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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR AGRICULTURAL CROPS

Twenty-Ninth Session
Uppsala, Sweden, June 27 to 30, 2000

REPORT

adopted by the Technical Working Party for Agricultural Crops

Opening of the Session

1. The twenty-ninth session of the Technical Working Party for Agricultural Crops (hereinafter referred to as "the Working Party") was held at Uppsala, Sweden, from June 27 to 30, 2000. A subgroup meeting on Sugarcane took place in the afternoon of June 26 to advance discussions on the Test Guidelines for Sugarcane. The list of participants is given in Annex I to this report.

2. Mr. Evan Westerlind, Head of Office, National Plant Variety Board, Sweden, welcomed the participants to Uppsala. He gave an introduction on the work of the Swedish Plant Variety Board and the Swedish Seed Certification Office.

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

Adoption of the Agenda

4. The Working Party adopted the agenda for its twenty-ninth session as reproduced in document TWA/29/1, after having confirmed that the "Revised Working Document for a New General Introduction to the Assessment of Distinctness, Uniformity and Stability in New Varieties of Plants" would be discussed under item 5 and that a new item would be included in the agenda as follows: Possible future roles for molecular techniques in the identification and registration of new plant cultivars (TWA/29/11).

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

5. The Working Party received short reports on plant variety protection from a number of countries. The expert from Argentina reported that 89% of the plant breeder's rights granted since January 2000 were for varieties of agricultural crops. The expert from Australia asked the Working Party to note that his country had deposited the instrument of accession to the 1991 Act of the UPOV Convention in January 2000. The expert from Denmark informed that, due to the increasing number of applications received, one of the main priorities was the selection of new characteristics suitable for DUS testing. The expert from Mexico reported on the development of reference guides for maize, bean and wheat and the establishment of a list of reference varieties for maize and bean. The expert from Spain reported that a new Law conforming to the 1991 Act of the UPOV Convention had been enacted in January 2000. Other experts gave a brief general report on their national PBR systems.

6. The Working Party received reports from experts from certain observer States on the situation concerning their accession to the 1991 Act of the UPOV Convention. The expert from Romania reported that their PBR Law had been enacted in 1998 and that the law for accession to the 1991 Act of the UPOV Convention had already been introduced in Parliament. The expert from Zimbabwe reported that the Bill for accession to the 1991 Act of the UPOV Convention had been introduced in Parliament. The expert from the Republic of Korea reported that the PBR Law of his country had been enacted in 1998. The expert from Estonia hoped that the process of accession of her country to the 1991 Act of the UPOV Convention would be completed by the end of 2000.

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. The Office of UPOV gave a brief report on major points of discussion in the Technical Committee. It recommended reading the full report of the Technical Committee, which would be available in due course (see document TC/36/11 Prov.).

8. The Working Party noted that the Technical Committee had held its thirty-sixth session in Geneva from April 3 to 5, 2000.

9. Test Guidelines: The Working Party noted that the Technical Committee had adopted the following Test Guidelines after having agreed on changes proposed orally by the Editorial Committee:

TG/15/2(proj.): Pear/Poirier/Birne/Peral
TG/77/8(proj.): Gerbera/Gerbera/Gerbera/Gerbera
TG/81/5(proj.): Sunflower/Tournesol/Sonnenblume/Girasol
TG/173/2(proj.): Witloof, Chicory/Chicorée, Endive/Zichorie/Endivia
TG/174/2(proj.): Iris (bulbous)/Iris (bulbeux)/Iris (zwiebelbildende)/Lirio (bulboso)
TG/175/2(proj.): Kangaroo Paw/Anigosanthe de Mangles/Kängurublume/ Anigozanthos
TG/176/2(proj.): Osteospermum/Osteospermum/Osteospermum/Osteospermum

10. General Introduction to Test Guidelines: The Working Party noted that the Technical Committee had discussed the Revision of the General Introduction to Test Guidelines (TG/1/2) and noted the documents TC/36/5, TC/36/6 and TC/36/7. It noted that the Technical Committee had decided that the Enlarged Editorial Committee should discuss the documents in detail and send the outcome to all the Technical Working Parties and also to the Administrative and Legal Committee of UPOV for discussion during year 2000.

11. UPOV ROM: The Working Party took note that the Technical Committee had noted the full acceptance by the Technical Working Parties of the inclusion of technical information in the UPOV ROM and that the Technical Committee had agreed to include the information of item 5 of the Technical Questionnaire of the Test Guidelines and to take actions to include the UPOV Taxon Code as well.

12. Supporting evidence: The Working Party noted that the Technical Committee had discussed the possible use of supporting evidence for the assessment of DUS and that the Technical Committee had considered that it could be used only if the expert was convinced and if clear rules were established. It also noted that the Technical Committee had heard the position of ASSINSEL against the use of supporting evidence in cross-fertilized crops and that the Vice Secretary-General had suggested that, from a legal point of view, it was not acceptable to consider supporting evidence as something different from a DUS characteristic, where the proof of Distinctness is based on supporting evidence.

13. Consequences of the introduction of new characteristics in already existing varieties: The Working Party noted that the Technical Committee had discussed the consequences of introducing new characteristics in the DUS examination and in particular the possibility that existing varieties might not be uniform for that new feature. The Working Party noted that the Technical Committee had discussed the following points related to this issue: the possibility of plagiarism; that both new and already existing varieties should be uniform for the characteristics used for distinctness; that a longer list of characteristics could be a burden for the maintenance of the variety; that further breeding from existing varieties should not be forbidden.

14. Management of reference collections: The Working Party was informed that the Technical Committee had noted that the UPOV Convention required consideration of DUS assessment on a worldwide basis, and that the Technical Committee was aware of the importance of an appropriate reference collection of varieties and of developing tools and procedures that would allow for a selection of the closest varieties to the candidate with reasonable confidence. The Technical Committee expected that the Technical Working Parties would continue discussing this issue as part of the complementary documents (TGP/4 and TGP/12) for the New General Introduction to Test Guidelines.

15. Example varieties: The Working Party was informed that the Technical Committee had noted that, with an increasing number of UPOV member States, it was becoming more difficult to reach universal agreement on the example varieties in the Test Guidelines and that the Technical Committee had requested the Technical Working Parties to discuss a paper prepared by the expert from France and to continue discussing this issue at the next session.

16. DUS testing in hybrid varieties: The Working Party noted that the Technical Committee had discussed the possibility of using the parental formula for hybrid DUS tests and noted that there already was an agreed position on that in some TG documents. It noted a comment from the Vice Secretary-General that the UPOV Convention provided special treatment for hybrids in the definition of stability and that access to parental lines was necessary when protecting hybrids.

17. Duration of DUS Tests, early decision: The Working Party noted that the Technical Committee had discussed the possibility of making decisions using information from more than one location to shorten the period of testing and that the Technical Committee had concluded that it was open to such shortening of the DUS testing period, provided that clear rules were laid down to ensure an effective examination.

18. Testing seed-propagated varieties of ornamental species: The Working Party was informed that the Technical Committee had noted the discussions at the TWO and at a meeting with crop experts and ASSINSEL on DUS assessment of seed-propagated varieties of ornamental species and that the Technical Committee had requested the TWO to continue the discussion on that issue and to provide further information.

19. Documents in electronic format: The Working Party noted that the Technical Committee had welcomed the creation of additional pages in the UPOV Web site containing documents in electronic format and their advance submission by electronic mail and proposed to continue with this development.

20. Possible use of molecular techniques for DUS testing: The Working Party noted that the Technical Committee had been informed of the main issues discussed in the sixth session of the Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular (BMT) and had approved the proposal of creating *Ad hoc* subgroups for the following species: Wheat, Oilseed Rape, Tomato, Maize and Rose.

21. Program for the thirty-seventh session of the Technical Committee: The Working Party noted that the thirty-seventh session of the Technical Committee would take place in Geneva from April 2 to 4, 2001. It was planned that the following items would be discussed during the session: progress reports and questions presented by the Technical Working Parties, revision of the General Introduction to Test Guidelines, reports from the *Ad hoc* advisory group on the possible use of molecular techniques for DUS testing. In addition, the Technical Committee would take decisions on the Test Guidelines submitted by the Technical Working Parties for final adoption.

New General Introduction to the Assessment of Distinctness, Uniformity and Stability in New Varieties of Plants

22. Discussions at the Working Party were based on document TC/36/8 "Revised Working Document for a New General Introduction to the Assessment of Distinctness, Uniformity and Stability in New Varieties of Plants" (hereinafter referred to as "the revised General Introduction"), which resulted from discussions at the thirty-sixth session of the Technical Committee and the meeting of the Enlarged Editorial Committee held in April 2000, and on documents TC/36/5 and TC/36/7.

23. The Office of UPOV explained the procedure that had been followed from the beginning of the revision of the General Introduction up to the present time. It was explained that in December 1998, the first draft New Revised General Introduction (document TC/35/5) was sent for comments. The comments received resulted in a draft New Revised General Introduction (document TC/35/9) which was sent for discussion at the thirty-fifth session of the Technical Committee from March 22 to 24, 1999. During that session, the Technical Committee agreed to ask the Editorial Committee, enlarged by the Chairmen of the Technical Working Parties, to hold a meeting after its thirty-fifth session. The Technical Committee also agreed to have the New Revised General Introduction split into two documents, the first one to contain the general principles for DUS testing, which should remain unchanged for a long time, and the second one to contain explanations, which could be updated regularly (a set of so-called TGP documents.)

24. The Enlarged Editorial Committee met after the Technical Committee session and again on May 10 and 11, 1999. As a result of those meetings, another draft New Revised General Introduction was prepared (document TC/35/13) and sent to the Working Parties who discussed it during their meetings held between June and September 1999. The comments made by the Technical Working Parties during their meetings in 1999 were considered in a new meeting of the Enlarged Editorial Committee in October 1999. As a result of that meeting, another draft New Revised General Introduction was prepared (document TC/36/6).

25. During the thirty-sixth session of the Technical Committee, April 3 to 5, 2000, the following schedule was decided: (1) in the middle of April 2000, documents TC/36/5 and TC/36/7 would be sent to all Technical Working Parties for comments by mid-May 2000; (2) a Circular would be sent to the Technical Committee asking for comments on open points by the end of April 2000; (3) by May 15, 2000, updated document TC/36/6 (TC/36/8) would be prepared and sent, together with comments from the Technical Committee on open points and a summary of changes to TC/36/6, to the Technical Committee and all Technical Working Parties for information; (4) comments received on TC/36/5 and TC/36/7 would be sent to all Technical Working Parties by May 20, 2000; (5) the new updated version of the draft New Revised General Introduction would be ready by September 15, 2000, for presentation at the Administrative and Legal Committee (CAJ) session in October 2000; (6) by February 1, 2001, the updated version of the draft New Revised General Introduction containing comments or proposals for rewording of some paragraphs made by the CAJ would be ready for presentation at the TC session in April 2001 and at the Council session either in April 2001 (if the Council meets in April) or in October 2001.

26. After the session of the Technical Committee, Circular U 2953 was sent asking for comments on the complementary documents to the draft New Revised General Introduction. Circular U 2954 was sent attaching a draft of the revised General Introduction (document TC/36/8), and asking for comments. Circular U 2976 was then sent containing the comments on the draft New Revised General Introduction and its complementary documents for discussion at all the Technical Working Parties during their meetings in year 2000.

27. General Comments on the General Introduction. Considering that the General Introduction had been discussed at previous TWA meetings, the Working Party decided to discuss it in a general way only unless there was a clear comment on a specific point. The expert from Australia at the Working Party expressed his disagreement with the wording of paragraph 78 of the document TC/36/8. He said that the UPOV Convention did not prohibit the selection of new varieties from already protected varieties, and this point was not clear in that part of the document. The expert from ASSINSEL explained that for the breeders it would be very useful to have an interim report after the first year of trials and asked whether that possibility was envisaged in the General Introduction. Some experts at the Working Party highlighted that the procedure for the examination of plant varieties might vary from country to country and that it would be difficult to reach an agreement in such detail. One expert added that it would be better to develop a Model Form for that purpose rather than include that issue in the General Introduction. The Working Party asked the Office of UPOV to note the comments for consideration in the future development of the General Introduction.

28. The Office of UPOV asked the Working Party about the changes in the wording of paragraphs 71 and 112 of document TC/36/8 as proposed by the Technical Working Party on Automation and Computer Programs (TWC). The Working Party agreed to the proposal of the TWC.

29. The Office of UPOV presented the comments on individual paragraphs of the General Introduction, as sent to the Working Party with Circular U 2976a. The Working Party agreed to the proposal of the Office of UPOV resulting from the comments received on paragraphs 31, 32, 40, 54, 115 and 144 of document TC/36/8.

30. Comments on the open points and on the draft complementary documents to the General Introduction, documents TC/36/5 and TC/36/7. The Working Party decided to discuss the so-called open points to the General Introduction and the complementary documents together, as the topics were linked. The Working Party considered that the Editorial Committee should discuss document TC/36/5 because its content referred to the preparation of the UPOV Test Guidelines. The Working Party agreed that, if any expert wished to comment on TC/36/5, the comments should be sent to the expert from South Africa who had prepared the document.

31. The Working Party focused on document TC/36/7 and decided to deal with documents TGP/3, TGP/6, TGP/13 and TGP/17, in principle, and others if time permitted. The expert from Australia asked about the function of the Editorial Committee within the Technical Committee. It was explained that the Editorial Committee did not take decisions, it was an advisory body for the Technical Committee and its task was not only to deal with editorial matters but also to foresee the carrying out of UPOV rules for DUS testing as well. An expert from France clarified that the TGP documents had been drafted mainly as a starting point for discussion and that comments on them were needed for their improvement. The Chairman of the Working Party suggested looking for a way to avoid sending overly lengthy documents for comment in order to allow experts to concentrate on main topics.

32. Common knowledge and the notion of breeder. The Working Party agreed to discuss TGP/3 first. The expert from Denmark proposed starting the discussion on paragraph 6 of TGP/3 (a) (page 20 of document TC/36/7). Experts from the United Kingdom considered that the paragraph was related to the management of reference collections rather than to the notion of common knowledge. The expert from Australia wondered whether a variety might be considered as a variety of common knowledge in one country and not in another and he

stressed that the agreed definition of common knowledge should be clear and consistent with the UPOV Convention. Most experts agreed that the notion of common knowledge and the management of reference collection were two different concepts and that they should be handled separately.

33. The expert from Australia asked the Working Party whether the existence of living material was a requirement for a variety to be considered common knowledge. He mentioned that, in Australia, there was a national herbarium with plant material taken from the wild, and he wondered if that could be used for DUS purposes. He added that he considered that UPOV should be very careful before reaching a final agreement on the notion of common knowledge in order to avoid unfair criticism. An expert from the United Kingdom said that, in principle, living material should be a requirement because it might be necessary for running a growing test, and he added that, according to the definition of variety in the UPOV Convention, it must be suitable for being propagated unchanged and therefore living material was required. An expert from Germany clarified that one specimen might not be sufficient for the assessment of uniformity. The expert from France highlighted that there were legal aspects closely related to this issue. He explained that, even if the Working Party were to agree to a definition of common knowledge, it might not be acceptable to the legal experts of UPOV. He added that, in his opinion, the Working Party should focus on the technical aspects, which involved not only DUS growing trials but to enlarge as much as possible the reference collections for DUS purposes knowing that it would never be possible to collect all varieties of common knowledge for a given species. He said that in the case of a claim against a decision concerning the technical examination of a candidate variety, if there was no plant material available for further checking, then the technical report should note that situation. The final decision would probably be beyond the scope of a technical examination of the candidate variety.

34. The expert from Australia raised the question of whether land races or plant varieties described on Internet should be considered as varieties of common knowledge and whether they fell within the meaning of the words “reasonable efforts” in TGP/3. Some experts at the Working Party said that they should be considered provided they were described. The expert from France said that the best thing a technical expert could do to improve the system was to improve the reference collections for DUS purposes. The expert from Romania said that if no living material were available for DUS testing, then the PBR should be granted. If later it was found that the variety was not distinct, the right could be declared null and void.

35. Some experts thought that material in gene banks should be considered as material of common knowledge. The expert from ASSINSEL queried the usefulness of material in gene banks in the specific case of agricultural crops. Another expert replied that, as a source for selection in new crops, this material was very important.

36. The Working Party concluded that the availability of living material should be a requirement if varieties were to be considered as part of common knowledge. It should be taken into consideration in the technical examination. The Working Party also concluded that there were two main issues: (1) the notion of common knowledge, which was mainly a legal issue and not possible to be precisely defined, and (2) the management of reference collections, which was a technical subject to be discussed at the Technical Working Party meetings, clearly separate from the first issue.

Process for Establishing Distinctness

37. Discussions were based on document TWA/29/8, prepared by the expert from France. He explained that the objective of that document was to set up a basis for describing the main steps of the process for establishing distinctness. He said that the document expressed mainly the French view on this topic. The document contained a chronological enumeration of the main steps for assessing distinctness and focused on the case of annual species with homogeneous varieties and a large reference collection, which had not been systematically observed each year. The document described the following main steps: (1) pre-distinctness work; (2) first growing cycle, involving a description process and a distinctness assessment; (3) second growing cycle with description and distinctness process and a possible decision; (4) a third growing cycle, with a distinctness process, a complementary description and a final decision. There was a description for each of the four steps, some conditions and further details displayed in table form.

38. Decisions after a first growing cycle. The expert from Germany commented on two points. He took into consideration in the first instance widely used or well-known reference varieties. Although the expert from Germany considered that approach rather theoretical and the criteria random, he agreed that breeders usually compare their varieties with better ones on the market. The second comment was that the system seemed to be a one-year testing system. The expert from France explained that reference varieties were excluded after the first year of growing trial only when the difference between the reference variety and the candidate variety was sufficient to foresee consistency during the second growing trial. He said that the process reduced the number of reference varieties included in the second growing trial and was more precise in the DUS assessment. He concluded that the process worked well and enabled them to manage a big reference collection whilst reducing the probability of error. Other experts added that, if there was a big difference after the first year of trial, they did not consider it necessary to include these reference varieties in trial for the following year.

39. Testing in more than one location. The expert from Denmark found the possibility of using plots sown with plants of the candidate variety and the closest reference variety very interesting as a means of checking distinctness. In addition, he asked for further details on the use of data from a second location. Several experts mentioned that they had trials in two locations. One expert added that in his country they had trials in two locations but the differences in the example varieties between the locations rendered the descriptions incomparable. The expert from France explained that the main reason for having a trial in a second location was security, in case the trials in the first location were lost, for example due to climatic problems. He also said that the data from the second location could be used for DUS purposes and it proved useful in countries with varied environmental conditions so that the growing conditions could be similar to those in which the variety had been bred. He explained that in the case of two locations with different soil type or climate, if the differences between the varieties under examination were confirmed in both locations, they could be considered to be due to genetic differences in the varieties. He clarified that if the difference was small, a second year of trial would be required. If the varieties were different in only one location and the differences were consistent in the second year of trial at that location, then the varieties were considered distinct. He mentioned that for some crops, if certain special requirements were fulfilled, information from a first year trial made by the applicant and a second year trial made by the national authority was considered. An expert from the United Kingdom considered that the use of more locations for testing increased the chances of establishing distinctness.

40. The expert from the Netherlands mentioned that, in principle, differences that could not be assessed in his country were not accepted. Several experts agreed that that was the general

approach but that this point needed clarification. One expert especially highlighted the assessment of disease resistance when the disease was not present in the country where the variety was under test.

41. Wrong information provided by the applicant. Discussions focused on the action taken when the information provided by the applicant was wrong. Different positions were presented. While some countries rejected the application, others said that the decision depended on the type of error. One expert said that if the applicant claimed that it was because of an accidental mistake, when filling in the application form, it had to be accepted.

42. Example varieties. The expert from France asked about the use of the UPOV example varieties. He explained that they used the UPOV example varieties as far as possible but that for quantitative characteristics they specifically tried to have their own set of example varieties which represented the variability of the crop in his country.

43. Supporting evidence. The possibility of having distinctness in the case of two varieties without differences in the description by using supporting evidence was highlighted by an expert. Another expert asked about the possibility of using DNA profiles as supporting evidence. Some experts agreed that the possibility of having different varieties with similar descriptions was envisaged in the General Introduction. An expert from France replied that DNA profiles were not yet being used as supporting evidence. He also explained that the role of the panel of experts mentioned in the document was to collect information in difficult cases but that the decision was always taken by the national authority.

44. Conclusions. The Working Party agreed that, although it reflected mainly the French position, the document could be considered as a basis for TGP/15, the Model System for Determining Distinctness for Homogeneous Varieties of Annual Agricultural Crops. The Working Party agreed to identify points needing further development with an asterisk. Comments on these points should be prepared so that there could be an agreed position within UPOV. The following items of the document were marked with an asterisk:

> Page 3, Column CONDITIONS.
>
> " * Depending on the species, possibility to consider firstly the reference varieties which are largely used or known as having good performance in the area where the application is made."
>
> Page 4, Column CONDITIONS:
>
> " * Good trials with 2 locations when possible"
>
> " * Rejection (or new first cycle) for any variety with a wrong TQ description"
>
> Page 54, Column DESCRIPTION:
>
> " * With a set of small differences but not consistent over the two first cycles and experts convinced that the candidate variety is original
>
> . If supporting evidence → acceptance

. If no supporting evidence → third growing cycle"

Management of Reference Collection

45. Discussions were based on document TWA/29/19. The expert from Denmark presented the document. He explained that the aim of this questionnaire was to gather relevant information on the composition of reference collections used for DUS-testing in the different member States. The questionnaire was of a general nature in relation to DUS testing in order to have a clear picture of the method. For more specific information, questions were directly related to barley. Information from the Technical Questionnaire and the official descriptions of two undisclosed varieties were presented in order to evaluate the efficiency of desk research, pre-grouping or pre-screening. The desk research used to pre-screen the reference collection based on the official description was a check on the harmonization of the state of expressions of the individual characteristics between member States. He said that fourteen countries had answered the questionnaire, from which eleven had an official testing system and three had a breeder testing system. From the replies received, the expert concluded that the sizes of the reference collections varied from country to country. He mentioned that no country systematically included reference varieties from another country in its reference collection and that there were differences in the number of foreign reference varieties which the different countries included. He noted that there was little interaction between countries of different regions. He concluded by highlighting the need for improvement in the harmonization of reference collections and in the harmonization of the states of expression of the descriptive characteristics.

46. All experts at the Working Party considered document TWA/29/19 to be very useful. The Chairman noted that, when comparing the different answers given by the different countries, a very important point (apart from the size of the reference collection) was the method used by the participants to select the closest reference varieties. Three main methods were used: (a) the use of grouping characteristics, (b) the use of grouping and other characteristics, and (c) the use of a morphological distance between the candidate and the reference varieties. The expert from Denmark explained that one of the problems of working with data from reference collections was that there was no definition of reference collection. The expert from Poland said that it was clear that every country included the varieties in its own National List, that western European countries tended to include varieties listed in the EU Catalogue, but eastern European countries did not. She thought that varieties in the National Lists of other countries should be included in the reference collection. The expert from the Community Plant Variety Office (CPVO) explained that for the technical examination at her Office this was a very important point and she considered that it should be the same for the National Offices of each country.

47. Technical information in the UPOV ROM database. The expert from ASSINSEL recalled the discussions of the previous year on including descriptive information in the UPOV ROM database. The expert from Australia was in favor. The expert from UPOV summarized the discussion at the Technical Committee in April 2000 and the decision taken to include item 5 of the Technical Questionnaire of the UPOV Test Guidelines in the UPOV ROM database. The expert from France reminded the Working Party that the Technical Committee had decided to limit the technical information included in the UPOV ROM database because of possible misuse. He suggested that one way to improve the situation could be the availability of more descriptive information about the varieties, but he wondered whether the free distribution of information without guidance for its use might

cause more problems. He was convinced that the technical experts of UPOV should work to improve the situation of the reference collection and its management at national level.

48. The use of technical information taken from different places. The Chairman proposed to continue the work on barley and stressed the need to set up rules for the use of descriptions from different places. An expert from the United Kingdom considered that, in addition, the use of grouping characteristics, which are independent from the environment, should be taken into account and, in addition, the whole descriptive information of a variety, which includes characteristics that are highly influenced by the environment, could be used taking into account an appropriate minimum distance. The expert from Denmark added that the origin of the data should also be taken into consideration. He proposed two ways to continue the work. One way was to submit a coded seed sample to be tested at the different national offices and to be compared with the list of similar varieties in the different countries. The second was to take one variety and check the descriptions it had in the different countries. The expert from Germany supported the second proposal. The expert from the Netherlands proposed a more practical approach for the management of reference collections, using grouping characteristics, molecular markers and statistical analysis. He said that it was necessary to centralize this activity and to distribute the information to the different testing stations. The experts from the United Kingdom offered to present the results of their research on wheat.

49. Conclusion. The Working Party agreed to continue investigating possible ways of improving the reference collections and their management. New documents for that purpose would be prepared for the next meeting, reporting on comparisons of plant variety descriptions and possible ways of taking into account the environmental effects. Experts from Denmark and the United Kingdom offered to prepare a paper on barley and wheat. An expert from France offered to make a presentation of the software using a phenotypic distance to manage reference collections.

The Introduction of New Characteristics and the Development of Characteristics for New Types and Species

50. The expert from the United Kingdom introduced document TWA/29/15. He agreed with some of the comments received and proposed to discuss the document without the references to essentially derived varieties. The document examined the importance of guidance on different levels of uniformity in characteristics used for distinctness. Two special situations were considered: a) the use of additional or new characteristics for existing variety types and b) the development of a suitable set of characteristics for new types and species. Two possibilities were present in the first situation: lack of uniformity in the characteristic but without overlap in its expression between the varieties in which case the varieties could be considered distinct; lack of uniformity and with overlap in the expression of the characteristics between the varieties. In this latter case, the author considered that where uniformity was assessed using the concept of off-types, distinctness should only be determined on characteristics for which there was sufficient uniformity in the varieties. Where relative tolerance limits were used for assessment of uniformity, provided that the uniformity requirement was met, distinctness could be established by different mean values. He considered that a reasonable level of uniformity should be required in the development of a set of characteristics for a new species or type of variety but this level would vary according to whether uniformity was assessed based on the presence of off-types or on the basis of relative tolerance limits.

51. Overlapping in the data distribution. The expert from Australia asked the experts from the Working Party to consider the special situation of three varieties which, for a given characteristic which was the only difference between them, had a different mean value but the tails of the data distribution overlapped. He said that in that situation the varieties should be considered distinct. Most experts at the Technical Working Party agreed. The expert from Germany explained that that specific case could occur in allogamous crops but usually more than one difference between cultivars could be found. The expert from France said that the situation was theoretical. He explained that in practice it would be necessary to have a trial with a bigger capacity of resolution than usually obtained with the number of plants recommended in the UPOV Test Guidelines. The expert from Denmark said that in some cases, such as number of days to flowering stage for ryegrass, they observed some overlapping in the distribution of the data from different varieties.

52. The requirement of uniformity and the re-selection within varieties. The expert from ASSINSEL expressed the point of view of the breeders. He said that the breeders wanted to be able to select from varieties and deciding whether a variety was essentially derived or not should be solved, in principle, between breeders. The expert from Germany suggested accepting a non-uniform characteristic for distinctness. The expert from the United Kingdom explained that once a variety had been declared uniform that condition did not change, even if new descriptive characteristics used in the future proved to be non-uniform for that variety. He recalled that the UPOV Convention stated "sufficiently uniform in its relevant characteristics." The expert from Germany added that there were consequences for the older variety anyway because it should be maintained according to the expression of the new characteristics for which it had not been described before and that the General Introduction, at that moment, considered that relevant characteristics were those used for the assessment of DUS.

53. The expert from Australia mentioned how a variety could be improved by increasing the number of plants that resist a specific disease. It was a useful improvement and this kind of work should not be prohibited by UPOV. The expert from France said that he agreed with document TWA/29/15 because that was basically what experts did. He emphasized that most varieties came from an initial combination of varieties rather than from a mere reselection of already existing ones. He nevertheless considered that reselection should be allowed without jeopardizing the already protected cultivars.

54. Discussions were focused on the Tables on pages 3 and 4 of document TWA/29/15. The Table on page 3 presented three different situations: (i) two varieties with different states of expression but the reference variety lacking in uniformity; (ii) both varieties had different states of expression of the characteristic but the reference variety was uniform and the candidate variety lacking in uniformity; (iii) both candidate and reference variety were lacking in uniformity. In none of the three cases was the same state of expression found in the candidate and the reference variety. Some experts considered that situation (i) was acceptable but not situations (ii) and (iii), while others considered that none of the three situations could be accepted because of lack of uniformity. It was proposed that the whole proposal be considered as "absence or presence" of a specific state of expression (state A for that case). One expert said that it could be the case of resistance to a new kind of disease.

55. The Table on page 4 presented three situations similar to those in the Table on page 3 with respect to the uniformity of the candidate and the reference variety, but in all three situations a common state of expression occurred in the candidate and in the reference variety. Most experts agreed that none of them would be acceptable for DUS testing. The expert from

ASSINSEL said that non-uniform characteristics should not be used for the assessment of distinctness following the same criteria as for the use of electrophoresis. The expert from Australia insisted on allowing the re-selection from existing varieties and, in that case, paragraph 78 of the General Introduction (document TC/36/8) should be deleted. The expert from Spain recalled that the issue had been discussed at the last session of the Technical Committee and he supported the proposal.

56. Several experts wanted to know whether these were cases of new states of expression of a characteristic that already existed or new characteristics.

57. Conclusions. The Working Party asked the expert from the United Kingdom to update the document according to the discussion. It would be circulated among the participants for comments and a new document would be prepared for the next meeting, which might be included in the set of complementary documents to the General Introduction. It also agreed that paragraph 78 of the General Introduction should be reworded or deleted.

Relative Tolerance for Uniformity, Comparative Varieties and Guidance for New Types (TGP/13)

58. The expert from the United Kingdom introduced document TGP/13 A, which is part of TC/36/7 (pages 125 to 131). The first three chapters of his document dealt with the assessment of relative uniformity and the selection of comparable varieties. He explained that, on the one hand, the higher the degree of uniformity for a variety the more scope there is for the development of new distinct varieties. On the other hand, very high standards of uniformity might be unattainable and prevent the development of new varieties. He said that the system should strive towards an optimum balance for the assessment of the uniformity criteria. Concerning the concept of relative uniformity, he explained that the off-type approach used for vegetatively propagated, self-fertilized, or single cross hybrids was not suitable for cross-fertilized varieties or multiple-cross hybrids because it was not possible to identify off-types. Thus the approach of relative uniformity was used, in which the spread of the measured characteristics was represented by the standard deviation and was compared alongside similar known data from reference varieties. In his document, he explained that the level of relative uniformity could be based upon what is known to be attainable by the breeding method used. Therefore the selection of the reference varieties was a crucial step. He explained that this could be done using information provided by the applicant in the first instance and with descriptive information obtained by the testing authority later on.

59. The expert from the United Kingdom continued with the introduction of the rest of document TGP/13. The following chapters of his document dealt with the Guidance for New Types and Species and With Reproductive Systems and Variety Types. He explained that the multiplication system used for plant variety production was usually the natural method of reproduction. Nevertheless, as plant variety protection was expanding to the whole plant kingdom and technology was developing, new ways of reproduction were being used. These might be different for highly uniform micro-propagated varieties and complex hybrids and more than one means of propagation could be used in the same species. He said that the first variety of a new species would mark the level of uniformity required in the future. He added that in cases where there was no previous experience the national authorities should look for an appropriate level of uniformity, neither so high that it would become a barrier nor so low that it would prevent further breeding.

60. The expert from the United Kingdom considered the different reproductive systems and variety types. For vegetatively propagated varieties, he explained that they were usually derived from a single plant and were very uniform. For self-fertilized varieties, which tended towards homozygosity, plants within a variety would be very similar and little plant-to-plant variation might be expected. For cross-fertilized populations, which derived from populations of selected plants, plant-to-plant variation might be expected and should be defined by comparison with similar varieties. Finally, for hybrid varieties produced by the controlled crossing of selected plants, uniformity was very high in single cross hybrids of inbred parent lines, whilst for other types of hybrid varieties the level of uniformity should be considered according to the uniformity of the parental lines and the type of cross.

61. The document was considered very useful by the experts at the Working Party, because of the extension of plant breeder's rights to new species and the development of new breeding techniques. The expert from Spain recalled previous discussions and suggested that the second sentence of the first paragraph on page 126 should be amended. Most experts considered that the first three chapters should be included into TGP/10 (Testing of Uniformity).

62. Conclusion. The Working Party agreed to include the first three chapters in TGP/10 (Testing Uniformity) and to leave the rest as part of TGP/13 without changes under the title Guidance for New Types.

Breeder Testing

63. The expert from Australia introduced document TGP/6, DUS Testing Done by the Applicant/Breeder (see document TC/36/7, pages 55 to 61) and thanked those who had made comments on it (see Circular U 2976). TGP/6 contained three parts. Two were documents that had been developed some time ago: document C/27/15, Declaration of the Conditions for the Examination of a Variety Based Upon Trials Carried out by or on Behalf of the Breeder, and document TC/32/4, Level of Involvement of the Applicant in the Growing Test. Another document, DUS Testing by or on Behalf of the Breeder, (TGP/6(a)), had been prepared by the expert from Australia. In it, he explained that the degree of involvement of the applicant may vary from a system, for example, where the applicant made all the tests, to another where the applicant made the first year of testing and the national authority the second. There were some situations in-between, where for some species the test was made by the applicant and for others by the national authority.

64. The expert proposed several conditions that should be fulfilled when using breeder testing. For example, the test should be done according to specified test guidelines, the test should be maintained and accessible for checking by the official authorities and an official sample of the variety under test should be deposited. He also considered some factors that might influence the adoption of a breeder testing system, such as the diversity of the environment where the varieties were to be tested, the availability of knowledge and expertise in the PBR Office, easy implementation, the need to minimize the cost of DUS testing and the possibility of developing a transparent and reliable system. He highlighted two main components of the breeder testing system: (a) the scientific rigor of the methods, and (b) the possibility of public scrutiny that might allow anyone to make objections. Afterwards he mentioned some advantages and disadvantages of the breeder testing system. He described a special type of breeder testing system under which some species were tested in centralized testing centers, which were not governmental facilities. That system combined certain

advantages of both the breeder's testing system and the official one. The expert finally concluded that close cooperation with breeders had always been promoted by UPOV and, with the 1991 Act of the UPOV Convention containing provisions for the protection of plant varieties for varieties of every genus and species, the development of appropriate alternative approaches including breeder testing should be encouraged.

65. The expert from ASSINSEL agreed that the cost for the national authority was lower for breeder testing but that there was a cost for the breeder involved in the testing. Several experts considered that the major risk in the breeder testing system was selecting the most similar varieties to be compared with a candidate variety. The expert from Australia explained that, in his country, there was the commitment that every protected variety should be available for DUS testing. The experts from Japan proposed to make a questionnaire to collect information about the breeder's system within UPOV member States. The expert from Spain proposed that the Office of UPOV might prepare a document for those purposes. The expert from the United Kingdom considered that the issue went beyond the mere comparison of costs and risks involved and that transparency and the possibility to object to applications was not a matter of the breeder testing system only. The expert from France said that breeder and centralized testing systems were not opposed. He agreed to the proposal from the experts from Japan and considered that information on who was responsible for the selection of similar varieties, how environmental influence was measured, and the list of characteristics used should also be requested. The Chairman added that the objective of the document was to show different options for DUS testing. The expert from Canada considered that it would be useful if the document included the state of development of breeder testing in the world at the moment.

66. Conclusion. The Working Party agreed that the Office of UPOV would prepare a questionnaire on the involvement of the breeder in DUS testing based on the previous document TC/32/4, including the suggestions made by the experts from Japan and the discussions at the present session.

Definition of Technical, Botanical and Statistical Terms Used in UPOV Documents

67. The expert from Australia introduced document TWA/29/9, Glossary of Statistical Terms. The expert from UPOV explained that the document had also been considered at the TWC/18 and that that Working Party had found it a very useful and clear document.

68. Most experts at the Working Party agreed that it was a very good document, very simple and that its approach should be kept as it was at the moment. An expert from the United Kingdom noted that several definitions widely used within UPOV, such as COYD, COYU, acceptance probability and STD population, were missing.

69. Conclusion. The Working Party agreed that the document should be forwarded to the TWC for final development but it recommended keeping the same approach for the document because it proved comprehensible for the crop experts.

Possible Future Roles for Molecular Techniques in the Identification and Registration of New Plant Cultivars

70. An expert from the United Kingdom introduced document TWA/29/11. He clarified that the document expressed his personal opinion on that subject. He explained that rapid advances were taking place in genetic studies across the plant sciences and biochemical and molecular methods were available for the identification and description of plant genotypes and cultivars in a number of crops. However, he considered that the identification of natural genotypes or of existing cultivars was rather different from the *de novo* registration and granting of plant breeders' rights to a new cultivar and that there were important issues to be considered. He recalled that at present, the basis for most technical examinations for the grant of a breeder's right usually involved a growing test to determine the morphology of the component plants of a new candidate cultivar, in comparison with appropriate reference cultivars, to establish its distinctness, uniformity and stability (DUS). For some crops where there had been problems in determining distinctness using routine morphological characteristics, the use of biochemical characteristics, examined by electrophoresis, had become acceptable for providing supporting evidence of distinctness, provided the normal uniformity standards were met and there was a good understanding of the genetics involved. He added that the potential for molecular techniques had not been fully explored and their use was still under discussion at a technical level within UPOV. Therefore, they had not yet been recommended for determining the distinctness of new cultivars, although, in the consideration of essential derivation especially, it was recognized that they were likely to play an important future role in the determination of genetic distance. He said that he personally believed that differences should not be reduced to a few nucleotide base-pairs. He concluded that the principles of genetic interpretation of the differences between cultivars and an understanding of the functional role of phenotypic expression of these differences was also important and that molecular techniques satisfying those principles should have a significant future role to play in plant variety protection.

71. The expert from ASSINSEL expressed his agreement with the ideas contained in the document and added that ASSINSEL had adopted a position paper during its last meeting in Rome in May 2000. In that paper, ASSINSEL considered that DUS testing should continue to be based on phenotypic characteristics, that electrophoretic characteristics must not be used alone for establishing distinctness but only as additional evidence for distinctness. They must not be used at all for populations and synthetic varieties of cross-pollinating species. He added that ASSINSEL supported BMT continuing the work on the possible use of biochemical and molecular markers for DUS testing. In particular it should address the following issues: a) definition of minimum distances for distinctness (thresholds?); b) impact on the concepts of uniformity and stability and assessment of those criteria; c) practical differences between the concepts of distinctness and essential derivation when both of them were assessed using molecular markers. He concluded that for ASSINSEL a proposal could only be acceptable if it did not impair the scope of protection of plant varieties.

72. Several experts considered that it was a very good document, and worth circulating to other UPOV bodies. The expert from Australia recalled that the BMT also considered the assessment of uniformity and stability with biomolecular techniques. An expert from the United Kingdom mentioned that distinctness and essential derivation could be assessed using these new techniques. The expert from France considered that special care should be taken in order to keep the value of the UPOV *sui generis* system for plant variety protection and that legal aspects were involved. The expert from UPOV recalled that at the last session of the Technical Committee in April 2000, it had been agreed to set up subgroups to discuss the technical aspects of the use of molecular techniques for DUS testing, and another subgroup for the analysis of the legal aspects of the whole issue.

73. An expert considered that the assessment of essential derivation was a purely legal issue whilst the expert from France considered that the assessment of the essentially derived variety was a technical issue and its dependency on the initial variety the legal consequence of that.

74. Conclusion. The Working Party requested the Office of UPOV to circulate the document among the other Working Parties for comments from experts.

75. Election of Chairmen for the crop subgroups on molecular techniques. The Chairman reported on the discussion at the sixth session of the BMT and recalled its proposal to the Technical Committee to set up crop subgroups for detailed discussion on the possible use of molecular techniques in DUS testing. She added that the Technical Committee had requested the TWA to nominate a Chairman for the subgroups on wheat, maize and oilseed rape. After a brief discussion, the Working Party agreed upon the following Chairmen: Mr. Peter Button (United Kingdom) for wheat, Mrs. Beate Rücker (Germany) for maize and Mrs. Françoise Blouet (France) for oilseed rape.

Example Varieties

76. The expert from France introduced document TWA/29/20. The document reproduced the text of a proposal made by the Delegation of France at the thirty-sixth session of the Technical Committee containing several points to be considered when discussing a future approach in the selection and listing of example varieties for the UPOV Test Guidelines. The expert highlighted the difficulty in agreeing on the list of example varieties as more countries joined UPOV. He pointed out the rapid turnover of varieties which made the list quickly out of date. He proposed several points for consideration: (a) no real need to have example varieties where drawings could be available for a given characteristic; (b) the possibility of having agreed example varieties for characteristics slightly influenced by the environment; (c) to have a regional or national list of example varieties for characteristics susceptible to the environment. He also suggested removing the list of example varieties from the UPOV Test Guidelines, but in that case the whole range of the reference collection concerned should be considered and it should be possible to access the example varieties used in a particular country or region.

77. The use of UPOV example varieties and possible new approaches. The expert from Australia mentioned that they usually do not have access to the example varieties listed in the UPOV Test Guidelines and that there was no information in the document on the country that proposed the list, which would be useful to have in the future. The expert from Germany proposed including the list of example varieties in an annex to the Test Guidelines, which would be easier to revise than the whole document. The expert from Spain supported the proposal and added that the country where they were used should be mentioned as well. An expert from the United Kingdom expressed his agreement with the document and with the proposal of having a more flexible approach in the selection and listing of the example varieties. Experts from South Africa and the Republic of Korea said that they hardly ever used the example varieties listed in the UPOV Test Guidelines and considered that it would be useful to mention the country where they had been tested and selected. The expert from France clarified that the role of example varieties was to be used as standard for the expression of characteristics and said that the creation of a descriptive database would help for that purpose. The expert from the CPVO suggested the possibility of including digital pictures and the expert from Australia suggested having links to pictures in the document in digital format.

78. Conclusion. The Working Party agreed that comments on possible action concerning the selection and listing of example varieties should be sent to the expert from France in order to continue the development of the document.

Final Discussion on Test Guidelines

Test Guidelines for Rescue Grass, Alaska Brome-Grass, *Bromus*

79. The Working Party noted document TG/180/1(proj.) and made the following main changes in the document:

I. Subject of these Guidelines: to type the names of the species as follows: Rescue Grass (*Bromus catharticus* Vahl.), Alaska Brome-Grass (*Bromus sitchensis* Trin.) and *Bromus auleticus* Trin.

VII. Table of Characteristics:

3 To add legend "B" in the first column

5 France to provide example varieties

6 To add legend "B" in the first column

8 To add legend "B" in the first column

X. Technical Questionnaire:

To delete items 4.1 and 4.2

Item 7.2: to delete legend "C" and change "flat" to "rounded" and vice versa.

Test Guidelines for Cotton

80. The Working Party noted document TG/88/4(proj.) and made the following main changes in the document:

IV. Methods and Observations: To add the sentence "Unless otherwise indicated" at the beginning of paragraph 5

V. Grouping of Varieties: to add new grouping characteristic as follows:

(19) Boll: shape in longitudinal section

VII. Table of Characteristics:

4 To add example variety "Indiana" for state of expression 1

5 To read "Plant: type of flowering"

6 To read “Fruiting branch: number of nodes”

7 To read “Fruiting branch: ratio/no. of nodes”

12 To have asterisk and example variety “Ionia” for state of expression 9
13 To add example variety “Xpress” to state of expression 1

14 To add example varieties “Christina” and “Pontos” to state of expression 9

15 State of expression 3 to read “reddish-green”

16 To delete states of expression 1 and 9 and to add example variety “Korina” for state of expression 3

17 To delete states of expression 1 and 9

18 To add example variety “Renata” to state of expression 3

20 To add example variety “Fotini” to state of expression 7 and to delete state of expression 9

21 To add example variety “Zedera 5” to state of expression 5 and “Velos” to state of expression 7

23 To amend translations in French, German and Spanish

25 To add example variety “Dimitra” to state of expression 1

27 To add legend “(+)” and example variety “Sindos 80” for state of expression 7

30 To add notes 1, 2, 3 and 4 for the states of expression

31 To read “1000 seed weight”

32 To read “Content of lint (expressed in %) (as for 27)”

36 To read “Fiber: fineness (micronaire)” and to delete states of expression 1 and 9

37 To read “Fiber: length uniformity” and to add example varieties “Dora” and “Fanton” to state of expression 1

To add a new characteristic: “Flower: position of the stigma in relation to the stamen”; with states of expression below (1), same level (2) and above (3). Australia and Spain to provide example varieties

VIII. Explanations on the Table of Characteristics:

Ad. 33, 34, 35, 36 and 37: To delete last paragraph

IX. Literature:

Spain to provide literature.

Test Guidelines for Fodder Radish

81. The Working Party noted document TG/178/1(proj.) and made the following main changes in the document:

III. Conduct of Tests: Paragraph 1 to read:

"1. The minimum duration of tests should normally be two independent growing cycles."

VII. Table of Characteristics:

2 To delete asterisk and to add legend "(+)" in the first column

6 To add notes 3, 5 and 7 to the states of expression

VIII. Explanations on the Table of Characteristics:

Ad. 2 + 3; to add proper drawing

Ad. 5 + 6; to add proper drawing

Ad. 7 - 10; to add proper drawing

Ad. 14; to add proper drawing

Test Guidelines for Red Clover

82. The Working Party noted document TG/5/5(proj.) and made the following main changes in the document:

IV. Methods and Observations:

Paragraph 3 to read:

"3. All measurements on the leaf should be made within 1 to 2 weeks after the mean date of flowering on the third leaf of the main stem from the top."

VI. Characteristics and Symbols:

To add to legend "MS = measurements of a number of individual plants or parts of plants."

VII. Table of Characteristics:

5 To have "Marino" as example variety for state of expression 5

8 To have example variety "Sava" instead of "Sara"

19 To add legend (+)

VIII. Explanations on the Table of Characteristics:

Ad. 12, 13 and 14 to read "The longest stem should be observed including the head within 1-2 weeks after mean date of flowering. The thickness should be measured 2 to 4 cm above tillering node"

To have Ad. 19 with the following text: "The observation should be made at beginning of flowering on the upper third of the plant."

Test Guidelines for Rice

83. The Working Party noted documents TG/16/5(proj.), TWA/29/12, TWA/29/13 and TWA/29/16. There were other comments from experts from Japan and the Republic of Korea. The Working Party considered that it was a very important crop widely sown all over the world and that it was necessary to consider all the comments in order to produce Test Guidelines which would be useful in all the regions. The expert from Japan asked for the document to be modified in order to be able to differentiate between indica and japonica types and also to include *Oryza glaberrima*.

84. An expert from Japan explained the reaction of rice grains to phenol solution and the interaction between genotypes and insect biotypes. He made use of slide projections to show example cases related to the comments made by Japan on document TG/16/5(proj.).

85. After some discussions, the Working Party agreed to have another subgroup meeting for the preparation of a revised document. Several experts suggested having the subgroup meeting at the International Rice Research Institute (IRRI) in the Philippines. The Working Party agreed that the Office of UPOV should examine that possibility. If this venue were not possible, the subgroup meeting should be arranged to facilitate the attendance of experts from the regions of the world where rice was an important crop.

Test Guidelines for Subterranean Clover

86. The Working Party noted document TG/170/1(proj.) and made the following main changes in the document:

III. Conduct of Tests: Last sentence of paragraph 5 to read:
"The density of sowing should be such that about 150 plants per meter should be obtained."

IV. Methods and Observations: Paragraph 1 to read:

"1. All measurements for assessment of distinctness and stability should be made on 30 plants or parts taken from each of 30 plants."

V. Grouping of Varieties: Paragraph 2 to read:

"2. In the first place, the collection should be divided according to the subspecies:

– *subterraneum*
– *yanninicum* or
– *brachycalycinum*."

First sentence of paragraph 3 to read:

"3. It is recommended that the competent authorities use the following characteristics for grouping varieties within each subspecies:"

VI. Characteristics and Symbols: To add to the following legend:

1) To be observed on: A = spaced plants
B = row plots
C = special test

M = actual measurement
VG = visual assessment by a single observation of a group of plants or parts of plants
VS = visual assessment by observation of a number of individual plants or parts of plants.

Australia to provide the corresponding reference in the Table of Characteristics.

VII. Table of Characteristics:

3 To the following states of expression "very small (1)", "small (3)", "medium (5)", "large (7)", "very large (9)". Australia to provide example varieties.

4 Add (+) and Australia to provide drawings

12 Example variety for state of expression cream (2) should be "Nungarin" instead of "Nurgarin"

17 To read "Only for varieties with crescent: base of crescent", with states of expression "C1 (1)," "C2 (2)," "C3 (3)," "C4 (4)"

22 To read "Leaflet: degree of flush"

23 To read "Leaflet: color of flush"
24 To read "Leaflet: predominant location of flush"

27 To delete asterisk

33 To read: "Calyx tube: hue"

34 To read "Calyx tube: distribution of coloration", to have notes "1", "2", "3" and "4" and to go after 35

35 To read "Calyx tube: color of hue" and to have an asterisk

36 To type notes "1" and "9"

37 To have example variety "Nuba" instead of "Junee" for state of expression 3

43 To read "Seed: 1000 seed weight" with states of expression "very low (1), "low (3)," "medium (5)," "high (7)," "very high (9),"

44 To delete example variety "Nungarin" from state of expression 1

VIII. Explanations on the Table of Characteristics:

To add drawings for characteristic 4. Australia to provide drawings.

Test Guidelines for Swede

87. The Working Party noted document TG/89/4(proj.) and made the following main changes in the document:

VII. Table of Characteristics:

To see whether it is possible to combine characteristics 16, 17 and 18 in only one characteristic.

To see whether it is possible to combine characteristics 24 and 25 in only one characteristic.

X. Technical Questionnaire:

Item 4.1 (a) to read "Open-pollinated variety".

88. The Working Party agreed that the comments on document TG/89/4(proj.) should be sent to the Technical Working Party for Vegetables (TWV).

Test Guidelines for White Mustard

89. The Working Party noted document TG/179/1(proj.) and made the following main changes in the document:

IV. Methods and Observations:

Paragraph 2. To delete the sentence "Interpretation of results should be made according to the rules of cross-pollinated varieties as stated in the General Introduction to the Test Guideline".

V. Grouping of Varieties:

To add the following characteristic: "Flower: yellow color of petals"

VI. Characteristics and Symbols:

Paragraph 2 to read:

"2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic. For each characteristic it is indicated whether measurements of a number of single plants or parts of plants (MS), measurement of a group of plants or parts of plants (MG) or visual assessments by a single observation of a group of plants or parts of plants (VG) should be used."

Paragraph 3 to have the following legend:

MG: measurement of a group of plants or parts of plants
MS: measurement of a number of single plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants.

VII. Table of Characteristics:

5 to 10 To have stages 21-39

11 and 12 To be deleted

14 To have an asterisk

15 To read: "Flower: yellow color of petals," with states of expression "light (3)," "medium (5)," "dark (7)"

15(a) To add a new characteristic: "Flower: length of petals", with states of expression "short to medium (4)," "medium (5)," "medium to long (6)"

15(b) To add a new characteristic: "Flower: width of petals," with states of expression "narrow to medium (4)," "medium (5)," "medium to broad (6)"

16 To have example variety "Silenda" for state of expression 3 instead of "Gisilba"

18 To have example variety "Sylvester" for state of expression 7 instead of "Litember"

22 To add state "M".

VIII. Explanations on the Table of Characteristics:

Ad. 13: To add the following sentence at the end: "This characteristic may be useful for arranging the varieties in the collection."

To add "Ad. 22 Thousand seed weight: Per replicate a bulk sample of 20 siliques should be taken."

Ad. 23: To add the following sentence at the end: "Alternatively the beginning of flowering may be observed in this trial; early flowering would mean strong generative development, late flowering would mean weak development."

Working Paper on Test Guidelines

Test Guidelines for Cocksfoot

90. The Working Party noted document TWA/29/7 and made the following main changes in the document:

II. Material Required:

"1 kg" instead of "1.5 kg"

VII. Table of Characteristics:

3 To read: "Tendency to form inflorescence in year of sowing (without vernalization period)"

5 To read: "Plant: time of inflorescence emergence (after a vernalization period)" and to add legend "B"

7 To read "Flag leaf: length (flag leaf on representative stem when inflorescence is fully developed)"

8 To read "Flag leaf: width (same flag as that used for 7)" and state of expressions "narrow (3)," "medium (5)," "wide (7)"

10 To have state of expression "long" for note 7

11 To have state of expression "long" for note 7

The Working Party requested the leading expert to check example varieties "Lindacta" and "Hovat."

IX. Literature:

France to provide literature.

X. Technical Questionnaire:

To delete items 4.1 and 4.2

To delete last sentence of item 7.3.

91. Some experts considered that it would be useful to exchange information on the way of assessing characteristics in the northern and southern hemisphere. The Working Party agreed to the proposal.

Test Guidelines for Field Bean

92. The Working Party noted document TWA/29/3 and made the following main changes in the document:

II. Material Required:

The amount of seed required to read "3 kg resp. or at least 6000 seeds"

III. Conduct of Tests:

Paragraph 1 to read "The minimum duration of tests should normally be two independent growing cycles."

VII. Table of Characteristics:

4 To check example varieties

5 To add legend "(+)" and to delete states of expression 1 and 9

6 To add legend "(+)"

11 To add example variety "Pistache" for state of expression 9

14 To have note "3" for state of expression "small"

19 To read "Dry seed: 100 seed weight"

VIII. Explanation on the Table of Characteristics:

To have the following explanation for characteristics 5 and 6: "Ad. 5 and 6: if there is any difference in size between the two pairs of leaflets, the bigger should be observed".

Ad. 8 To improve the explanation.

The title of the key for phenological growth stages to read "Phenological growth stages and BBCH-identification keys of *Vicia faba* L. *var. minor*."

Test Guidelines for Lotus

93. The Working Party noted document TWA/29/17 and made the following main changes in the document:

III. Conduct of Tests:

The first paragraph to read "The minimum duration of tests should normally be two independent growing cycles."

IV. Methods and Observations:

To add the following sentence to paragraph 1: "The variability within the variety should not exceed the variability of comparable varieties already known."

VI. Characteristics and Symbols:

To add the following legend and to include the references to them in the Table of Characteristics:

"M = actual measurement

MS = measurements of a number of individual plants or parts of plants

VG = visual assessment by a single observation of a group of plants or parts of plants

VS = visual assessment by observations of a number of individual plants or parts of plants."

VII. Table of Characteristics:

3 To read "Leaf: density of hairs (at vegetative stage)"

5 To read "Stem: density of hairs"

9 To read "Plant: vigor of winter growth"

17 To read "Seed weight of 1000 seeds"

18 To be moved to item 7.2 of the Technical Questionnaire

To add example varieties.

Test Guidelines for Sugarcane

94. The Working Party noted document TWA/29/19 and the report of the subgroup held in the afternoon of June 26, 2000, to advance discussions on the Test Guidelines for Sugarcane and made the following main changes in the document:

I. Subject of these Guidelines:

The Latin name of the crop to read "*Saccharum* L. of the family *Gramineae(Poaceae)*."

III. Conduct of Tests:

Paragraph 3, third sentence to read "Each test should include a total of 6 stalks from different plants divided in two or more replicates."

IV. Methods and Observations: To read:

1. All observations for qualitative characteristics should be made on 6 stalks. For quantitative characteristics 24 stalks from different plants should be used. Plants should be observed in first growth (plant cane) and all characteristics should be described on plants between 10 to 12 months of age. The field test should be carried out without stress to ensure normal growth.
2. All observations determined by measurement, weighing or counting, should be made on 24 stalks.

3. For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 stalks, the maximum number of off-types allowed would be 1 (one).

4. All observations on the stem should be made on a representative stem.

5. Unless otherwise indicated all observations on the node and internode should be made on the longest internode of the representative stem.

6. All observations on the leaf blade and leaf sheath should be made on fully extended leaves, on the upper part of stalks of vegetative stage.

7. The cane top is defined as the region between the youngest exposed visible dewlap and the insertion of the fourth youngest fully extended leaf (leaf + 4) in the stem.

VII. Table of Characteristics:

1 To delete asterisk and to have states of expression "erect (1)," "semi-erect (3)," "medium (5)," "semi-prostrate (7)," "prostrate (9)"

2 To add explanation

4 To read "Internode: length on the bud side" with states of expression "very short (1)," "short (3)," "medium (5)," "long (7)," "very long (9)"

5 To read "Internode: diameter in the middle part of the internode (as for 4)"

8 To read "Internode: color exposed to sun", with state of expression "RHS Color Chart (indicate reference number)" and to have an explanation

9 To read "Internode: color not exposed to sun", with state of "RHS Color Chart (indicate reference number)" and to have an explanation

11 To have the following states of expression: "absent to very weakly expressed (1)," "weakly expressed (3)," "medium expressed (5)," "strongly expressed (7)"

13 To have the following states of expression: "absent or very weak (1)," "weak (3)," "medium (5)," "strong (7)"

14, 15 and 16 To be deleted

18 To have state of expression "RHS Color Chart (indicate reference number)"

19 To be deleted

20 To have the following states of expression: "absent or very narrow (1)," "narrow (3)," "medium (5)," "wide (7)," "very wide (9)"

21 To have the following states of expression: "triangular to pointed (1)," "oval (2)," "obovate (3)," "pentagonal (4)," "rhomboid (5)," "round (6)," "ovate (7)," "rectangular (8)," "beaked (9)"

22 To read: "Depth of bud groove", with states of expression "absent or very shallow (1)," "shallow (3)," "medium (5)," "deep (7)"

23 To have the following states of expression: "clearly below (1)," "intermediate (2)," "clearly above (3)"

24 To be deleted

25 To be split as follows:

25(a) "Node: pubescence on the bud", with states of expression "absent (1)," "present (9)"

25(b) "Node: position of the pubescence on the bud", with states of expression "basal (1)," "lateral (2)," "apical (3)"

26 To read "Node: bud cushion (space between base of bud and leaf scar)"

27 To add explanation

29 To be split as follows:

29(a) "Leaf sheath: density of hairiness (groups 57 and 60)", with states of expression "absent or very sparse (1)," "sparse (3)," "medium (5)," "dense (7)," "very dense (9)"

29(b) "leaf sheath: length of hairiness (groups 57 and 60)", with states of expression "short (3)," "medium (5)," "long(7)"

30 To have the following states of expression: "only dorsal (1)," "lateral and dorsal (2)"

31 To be deleted

32 To have the following states of expression: "strap-shaped (1)," "deltoid (2)," "crescent-shaped (3)," "bow-shaped (4)," "steeply-sloping (5)," "horizontal (6)"

33 To read: "Leaf sheath: shape of underlapping auricle" and state of expression "transitional" for note (1)

34 To read "Leaf sheath: size of underlapping auricle"

35 To read: "Leaf sheath: shape of overlapping auricle" and state of expression "transitional" for note (1)

36 To read "Leaf sheath: size of overlapping auricle"

37 To be deleted

38 To have state of expression "RHS Color Chart (indicate reference number)"

39 To add explanation

40 To read "Leaf blade width in the middle of the length"

41 To have the following states of expression: "absent or very sparse (1)," "sparse (3)," "medium (5)," "dense (7)"

42 To have the following states of expression: "absent (1)," "present (9)"

43 To be moved after characteristic 3

44 To be moved after characteristic 3 and to read: "Intensity of green color of the leaf canopy"

45 To have explanation

46 To have explanation and states of expression "circular (1)," "ovate (2)"

47 To have state of expression "RHS Color Chart (indicate reference number)"

<u>To add the following characteristics:</u>

"Plant: suckering" with states of expression "very few (1)," "few (3)," "medium (5)," "many (7)," "very many (9)"

"Stem: culm height (base to TVD leaf)" with states of expression "very short (1)," "short (3)," "medium (5)," "tall (7)," "very tall (9)"

"Stem: bud prominence" with states of expression "very weak (1)," "weak (3)," "medium (5)," "strong (7)," "very strong (9)"

"Stem: bud with excluding wings", with states of expression "very narrow (1)," "narrow (3)," "medium (5)," "wide (7)," "very wide (9)"

"Leaf: lamina length" with states of expression "very short (1)," "short (3)," "medium (5)," "long (7)," "very long (9)"

"Leaf: midrib width", with states of expression "very narrow (1)," "narrow (3)," "medium (5)," "wide (7)," "very wide (9)"

"Leaf: length of leaf sheath", with states of expression "very short (1)," "short (3)," "medium (5)," "long (7)," "very long (9)

"Leaf: ligule height," with states of expression "short (3)," "medium (5)," "tall (7)"

"Leaf: length of ligule hairs (group 61):" with states of expression "very short (1)," "short (3)," "medium (5)," "long (7)," "very long (9)"

IX. Literature:

To add the following literature:

GALLACHER, D.J., 1994. Development of a minimum descriptor set for individuals of *Saccharum* spp. Hybrid germplasm. Thesis submitted for Ph.D., Department of Botany and Tropical Agriculture, James Cook University of North Queensland, AU

GALLACHER, D.J., and BERDING, N. 1997. Purpose selection and application of descriptors for sugarcane germplasm. *Aust. J. Agric. Res* 48:759-67

GALLACHER, D.J., 1997. Evaluation of sugarcane morphological descriptors using variance components analysis. *Aust. J. Agric. Res* 48:769-73

GALLACHER, D.J., 1997. Optimised descriptors recommended for Australian sugarcane germplasm (*Saccharum* spp. hybrid) *Aust. J. Agric. Res* 48:775-79

Test Guidelines for Tobacco

95. The Working Party noted the report (TWA/29/5) on the subgroup meeting in Bergerac, France, on April 17 and 18, 2000, and the new working paper on Test Guidelines for Tobacco (TWA/29/14) and made the following main changes in the document:

V. Grouping of Varieties:

To delete characteristic "Leaf: ratio length/width of blade" (characteristic 11)

VII. Table of Characteristics:

7 To have state of expression "flat" instead of "straight" for note (2)

8 To read "Leaf: longitudinal profile"

13 and 14 To be merged as follows: "Leaf: color of blade" with states of expression "yellow green (1)," "white green (2)," "light green (3)," "medium green (4)," "dark green (5)"

30 To have state of expression “same length” instead of “same size” for state of expression (2)

34 To be deleted

X. Technical Questionnaire:

5.1 To be moved to Item 7 of the Technical Questionnaire and to read “Group of tobacco” with the states of expression “flue cured (1),” “light air cured (2),” “dark air cured (3),” “fire cured (4),” “sun cured (5),” “other (please specify) (6)”

Test Guidelines for Turnip Rape

96. The Working Party noted the Working Paper on Draft Test Guidelines for Turnip Rape (TWA/29/2), the Draft Report of the Subgroup Meeting in Landskrona, Sweden, on February 10 and 11, 2000, (TWA/29/4) and document TG/185/1 (proj.).

97. The Working Party agreed to complete Chapter VII, Table of Characteristics, in the four languages and that the expert from Finland would add example varieties.

Test Guidelines for Meadow and Tall Fescue

98. The Working Party noted Working Paper on Draft Test Guidelines for Meadow and Tall Fescue (TWA/28/13) and made the following main changes in the document:

III. Conduct of Tests:

Paragraph 1 to read “The minimum duration of the tests should normally be two independent growing cycles.”

VII. Table of Characteristics:

2 To read “Plant: tendency to form inflorescences in the year of sowing without vernalization”

4 To read “Foliage: fineness (as for 2) only for F.a. to add state of expression “very fine (1)” and to delete state (9)

5 To read “Time of inflorescence emergence (after period of vernalization)”

8 To read “Flag leaf: length (flag leaf on representative stem when inflorescence is fully expanded)” and to have asterisk

9 To read “Flag leaf: width (same flag leaf as that used for 8)”

11 To be deleted

X. Technical Questionnaire:

4.1 To read "Origin"

4.2 To be deleted

7 To delete the last sentence.

Status of Test Guidelines

99. The Working Party agreed that the Draft Test Guidelines for Rescue Grass, Cotton, Fodder Radish, Red Clover, Subterranean Clover and White Mustard should be sent to the Technical Committee for adoption. Draft Test Guidelines for Swede should be sent to the Technical Committee for adoption subject to finalizing the discussion in the TWV. The Draft Test Guidelines for Cocksfoot, Field Bean, Lotus, Sugarcane, Turnip Rape and Meadow Fescue should be sent to the professional organizations for comment. It also agreed to rediscuss the Test Guidelines for Tobacco and to have a subgroup for the discussion of the Test Guidelines for Rice. The Working Party also agreed to start the revision of the Test Guidelines for Potato, White Clover and Lupins.

100. The Working Party was reminded of the revision of Chapter IV of the Test Guidelines for Rape Seed (TG/36/6). It was agreed to discuss that revision in the thirtieth session of the TWA.

Data in the UPOV Web

101. The Working Party requested the Office of UPOV to place comments received on the already-existing UPOV Test Guidelines in a special place in the UPOV Web Page. It would help experts in the development of their national test guidelines and in the future revision of UPOV Test Guidelines. The Working Party agreed that this was an issue for the Technical Committee to consider.

Future Program, Date and Place of Next Session

102. At the invitation of the expert from Mexico, the Working Party agreed to hold its thirtieth session at Texcoco, at the International Maize and Wheat Improvement Center, (CIMMYT), Mexico, from September 3 to 7, 2001. 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 Committee and the Working Parties

3. General Introduction for the Conduct of Tests for Distinctness, Uniformity and Stability (the main document and the complementary documents be discussed)
4. Management of reference collections

4.1 Plant variety description and environmental effect (Denmark and the United Kingdom to prepare documents on barley and wheat)

4.2 Software using phenotypic distance for distinctness (to be prepared by experts from France)

4.3 Relationship between common knowledge and reference collection (to be prepared by experts from France)

5. Process for establishing distinctness

5.1 Document on non-homogeneous varieties in perennial crops (to be prepared by experts from the Netherlands)

5.2 The use of hybrid formula in DUS assessment (to be prepared by experts from France)

6. Possible use of molecular markers. Report from the subgroups on molecular markers meeting

7. Example Varieties (document to be prepared by experts from France if comments received on document TWA/29/20)

8. The introduction of new characteristics and the development of characteristics for new species (document to be prepared by the United Kingdom)

9. Breeder testing (Office of UPOV to prepare a revised questionnaire and document)

10. Final discussions on draft Test Guidelines for

- Rice
- Cocksfoot
- Field Bean
- Sugarcane
- Turnip Rape
- Meadow Fescue, Tall Fescue
- Lotus.

11. Discussion on working papers on Test Guidelines for:

- Tobacco (TWA/29/14; Greece to prepare a new document)
– Potato (TG/23/5; Germany to prepare a document)
– White Clover (TG/38/6; United Kingdom to prepare a new document)
– Lupins (TG/66/3; South Africa to prepare a document)
– Rape Seed (TG/36/6; Revision of Chapter IV)

Introduction to the Swedish System of Plant Variety Protection and Visits

103. Mr. Evan Westerlind made a presentation to the Technical Working Party on the plant variety protection system in Sweden and the shared activities between the National Plant Variety Board and the Swedish Seed Testing and Certification Institute. He explained that applications of genetically modified varieties had already been filed in potato, rape seed and sugar beet and that Sweden had started the DUS examination for parental lines of sugar beet.

104. In the afternoon of June 28, the Working Party visited the Swedish University of Agricultural Sciences where it received an explanation and overview of the main features of Swedish agriculture, research activities related to plant breeding and the development of genetically modified plants.

Special Acknowledgment

105. The Working Party noted that Mr. Evan Westerlind would be retiring shortly and that this would be the last TWA meeting he would attend. The Working Party congratulated him on his work at the National Plant Variety Board of Sweden and wished him a happy retirement.

106. This report has been adopted by correspondence.

[Annex I follows]

ANNEX I

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ANNEX II

LIST OF SPECIES AND LEADING EXPERTS AND FURTHER DETAILS FOR THE PREPARATION OF WORKING PAPERS ON 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)**	**Final document to be prepared before the end of**
Tobacco	TWA/29/14 New document to be prepared	Mrs. Apostolina Lioussa, GR	DE, FR, MX, PL, ZA	May 2001
Potato	TG/23/5 First document for the revision be prepared	Mr. Georg Fuchs, DE	AR, CA, GB, NL, SE, SP, UY, ZA	May 2001
White Clover	TG/36/8 First document for the revision to be prepared	Mr. Michael Camlin, GB	FR, UY, ZA	May 2001
Lupins	TG/66/3 First document for the revision be prepared	Mrs. Joan SADIE, ZA	D	May 2001

[End of Annex II and of document]