 1999. Two Subgroup meetings on Cotton and Rice took place in the afternoon of June 21 on the same occasion to advance discussions on revised Test Guidelines for Cotton and Rice. The list of participants is reproduced as Annex I to this report.

2. Mr. Grant Watson, Canadian Food Inspection Agency (CFIA) welcomed the participants to Ottawa. He gave a short introduction to the work of the CFIA, which was established two years ago, and the recent progress in Canada toward the ratification of the 1991 Act of the UPOV.

3. The session was opened by the Chairman, Mrs. Françoise Blouet (France).

Adoption of the Agenda

4. The Working Party adopted the agenda for its twenty-eighth session as reproduced in document TWA/28/1 Rev., after having confirmed that the revised Working Document for a

New General Introduction for the Conduct of Tests for Distinctness, Uniformity and Stability of New Varieties of Plants would be discussed under item 4.

Short Reports on Special Developments in Plant Variety Protection in Agricultural Crops (Oral Reports)

5. Progress in the Community Plant Variety Office (CPVO): The expert from CPVO reported that the number of applications to CPVO had continuously increased and reached 1800 in 1998. Ornamental plants accounted for 60 % of all applications. Information on applications and grants of plant variety rights were now available on the CPVO website. He and the expert from the European Commission reported that the guideline for variety denomination, which would be applied to all new varieties of both the EC Common Catalogue and Community Plant Variety Rights, was being elaborated. The guideline would be established on the UPOV Recommendation and the related articles of the EU directives. One of the significant points of this guideline would be to allow the use of a code for variety denominations.

6. Changes in the EU Common Catalogue: The expert from the European Commission briefly reported on recent changes relating to the EU Common Catalogue system. As for cereal seeds, free marketing in the common market without any national marketing restrictions had started. In addition, the previously existing two-year gap between the introduction into the first national list and the EU Common Catalog had been eliminated. Regarding genetically modified varieties (GM varieties), the marketing of a GM variety (the registration in official catalogues of varieties) was only allowed if it had been recognized as not being hazardous to human health or the environment. Moreover, the genetically modified nature of GM varieties must be indicated in the official catalogues.

Important Decisions Taken During the Last Sessions of the Working Party (TWA), the Technical Working Party on Automation and Computer Programs (TWC), the Working Group on Biochemical and Molecular Techniques and DNA Profiling in Particular (BMT) and the Technical Committee (TC)

7. Mr. M.-H. Thiele-Wittig presented a brief report on the main items discussed during the previous session of the Technical Committee and referred participants needing further details to the full report reproduced in document TC/35/12, which would be available shortly after the session. The main points of his report are described below.

Application of COYD and COYU Analysis

8. The Working Party noted that the Technical Committee had confirmed, in response to strong objection from horticultural groups against the mandatory use of COYU and COYD, that the application of COYU and COYD were recommended, especially for cross-fertilized species and, within this group, mainly forage species. Moreover, the TWC had been requested to examine alternative recommended statistical methods in cases where national offices could not or did not wish to apply COY methods.

Judgement of Phytoplasm or Endophyte

9. The Working Party noted that the Technical Committee had discussed the judgement of phytoplasm or endophytes. The Technical Committee had recommended that any difference which might be caused solely by a phytoplasm should not be used as the basis of distinctness, because an infection by a phytoplasm closely resembled a virus infection.

10. Several experts in the Working Party argued that the judgement of phytoplasm should be made on a case-by-case basis. The borderline of the judgement should be whether the phytoplasm could be easily inserted and removed. One expert reported that, in several cases of grass species, because the inclusion and removal of phytoplasm seemed easy, a difference caused only by the phytoplasm should not be used for distinctness.

Status of UPOV Test Guidelines

11. The Working Party confirmed again the status of the UPOV Test Guidelines as non-binding recommendations and their importance for international harmonization in technical examination. It also noted that, while member States expanded worldwide, the UPOV Test Guidelines were required to reflect as much as possible different environments. In addition, participation from new member States in the preparation of new or revised Test Guidelines should be further promoted so that the UPOV Test Guidelines could be applicable to all member States. The expert from Australia stressed that the breeder's testing system should be taken into account in the preparation of the UPOV Test Guidelines and should be positioned in the "General Introduction for the Conduct of Test for Distinctness, Uniformity and Stability."

Question, in the Technical Questionnaire, on the Status of the Variety under the Legislation on the Protection of the Environment and on Human and Animal Health

12. The Working Party noted that the Technical Committee had decided to place a question requiring information on the status of the variety under the legislation on the protection of the environment and on human and animal health at the end of the Technical Questionnaire as a new section with the heading "8. Authorization for release". As a consequence, from now on, all new or revised Test Guidelines or their drafts should contain this question as Section 8 in the Technical Questionnaire.

Bulk sample

13. The Working Party also 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 relating to the examination of uniformity. Several experts pointed out that the principle for the handling of bulk samples should be clearly laid down in the General Introduction.

Inclusion of Technical Information in the UPOV ROM

14. The Working Party discussed the inclusion of technical information in the UPOV ROM, which was requested in Circular U 2830. Many experts strongly favored the inclusion of

technical information in the UPOV ROM taking into account the necessary workload in the national offices. The majority proposed to include grouping characteristics or characteristics from the Technical Questionnaire.

15. One of the problems in this matter could be the confidentiality of the provided information. Many experts pointed out that the information on the pedigrees and formula of hybrids could not be provided because of confidentiality. In addition, some experts questioned the willingness of breeders to provide the formula of hybrids for national offices, while several experts pointed out that the submission of the information on the formula of hybrids was requested in their countries. Many experts stated that, except for the pedigree and hybrid formula, the information provided in the Technical Questionnaire could be included in the UPOV ROM because they are recognized as being part of the public domain.

16. The other problem was the reliability of the information provided by applicants. Some experts questioned whether the information of grouping characteristics provided by applicants could be made public before verifying them by official examination. It was suggested that the technical information be limited to protected varieties. In response to this suggestion, several experts insisted that non-officially verified information provided by applicants concerning candidate varieties could be included in the UPOV ROM. If the information in the Technical Questionnaire proved wrong in the examination, the data could be corrected afterwards.

17. The information on the most similar varieties (section 9) in the Technical Questionnaire was also proposed as possible information to be included in the UPOV ROM, while several experts admitted the limitation of its usefulness. Finally, the Working Party decided to propose the inclusion in the UPOV ROM of the information on the Technical Questionnaire concerning grouping characteristics (section 5), most similar varieties (section 6) and additional information (section 7) of the Technical Questionnaire.

18. The expert from the CPVO reported that an information exchanging system was being established in the EU countries. The exchanging of information on candidate varieties in roses had already started. This system would be extended shortly to potato and spring barley.

Species to be discussed in the BMT

19. The Working Party heard a brief report of the fifth session of the BMT. It noted that the Technical Committee had decided on the continuation of the BMT in the light of its usefulness as a forum for exchanging views among molecular scientists, statisticians and UPOV experts and the need for further discussions on the possible application of biochemical and molecular techniques for DUS testing. It also noted that the BMT had requested each Technical Working Party to choose one or two species which could be taken up in discussions in the BMT

20. The Working Party confirmed again the present stance of the BMT concerning the use of molecular techniques that many questions, such as uniformity and stability, in the use of molecular tools for DUS tests were still open and needed to be resolved before any recommendation on the use of those tools could be made. Several experts pointed out that the rapid progress of molecular techniques in breeding activities might, in the future, necessitate the introduction of molecular techniques in technical examination and that, therefore, the BMT discussion should be further advanced.

21. The former and the new chairman of the BMT explained the reason why a few priority species should be chosen for further progress. In order to make real progress in the discussion in the BMT, concrete and well-targeted studies corresponding to the open questions were needed as the basis of the discussion. For such studies, much information concerning phenotypic characteristics data, pedigree information and molecular data in several different approaches needed to be provided. Therefore, experts of each Technical Working Party were expected to cooperate in the collection of the necessary information on the priority species. However, they emphasized that the choice of priority species did not mean that studies on other species were not accepted in the BMT. Studies on several different species for discussion in the next session of the BMT would deepen the understanding of the general application of molecular techniques.

22. Oilseed rape, wheat, potato and rice were proposed as priority species by the experts. One expert recommended rice because valuable information on the rice genome was now available due to the rapid progress of sequencing projects. Other experts pointed out that there was an on-going EU project about the application of molecular markers to wheat and that there had been several projects concerning oilseed rape.

23. Finally, considering the availability of data sets, the Working Party decided to choose oilseed rape and wheat as the priority species, whilst emphasizing that studies on other species were accepted as well. In addition to the on-going studies, supplementary studies needed to focus on the problem of uniformity within a variety. Regarding oilseed rape, France would present the result of a study of uniformity in the next session of the BMT.

New General Introduction for the Conduct of Test for Distinctness, Uniformity and Stability of New Varieties of Plants

24. The Working Party discussed document TG/35/13 “Revised Working Document for the Preparation of a New General Introduction for the Conduct of Tests for Distinctness, Uniformity and Stability of New Varieties of Plants” (hereinafter “the revised General Introduction”), which resulted from discussions in an *ad hoc* meeting on May 10 and 11, 1999. Because of the tight schedule of the session, the Working Party could not examine it in detail and discussed only general issues.

25. Need for more contribution to its preparation: The UPOV Office regretted having received only a few comments despite the importance of the document. It strongly requested all experts to carefully study document TC/35/13 and to send comments to the UPOV Office by August 15, 1999. The comments received would be discussed at the next *ad hoc* meeting to be held on October 1, 1999 . The expert from ASSINSEL stated that, in view of the importance of this document for breeders, ASSINSEL would try to discuss it internally and submit its comments by the next *ad hoc* meeting.

26. Exclusion of open questions from the main document: Several experts pointed out that, several open questions were included in the main document of the General Introduction, which would take many years to finish the preparation. Therefore, items which needed further discussion, as well as detailed explanations, should not be included in the main text. They should be treated in a separate collection of documents. The main documents should consist of basic principles on which member States would currently be able to reach a consensus. Accordingly, the main document would be kept for a relatively long time and 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 affecting the basic document.

27. Procedure of adoption: The Working Party discussed the need for asking advice from legal experts and for adopting the General Introduction in 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 (the 1991 Act) of the Convention, should be finally adopted by the Council. Regarding the timing of requesting advice from the CAJ, some experts considered that the documents might be sent to the CAJ for comments parallel to the discussion in the Technical Committees and several Technical Working Parties, while others stressed that, in order to avoid confusion, the documents should be further discussed by technical experts before presenting them to the legal experts.

28. Length of document and explanatory notes: Many experts preferred a short basic document with long additional explanatory notes. The expert from France highlighted paragraph 5 as an example of a paragraph which might be shortened. The UPOV Office explained that the basic document was planned to comprise only the main text without any explanatory notes, while the first document of the collection of detailed additional documents was planned to repeat the main texts enlarged by explanatory notes.

29. Structure of contents: The expert from France also suggested that subchapter 5.5 "Application of Statistical Methods to Measured Characteristics" be positioned in chapters 6 to 8 rather than in chapter 5 "Definition and Observation of Characteristics" because statistical methods were used for judging DUS. Finally, the agreed proposal was to combine chapters 6 to 8 into one new chapter named "6. Testing Distinctness, Uniformity and Stability" and to place subchapter 5.5 in a new chapter 6.

30. Objectives of the UPOV Test Guidelines: The expert from Australia repeatedly questioned the objectives of the UPOV Test Guidelines. He pointed out, referring to document TC/35/9 (the previous version of the working document for the General Introduction), that the objectives of the [UPOV] Test Guidelines were to establish variety descriptions in a standardized form and not primarily to determine distinctness. The present position on the UPOV Test Guidelines weakened their role in the judgement of DUS. Several experts replied that, after achieving a harmonized description, the objective of the UPOV Test Guidelines was to judge distinctness in a standardized way, but not all information needed for distinctness was included in the Test Guidelines, for example, the minimum distance needed in the different states of characteristics. The UPOV Office explained that the revised working document TC/35/13 was more balanced in this matter than the previous draft. In addition, the expert, who 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 for the Conduct of Test…." 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 Working Party concluded that the revised General Introduction would therefore cover the basic principles for the description of varieties and for the judgement of DUS. These two objectives of the UPOV Test Guidelines should be specifically stated.

31. List of Complementary documents: The Working Party discussed the list of documents complementing the General Introduction (Annex II of document TC/35/13). The chairman questioned how the documents, which had different level of readiness, should be treated. The list contained both documents which had already been prepared or adopted and documents

which had not yet been prepared. Some documents would not be ready for a few years yet and might thus not be kept on the list.

32. Many experts favored the list also containing the documents which might need a long time before finalizing. This kind of list would help to clarify what kind of issues should be included. Some experts proposed splitting the documents into two categories; a category for documents which had already been prepared or would be prepared shortly and another category for documents which contained open questions and required further discussion for their preparation.

33. On the other hand, many experts were concerned that the tentatively proposed titles of documents should not prejudge the preparation of the complimentary documents. The list should not mean that all documents needed to be prepared. Some documents might be removed from the list as a result of discussions. The chairman concluded that the list would be maintained as it was taking into account the above concerns. The UPOV Office stated that the numbering system of the complementary documents might be reconsidered in order to avoid confusing documents at different stages of preparation.

34. Contributors to the complementary documents: The expert from the Netherlands volunteered to prepare a draft for document TGP/11, the expert from the United Kingdom for document TGP/13 and the expert from France for document TGP/14. The preliminary drafts would be submitted to the UPOV Office by the end of January 2000 so that the UPOV Office could prepare the documents in time to distribute copies to the Technical Committee (and the BMT in the case of TGP/11). In addition, the expert from the Netherlands volunteered for the preparation of TGP/3. He would send his contribution by September 1, 1999, to the expert from the United Kingdom in the Technical Working Party for Ornamental Plants and Forestry (TWO), who was preparing a draft for that document for the next session of the TWO.

35. The expert from Australia volunteered to contribute to the preparation of document TGP/18 in cooperation with experts in the other Technical Working Parties. He also proposed to review the existing document TC/32/5 concerning breeder's testing, which might be used as TGP/6. If necessary, he would prepare the revised or new document on this subject in cooperation with experts from Canada and Japan by the end of January, 2000.

36. On the other hand, several experts stressed that not every document needed to be prepared by the next session of the Technical Committee. The preparation of the document should take into account the maturity of the discussion. In addition, they emphasized that existing documents should be utilized as much as possible in order to minimize the preparation work for the General Introduction.

UPOV Taxon Code

37. The UPOV Office reported that it had received a few comments on the proposed UPOV taxon code. It requested all experts to submit comments, if any, to the Office by August 15. It also pointed out that, if no comments were received by the deadline, the Office would consider that the national offices agreed with the proposed taxon code system.

Use of Electrophoresis in Cross-fertilized Varieties

38. The Working Party 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 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. These characteristics in general met the requirement of Articles 1 and 6 of the 1991 Act. It was becoming very difficult to refuse these characteristics from the legal point of view. (He also emphasized the difference between electrophoresis characteristics showing phenotypic (protein) information and DNA characteristics currently providing 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 the minimum distance, the size of minimum distance in the case of some vegetatively propagating crops was already quite small. Compared with these cases, the minimum distance of electrophoresis characteristics seemed to be acceptable. Piracy and cosmetic breeding problems were a matter for the owner of the breeder's right, not for the granting authority. In particular, the notion of essential derivation provided the breeder with enough 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 among the varieties was the frequency of alleles. However, there were already cases where the frequencies were accepted as a characteristic in UPOV Test Guidelines.

39. The Working Party noted document TWA/28/17 introduced by the expert from France. The document showed an example of using electrophoresis characteristics as supporting evidence. The electrophoresis characteristics 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 impact of introducing new characteristics, especially on the quality of protection should be carefully considered. The introduction of new characteristics, such as electrophoresis characteristics might lead to destroying existing protection. The national authorities were responsible for keeping a reasonable minimum distance of protection, i.e., the quality of protection.

(b) In a case 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 characteristics in VCU trial, such as yield, the testing expert needed additional information which could support his conviction. Electrophoresis characteristics were adapted to this type of need as supporting evidence.

(c) A characteristic-by-characteristic approach should be reconsidered for distinctness. A multivariate approach for the assessment of distinctness should be considered. In this approach, several small differences may establish distinctness.

40. Position of breeders: The expert from ASSINSEL restated the position of ASSINSEL. Breeders were worried that the introduction of electrophoresis characteristics would lead to (1) an extra burden for breeders of maintaining the allele frequencies of their variety uniform and stable; and (2) the facilitation of plagiarism and the weakening of the plant variety rights (PVR) system, as it was very easy to "select" a "new variety" out of an existing one. Therefore, ASSINSEL had requested that electrophoresis characteristics should not be introduced in DUS testing for cross-pollinated/population species, especially ryegrass, even as supporting evidence. For self-pollinated species, the use of electrophoresis characteristics might be considered as supporting evidence where breeders agreed to their use.

41. He also insisted that the introduction of electrophoresis characteristics for ryegrass would lead to the destruction of existing protection because the introduction would indeed facilitate cosmetic breeding by using such characteristics. For that reason, breeders strongly opposed the use of electrophoresis characteristics for that species.

42. Supporting evidence or independent characteristics: Several experts questioned the difference between supporting evidence and independent characteristics in practice. Some experts took the position that, even in the case where electrophoresis characteristics were used as supporting evidence, the final decision on distinctness was in the end based on electrophoresis characteristics. Where no significant differences were observed in electrophoresis characteristics as supporting evidence, a candidate variety would fail to establish distinctness. What was the difference between use as supporting evidence and as an accepted independent characteristic? Electrophoresis characteristics which were used as supporting evidence would function in the same way as the last resort independent characteristics.

43. Need for clear conditions for the use of electrophoresis as supporting evidence: Several experts stated that the example presented by the expert from France was based on the unique decision-making process for DUS in France, placing a great importance in the conviction of a committee of experts. In this case, whether testing experts examined electrophoresis characteristics relied on the judgement of the experts in the Committee. However, the 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. These general principles would ensure the consistent application of electrophoresis characteristics in countries which had a different approach in decision making for distinctness.

44. Criteria for the selection of characteristics for DUS testing: The expert from the Netherlands stated that electrophoresis characteristics would fulfill all criteria for the selection of characteristics specified in the General Introduction as well as in the UPOV Convention. For this reason, from the legal point of view, it would be very difficult to reject the use of electrophoresis characteristics as independent characteristics. In addition, he stated that the deletion of the word "important" before characteristics from the 1991 Act enabled non-phenotypic characteristics to be interpreted as "characteristics". The UPOV Office referred to the discussion during the diplomatic conference where it was specifically stated that there had been no intended change in the interpretation of "characteristics" despite the change of wording.

45. Some experts considered that the criteria for the selection of characteristics in the General Introduction, e.g., paragraphs 36 and 62 in document TC/35/13 should be amended in

order to reflect the position on electrophoresis characteristics. The expert from the United Kingdom suggested that the prevention of plagiarism should be also taken into consideration for the selection of characteristics.

46. Pressure for the introduction of non-conventional characteristics: The expert from Canada stressed the need for the introduction of non-conventional characteristics. In some species, such as radish, it was becoming difficult to establish distinctness on the basis of morphological characteristics. In such species, the introduction of new characteristics was needed for the establishment of distinctness of new useful varieties.

47. Interpretation of performance characteristics: The expert from France questioned how to handle varieties which showed no significant difference in conventional characteristics, but large differences in performance characteristics, such as yield. Many experts reported difficulty in using yield data as a characteristic for distinctness, because yield was not consistent in different locations and years, and highly dependent on environmental conditions. Yield was a result of the expressions of many different phenotypic characteristics. Several experts regretted that yield, which was the main target of breeding, especially for agricultural crops, could not be used as a characteristic for distinctness. Some experts suggested that yield could also be used as supporting evidence. Other experts insisted that, even if the yield showed a large difference, it was better that testing experts pursue differences in other more reliable additional characteristics, i.e. chemical contents.

48. Preparation for the further discussion: The Working Party noted that there were several different views amongst experts and member States as to how to reach a decision on distinctness. Therefore, it 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. The new document should cover the contents of documents TGP/11 (a) and TGP/13 listed in Annex II of TG/35/13. Whether the separate TGP documents were needed would be decided in the course of the preparation of this new document or thereafter.

49. Envelope protection: The introduction of new characteristics, especially non-routine characteristics for which breeders had not made their varieties uniform (because this was not required), demonstrates the need for definition of the scope or “envelope” of the existing protection. In envelope protection, varieties would contain two or more subgroups with different expressions of new characteristics. For example, in case of the introduction of electrophoresis characteristics, some existing varieties might have several subsets of plants with different electrophoresis band patterns. The expert from the United Kingdom proposed preparing for the next session a document concerning the envelope protection problem.

Pre-screening of Varieties

50. Definition of pre-screening: The Working Party first discussed the definition of the word “pre-screening”. Some experts defined “pre-screening” as detecting a subset of varieties which have similar characteristics to a candidate variety which would coincide with the term grouping. Other experts explained that “pre-screening” was not to choose the most similar varieties, but to completely eliminate varieties which did not need to be compared with a candidate variety in the field, while grouping was considered as organizing subgroups in the reference collection based on characteristics. Finally, most experts confirmed that pre-screening was more than just grouping.

51. Method of selecting comparable varieties: The expert from France made a presentation on a method of selecting comparable varieties with a candidate variety, which was applied to maize in France. The method was an attempt at numerically evaluating the total difference between varieties. The main idea behind this method was summarized by him as follows:

(a) The index of the difference between a candidate variety and any existing variety was estimated as a sum of indexes (α) of differences observed in each characteristic: $I = \alpha_{d1} + \alpha_{d2} + \alpha_{d3} + \alpha_{d4} + \alpha_{d5} + \ldots\ldots\ldots\ldots + \alpha_{dn,}$ where there are characteristics 1, 2, 3, 4 ….n and dj means the difference in the characteristics j.

(b) α values (0 to 6) would depend on the observed difference in each characteristic (d_j), the genetic background (when known) of characteristics, the susceptibility of characteristics to environment, and the reliability of data (e.g., non-direct comparison data or side-by-side comparison data). For example, if there was a big difference in a quantitative characteristic, which was known to be polygenic and less influenced by environmental factors, the α value could be 6. If only a small difference was observed in the characteristic, but just enough for the minimum distance, the α value could be 3. If the difference in the characteristics was less than the minimum distance in the characteristics, the value was 0.

(c) The decision on whether a variety should be compared with a candidate variety would be based on the value of I. If I was 6 or more, the variety could be eliminated. Only varieties with an index of less than 6 would be compared in the field.

(d) Electrophoresis characteristics were used as one of characteristics in this equation. However, the α value of the electrophoresis characteristic was determined so that electrophoresis characteristics alone could not reach 6.

(e) The method was a reliable and efficient tool for pre-screening. After pre-screening by this method in France, only 600 varieties of 2000 existing maize varieties were tested in the field. This type of method was indispensable for species with a large reference collection. This method was being developed also for oilseed rape and sunflower.

52. Reduction of sizes of planting of reference collections in DUS trials: The expert from the United Kingdom made a presentation on the reduction of Herbage DUS trial sizes by cyclic planting of the reference collection and by analysis by the compensated data. The full information is available as document TWC/17/11 Rev. The presentation showed a one-third reduction in the size of the planting of the reference collection by omitting one planting every three years. For COY analysis, the missing data from one year was compensated by the two years' data prior to the test period. The result showed close agreement in the judgement of distinctness and uniformity between the conventional system and the new system.

53. Many experts showed great interest in the two approaches presented, therefore following the above two presentations, the meeting spent a long time on questions on further details and on answers for each presentation. The results of the general discussion following questions and answers were as follows:

54. Risk of eliminating similar varieties in pre-screening: The expert from Australia asked about the risk of eliminating very similar varieties in pre-screening. For example, in the Australian system, about 1% of the new varieties would be appealed on the basis of distinctness after the publication of full variety description. The expert from France reported that to date there had been only one variety out of 8000 protected varieties, which, after

granting rights, had been considered not a distinct variety. He also answered that the proposed pre-screening method had not shown any problems. Other experts proposed that, because the most similar or comparable varieties were determined by applicants, a relatively high rate of appeals for the failure of distinctness of a new variety could be observed in the Australian system. The expert from Australia pointed out that the difference in the number of claims might be related to the openness of the information on variety descriptions of the protected varieties.

55. Use of electrophoresis data in pre-screening: The Working Party noted that one of the research results presented in the last session of the BMT had shown that there was no good correlation between pedigree information or molecular distance and morphological distance. The result 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, these characteristics should not be used as grouping characteristics. The expert from France argued that grouping or pre-screening was not only based on characteristics for distinctness, but also on other information. He also stressed the advantages of molecular markers. Molecular characteristics were less influenced by environment and provided good information on the genetic structure. He insisted that the possible application of molecular characteristics should be further studied. The chairman concluded that the BMT should be asked to further discuss the use of molecular characteristics in pre-screening.

56. Multivariate approach: The expert from France insisted on the necessity of discussing the possibilities of a multivariate approach, in addition to a characteristic-by-characteristic approach for pre-screening 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. This approach would enable testing experts to establish distinctness for varieties which have small differences in several characteristics. Several experts raised concerns about the approach proposed by the expert from France. That approach contained concepts for distinctness which were completely different from the present concept. One expert pointed out that there was no big 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 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 had to be maintained in the individual characteristics, that would be troublesome and costly. The expert from France explained that the assessment on the basis of multivariate analysis might be on a non-routine basis. Only in the case where, for a new variety, distinctness could not be determined with conventional characteristics, a multivariate approach would be used. Finally, he offered to report in the future session on the result of further studies on the multivariate approach.

57. Preparation for the next session: The Working Party agreed to prepare a document entitled "Management of reference collection" which would contain general guidance on pre-screening and efficient management of reference collections. This document should reflect pre-screening in breeder testing systems as well as the pre-screening and management of reference collections in the official government testing system. The document would be jointly prepared by experts from Australia, France and the United Kingdom by the end of January 2000 and could be regarded as a draft for document TGP/4 in Annex II of TC/35/13.

58. Empirical survey of pre-screening/grouping: The Working Party also agreed to conduct an empirical survey of pre-screening in order to collect information on the different pre-screening/grouping systems in the member States and to analyze how these different systems worked. The expert from Denmark agreed to prepare a circular which 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 names of varieties similar to that variety which would be screened by its own national pre-screening/grouping system based on the information in the circular, and submit the basic information on the national pre-screening and on the reference collection systems, e.g., the way of pre-screening, the size of the reference collection, the size of the planting of the reference collection and the maintenance method for the reference collection.

Proposal for guidance for the preparation of future UPOV Test Guidelines

59. The expert from Germany introduced document TWA/28/14. Because of the lack of time for discussion, the Working Party discussed only the section on example varieties. It agreed to send any comments to the expert from Germany (Mr. Fuchs) by the end of September. Based on document TWA/28/14 and the comments received, the expert from Germany would then make draft proposals for necessary changes in the draft for a revised General Introduction.

60. Example varieties in UPOV Test Guidelines: The Working Party discussed whether the change in the availability of example varieties would lead to a revision of the existing Test Guidelines. Several experts referred to the fact that example varieties in UPOV Test Guidelines had decreased in importance. While 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.

61. The Working Party also briefly discussed how to define the availability of example varieties as one of the criteria for 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.

62. The Working Party noted that the expansion of UPOV membership necessitated a change of the way example varieties were selected for some Test Guidelines. Experts who attended the Subgroup on Rice reported that, if the principle concerning example varieties as written in the revised draft for a General Introduction that all example varieties should be tested only in one place was strictly applied to all Test Guidelines, 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 active participation of new member States in the UPOV system. Several experts suggested adding in a different column or in an annex, an extra set of example varieties to be tested in a second testing location. In addition, some experts insisted on the need for identifying the location or country where example varieties had been tested. One expert proposed establishing a special web-site containing all example varieties in national Test Guidelines, which could be substituted for the example varieties listed in the UPOV Test Guidelines. The majority of experts preferred to add an extra set of example varieties, if necessary, while they noted that there were still unsolved problems on how to ensure accordance of example varieties in each State, especially in quantitative characteristics.

Uniformity criteria in measured characteristics of different categories of varieties

63. The expert from Germany introduced document TWA/28/9. 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.

64. In the discussion, however, two differences in the two systems were pointed out: 1) the way "off-types" are treated in the trial (off-types are taken out and counted for the assessment of uniformity in France, while all plants are used for the assessment of uniformity by the measurement of individual plants in Germany); 2) the difference in the level of minimum distance 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 for distinctness and a relatively wider allowance for uniformity was applied with the measurement of individual plants, while in France a larger minimum distance for distinctness and relatively tighter allowance for uniformity was applied with the observations on plots. Further discussions should continue to reach a better level of harmonization within UPOV member States on oilseed rape.

DUS testing of oilseed rape hybrids

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

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

67. The expert from Germany reminded the experts that, in principle, distinctness should be judged on the hybrid itself. In this sense, the parent formula should only be used for predicting the distinctness of hybrids, and could only be used in cases where a detailed knowledge of the parent lines and heritability of characteristics ensured the correctness of the prediction.

68. Provision of information on parent formulae from applicants: The UPOV Office reported on difficulties in the use of parent formulas 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 judgement of DUS might differ among 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 (e.g., maize). Some experts reported that the submission of lines and the parent formula was necessary or obligatory for applications for hybrids in their countries.

69. Protection of components maintained by artificial methods: Several experts 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 this 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 the subgroup be protected as a variety? The Working Party recommended that a basic rule for this type of breeding and maintenance should be established in the near future.

70. Protection of subgroups of existing varieties or populations: In connection with the above example, the Working Party discussed the protection of a subgroup screened from existing varieties or populations. The Working Party basically agreed to the related sentence in the explanation of paragraph 25 in the proposed General Introduction (TC/35/13), "the improvement of the uniformity is not considered as sufficient to assess distinction". It noted that, accordingly, a subgroup selected from protected varieties or a local population that had been already regarded as a part of common knowledge could not be protected. It also noted, however, that further consideration in this matter would be needed, especially in relation to landraces or new species.

71. Introduction of the proposed principles into the General Introduction: The Working Party noted the usefulness of the document (TWA/28/16). It also 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.

Final Discussion on Test Guidelines

Test Guidelines for Sunflower

72. The Working Party noted documents TG/81/4 (proj.), TWA/28/7 and TWA/28/20 and made the following main changes in document TG/81/4 (proj.):

(i) Methods and Observations: Paragraph 7 should, after the first unchanged sentence, read as follows: "All plants within an inbred line with two or more loci being heterogeneous with one allele in each locus coming from the inbred line (e.g. AX) should be considered out-crosses. All other cases of heterozygosity as well as cases where two foreign alleles are present in one locus should be considered off-types."

(ii) Table of Characteristics:

4 To read "shape of distal part", to have states 6, 7, and 8 replaced by "broad triangular to acuminate", "broad triangular to rounded" and "acuminate" respectively and to have the drawing revised

4a To have a new characteristic "Leaf: auricles" with states "none or very small (1)", "small (3)", "medium (5)", "big (7)", "very big (9)"

11 To be replaced by characteristic 13 of the previous version of the Test Guidelines for Sunflower (TG/81/3) with a simplified scale 3, 5, 7 instead of 1, 3, 5, 7, 9

16 To have states 3, 4 and 6 deleted and "undulated" and "strongly recurved to back of head" renumbered 3 and 4 respectively and to have the stage "F3.1" replaced by "F3.2"

23 To have "triangular" replaced by "neither clearly elongated nor clearly rounded" and to have drawings prepared

26.1 and 26.2 To have two characteristics combined into one characteristic to be applied for all varieties and to have the following explanatory note added:

"Different environmental conditions may require separate scales for lines, hybrids and open pollinated varieties"

27 To have the stage "M3" replaced by "M0"

33 To have the stage "M3" replaced by "M0 to M2"

36 To read as "thickness relative to size"

(iii) Annex (Part II): To have heterozygous genotypes (Genotype 2/4) added as Note 3 in characteristics 42 to 46

Test Guidelines for Industrial Chicory

73. The Working Party noted documents TG/172/1 (proj.) and added the following sentence after the first sentence of Methods and Observations :

"Interpretation of results should be made according to the rules for cross-pollinated species as laid down in the General Introduction to DUS Tests"

The Working Party decided to add the above sentence to all newly prepared Test Guidelines for cross-pollinated species and hybrids as a standard sentence for the assessment of uniformity in these species.

Test Guidelines for Maize

74. The Working Party noted a mistake in the English version of the Test Guidelines for Maize and asked for the preparation of a corrigendum to document TG/2/6 which would contain the missing paragraph 6 of the Chapter IV which would read:

"In multiple hybrids characteristics may segregate with the effect that several states occur side by side in a variety. Certain characteristics which from experience are known to lead to such segregation in multiple hybrids are indicated with the letter "S"."

Working Paper on Test Guidelines

Test Guidelines for Cotton

75. The Working Party noted document TWA/28/5 and a brief report on proposals made by the Subgroup which had met the preceding day and made the following main changes to that document:

(i) Subject of these Guidelines: The document to apply to *Gossypium hirsutum* L., *Gossypium barbadense* L. and interspecific hybrids

(ii) Conduct of Tests: The Working Party was asked by the expert from Australia to consider adding to paragraph 1 the sentence "If tests comprise only one growing period, at least two different generations should be included in the test." After detailed discussion, the proposal was rejected by the Working Party.

(iii) Methods and Observations: Paragraph 1 was deleted and paragraph 3 enlarged by the sentence: "In the case of a sample size of 500 plants, the maximum number of off-types allowed would be 9." Thereafter several new paragraphs were added reading:

"4. Unless otherwise indicated, all observations on the leaf and on the stem should be made where leaves are fully extended."

"5. All observations on the fruiting branch should be made at flowering stage on the lowest fruiting branch (or, still to be decided, "on the third fruiting branch")."

"6. All observations on the flower should be made on the first day of flowering".

"7. Unless otherwise indicated, all observations on the ball should be made at green maturity."

"8. All observations on the seed and the fiber should be made at full maturity."

(iv) Table of characteristics:

1 to 38 With the exception of characteristics 9, 16 and 23 to 27, to have the content in brackets deleted as they would be covered by the new paragraphs under the chapter "Methods and Observations"

14, 22, 23, 34, 35, 36, 37 To have the asterisk (*) deleted

4 To read "Fruiting branch: length"

5 to 7 To have "Plant" replaced by "Fruiting Branch"

8 To read: "Plant: number of nodes to lowest fruiting branch at flowering stage"

9 To have the bracket refer to characteristic 8

12 To have the first state read: "absent or very weak"

16 To read: “Bract: dentation at green maturity”

17 To read: “Bract: size”

22 To receive a diagram on the open ball

23 to 25 To be observed at green maturity

32 To have “content” replaced by “percentage”

33 To have the method checked

36 To be observed with a Micronaire

37 To read: “Fiber: length uniformity ratio”

(v) Literature: To have the references on the methods from page 16 repeated in that chapter (Methods D-4604-95 and D-5867-95)

(vi) Technical Questionnaire: Paragraph 4.1 to read: “Type of material: (i) line: - male fertile line, - male sterile line”, paragraph 4.4 to read: “Other information on origin, maintenance and reproduction of the variety” and at the end of paragraph 7 the sentence on the color photo to be deleted.

(vii) Other: The experts from Spain and Greece will submit further example varieties before the document could be sent for comments to the professional organizations.

Test Guidelines for Rice

76. The Working Party noted document TWA/28/6, TWA/28/18 and TWA/28/21 and made the following main changes to document TWA/28/6:

(i) Material Required: The words “and interspecific hybrids” should be deleted because interspecific hybrids did not exist.

(ii) Conduct of Tests: In the fourth sentence, “ear-rows” should be replaced by “panicle-rows.”

(iii) Methods and Observations:

(a) The third paragraph should read as follows:

“For the assessment of uniformity of characteristics on the plot as a whole (visual assessment by a single observation of a group of plants or parts of plants), a population standard of 0.1% with an acceptance probability of 95% should be applied. In the case of 2000 plants, the maximum number of off-types should not exceed 5.

(b) In addition, the following new paragraph should be introduced as paragraph 4.

“4. For the assessment of uniformity of characteristics on single panicle-rows, plants or parts of plants (visual assessment by observations of a number of individual panicle-rows, plants or

parts of plants) the number of aberrant panicle-rows, plants or parts of plants should not exceed 2 in 50."

(iv) Table of Characteristics:

1 To read "Leaf: intensity of green color" with the states "light (3)", "medium (5)", "dark (7)"

4a+b To have the following two new characteristics added

4a Penultimate leaf: ligula with the states "absent (1)" and "present (9)"

4b Penultimate leaf: shape of ligula with the states "truncate (1)", "acute (2)" and "split (3)" with drawings still to be prepared.

5 To receive an asterisk

6a To have a new characteristic "male sterility" with the states "absent (1)" and "present (9)" [The method of assessing this characteristic would have to be prepared by experts on hybrid rice varieties." If the method was able to verify whether the production of pollens could be confirmed or not, this characteristic would read "production of pollen".]

16 To have "curvature" replaced by "length", to have an explanation to the drawing and to have the number of the growth key replaced by "72-90"

17a To have a new characteristic "Panicle: number per plant" with the states "few (3)", "medium (5), many (7)" [This characteristic to be observed on spaced plants with a protocol on plot size and plant density, still to be prepared.]

18 To read "Spikelet: pubescence of lemma"

19a To have a new characteristic "Panicle: awns" with the states "absent (1)" and "present (9)"

20 To have a word "absent" deleted from state 1

22 To read "Panicle: attitude of branch", to have new states of expression to be prepared for states 1, 3, 5, 7, 9 and to receive new drawings

25 To have the example variety "Lido" deleted and to have the example variety "Miara" added for Note 3

26 To have the example varieties revised as follows:

very short		1
short	Balilla, Bomba	3
medium	Albada, Lido, Tebre	5
long	Ariborio, Thaibonnet	7
very long	Carinam	9

28 To have two extreme states "very short (1)" and "very long (9)" added

31 Several experts pointed out the existence of other colors, such as black. The Subgroup decided to ask other experts for extra information on this characteristic.

32 To read “Polished grain: expression of white core”

33 To read “Endosperm: content of amylose” with the following new states:

low	3	(<5%)
medium	5	(5.0-15.0%)
high	7	(15.0-21.0%)
very high	9	(21.0%<)

(v) Literature: The following literature should be added:

“Takane Matsuo and Kiyochika Hosokawa (edit.) (1993): “Science of Rice Plant” (volume 1-3), Food and Agriculture Policy Research Center, Tokyo”

(vi) Technical Questionnaire: Chapter 4.1 should read as follows:

“4.1 Type of material

(i) line
- male fertile line
- male sterile line
(ii) hybrid
(iii) other (please indicate)”

77. The Working Party as well as the Subgroup discussed the need for more contributions from the Asian countries. For example, as mentioned above, the addition of the second set of example varieties should be further considered. At least, for the characteristics for which the reference collection in Spain could not provide many example varieties, such as “Leaf: distribution of anthocyanin coloration” (characteristic 2) and “Decorticated grain: color” (characteristic 31), additional example varieties from Asian countries were required. The other major problem pointed out by the expert from Australia was that, as to the cultivation method, the working paper defined direct seeding as the standardized method whilst transplanting was more common in Asian countries.

78. The Working Party decided to send the draft Test Guidelines to the Asian countries and the International Rice Research Institute for comments in parallel with the mailing to the professional organizations. In addition, the draft Test Guidelines will be discussed in a technical meeting for Asian countries planned to be held in Tokyo.

Test Guidelines for Rescue Grass, Alaska, Brome-grass

79. The Working Party noted document TWA/28/12 and made the following main changes on that document:

(i) Cover Page: Addition of a new species, *Bromus staminaous*, was proposed because the same set of the Table of Characteristics seemed to be applicable to this new

species. However, the Working Party decided not to add the new species because more knowledge was required.

(ii) Conduct of Test: In the third sentence of the third paragraph, the words "at least" should be added before "10 meters of row." In the first sentence of the fifth paragraph, "2 or 3 replicates" should be replaced by "two or more replicates." The explanation of the density of sowing in the second sentence should be changed to "about 160 to 200 plants per linear meter."

(iii) Method and Observations: In the fourth paragraph, the words "of cross-fertilized crops" should be inserted after "according to the rule."

(iv) Grouping of Varieties: The second sentence should be replaced by the sentence, "Species would be identified with the help of ploidy and seed shape."

(v) Table of Characteristics:

1,2 To be deleted because these characteristics were useful only for the identification of different species, not for the purpose of distinctness of varieties. This information should be requested in Section 7 of the Technical Questionnaire.

Test Guidelines for Subterranean Clover

80. The Working Party noted document TWA/27/12 and TWA/28/4 and a brief report of the result of the Subgroup (experts from Australia, France and the UPOV Office) and made the following main changes on TWA/27/12:

(i) Material Required: The minimum quantity of seed should be changed from 500g to 100g.

(ii) Methods and Observations: The first and second sentence of the third paragraph should read as follows:

"Observations on leaf should be made on new fully opened leaves at the 50% flowering stage (50% of plants with at least one flower). Observations on flowers should be made 2 weeks after the 50% flowering stage."

(iii) Grouping of Varieties: Characteristic 26 "Leaf: level of formononetin before start of flowering (percentage dry matter)" should be added as grouping characteristics.

(iv) Table of Characteristics: The Subgroup made many changes as a result of the discussions of the proposal of the expert from Australia (TWA/28/4). The detailed information of the changes made by the Subgroup will be included in the next draft. In case of special interest they are available at the Office of UPOV.

Test Guidelines for Fodder Radish

81. The Working Party noted document TWA/27/8 and made a few editorial corrections and additions of asterisk on characteristics 5, 6, 8, and 9. It therefore prepared the draft Test

Guidelines in the standardized format, which would be sent to the professional organizations for comments.

Test Guidelines for Red Clover

82. The Working Party noted document TWA/28/8 and made the following changes on the document:

(i) Subject of these Test Guidelines: The words “lines and hybrid varieties” should be deleted.

(ii) Conduct of Tests: The heading and the first and second standard sentences of the chapter should be inserted.

(iii) Methods and Observations: A standard sentence concerning the assessment of uniformity for cross-pollinated species should be added. A new sentence “All observation on the leaf should be made within 1 to 2 weeks after mean date of flowering on the third leaf of the main stem from the top.” should be also inserted. Instead, the explanation on leaf characteristics, except for the drawings, should be deleted from chapter VIII.

(iv) Characteristics and Symbols: A legend on visual assessment by observations of a number of individual plants or plant part (VS) should be added.

(v) Table of Characteristics:

3, 4 To have “A” in the column of plot replaced by “C”

5, 6, 8, 9, 13, 15 To receive an asterisk

7 To read “Plant: growth habit in autumn of year of sowing”

7, 14, 15, 18 To have “M” replaced by “VS”

15 To have the states replaced by “elongated (1)”, “ovate (2)” and “rounded (3)”

18 To have “low” and “high” replaced by “weak” and “strong” respectively

Test Guidelines for White Mustard

83. The Working Party noted document TWA/28/2 and made the following main changes on the document:

(i) Conduct of Tests: The minimum number of plants for the characteristics assessed by observation of a group of plants should be the same number (300) as the number of plants requested to be planted in each test. The same change should be also made in paragraph 2 of Methods and Observations.

(ii) Methods and Observations: A standard sentence concerning the assessment of uniformity for cross-pollinated species should be added.

(iii) Characteristics and Symbols: The explanations of VS should be deleted.

(iv) Table of Characteristics:

5 To receive an additional example variety “Samba” for Note 7

6, 8, 9, 10, 12, 14 To receive an asterisk

11a To have a new characteristic “Plant: time of emergence of flower buds” with the states “early (3)”, “medium (5)” and “late (7).”

(v) Others: The expert from Denmark will send further information to the UPOV Office by the end of September.

Test Guidelines for Cocksfoot

84. The Working Party noted document TWA/28/3 and made the following main changes on that document:

(i) Methods and Observations: The words “for cross-pollinated varieties” should be added after “stated” in Paragraph 4.

(ii) Grouping of Varieties: While the expert from Denmark questioned the usefulness of characteristic 5 “time of inflorescence emergence”, the Working Party decided to keep it as it is.

(iii) Table of Characteristics:

1 To receive an asterisk and to check that the example variety “Konrad” is a *D. glomerata* variety

8 To have the state “medium to wide” replaced by “wide”

Test Guidelines for Lotus

85. The Working Party noted documents TWA/27/18 and TWA/28/19 and made the following main changes on document TWA/27/18:

(i) Material Required: The minimum quantity of seed should be changed to 500g.

(ii) Conduct of Tests: The words “as a minimum” should be deleted from the third sentence in the third paragraph.

(iii) Methods and Observations: A standard sentence concerning the assessment of uniformity for cross-pollinated species should be added.

(iv) Grouping of Varieties: The following three characteristics should be added as grouping characteristics:

"(a) Plant: time of inflorescence emergence (when three inflorescences show color in the floret (Characteristic 12)"

"(b) Leaf: length of central leaflet (3rd to 4th leaf from end tip of longest stem) (Characteristic 13)"

"(c) Leaf: width of central leaflet (3rd to 4th leaf from end tip of longest stem) (Characteristic 14)"

(v) Table of Characteristics:

4 To read "Leaf: intensity of green color"

6, 7 To receive an asterisk

9 To have an explanation added

(vi) Technical Questionnaire: A question concerning species should be added in the section 1.

Test Guidelines for Meadow Fescue, Tall Fescue

86. The Working Party noted document TWA/28/13 and heard no comments on the document. It would therefore prepare the draft Test Guidelines in the standardized format, which would be discussed again during its next session.

Test Guidelines for Field Bean (and Broad Bean)

87. The Working Party discussed again whether the Test Guidelines for Broad Bean and Field Bean should be split or not. Several experts reported that Broad Bean was self-pollinated while Field Bean was cross-pollinated. Therefore, two different Test Guidelines with different protocols and different tolerance levels of uniformity were requested. Finally, the Working Party decided to prepare the two Test Guidelines separately. The expert from Germany would prepare a revised working paper, which will be discussed in the subgroup before the next session.

Test Guidelines for Sugar Cane and Tobacco

88. The Working Party decided to discuss these Test Guidelines during its next session after the necessary revisions and discussion in the subgroups. In order to facilitate discussion, a subgroup meeting for Tobacco will be held in April 2000 in Bergerac, France. A subgroup meeting for Sugar Cane will be held the day before the starting date of the next session of the TWA.

Test Guidelines for Turnip Rape

89. The Working Party noted that a revised working paper for the Test Guidelines for Turnip rape could not be prepared for the session because there were still several points on which the experts could not reach a consensus. It also confirmed that Turnip and Turnip Rape

should be separated into two different Test Guidelines and that Turnip would be discussed in the Technical Working Party for Vegetables (TWV).

90. It decided to have a subgroup meeting to facilitate its preparation. The schedule was tentatively determined as the first week of February in Svalöf, Sweden. The expert from Finland would prepare a revised working paper, which would be distributed through the UPOV Office to experts having shown their interest in these Test Guidelines.

Preparation for the next session: Subgroups by correspondence

91. In order to advance discussions on Test Guidelines, the Working Party agreed in the same way as last year to select for each of the species in the planned list of species one leading expert and to ask the other countries whether they had a special interest in that species and were willing to cooperate with the leading expert by correspondence in the preparation of a more advanced document. The document would only be discussed in the full session of the Working Party if it was in a fairly final stage and only a few changes might be required before its presentation to the professional organizations for comments. For details of the leading expert and the species concerned, see the table in Annex II to this report. Other countries not having participated in the session were invited to inform the leading expert if they were interested in participating in the preparation of a document for a given species.

Status of Test Guidelines

92. The Working Paper agreed that the Draft Test Guidelines for Sunflower should be sent to the Technical Committee for adoption and the Draft Test Guidelines for Industrial Chicory should be also sent to the Technical Committee for adoption subject to the finalizing of the discussion in the TWV. The Draft Test Guidelines for *Bromus*, Cotton, Fodder Radish, Red Clover, Rice, Subterranean Clover and White Mustard should be sent to the professional organizations for comments. It also agreed to rediscuss the Test Guidelines for Cocksfoot, Field Bean, Lotus, Meadow Fescue, Sugarcane, Tobacco and Turnip Rape at its next session.

Future Program, Date and Place of Next Session

93. At the invitation of the expert from Sweden, the Working Party agreed to hold its twenty-ninth session at Uppsala, Sweden, from June 27 to 30, 2000. During the session, the Working Party planned to discuss the following items:

1. Short reports on special developments in plant variety protection in agricultural crops (oral reports by the participants)

2. Important decisions taken during the last sessions of the Technical Working Party, the Technical Working Party on Automation and Computer Programs, and the Technical Committee

3. General Introduction for the Conduct of Tests for Distinctness, Uniformity and Stability (the main document and the complementary documents (TGP/…) to be discussed)

4. Management of reference collections

4.1 Rules and guidance for management of reference collection (document to be prepared by Australia, France and the United Kingdom)

4.2 Survey on pre-screening (summary document of the survey to be prepared by Denmark)

5. Process for establishing distinctness (document to be prepared by France and the Netherlands in cooperation with Australia)

6. Envelope protection of varieties (document to be prepared by the United Kingdom)

7. Relative Tolerance for Uniformity, Comparable Varieties (document to be prepared by the United Kingdom)

8. Breeder testing (document to be prepared by Australia)

9. Definition of Technical, Botanical and Statistical Terms Used in UPOV Document (document to be prepared by Australia in cooperation with other Technical Working Parties)

10. Final discussions on draft Test Guidelines for

- *Bromus*
- Cotton
- Fodder Radish
- Red Clover
- Rice
- Subterranean Clover
- Swede
- White Mustard

11. Discussion on working papers on Test Guidelines for:

– Cocksfoot (TWA/28/3; France to prepare a document)
– Field Bean (TG/8/4+Corr., TWV/30/15; Germany to prepare a new document)
– Lotus (TWA/27/18, TWA/28/19, Uruguay to prepare a document)
– Sugarcane (TWA/27/6, TWA/28/15; Brazil to prepare a document)
– Tobacco (TWA/26/9, TWA/28/11; Greece to collect comments and results from a subgroup meeting)
– Turnip Rape (TWA/27/13 and 21; Finland to collect comments and results from a subgroup meeting)
– Meadow Fescue, Tall Fescue (TWA/28/13; France to prepare a document in cooperation with Germany)

94. The Working Party also decided to hold a subgroup meeting for Sugarcane in the afternoon of June 26, 2000, the day before the starting day of the session, at the same place as the session.

Introduction to Canadian System of Plant Variety Protection and Visits

95. The Technical Working Party was lectured by Ms. Valerie Sisson on the plant variety protection system in Canada. It learned that all genera and species had been covered as of this year and that the amendments of the law for conformity with the 1991 Act were in progress. It also noted several features of the breeder's testing system.

96. In the afternoon of June 24, the Working Party visited the Central Experimental Farm where it received an explanation and overview of research activities in the region and the studies of soybean and corn and saw disease resistance tests in the field.

97. This report has been adopted by correspondence.

[Two annexes follow]

ANNEX 1

LIST OF PARTICIPANTS

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[Annex II follows]

LIST OF SPECIES AND LEADING EXPERTS AND FURTHER DETAILS FOR THE PREPARATION OF TEST GUIDELINES

Species	Basic document	Leading experts (countries) (for name of experts see Annex I)	Interested experts (countries) (for name of experts see Annex I)	Comments to be sent before the end of	Subgroup meeting to be held in	Final document to be prepared before the end of
Field Bean	TWA/27/22 new document to be prepared by the end of 1999	Mr. Georg Fuchs, DE	CZ, DE, DK, ES, FR, GB, NL	February 2000		April 2000
Lotus	TWA/27/18 new document to be prepared by the end of 1999	Mr. Carlos Gómez-Etchebarne, UY	DE, FR, NZ	February 2000		April 2000
Sugar Cane	TWA/28/15	Marcos Guimarães de A. Landell, BR	AR, AU, FR, IN, JP, US, ZA (+ ISSCT)	October 1999	(June 26, 2000 in Uppsala, Sweden)	April 2000
	new document to be prepare by the end of 1999			March 2000		
Tobacco	TWA/27/25	Mrs. Apostolina Lioussa, GR	DE, FR, MX, PL, ZA	October 1999	April 2000 in Bergerac, France	May 2000
Turnip Rape	TWA/27/13 new document to be prepared by the end of October 1999	Ms. Kaarina Paavilainen, FI	CA, DE, FR, GB, NL, SE	January 2000	First week of February 2000 in Svalöf, Sweden	April 2000
Cooksfoot	TWA/28/3	Mr. Joël Guiard, FR	AR, DE, DK, FN, GB, NL, SE, UY	November 1999		April 1999
Meadow Fescue, Tall Fescue	TWA/28/13	Mr. Joël Guiard, FR Mr. Georg Fuchs, DE	CZ, DE, DK, FN, GB, NL, SE, UY	November 1999		April 1999

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