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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR ORNAMENTAL PLANTS AND FOREST TREES

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NOTES FOR DRAFTING TGP DOCUMENTS

Document prepared by the Office of the Union

1. The draft document TG/1/3, a new "Revised General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants," (currently document TC/37/9(a)) identifies a number of associated "TGP" documents which will complement the main TG/1/3 document. Although each of these TGP documents is under the coordination of a nominated person, or the *Office of the Union*, they often involve many contributions at various stages of development and it was felt that a summary of the status of each TGP document should be prepared for the guidance of the Technical Working Parties (TWPs) in their discussions on these documents at their forthcoming meetings.

2. The attached summary (Annex) is intended to identify matters which need to be covered within each TGP document. This is established by reference to document TG/1/3 (currently document TC/37/9(a)) and in some cases TGP/7 "Development of Test Guidelines" (currently document TC/37/10). This is supplemented by extracts from the individual TWP reports which identify specific aspects to be considered, or way in which certain aspects should be handled, in each TGP document. The summary then goes on to propose individual sections within each document which may be developed as separate units and, perhaps, worked on by different groups.

3. The summary is presented in the form of a table in the following format:

TGP/X		**Title of TGP Document** (*Coordinator:* Person responsible for coordinating the development of the Document*)*
X.1	**TWC (Draft: TWC/123)**	**This proposes (column 1) an individual section within the TGP and identifies (in column 2) who is/would be responsible for developing this section. It also (column 2) identifies which draft or existing UPOV documents, relevant to the section, have already been prepared.**
X.2	**TWV (Draft: TWV/234)**	**Further sections….**
Coverage	TG/1/3 (Draft: TC/37/9)	*Extracts from draft "General Introduction" (TC/37/9(a)) which make reference to the appropriate TGP document and thereby explain the "coverage" of the document,*
Coverage	TGP/7 (Draft: TC/37/10)	*Extracts from draft "Development of Test Guidelines"(TC/37/10) which make reference to the appropriate TGP document and thereby explain the "coverage" of the document*
Coverage	TC/37/3	*Extracts from TWP reports which identify specific aspects to be considered, or way in which certain aspects should be handled, in each TGP document*

4. The TWPs are invited to consider the attached table at their forthcoming meetings, with particular emphasis on those TGP documents given priority by the Technical Committee, and to comment on the drafts which have been circulated, comment on the suitability of the proposed individual sections and to identify where each TWP wishes to draft a particular section within a TGP document.

[Annex follows]

ANNEX

Ref.		Title
TG/00	Office	**List of TGP Documents and Latest Issue Dates** *(Coordinator: Office of the Union)*
TGP/1	Office	**General Introduction With Explanations** *(Coordinator: Office of the Union)*
TGP/2	Office	**List of Test Guidelines Adopted by UPOV** *(Coordinator: Office of the Union)*

TPG/3: Varieties of Common Knowledge

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Ref.		Title
TGP/3		**VARIETIES OF COMMON KNOWLEDGE** **(*Coordinator: Office of the Union)***
3.1	**Office (Draft: CAJ/43/2)**	**The Notion of Breeder**
3.2	**(Mrs. Scott,GB)**	**Developments and Explanations Regarding Varieties of Common Knowledge**

TPG/3: Varieties of Common Knowledge

Coverage	TG/1/3 (Draft: TC/37/9)	5.2 Varieties of Common Knowledge *51. Key aspects for determining whether a variety is a variety and moreover whether its existence is a matter of common knowledge are set out below. These considerations apply equally to all types of variety, whether protected or not, and include plant material such as ecotypes and land-races. Further developments and a more detailed explanation of the issues related to varieties of common knowledge are to be found in document TGP/3, "Varieties of Common Knowledge."* 5.2.1 Criteria for a Variety *52. A variety whose existence is a matter of common knowledge must satisfy the definition of a variety set out in Article 1(vi) of the 1991 Act of the UPOV Convention, but this does not necessarily require fulfilment of the DUS criteria required for grant of a breeder's right under the UPOV Convention.* 5.2.2 Existence of a Variety *53. Living plant material must be in existence for a variety to be taken into account for distinctness.* 5.2.3 Common Knowledge *54. Specific aspects which should be considered to establish common knowledge include, among others:* *(a) commercialization of propagating or harvested material of the variety or publishing a detailed description;* *(b) the filing of an application for the grant of a breeder's right or for the entering of a variety in an official register of varieties, in any country, which is deemed to render that variety a matter of common knowledge from the date of the application, provided that the application leads to the grant of a breeder's right or to the entering of the variety in the official register of varieties, as the case may be;* *(c) existence of living plant material in publicly accessible plant collections.* *55. Common knowledge is not restricted to national or geographical borders.*

TPG/4: Management of Variety Collections

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Ref.		Title
TGP/4		**MANAGEMENT OF VARIETY COLLECTIONS** ***(Coordinator: Mr. Guiard, FR)***
4.1	 **TWA** **TWV** **TWO**	**General Guidance for the Management of Variety Collections** **Mr. Guiard, FR (Draft: TC/36/7 4A&B) to draft** **Mr. Green (UK) to participate in development** **TWO to participate in development**
4.2	**TWF**	**Guidance for variety collections which are planted at different times to candidate varieties (e.g. trees)**
Coverage	TG/1/3 (Draft: TC/37/9)	5.3.1 Comparing Varieties *56. It is necessary to examine distinctness in relation to all varieties of common knowledge. However, a systematic individual comparison may not be required in relation to those varieties of common knowledge that are within a group known to have specific expressions of characteristics and reliably ensuring that such varieties will be distinct from the candidate variety. In addition, certain procedures (e.g. publication of variety descriptions) may be developed to allow such an approach in some circumstances where there cannot be absolute certainty that all the varieties within such a group will be distinct from the candidate variety, but where those supplementary procedures provide an effective examination of distinctness overall. Such procedures may also be developed to address varieties of common knowledge for which living plant material is known to exist (see chapter 5.2.2) but where, for practical reasons, material is not readily accessible for examination. Any such procedures will be set out in document TGP/9, "Examining Distinctness."* *57. Further, where varieties can be distinguished in a reliable way from a candidate by comparing documented descriptions, it is not necessary to include them in a growing trial with the respective candidate variety. However, where there is no possibility of clearly distinguishing them from the candidate variety, the varieties should be compared with the candidate variety in a growing trial or other appropriate test. This emphasizes the importance of harmonization of variety descriptions in minimizing the workload of the DUS examiner.* *58. A Technical Questionnaire, completed by the applicant and submitted with the application, specifies characteristics of importance for identifying the varieties most similar to the candidate. Where necessary those varieties are grown and directly compared with the candidate.* *59. Guidance for the management of variety collections is given in detail in document TGP/4, "Management of Variety Collections."*

TPG/4: Management of Variety Collections

Coverage	TC/37/3	*35. The TWC discussed possible uses of plant variety descriptions for the selections of most similar varieties to a candidate one in document TWC/18/14. The objective was to know the possible most similar varieties before planning the field trials. The document is a continuation of document TWC/17/12 "Special Applications of DUS Variety Descriptions." The objective of the paper was to study the types of data and the distance functions involved in the study of variety descriptions, comparisons of evaluations made on variety descriptions for a period of years and comparisons of different versions of method (each characteristic has the same importance vs. the weighting of the characteristics). In the proposed method, the first step was to calculate the similarities, and secondly the calculation of the histogram of frequencies of similarities.* *36. Until then, the method had only been applied to winter barley varieties showing a good level of repeatability. The procedure would be applied to varieties of other crops to get a more general statement. The TWC asked the expert to continue the research with the method.* *(See document TWC/18/15 Prov., paragraphs 51 to 53).*

TPG/5: Experience and Cooperation in DUS Testing

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Ref.		Title
TGP/5		**EXPERIENCE AND COOPERATION IN DUS TESTING** ***(Coordinator: Office of the Union)***
5.1	**C/27/15, Annex III**	**Model Administrative Agreement for International Cooperation in the Testing of Varieties**
5.2	**C/XVIII/9 Add. Annexes II and IV, Part I** **TWV**	**UPOV Model Form for the Application for Plant Breeders' Rights** **The TWV proposed that the application form should contain a declaration from the breeder regarding freedom from factors which may affect the expression of characteristics (see TC/37/9(a): 2.5.3) and advising of any use of e.g. propagation methods which might also affect the expression of characteristics.**
5.3	**TC/26/6, Annex II, pages 1-3**	**Technical Questionnaire to be Completed in Connection with an Application for Plant Breeders' Rights**
5.4	**TC/XXV/12 Annex, page 6**	**UPOV Request for Examination Results**
5.5	**TC/XXV/12 Annex, page 7**	**UPOV Answer to the Request for Examination Results**
5.6	**TC/XXV/12 Annex, page 1**	**UPOV Report on Technical Examination**
5.7	**TC/26/6, Annex I, pages 1-3**	**UPOV Variety Description**
5.8	**TC/XXV/12 Annex, page 5**	**UPOV Interim Report on Technical Examination**
5.9	**C/(34)/5**	**Cooperation in Examination**
5.10	**TC/(36)/4**	**List of Species in Which Practical Technical Knowledge Has Been Acquired or For Which National Guidelines Have Been Established**
5.11	**Office (Draft: UK paper)**	**Notification of Additional Characteristics**

TPG/5: Experience and Cooperation in DUS Testing

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Coverage	TG/1/3 (Draft: TC/37/9)	3.1 Cooperation Between Testing Authorities *26. Cooperation with other Contracting Parties can reduce the overall time, expense and number of examiners involved in the DUS tests, and minimize the work involved in the maintenance of variety collections. For details of current international cooperation arrangements and a model administrative agreement for international cooperation in DUS testing, see document TGP/5, "Experience and Cooperation in DUS testing."*
		4.8 Functional Categorization of Characteristics *Table:* *Additional Characteristic (Criteria)* *3. Such characteristics to be submitted to UPOV for inclusion in document TGP/5, "Experience and Cooperation in DUS Testing."*
		9.1 DUS Testing Experience of other Contracting Parties *118. The examining office is invited to consult document TGP/5, "Experience and Cooperation in DUS Testing," to ascertain whether other UPOV Contracting Parties have already conducted DUS testing on the required species or have national test guidelines.* *119. Where such experience is available or national test guidelines exist, countries are invited to approach the Contracting Parties concerned and, in accordance with the principles in the General Introduction, seek to harmonize their testing procedures as far as possible. As a next step, the Contracting Parties concerned are invited to inform UPOV of the existence of the harmonized testing procedure, according to the measures provided in document TGP/5, "Experience and Cooperation in DUS testing," or if appropriate recommend that UPOV prepare Test Guidelines for the species concerned.*

TPG/5: Experience and Cooperation in DUS Testing

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		9.2 DUS Testing Procedures for New Species or Variety Groupings *120. Where neither practical testing experience nor national test guidelines are available in other countries for the species or variety grouping concerned, Contracting Parties should develop their own testing procedures as set out below.* *121. When developing such testing procedures, offices are encouraged to align them on the principles set forth in this General Introduction, by following this document and the guidance for the development of Test Guidelines contained in TGP/7 "Development of Test Guidelines." The easiest way of starting to develop a testing procedure would be to take the recent Test Guidelines document that is closest to the species concerned, or closest in terms of the nature of the varieties concerned (e.g. varieties that are also seed-propagated or vegetatively propagated, are also trees, are grafted, etc.) and to make whatever changes are necessary to adjust the Guidelines.* *122. The testing procedure should be documented, in accordance with the requirements of Test Guidelines, to the extent that experience and information permit.* *123. The Office should then inform UPOV of these developments according to the measures provided in document TGP/5, "Experience and Cooperation in DUS testing," so that the information can then be passed on to all Contracting Parties and consideration can be given to the development of Test Guidelines* .
Coverage	TC/37/3	*37. Some experts at the TWA considered it useful to have some guidance for the preparation of an interim report of the technical examination. It was suggested that a model for this purpose should be developed and that the Office of the Union note the proposal for future development in the revision of the General Introduction.* *(See document TWA/29/12, paragraph 27)*

TPG/6: Arrangements for DUS Testing

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Ref.		Title
TGP/6		**ARRANGEMENTS FOR DUS TESTING** ***(Coordinator: Office of the Union)***
6.1	**TWO**	**Summary of Options for Arranging DUS Testing** **TWO to draft proposal**
6.2	**C/27/15, Annex III**	**Model Administrative Agreement for International Cooperation in the Testing of Varieties**
6.3	**Mr. Hossain, Aus (Draft: TC/36/7 6B)**	**Consideration of Applicant Involvement in the Growing Test**
6.4	**C/27/15, Annex II**	**Declaration on the Conditions for the Examination of a Variety Based on Trials Carried Out by or on Behalf of Breeders**
6.5	**[results of TC/37/7 Rev]**	**Survey on the Level of Involvement of the Applicant in the Growing Test**
Coverage	TG/1/3 (Draft: TC/37/9)	3.2 Cooperation with Breeders and Applicants *30. UPOV has drawn up a list of conditions for the examination of a variety on the basis of DUS tests carried out by or on behalf of applicants or breeders. Details of the conditions are given in document TGP/6, "Arrangements for DUS Testing."* *31. Document TGP/6, "DUS testing by the Applicant/Breeder," also gives useful information on the different possibilities of applicant involvement in the growing tests.*

TPG/6: Arrangements for DUS Testing

Coverage	TC/37/3	*38. Extensive discussion revealed there was still a certain amount of confusion about methods of arranging DUS tests, and the TWO finally proposed that it would be helpful to extend the TGP document to include an explanation of the three main testing systems: all work by officials, trials grown by the applicant but all other work done by officials, and all work done by the applicant. The TWO decided that experts from Australia, Canada, Germany, the European Union, France, Israel, Japan and New Zealand would submit the information to the expert from Australia who, on the basis of the information collected, would prepare the document in cooperation with their TWA expert. The document should be sent to the Office of the Union by the coordinator from Australia by the end of June 2001.* *39. The TWF supported the idea of preparing a document on the basis of a Circular prepared by the Office of the Union as had been decided by the TWA and, with some modification concerning the Circular, by the TWO. The expert from Australia expressed her disagreement with the comment on document TGP/6 in Circular U 2976 that breeding testing was mainly useful in species with few applications.* *40. The TWA discussed document TGP/6 "DUS Testing Done by the Applicant/Breeder" (see document TC/36/7, pages 55 to 61) and the comments on it (see Circular U 2976). Document 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. Several aspect of the so called "Breeder's Testing System were discussed at the TWA. The tests should be done according to test guidelines, they should be kept and be accessible for checking by the official authority and an official sample of the variety must be deposited. It was also proposed some factor that might influence the adoption of a breeder's testing system, such as diversity of environments, availability of knowledge and expertise in the national authority, easy implementation, minimize costs. Some advantageous and disadvantages of the system were finally mentioned. The expert from ASSINSEL recalled the decrease in the cost to the national authority in the breeder's testing system usually becomes an extra cost for the breeders. Several experts considered that the major risk of that system was the selection of the most similar variety. Some experts considered that breeder's testing system and centralized testing system were not opposed. Most experts at the TWA were in favor of updating information on the development of the breeder's testing system in the UPOV member States.* *41. The TWA will continue the discussion of this subject at the next meeting and requested the Office of the Union to prepare a questionnaire on the involvement of the breeder in DUS testing based on the previous document TC/32/4, including the suggestions and comments made at the TWA session.* *(See document TWA/29/21 Prov., paragraphs 63 to 66).*

TPG/6: Arrangements for DUS Testing

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TPG/7: Development of Test Guidelines

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Ref.		Title
TGP/7	**(Draft: TC/37/10)**	**DEVELOPMENT OF TEST GUIDELINES** ***(Coordinator: Mrs. Buitendag, ZA)***
Coverage	TG/1/3 (Draft: TC/37/9)	2.3 Design of the DUS Tests *15. The design of the growing trial or other tests, with regard to aspects such as the number of growing cycles, layout of the trial, number of plants to be examined and method of observation, is largely determined by the nature of the species to be examined. Guidance on design is a key function of the Test Guidelines. Guidance on the development of Test Guidelines, including the design of the trials and tests, is provided in TGP/7, "Development of Test Guidelines."*
		4.2 Selection of Characteristics *35. For inclusion in the Test Guidelines, further criteria are set out in Chapter 4.8, "Functional Categorization of Characteristics" and in document TGP/7, "Development of Test Guidelines." However, the characteristics included in the individual Test Guidelines are not necessarily exhaustive and may be expanded with additional characteristics if that proves to be useful and the characteristics meet the conditions set out above.*
		4.3 States of Expression of Characteristics *36. To enable varieties to be tested and a variety description to be established, the characteristics in the Test Guidelines are subdivided into their different states of expression, or "states" for short, and the wording of each state is attributed a numerical "Note." The classification into states of expression will be influenced by the type of expression of the characteristic (see below). Where appropriate (see TGP/7, "Development of Test Guidelines"), example varieties are provided in the Test Guidelines to clarify the states of expression of a characteristic.*
		8.2 Development of Test Guidelines *115. The individual Test Guidelines are prepared or, where appropriate, revised according to the procedures set out in document TGP/7, "Development of Test Guidelines." Once prepared by the appropriate Technical Working Party for the species concerned, a draft is sent for comments to the international professional organizations and to important institutions working in the field of the species concerned. On the basis of the comments received, the Draft Test Guidelines are finalized by the Technical Working Party concerned and presented to the UPOV Technical Committee for final adoption and publication.*

		9.2 DUS testing Procedures for New Species or Variety Groupings *120. Where neither practical testing experience nor national test guidelines are available in other countries for the species or variety grouping concerned, Contracting Parties should develop their own testing procedures as set out below.* *121. When developing such testing procedures, offices are encouraged to align them on the principles set forth in this General Introduction, by following this document and the guidance for the development of Test Guidelines contained in TGP/7 "Development of Test Guidelines." The easiest way of starting to develop a testing procedure would be to take the recent Test Guidelines document that is closest to the species concerned, or closest in terms of the nature of the varieties concerned (e.g. varieties that are also seed-propagated or vegetatively propagated, are also trees, are grafted, etc.) and to make whatever changes are necessary to adjust the Guidelines.*
Coverage	TC/37/3	Procedure for Development and Revision *42. The TWF made a proposal for the Committee to improve the practice for the preparation of the Test Guidelines whereby the submission of the draft of the new Test Guidelines to the professional organizations for comments should be done in parallel with the submission of the Draft Test Guidelines to the Committee for final adoption, subject to no important comments from the professional organizations.* *(See document TWF/31/12, paragraph 34).* *43. The TWV discussed possible procedures for speeding up the preparation or revision of Test Guidelines and for updating specific characteristics within Test Guidelines without their entire revision. It also noted the importance of prioritizing the revision of many out-of-date Test Guidelines for major vegetable species, rather than the preparation of new Test Guidelines for minor species, and of preparing UPOV Test Guidelines for major tropical species in view of expanding membership worldwide.* *44. The TWV agreed to seek, where appropriate, the possibility of shortening the number of sessions needed for discussion of Draft Test Guidelines at the TWV level to only one session. If the discussion on Draft Test Guidelines are completed in the first session, and if all necessary information were available, the Draft Test Guidelines could be sent directly to the Committee in parallel with the professional organizations. If no significant comments were received from the professional organizations, the Draft Test Guidelines would be discussed in the Committee for adoption.* *45. The TWV also decided to send specific proposals to the Committee.* *(See section 8, above and document TWV/34/15 Prov., paragraphs 15 to 18).*

TPG/7: Development of Test Guidelines

Standard Wording

46. The Chairperson suggested that the TWO should elaborate the standardized layout for new Test Guidelines preparation. It was agreed that experts from AU, DE, GB and ZA would prepare a document, with model wording for chapters I to VI of the Test Guidelines and a template for the Guidelines structure, by the end of August 2000 for circulation to all experts of the TWO. Once agreed, any changes in standard wording could be entered in the document which would then always be an up-to-date reference. If accepted by the Editorial Committee, the document would form part of an expanded TGP/17 (Model Technical Questionnaire); if not, it would be a TWO document.

(See document TWO/33/17, paragraph 7).

Title and Coverage

47. The TWV discussed the problem resulting from ambiguities over the Latin names. The Latin names define the coverage of each Test Guidelines and, in many cases, play significant roles in the judgement of distinctness through classifying varieties into different groups (species) which will not be compared. However, the classification by Latin names was not always obvious because of the lack of clear definitions of Latin names or the existence of different schools of plant nomenclature.

48. In cases where species cannot be easily classified by the nomenclature, it was proposed to handle a set of such species in one Test Guidelines document, rather than preparing individual Test Guidelines for each species. This approach would minimize the risk of the misjudgment for distinctness caused by the ambiguous classification by the Latin names. On the other hand, the TWV requested the Office of the Union to contact ISTA and relevant organizations for plant nomenclature and to propose a standard reference of plant nomenclature for UPOV Test Guidelines.

(See document TWV/34/15 Prov., paragraphs 8 to 10).

49. As explained in documents TC/37/6 "Review of UPOV Information Databases and Service," the Office of the Union have considered that the introduction of a UPOV "taxon code" may help to address this problem. If the coverage of the Test Guidelines is established according to such a UPOV taxon code it would be possible, through an actively maintained and accessible database, for users to identify all Latin and common names (in all UPOV languages) covered by the code and therefore, Test Guidelines.

TPG/7: Development of Test Guidelines

		Divisions Within Test Guidelines *50. The TWV discussed the use of agronomic or economic types, such as growth type (e.g. spring or winter), main use (e.g., ornamental or fruit) and fruit types (e.g. pumpkin, zucchini) for the purpose of grouping varieties or applying, at least in part, different sets of characteristics or different ranges of expression. It discussed the potential for incorrect decisions on distinctions in the use of such "types," which, as a result, automatically distinguish all the varieties of one type from all the varieties of the other types without comparison of individual varieties across different types. It finally decided to require the use of such "types" in Test Guidelines to be accompanied with the clear written definition of each type preferably by using characteristics.* *(See document TWV/34/15 Prov., paragraphs 19 and 20).*
		Quantity of Plant Material *51. The TWV found document TWV/34/11, which was prepared by an expert from the Netherlands, reasonable and useful and proposed a systematic approach for determining the required amount of plant material on the basis of a formula to produce the required number of plants in the field. The proposal would restrict the amount of plant material to that really needed and, in addition, address the question frequently received from applicants as to why so much plant material should be submitted. The TWV decided to follow the proposal in principle for preparation of UPOV Test Guidelines and to send the document to other TWPs for their reference.* *(See document TWV/34/15 Prov., paragraphs 21 to 24).* *52. The TWF discussed the document prepared by the Chairperson on spare plants. This problem was rather important for testing in fruit species as planting material was comparatively expensive, more time was needed to establish the plot and there were some problems if the number of plants was not enough for performing the test (e.g. if the fruit tree had died). In some member States it was not a problem at all, as, for example, in Canada fruit trees were examined in commercial orchards where the number of plants was always sufficient. The expert from Germany explained that his Office asked for additional planting material to avoid the risk of the repetition of the test but it was voluntary for the applicant. The TWF summarized its opinion as follows: in the Test Guidelines, the number of plants required for the test should be indicated as a minimal quantity, but the national authorities might ask for additional planting material if it were found necessary.* *(See document TWF/31/12, paragraph 8).*

TPG/7: Development of Test Guidelines

Example Varieties

53. The TWV reaffirmed, in view of the expanding UPOV membership, the need to establish additional sets of example varieties in UPOV Test Guidelines for major regions with different climates. It was also encouraged by an expert from ASSINSEL to prepare several sets of example varieties and to update example varieties in UPOV Test Guidelines more frequently, because the presence of meaningful example varieties in UPOV Test Guidelines is very useful for breeders.

54. However, the TWV also warned of the risk that example varieties independently prepared in different locations might not always produce the same expression, especially in the case of quantitative and some pseudo-qualitative characteristics. Attempts for establishing concordance among different sets, such as ring tests, were discussed. However, several experts expressed their doubts on requiring such expensive tests and their concerns that they might delay the completion of the preparation of Test Guidelines.

55. The TWV agreed to submit the following suggestions to the Committee:

(i) Additional sets of example varieties and updated lists of example varieties should be added to UPOV Test Guidelines (possibly as Annexes) or be placed on the UPOV Web site according to the notification from member States.

(ii) The testing location which established the set of example varieties in the Table of Characteristics should be clearly indicated in UPOV Test Guidelines.

(iii) Considering the limited availability of example varieties, not only drawings, but also photographs should be accepted in UPOV Test Guidelines for promoting the harmonized interpretation of characteristics.

(See document TWV/34/15 Prov., paragraphs 35 to 39).

56. The TWO stressed that Example Varieties were guides only. It also agreed that it was possible to have a second set of Example Varieties, and that it could support the replacement of example varieties by diagrams where possible as the high turnover of varieties made the current lists obsolete very quickly. The TWO discussed the proposals "About Example Varieties" prepared by the expert from France (Mr. Joël Guiard) and concluded that the document on that matter should be promoted.

57. The TWF first of all decided to stress that example varieties were guides only. The expert from Hungary expressed his disagreement with the sentence in the Annex to Circular U 2976: "States of expression often represent a range and two example varieties could show the upper and lower limit of that range." The TWF agreed in general that the situation with example varieties in the UPOV Test Guidelines should be improved mainly because the number of member States had increased and new geographical regions were involved in UPOV activity. It was very important to explain to new member States what example variety meant in practice as in some cases misunderstandings had been reported. Many experts reported on problems arising from variety descriptions they received from other member States. Many States wanted to have their own set of example varieties. It would be important to set up guidelines for establishing the set of example varieties to follow if a State decided to have its own set, to clarify the meaning of "high-low," "wide-narrow" etc., in a given case, taking into consideration the environmental influence. The expert from Australia suggested a conception of so-called "benchmark varieties," instead of the example varieties as they existed at present in Test Guidelines. Benchmark varieties could be established from which a State could choose according to its environmental

		Description of Flower Color *61. The TWO discussed the proposal sent by the expert from New Zealand, that the wider use of the RHS Colour Chart should be limited in the Technical Questionnaire of Test Guidelines because experience had shown that only a few applicants had access to, or any knowledge of, the Chart. If flower color was used as a grouping character the use of color groups was preferable and these supplied the necessary information at the initial stage of testing. The TWO agreed with the proposal to return to the former system of presenting the two alternatives, either the RHS Colour Chart or color group.* *(See document TWO/33/17, paragraph 8).*

Technical Questionnaire

62. The TWO considered that more than one model might be necessary. The following proposals were made by the TWO related to a model for ornamental plants:

Item 1: To read "Genus or Species," if a genus is indicated it should be followed by "Indicate species" if appropriate.

Item 2: Phone and fax numbers and e-mail address to be added

Item 4: Example should cover other Working Parties as well: for ornamental plants it should include the standard wording (seedling, mutation, discovery) and then add under 4.2 "Method of reproduction: cuttings, in vitro, other (specify method)" all as indicated in the latest Gerbera document.

Item 5: To use color groups as an alternative to the RHS Colour Chart, with appropriate wording.

Item 6: The TWO continued to put forward its existing proposal for the rewording of this item.

Item 7.2: For the TWP concerned, to be added:

(a) Does the variety need special conditions for cultivation"

No [ ]
Yes (specify) [ ]

(b) Use of the variety

cut flower [ ]
pot plant [ ]
garden plant [ ]
other (specify) [ ]

63. The TWF decided to support the proposal made by the TWO for the amended Chapter 6 (document TC/36/7, page 146). It disagreed with the proposal to add a new section 9 "Declaration of Freedom from Secondary Factors," because the existing Technical Questionnaire had sufficient possibilities to secure the information needed, for example in Chapter 4.5 "Other information."

TPG/8: Use of Statistical Procedures in DUS Testing

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Ref.		Title
TGP/8		**USE OF STATISTICAL PROCEDURES IN DUS TESTING** ***(Coordinator: UPOV Office)***
8.1		**Introduction**
	TWC	**(S. Gregoire, L. Keizer to draft for TWC meeting in 2002)**
	TWO	**TWO to participate in development**
8.2	**TWC**	**Validation of Data and Assumptions** **(K. Kristensen, J. Thissen to draft for TWC meeting in 2002)**
8.3	**TWC**	**Experimental Design Practices (to cover TGP/7)** **8.3.1 Selection of trial site** **8.3.2 Size and elements of the trial: plot size and shape, no. of replications, design etc…** **8.3.3 Sampling from the trial** **8.3.4 Type I and Type II errors** **(J. Thissen, U. Meyer to draft by end July 2001)**
8.4	**TWC**	**Type of Characteristics and their Scale Levels** **8.4.1 Ratio scale data** **8.4.2 Interval scale data** **8.4.3 Ordinal scale data** **8.4.4 Nominal scale data** **8.4.5 Combined scale data** **(U. Meyer to draft by 15th June 2001)**
8.5	**TWC**	**Statistical Methods for DUS Examination** **(S. Watson, A. Roberts to prepare list of methods, including multivariate analysis, for TWC meeting in 2002)**
8.6	**TWC**	**Examining DUS in Bulk Samples** **(K. Kristensen to draft for TWC meeting in 2002)**

TPG/8: Use of Statistical Procedures in DUS Testing

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Coverage	TG/1/3 (Draft: TC/37/9)	5.5 Interpretation of Observations for the Assessment of Distinctness with the Application of Statistical Methods 5.5.1 General *76. For measured characteristics as well as for visually assessed characteristics statistical methods can be applied. Appropriate methods have to be chosen for the interpretation of observations. The data structure and the type of scale from a statistical point of view (nominal, ordinal, interval or ratio) is decisive for the choice of appropriate methods. The data structure depends on the method of assessment (visual assessment or measurements, observation of plots or single plants) which is influenced by the type of characteristic, the features of propagation of the variety, the experimental design and other factors. DUS examiners should be aware of certain basic rules of statistics and especially the fact that their use is linked to mathematical assumptions and the use of experimental design practices such as randomization. Therefore, those assumptions should be verified before applying statistical methods. Some statistical methods are quite robust, however, and can be used, with some caution, even if some assumptions are not fully met.* *77. Document TGP/8, "Good Statistical Practices for DUS Testing," provides guidance on good statistical practices for DUS assessment. Keys for the choice of methods in relation to the data structure are given in document TGP/9, "Examining Distinctness."*

TPG/8: Use of Statistical Procedures in DUS Testing

Coverage	TGP/7 (Draft: TC/37/10)	2. Material Required *2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities are complied with.* *2.2 The material is to be supplied in the form of [see TGP/7 2.2]* *2.3 The minimum quantity of plant material to be supplied by the applicant in one or several samples should be:* *Number of Propagules/Seeds (N) =* $X(p*1/a) + Y_n(r_n*1/b_n) + Z(1/s*p*1/a)$ *3. Conduct of Tests* *3.1 The minimum duration of tests should be [x] independent growing cycles resulting from sowings in [the same year]/[y separate seasons].* *3.3 The tests should be carried out under conditions ensuring satisfactory growth for the conduct of the examination. The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing cycle. Each test should include a total of [see TGP/7 3.3] plants which should be divided between [see TGP/7 3.3] replicates* *4. METHODS AND OBSERVATIONS* 4.1 Number of Plants / Parts of Plants to be Examined by Measuring, Weighing or Counting *4.1.1 Unless otherwise indicated, all observations determined by measuring, weighing or counting should be made on [see TGP/7 4.1] plants or [see TGP/7 4.1] parts taken from each of [see TGP/7 4.1] plants.* 4.2 Distinctness *4.2.1 Consistency:* *Standard wording:* *"It is generally recommended that the growing trials are conducted over [x] growing cycle(s) [as specified in 3.1] to ensure that any differences in a characteristic are consistent."* *Standard wording where appropriate:* *"In the case of [e.g. disease resistance test] it is recommended that the characteristic(s) should be examined." [Standard wording options to be developed]* 6. *INTRODUCTION TO THE TABLE OF CHARACTERISTICS* 6.5 Legend:

TPG/8: Use of Statistical Procedures in DUS Testing

Coverage	TC/37/3	*64. The TWC noted document TWC/18/9 considering that the present way of classification of characteristics into "truly qualitative," "quantitative" and "pseudo-qualitative" made no clear separation between the characteristics type, the scale for the assessed data and transformation of these data into a variety description. It considered that there were three situations from the description of the characteristic point of view. One was the way the characteristic was expressed in the trial, with a high level of information. Secondly the data recorded for the evaluation of the characteristic, with a medium level of information, and finally the data used for variety description, which had a low level of information. The paper considered the second and third situation. The TWC discussed the terminology and its definition in order to develop harmonized proposal for discussion at the TWPs. Some experts proposed drafting a table linking the position of the crop experts and the position of the statisticians in relation to the type of characteristics and type of data and discussion also focused in the different meaning of the words "quantitative" and "qualitative" for crop experts and statisticians. The TWV agreed that a new document should be prepared and circulated to the participants of the meeting for comments and that the new paper should form part of document TGP/8.* *(See document TWC/18/15 Prov., paragraphs 35 to 39).* *65. The TWC noted documents TWC/18/4, TWC/18/5 and TWC/18/6 with information of different trials using incomplete block design. The TWC concluded that it had been well established that for characteristics strongly linked to the productivity, the use of more efficient trial designs were beneficial where large number of varieties were tested. For some years the TWC had been exploring the potential gains from enhanced designs analysis for field DUS trials. The set of papers dealing with design issues that had been presented at the eighteenth session of the TWC looked at the potential gain in trial efficiency from the use of alpha design in a range of crops and situations. Further work was still required to quantify all gains in trial efficiency and under what circumstances such gains may be achieved. The TWC would welcome comments and information from other TWPs on the existing use of these approaches.* *(See document TWC/18/15 Prov., paragraphs 40 to 45 and 48).* *66. TWC discussed document TWC/18/7 proposing statistical principles for the use of non-routinely examined characteristics in the differentiation of a candidate variety. The document showed results from two trials with a very small difference occurring in the first trial and a clear difference in the second trial. It was explained that two sources of variety-by-environment interaction were operating, both important, but the between-trials source was more important because it was not easy to limit the effect of it through increased replication of the trials and this source of variation determined how well the results would be replicated (robustness). It was proposed that appropriate analysis in that case was one that combined the data from the two trials. It was also proposed that uniformity should be checked by comparison with the closest neighbor and that, in practice, in a special test it was not possible to have the same rigor as for standard characteristics.* *67. On the one hand some experts at the TWC considered that uniformity should be assessed for every characteristic used for distinctness, including any special trial. On the other hand other experts considered that the use of special trials was in line with the use of supporting evidence and that crop experts had experience in the examination of the varieties and they should know if there were problems with the uniformity of the variety.*

TPG/8: Use of Statistical Procedures in DUS Testing

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TPG/9: Examining Distinctness

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Ref.		Title
TGP/9		**EXAMINING DISTINCTNESS** ***(Coordinator: UPOV Office)***
9.1	 **TWA**	**Consideration of the Application of Statistical Methods** **(Make reference to TGP/8)** **TWA to draft**
9.2	 **TWV** **TWO**	**Consideration of All Varieties of Common Knowledge in the Examination of Distinctness:** **9.2.1 Categorization of Varieties (Test Guidelines)** **9.2.2 Pre-screening using variety descriptions (Descriptions from the same or different locations)** **9.2.3 Organizing the growing trial (Grouping; Randomization)** **Mr van Ettekoven (NL) to draft paper for presentation to TWV and other TWP's in 2002.** **TWO wish to participate in development of proposal**
9.3	 **TWC** **TWA** **TWO** **TWF**	**Examining Distinctness in Different Types of Variety** **(B. Ruecker to draft by end July 2001)** **TWA to participate in development** **TWO to participate in development** **TWF to participate in development of section on Rootstocks**
9.4	 **TWA**	**Use of the Parental Formula for Examining Distinctness in Hybrids** **TWA to draft**
9.5	**TWC (TWC/ 17/10 and 18/2)**	**Use of Multiple Locations in the Examination of Distinctness** **(S. Gregoire to draft for TWC meeting in 2002)**
9.6	**TWC (TC/33/7) (TWC/ 14/6)**	**Recommended Statistical Methods** **9.6.1 COYD** **9.6.2 LSD** **Annex Probability levels** **(S. Watson, A. Roberts to draft for TWC meeting in 2002)**
9.7	 **TWV** **TWA** **TWO**	**Model systems for Determining Distinctness** **Mr Semon (CPVO) to draft paper for presentation to TWV and other TWP's in 2002.** **TWA wish to participate in development of proposal** **TWO wish to participate in development of proposal**

TPG/9: Examining Distinctness

Coverage	TG/1/3 (Draft: TC/37/9)	4.6.3 Combined Characteristics *46. Combined characteristics are not to be confused with the application of methods such as "multivariate analysis." The potential for use of multivariate analysis will be considered in document TGP/9, "Examining Distinctness."*
		5.3.1 Comparing Varieties *56. It is necessary to examine distinctness in relation to all varieties of common knowledge. However, a systematic individual comparison may not be required in relation to those varieties of common knowledge that are within a group known to have specific expressions of characteristics and reliably ensuring that such varieties will be distinct from the candidate variety. In addition, certain procedures (e.g. publication of variety descriptions) may be developed to allow such an approach in some circumstances where there cannot be absolute certainty that all the varieties within such a group will be distinct from the candidate variety, but where those supplementary procedures provide an effective examination of distinctness overall. Such procedures may also be developed to address varieties of common knowledge for which living plant material is known to exist (see chapter 5.2.2) but where, for practical reasons, material is not readily accessible for examination. Any such procedures will be set out in document TGP/9, "Examining Distinctness."*
		5.3.3.1 Consistent Differences *64. One means of ensuring that a difference in a characteristic, observed in a growing trial, is consistent is to examine the characteristic on at least two independent occasions. This can be achieved in both annual and perennial varieties by observations made on plantings in two different seasons, or in the case of other perennial varieties by observations made in two different seasons after a single planting. Guidance on the possible use of other approaches, such as two different locations in the same year, is explored in document TGP/9, "Examining Distinctness."*
		5.3.3.3 Use of Parental Formula for Distinctness in Hybrid Varieties *71. Document TGP/9, "Examining Distinctness" will set out guidance for the possible use of parental formulae in the examination of DUS of hybrid varieties.*
		5.4 Interpretation of Observations for the Assessment of Distinctness Without the Application of Statistical Methods *75. If the application of statistics is needed to assess distinctness, further guidance can be found in document TGP/9, "Examining Distinctness."*

TPG/9: Examining Distinctness

		5.5 Interpretation of Observations for the Assessment of Distinctness with the Application of Statistical Methods 5.5.1 General *76. For measured characteristics as well as for visually assessed characteristics statistical methods can be applied. Appropriate methods have to be chosen for the interpretation of observations. The data structure and the type of scale from a statistical point of view (nominal, ordinal, interval or ratio) is decisive for the choice of appropriate methods. The data structure depends on the method of assessment (visual assessment or measurements, observation of plots or single plants) which is influenced by the type of characteristic, the features of propagation of the variety, the experimental design and other factors. DUS examiners should be aware of certain basic rules of statistics and especially the fact that their use is linked to mathematical assumptions and the use of experimental design practices such as randomization. Therefore, those assumptions should be verified before applying statistical methods. Some statistical methods are quite robust, however, and can be used, with some caution, even if some assumptions are not fully met.* *77. Document TGP/8, "Good Statistical Practices for DUS Testing," provides guidance on good statistical practices for DUS assessment. Keys for the choice of methods in relation to the data structure are given in document TGP/9, "Examining Distinctness."*
		5.5.2 Visually Assessed Characteristics *79. Non-parametric statistics may be used when visually assessed characteristics have been recorded on a scale that does not fulfill the assumptions of the usual parametric statistics. The calculation of the mean value, for example, is only permitted if the Notes are taken on a graded scale which shows equal intervals throughout the scale. In the case of non-parametric procedures the use of a scale that has been established on the basis of example varieties representative of the different states of the characteristics is recommended. The same variety should then always receive about the same Note and thereby facilitate the interpretation of data. More details on the handling of visually assessed characteristics are given in document TGP/9, "Examining Distinctness."*

		5.5.2.2 Quantitative Characteristics *81. Quantitative characteristics are not necessarily assessed by measuring or counting and can be assessed visually. Where there is doubt regarding the use of a normally visually assessed quantitative characteristic as the distinguishing characteristic in relation to another variety, it should be measured, if that is possible with reasonable effort.* *82. A direct comparison between two similar varieties is always recommended, since direct pairwise comparisons are the most reliable. In each comparison, a difference between two varieties is acceptable as soon as it can be assessed visually and could be measured, although such measurement might be impractical or require unreasonable effort.* *83. A simple criterion for establishing distinctness is that of consistent differences where differences between varieties in pairwise comparisons are of the same sign (e.g. variety A is consistently and sufficiently greater than B), provided that they can be expected to recur in subsequent trials. The number of comparisons must be sufficient to ensure that the varieties are clearly distinguishable.* *84. For more details on the handling of visually observed characteristics when assessing distinctness, see document TGP/9, "Examining Distinctness."*
		5.5.3.1 Self-Pollinated and Vegetatively Propagated Varieties *87. UPOV has endorsed several statistical methods for the handling of measured quantitative characteristics. One method established for vegetatively propagated and self-pollinated species is that varieties can be considered clearly distinguishable if the difference between two varieties exceeds the Least Significant Difference (LSD) at a specified probability level with the same sign over an appropriate period, even if they are described by the same state of expression. This is a relatively simple method but is considered appropriate for vegetatively propagated and self-pollinated species because the level of variation within varieties is relatively low, i.e. they are quite uniform. Further details are provided in document TGP/9, "Examining Distinctness."*

		5.5.3.2 Cross-Pollinated Varieties 88. *UPOV has developed a method known as the Combined Over Years Distinctness (COYD) analysis, which takes into account variations between years and is particularly useful for cross-pollinated, including synthetic varieties. This method requires the size of the differences to be consistent over the years and takes into account the variation between years. It is explained further in document TGP/9, "Examining Distinctness." A refinement to the COYD analysis is also provided which should be used to adjust the COYD analysis when environmental conditions cause a significant change in the spacing between variety means in a year, such as when a late spring causes the convergence of heading dates. It is supplemented by a further LSD method for cases where few varieties in the growing tests lead to less than about 20 degrees of freedom for the estimation of standard error. Its main use is for measurement in cross-pollinated and synthetic varieties, but if desired it can also be used for measurement in vegetatively propagated or self-fertilized varieties. Where COYD analysis cannot be used because the statistical criteria are not fulfilled, non-parametric procedures can be considered. For more details on the handling of measured quantitative characteristics see document TGP/9, "Examining Distinctness."*

TPG/9: Examining Distinctness

		5.6 General Guidelines for Determining Distinctness *89. Individual Contracting Parties may develop their own systematic way of determining distinctness, based on the principles laid down in this document. However, because the Test Guidelines do not provide specific practical guidance on examining distinctness, general guidance on the practical application of the UPOV principles will be developed in document TGP/9, "Examining Distinctness."*
		8. COMPOSITION OF TEST GUIDELINES 8.1 Coverage of Individual Test Guidelines *114. In most cases, individual Test Guidelines are prepared for each species although, in some cases, it may be appropriate to prepare Test Guidelines covering a wider or narrower grouping of varieties. Different groups of varieties within a species can be dealt with in separate or subdivided Test Guidelines if the categories can be reliably separated on the basis of characteristics suitable for distinctness, or where an appropriate procedure has been developed to ensure that all varieties of common knowledge will be adequately considered for distinctness (see also Chapter 5.3.1). Where appropriate, such procedures are explained in document TGP/9, "Examining Distinctness."*
Coverage	TGP/7 (Draft: TC/37/10)	*4.2.2 Clear differences:* *4.2.2.2 Standard wording where appropriate: The following wording (a)/(b) should be used as appropriate for the Test Guidelines concerned:* *(standard wording to be developed)*

TPG/9: Examining Distinctness

Coverage	TC/37/3	*68. <u>Process for Establishing Distinctness</u>: The TWV reviewed the process for establishing distinctness: starting from varieties of common knowledge, consideration of the reference collection, narrowing down comparable varieties for a candidate variety and then conducting a comparative growing trial, on the basis of document TWA/29/8 and the schematic diagram presented by the Office of the Union.* *69. <u>Information provided in Technical Questionnaire</u>: The TWV also discussed the usefulness of information provided by applicants in Technical Questionnaires. It confirmed that grouping (or prescreening) and search for similar varieties in the process of establishing distinctness would be done with the help of all available information, the origin of the variety, similar varieties and the applicant's observation of a number of characteristics. However, several experts stressed the importance of evaluating the reliability of such information. In particular, reliability and consistency should be required for grouping characteristics (as criteria). Possible environmental effects on grouping characteristics should be taken into account before their use. An expert also gave a warning on the risk of a computer-based searching system and stressed the importance of total judgement of crop experts with all given information.* *70. <u>Use of Variety Descriptions</u>: During the session of the TWV, several examples were reported that different states of characteristics had been observed in different testing locations for the same variety, for example, earliness of soybean varieties. The TWV noted that characteristics susceptible to daylight or temperature should be treated with special care. It implies that only variety descriptions for reliable and less environmentally influenced characteristics (= grouping characteristics) should be used in the process of establishing distinctness using variety descriptions.* *(See document TWV/34/15 Prov., paragraphs 27 to 30, 39).* *71. The TWC agreed that the document TWC/18/10 could be split into distinctness, which should go to document TGP/9, and uniformity, which should go to document TGP/10.* *(See document TWC/18/15 Prov., paragraph 30).* *72. The coordinator of documents TGP/8, TGP/9 and TGP/10 proposed that the documents used for the Workshop on Data Handling held in Kyiv on June 9 and 10, 2000, could be the basis for these documents. It was agreed by the TWC that the document "Use of Non-parametric Methods" and document "Similar Varieties" used at that workshop should go to document TGP/12 "Non-traditional Non-morphological Characteristics and Methods for Variety Testing." Several experts considered that the documents from the Workshop on Data Handling should be expanded and in some cases rewritten to be in context with the General Introduction and some authors were willing to do so. One expert considered that since the TGP documents were addressed to the crop experts, they should follow their way of working. The TWC also agreed to prepare a document called "Frequently Asked Questions" in document TGP/8.* *(See document TWC/18/15 Prov., paragraph 34).*

TPG/10: Examining Uniformity

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TPG/10: Examining Uniformity

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Ref.		Title
TGP/10		**EXAMINING UNIFORMITY** ***(Coordinator: UPOV Office)***
10.1	**UPOV Office** **TWO**	**Considering the Application of Statistical Methods (Make reference to TGP/8)** **TWO wish to participate in development**
10.2	**TWC**	**Assessing Uniformity according to the Features of Propagation (to include explanation of relative tolerance)** **10.2.1 Uniformity using Off-Types** **10.2.2 Uniformity assessment on the basis of Variances** **(B. Ruecker to draft by end of July 2001)**
10.3	**TWC** **(TC/33/7)** **(TWC/ 14/6)**	**Recommended Statistical Methods** **10.3.1 COYU** **Annex: Probability levels** **10.3.2 Off-types** **absolute** **relative – method to be developed** **10.3.3 Segregation ratios** **(10.3.1/2 S. Watson, A. Roberts to draft for TWC meeting in 2002)** **(10.3.3 J. Law to draft for TWC meeting in 2002)**

TPG/10: Examining Uniformity

Coverage	TG/1/3 (Draft: TC/37/9)	4.5.2 Bulk Samples *42. If it is necessary to examine characteristics in the form of bulk samples specific guidance will be considered in document TGP/10, "Examining Uniformity."* 6.3.1 Self-Pollinated and Vegetatively Propagated Varieties 6.3.1.2 Determination of Off-Types Using Measurements *95. Most characteristics of self-pollinated and vegetatively propagated varieties are observed visually, or by making a single measurement in a group of plants However, where appropriate, methods of handling measurements from individual plants, in order to assess off-types in vegetatively propagated varieties and truly or mainly self-pollinated varieties, are set out in document TGP/10, "Examining Uniformity."* 6.3.1.3 Statistical Basis for Setting Numbers of Off-Types *96. The acceptable number of off-types tolerated in samples of various sizes is often based on a fixed population standard and acceptance probability. The population standard can be expressed as the percentage of off-types to be accepted if all individuals of the variety could be examined. The probability of correctly accepting that a variety is uniform is called the acceptance probability. Based on statistical calculations for population standards and acceptance probabilities, the population standard and acceptance probability used is stated in the individual Test Guidelines. The Test Guidelines also state the maximum number of off-types tolerated for a given sample size. More detailed information can be found in document TGP/10, "Examining Uniformity."* *6.3.1.3.1 Vegetatively Propagated and Truly Self-Pollinated Varieties* *97. Document TGP/10, "Examining Uniformity," sets out the acceptable number of off-types tolerated in samples of various sizes based on a specified population standard and acceptance probability.* *6.3.1.3.2 Mainly Self-Pollinated Varieties and Inbred Lines of Hybrid Varieties* *98. For the purpose of DUS testing, mainly self-pollinated varieties are those that are not fully self-pollinated but are treated as self-pollinated for testing. For these, as well for as inbred lines of hybrid varieties, a higher tolerance of off-types is accepted, compared to self-pollinated and vegetatively propagated varieties. This is explained further in document TGP/10, "Examining Uniformity".*

		6.3.2 Cross-Pollinated Varieties *99. Cross-pollinated varieties, including mainly cross-pollinated and synthetic varieties, generally exhibit wider variations within the variety than vegetatively propagated or self-pollinated varieties and inbred lines of hybrid varieties, and it is more difficult to determine off-types. Relative tolerance limits, for the range of variation, are set by comparison with comparable varieties or types already known. This means that the candidate variety should not be significantly less uniform than the comparable varieties. For more detailed information and guidance on setting standards for new types and species, see documents TGP/10, "Examining Uniformity," and TGP/13, "Guidance for New Types and Species."* 6.3.2.1 Visually Observed Characteristics *100. For characteristics that are recorded by visual observation of single plants, the acceptable level of variation for the variety should not significantly exceed the level of variation found in comparable varieties already known. For more details on the handling of uniformity of visually assessed characteristics see document TGP/10, "Examining Uniformity."* 6.3.2.2 Measured Characteristics *101. For measured characteristics, the acceptable level of variation for the variety should not significantly exceed the level of variation found in comparable varieties already known. UPOV has proposed several statistical methods for dealing with uniformity in measured quantitative characteristics. One method, which takes into account variations between years, is the Combined Over Years Uniformity (COYU) method.* *102. For more details on the handling of uniformity in measured quantitative characteristics see document TGP/10, "Examining Uniformity."*
Coverage	TGP/7 (Draft: TC/37/10)	4.3 Uniformity *(see TC/37/10 for requirements)*

TPG/11: Examining Stability

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Ref.		Title
TGP/11		**EXAMINING STABILITY**
	TWV	**CPVO to draft paper for presentation to TWV and other TWP's in 2002. (To include explanation of difference between "verification" and examination of stability)**
Coverage	TG/1/3 (Draft: TC/37/9)	7.3.1 General *112. Where appropriate, stability may be tested by growing a further generation from new seed stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied. Further guidance on the examination of stability will be considered in document TGP/11, "Examining Stability."*

TPG/12: Special Characteristics

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Ref.		Title
TGP/12		**SPECIAL CHARACTERISTICS** ***(Coordinator: Office of the Union)***
12.1	**(Draft: TC/36/7 12D)** **TWV**	**Characteristics Expressed in Response to External Factors** **12.1.1 Disease Resistance** **Mr van Ettekoven to draft paper for presentation to TWV and other TWP's in 2002.** **12.1.2 Chemical Response (e.g. Herbicide tolerance)**
12.2	**??? (Draft: TC/36/7 12E)**	**Chemical constituents** **12.2.1 Protein Electrophoresis**
12.3	**(Draft: TC/36/7 12B)**	**Examination of combined characteristics using Image Analysis**
12.4	 **TWV**	**Examination of scent and flavor characteristics** **TWV to draft**
Coverage	TG/1/3 (Draft: TC/37/9)	4.6.1 Characteristics Expressed in Response to External Factors *43. Characteristics based on the response to external factors, such as living organisms (e.g. disease resistance characteristics) or chemicals (e.g. herbicide resistance characteristics), may be used provided that they fulfil the criteria specified in chapter 4.2. In addition, because of the potential for variation in such factors, it is important for those characteristics to be well defined and an appropriate method established which will ensure consistency in the examination. More details can be found in document TGP/12, "Special Characteristic*s." 4.6.2 Chemical Constituents *44. Characteristics based on chemical constituents may be accepted provided that they fulfil the criteria specified in chapter 4.2. It is important for those characteristics to be well defined and an appropriate method established for examination. More details can be found in document TGP/12, "Special Characteristics."*

4.6.3 Combined Characteristics

45. A combined characteristic is a simple combination of a small number of characteristics. Provided that the combination is biologically meaningful, characteristics that are assessed separately may subsequently be combined, for example the ratio of length to width, to produce such a combined characteristic. Combined characteristics must be examined for distinctness, uniformity and stability to the same extent as other characteristics. In some cases these combined characteristics are examined by means of sophisticated techniques such as Image Analysis. In these cases the methods for appropriate examination of DUS are specified in document TGP/12, "Special Characteristics."

TPG/12: Special Characteristics

Coverage	TC/37/3	*73. The Draft Test Guidelines for Industrial Chicory were adopted in the last session of the Committee on the condition that the TWV agrees with the changes prepared on the suggestion of the Editorial Committee. The TWV, however, saw problems on the revised explanation on Characteristic 16 "Inulin content." The problems were (1) that in practice the inulin content might need to be observed by bulk sampling methodology and (2) the method of analyzing inulin content was protected by patent.* *74. The TWV decided to request the Committee for general advice on how to handle importance characteristics where these could only be assessed, in practice, by using a bulk sample methodology or for which effective assessment methods are protected by patent.* *(See document TWV/34/15 Prov., paragraphs 46 to 48).* *75. The TWC noted document TWC/18/3. The document was intended to be the basis for document TGP/12. The document contained some definitions of image, digital image and image analysis. It considered the possible use of images and image analysis. It pointed out that the way of using image analysis was not very different from visual assessment or other measurements obtained in the field or in the laboratory. The TWC agreed to include the document in TGP/12 but it should also contain contributions from the other TWPs.* *(See document TWC/18/15 Prov., paragraphs 31 to 33).* *76. The TWC discussed about the possible use of data from more than one testing station when using the COY approach. The issue was proposed in the document TWC/18/2. In the document it was proposed that there were several reasons to explore other approaches for DUS trials than those previously mentioned, such as the existence of more than one testing station for a given crop, the possibility to have a decision within a shorter time, possible co-operation between two different countries and the possibility of carrying out more than one trial in the same year. One expert proposed the use of combined information from two testing centers according to the principles set out in the UPOV Convention and the COY approach could be used as well. In this case, soil and climatic conditions would be different and different situations might occur: (a) differences between locations were smaller than same location between years, in which case the examination would tend to be more lenient in distinctness if the same alpha level was kept; (b) differences between locations were of the same order as at the same locations between years, in which case the test was similar to the usual practice and (c) when differences between locations were bigger than on the same location between years, in which case the test would tend to be more strict than the usual practice. The document concluded that when information was available and locations sufficiently different, combined data from more than one testing center could be used for the assessment of distinctness. The advantages would be more data and information on the consistency of the differences in different environmental conditions.* *77. When asked about the criteria for selecting two locations, the author of the document replied that the aim was to have consistency in the results between the locations. Some experts wondered about the real need of more than one location and also expressed some concerns on how to get a description of the variety with information from two different environments. Another expert considered that having more than one location gave more chances to the variety to be considered distinct and that when DUS trials were made in two locations, special care should be taken in order to avoid taking some characteristics from one location and others from the second location.*

TPG/12: Special Characteristics

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TPG/13: Guidance for New Types and Species

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Ref.		Title
TGP/13		**GUIDANCE FOR NEW TYPES AND SPECIES** ***(Coordinator: Ms. Scott, GB)***
13.1	**???? (Draft: TC/36/7 13A&B)** **TWO** **TWA**	**General Guidance for New Types and Species** **TWO wish to participate in development** **TWA wish to participate in development**
13.2	 **TWF**	**Guidance for New Multi- and Inter-specific Hybrids** **TWF to draft**
Coverage	TG/1/3 (Draft: TC/37/9)	6.3.2 Cross-Pollinated Varieties *99. Cross-pollinated varieties, including mainly cross-pollinated and synthetic varieties, generally exhibit wider variations within the variety than vegetatively propagated or self-pollinated varieties and inbred lines of hybrid varieties, and it is more difficult to determine off-types. Relative tolerance limits, for the range of variation, are set by comparison with comparable varieties or types already known. This means that the candidate variety should not be significantly less uniform than the comparable varieties. For more detailed information and guidance on setting standards for new types and species, see documents TGP/10, "Examining Uniformity," and TGP/13, "Guidance for New Types and Species."*

TPG/13: Guidance for New Types and Species

Coverage	TC/37/3	*78. The TWA considered document TGP/13(a), which was part of document TC/36/7 (pages 125 to 131). The first three chapters of this document dealt with the assessment of relative uniformity and the selection of comparable varieties. The document proposed 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 and on the other hand, very high standards of uniformity might be unattainable and prevent the development of new varieties. It concluded that the system should strive towards an optimum balance for the assessment of the uniformity criteria. When uniformity was assessed using the concept of relative tolerance 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.* *79. The following chapters of the document dealt with the Guidance for New Types and Species and Reproductive Systems and Variety Types. It was explained that the first variety of a new species would mark the level of uniformity required in the future and 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. The situation became more complex with the development of new breeding and multiplication techniques. Different reproductive systems and variety types were considered in the document.* *80. The document was considered very useful by the experts at the TWA, because of the extension of plant breeder's rights to new species and the development of new breeding techniques. The TWA agreed to include the first three chapters in document TGP/10 "Testing Uniformity," and to leave the rest as part of document TGP/13 without changes under the title "Guidance for New Types."* *(See document TWA/29/21 Prov., paragraphs 58 to 62).*

TPG/14: Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents

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Ref.		Title
TGP/14		**GLOSSARY OF TECHNICAL, BOTANICAL AND STATISTICAL TERMS USED IN UPOV DOCUMENTS** ***(Coordinators: Office of the Union, Ms. Scott, GB + Mrs. Buitendag, ZA, Mr. Law, GB + Mr.Pilarczyk, PL + Mr. Harsanyi, HU)***
14.1	**UPOV Office** **(Draft: TC/36/7 18A)**	**Technical Terms**
14.2	**???** **(Draft: TC/36/5)**	**Botanical Terms**
14.3	**Mr. Hossain, AUS (Draft: TWA/29/9)**	**Statistical Terms**
Coverage	TC/37/3	*81. The TWA noted document TWA/29/9 "Glossary of Statistical Terms." Most experts at the TWA agreed that it was a very good document, very simple and that its approach should be kept as it was at the moment. One expert noted that several definitions widely used within UPOV, such as COYD, COYU, acceptance probability and STD population, were missing. The TWA 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.* *(See document TWA/29/21 Prov., paragraphs 67 to 69).* *82. The TWC noted document TWA/29/9. Most experts agreed that it was a good document and that in spite of some amendments the general approach of the document should be kept.* *(See document TWC/18/15 Prov., paragraph 29).*

ANNEX

Ref.		Title
TGP/15		**NEW TYPES OF CHARACTERISTICS** ***(Coordinator: Office of the Union)***
15.1	**TC,** **BMT,** **all TWP's**	**Molecular characteristics**
Coverage	TG/1/3 (Draft: TC/37/9)	4.7 New Types of Characteristics *47. The use of new types of characteristics, including the possible use of molecular characteristics, will be considered in TGP/15 "New Types of Characteristics".*

[End of document]