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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS GENEVA

TECHNICAL WORKING PARTY FOR ORNAMENTAL PLANTS AND FOREST TREES

Thirty-Ninth Session Fortaleza, Ceará State, Brazil, August 28 to September 1, 2006

TGP DOCUMENTS

Document prepared by the Office of the Union

1. The purpose of this document is to provide an update concerning the development of TGP documents.

PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS

2. At its forty-second session, held in Geneva, from April 3 to 5, 2006, the Technical Committee (TC) approved the program for the development of TGP documents, as set out in Annex II to document TC/42/5, with the following amendments:

(a) the title of document TGP/4 to be confirmed as "Constitution and Management of Variety Collections" (without brackets); and

(b) the title of document TGP/8 would be changed to "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability";

3. The TC noted, in particular, that:

(a) the Administrative and Legal Committee Advisory Group (CAJ-AG) will be invited to consider the development of document TGP/3 and the revision of document TGP/5, in preparation for submission of documents to the Administrative and Legal Committee (CAJ);

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(b) documents TGP/4, TGP/9 and TGP/10 are scheduled to be approved in parallel (in April 2007);

(c) revision of document TGP/5 is scheduled to allow a review of Section 10 in parallel with revisions of Sections 1 to 7;

(d) revision of document TGP/7 is scheduled to start in 2008, after document TGP/9 has been approved by the TC and in anticipation of document TGP/14 attaining a good level of agreement; and

(e) finalization of document TGP/13 is scheduled after the approval of documents TGP/4, TGP/9 and TGP/10.

4. On April 10 and 11, 2006, following the forty-second session of the TC, a meeting of the TGP/14 Shape and Color Subgroups was held to progress document TGP/14: Section 2: Botanical Terms (Plant Shapes and Color). The discussions in that meeting indicated that the Technical Working Party for Vegetables (TWV) had an important interest in TGP/14.2.3 "Color" and their comments on the relevant documents would be important for the advancement of the document in 2006. Therefore, it was agreed with the TWV Chairman that documents TGP/14 Section 2.3.1: Color Draft 2 and TGP/14 Section 2.3.2: Color Groups Draft 4 would be presented to the TWV in 2006.

5. Further information concerning certain of the TGP documents is presented below.

DRAFT TGP DOCUMENTS DISCUSSED BY THE TC

(a) <u>TGP documents to which the Technical Committee has given highest priority</u>

TGP/4 "Constitution and Management of Variety Collections"

6. The TC agreed the text as presented in document TGP/4/1 Draft 7, except for the highlighted sections which represent new text drafted at the request of the TC. The text shown in highlighting was drafted after the TC session and, therefore, has not yet been reviewed by the TC.

TGP/9 "Examining Distinctness"

7. The TC agreed the text as presented in document TGP/9/1 Draft 7, except for the highlighted sections which represent new text drafted at the request of the TC. The text shown in highlighting was drafted after the TC session and, therefore, has not yet been reviewed by the TC.

TGP/10 "Examining Uniformity"

8. The TC agreed the text as presented in document TGP/10/1 Draft 4, except for the highlighted sections which represent new text drafted at the request of the TC. The text shown in highlighting was drafted after the TC session and, therefore, has not yet been reviewed by the TC.

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(b) <u>Other TGP documents</u>

TGP/8: Use of Statistical Procedures in DUS Testing (document TGP/8/1 Draft 3)

9. The TC heard at its forty-second session that consideration of the comments made by the Technical Working Parties (TWPs) at their sessions in 2005 and by the Enlarged Editorial Committee (TC-EDC) at its meeting on January 10, 2006, had led the Chairperson of the Technical Working Party on Automation and Computer Programs (TWC) and Coordinator of TGP/8, Mrs. Sally Watson (United Kingdom), in conjunction with the Office of the Union (Office), to conclude that a re-structuring of the document and a review of the content in conjunction with the TWC would be appropriate before the document was considered in detail by the TC. The TC agreed that Mrs. Watson and the Office should prepare a new draft for consideration by the TWC, taking into account the comments of the TWPs and the TC-EDC, on the basis of the notes in document TGP/8/1 Draft 3.

10. The TC did not consider document TGP/8/1 Draft 3 in detail, but agreed that, as a result of its broadened scope, the title of TGP/8 should be changed to "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability". It also agreed that consideration should be given to splitting the document into two separate documents (Part I document and Part II document) in order to facilitate its consideration.

TGP/12: Special Characteristics: Section 1: Characteristics Expressed in Response to External Factors

11. Document TGP/12 Section 1 Draft 3 incorporates the comments made by the TC at its forty-second session.

12. At its forty-first session, the TC considered document TGP/12 "Special Characteristics": Section 2/1 Draft 2: Chemical Constituents: Protein Electrophoresis. It agreed that document TGP/12 Section 2 "Chemical Constituents: Protein Electrophoresis" should not be adopted at that time and should be brought forward for adoption in conjunction with the other sections of document TGP/12.

13. In relation to the development of document TGP/12 Section 3 "Examination of Combined Characteristics Using Image Analysis", the TWC considered document TWC/23/20 at its twenty-third session held from June 13 to 16, 2005 in Ottawa, Canada. The TWC concluded that the possible development of a document for TGP/12 Section 3 should be considered at its next session, but that a new document should not be prepared.

TGP/13: Guidance for New Types and Species

14. Document TGP/13/1 Draft 6 incorporates the comments made by the TC at its forty-second session.

15. In response to a request for clarification of how to address a single application for a plant breeder's right for a combination of different lines, the TC agreed that a document should be prepared for consideration at the forty-third session of the TC.

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REVISION OF TGP/7 "DEVELOPMENT OF TEST GUIDELINES"

16. At its forty-first session, the TC agreed that, where proposals to update document TGP/7/1 "Development of Test Guidelines" were agreed by the TC, document TGP/7/1 should be revised and a new version adopted (document TGP/7/2 in the first instance). Such revisions would also be reflected in the electronic template and drafters' kit.

17. A number of specific proposals have been made with regard to the revision of document TGP/7/1. Those proposals, and references to the origin of those proposals, are set out in Annex I to this document. It has become apparent that certain proposals arise as a consequence of discussions concerning other TGP documents and, in particular, TGP/9 "Examining Distinctness" and TGP/14 "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents". On that basis, the TC agreed that the revision of document TGP/7 should be scheduled to start in 2008, after document TGP/9 has been approved by the TC and in anticipation of document TGP/14 attaining a good level of agreement.

COMMENTS ON TGP DOCUMENTS BY THE TECHNICAL WORKING PARTIES IN 2006

18. As indicated in document TC/42/5 Add., Annex II, there are a number of TGP documents which are being considered by more than one TWP in 2006. As in previous years, the comments of the TWPs which have held earlier sessions are being reported at the subsequent TWP sessions. The comments made by the TWV, at its fortieth session, held in Guanajuato, Guanajuato State, Mexico, from June 12 to 16, 2006, by the TWC, at its twenty-fourth session, held in Nairobi, Kenya, from June 19 to 22, 2006, and by the Technical Working Party for Agricultural Crops (TWA) at its thirty-fifth session, held in Beijing, China, from July 3 to 7, 2006, are reported in Annex II to this document.

[Annexes follow]

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ANNEX I

PROPOSED REVISIONS TO TGP/7/1

Section 2: Procedure for the Introduction and Revision of UPOV Test Guidelines

2.2.4	consideration to be given to introducing deadlines for the submission of non-final draft Test Guidelines to the Technical Working Parties.
	(TWA: document TWA/34/14, paragraph 36)

Annex 1: TG Template

3.5 /	3.5 Number of Plants / Parts of Plants to be Examined
ASW 7	Paragraph 3.5 to be moved within Section 4.1 "Distinctness", to clarify that this section recommends the number of plants / parts of plants to be examined for distinctness. In addition, ASW 7 to be amended to the following:
	"ASW 7 (Chapter 3.5) – Number of plants / parts of plants to be examined
	Alternative 1:
	Unless otherwise indicated, all observations should be made on $\{x\}$ plants or parts taken from each of $\{x\}$ plants.
	Alternative 2:
	Unless otherwise indicated, all observations should be made on $\{x\}$ plants or parts taken from each of $\{x\}$ plants. In the case of observations of parts of plants, the number of parts to be taken from each of the plants should be $\{y\}$." (Mrs. Beate Rücker (Germany))
()	
6.3	Quantitative characteristics
	the Test Guidelines should explain the use of the 3, 5, 7 abbreviated notes in the 1-9 scale for quantitative characteristics.
	(TWV: document TWV/38/9, paragraph 57)

Annex 2: Additional Standard Wording (ASW) for the TG Template

ASW 4:	(TG Template: Chapter 3.3) – Conditions for conducting the examination:
2(b)	Information for conducting the examination of particular characteristics: Type of observation
	TGP/7 to be amended according to the wording agreed for TGP/9. (TWA: document TWA/34/14, paragraph 40 (Table ref. 4.1.2))

ASW 4: 2(d)	(TG Template: Chapter 3.3) – Conditions for conducting the examination: Observation of color by eye
	to add that the color chart and the version of the color chart used should be specified with the variety description (TWF: document TWF/35/11, paragraph 54)
ASW 16	(TG Template: Chapter 10: TQ 7.3) – Where a photograph of the variety is to be provided
	to add text indicating that guidance would be provided by the authority to enhance the usefulness of the photograph (e.g. to include a metric scale in the picture, to define what parts of the plant should be included; light conditions, background color, etc).
	(see document TGP/9/1 "Examining Distinctness" Draft 6, Section 2.4.2)
New 1.	Chapter 1 of the Test Guidelines: Subject of these Test Guidelines
	to seek to develop Additional Standard Wording (ASW) for the following situations:
	(i) where there are separate Test Guidelines for different types of variety within the same genus/species (TWF: document TWF/35/11, paragraph 55);
	(ii) for Test Guidelines for rootstock varieties which do not include flower or fruit characteristics (TWA: document TWA/33/16, paragraph 31);
	(iii) for Test Guidelines covering hybrids with species / genera which are covered by other Test Guidelines (TWF: document TWF/35/11, paragraph 40).
New 2.	Chapter 3.1
	to provide a new Additional Standard Wording (ASW) for crops where the two independent growing cycles are recommended to be in the form of two separate plantings, e.g. "The two independent growing cycles should be in the form of two separate plantings".
	(TWA: see proposals concerning Test Guidelines for Ryegrass TG/4/8(proj.3))
New 3.	Chapter 8
	to provide a standard definition of time of eating maturity.
	(TWF: document TWF/35/11, paragraph 54).

Annex 3: Guidance Notes (GN) for the TG Template

GN 18, 19	to avoid use of the word "the" in the wording of characteristics and states of expression in the Table of Characteristics
	(Office in communication with Mrs. Elise Buitendag (South Africa), Coordinator of document TGP/7)

GN 19	Numbers
(3)	requirement for numbers lower than 10 to be written and higher numbers to be indicated numerically to be deleted
	(Office)
GN 20 (1)	<u>Presentation of characteristics:</u> States of expression according to type of expression of a characteristic
	to clarify that adjectives such as moderately, medium, etc. (e.g. much smaller (1), moderately smaller (3), etc. / light green (1), medium green (2), etc.) should be used for pseudo-qualitative characteristics and for quantitative characteristics where there are one or more fixed states (Office in communication with Mrs. Elise Buitendag (South Africa), Coordinator of document TGP/7)
GN 20	Quantitative characteristics: Explanation
(3)	to explain that the notes for quantitative characteristics should be meaningful in relation to the range of variation of the characteristic and for the assessment of distinctness.
	(see TGP/9 "Examining Distinctness")
GN 20	Quantitative characteristics
(3)	to provide guidance on the use of a scale with more than 9 notes
	(TWA: document TWA/33/16, paragraph 67).
GN 20	<u>3.5 "Condensed" range</u>
(3)	to consider accepting a 3-state range where there is no fixed point, e.g. weak/medium/strong, on the basis that the second state should read "intermediate".
	(TC-EDC: January 2006)

Annex 4: Collection of Approved Characteristics

Introduction	to be clarified that characteristics contained in adopted UPOV Test Guidelines may be omitted from the "Collection of approved characteristics" (document TGP/7, Annex 4) where considered appropriate by the TC, on the basis of recommendations by the Enlarged Editorial Committee (TC-EDC). (TWA: document TWA/34/14, paragraph 15)
	 to explain that the indication of the characteristic number, the method of observation, type of characteristic and the indications of (+) and (*) had been retained from the Table of Characteristics from which the characteristic had originated, but to clarify that that information might not be appropriate for other Test Guidelines. (TWA: document TWA/34/14, paragraph 16)

	to explain to drafters of Test Guidelines that, for characteristics where any element of the characteristic is changed after copying from the collection, the translations into French, German and Spanish should be deleted.
	(TWV: document TWV/38/9, paragraph 40)
Collection	examples of color characteristics developed in conjunction with TGP/14 Section 2.3: "Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents: Botanical Terms: Color" to be incorporated into TGP/7: Annex 4 "Collection of Approved Characteristics". (It was noted that that might require the organization of the TGP/7 to be modified to some extent.)
	(TWF: document TWA/36/8, paragraph 35)
	to consider incorporating characteristics which are used in most Test Guidelines (e.g. Leaf: length) into the electronic template. To consider developing electronic templates for variety types (e.g. seed-propagated vegetables) which would incorporate more standard characteristics for the varieties concerned.
	(TWV: document TWV/38/9, paragraph 40)
	to consider including a collection of approved illustrations and to consider making that collection available to breeders to assist in their applications for PBR. (see also TGP/14 Section 2.1: Plant shapes)
	(TWO: document TWO/38/12, paragraph 60)
	to consider the development of tools such as CD-ROMs containing photographs to enhance the understanding of the characteristics used in the Test Guidelines and thereby reduce observer error.
	(TWA: document TWA/34/14, paragraph 54)

[Annex II follows]

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ANNEX II

COMMENTS ON TGP DOCUMENTS BY THE TECHNICAL WORKING PARTIES IN 2006

(a) <u>TGP documents to which the Technical Committee has given highest priority</u>

TGP/4 Constitution and Management of Variety Collections

1. The TWV and TWA discussed document TGP/4/1 Draft 7 and agreed to propose the following:

2.1.1.2	to consider clarifying that variety collections include candidate varieties	TWA
2.1.2	the TWA noted that the current draft of TGP/4 did not include DNA material as a form of plant material for inclusion in variety collections. However, it considered that it would not be appropriate to include that possibility for the time-being	TWA
3	it was agreed that the title of Section 3 should be changed to avoid confusion with the use of the term " <i>management of</i> reference collections" as used in relation to Option 2 for molecular techniques (see documents TC/38/14 -CAJ/45/5 and TC/38/14 AddCAJ/45/5 Add.). It was suggested to consider "Maintenance of Variety Collections" as a possible title.	TWA
3.1.2.2.2	to consider whether to add a recommendation that the breeder should be informed of the supply of parent lines, submitted as a part of the examination of a candidate hybrid variety, to other variety collectors	TWV
3.1.2.2.2	an expert from the European Community suggested that the case of parent lines should not be restricted only to those parent lines	TWA

- 3.1.2.2.2 all expert from the European Community suggested that the case of 1 w/ parent lines should not be restricted only to those parent lines submitted as a part of an examination of a candidate hybrid variety. The Office noted that the text had been worded specifically for the case of parent lines submitted as a part of an examination of a candidate hybrid variety in recognition of the fact that all varieties were potentially parent lines and also because parent lines submitted as a part of an examination of a candidate hybrid variety had a different status to varieties submitted for examination in their own right.
- 3.1.2.2.2 the TWA noted the comments of the TWV and agreed that care should TWA be taken not to give the impression that informing the breeder would safeguard their legitimate interests. The representative of the International Seed Federation (ISF) explained the ISF view that the breeder's consent should always be obtained before making available parent lines to other variety collectors. The TWA agreed that examples of measures which could help to safeguard the legitimate interests of the breeder should be provided including, in particular, consulting and informing the breeder, establishing a contract between the authority and the breeder and establishing a contract between authorities and other variety collectors.

The TWA proposed that UPOV might develop a model contract / agreement between authorities and breeders for inclusion in document TGP/5 "Experience and Cooperation in DUS Testing" as a part of the revision of that document.

2. The TWC noted document TGP/4/1 Draft 7 introduced by the Office of the Union. In reply to a question from the expert from the Netherlands about the possible use of molecular markers for the verification in management of variety collections, it was clarified that the situation in UPOV concerning the possible use of molecular markers is set out in documents TC/38/14 -CAJ/45/5 and TC/38/14 Add.-CAJ/45/5 Add., which presented the proposals developed in the *Ad hoc* Crop Subgroups, the recommendations of the BMT Review Group concerning those proposals and the opinion of the TC and the CAJ regarding the recommendations of the BMT Review Group. The TWC made no further comments in respect to document TGP/4/1 Draft 7.

TGP/9 Examining Distinctness

3. The TWV, TWC and TWA discussed document TGP/9/1 Draft 7 and agreed to propose the following:

1.4	Check the positioning of the box	TWC
2.3.1.3	To delete "S" within the parenthesis of the last sentence	TWC
2.3.3.2	to read "as a general rule, qualitative characteristics are not influenced by the environment"	TWV
2.3.3.2	To keep "less likely to be", even if it cause divergence with the General Introduction	TWC
2.3.3.2	to have the wording "as a general rule, qualitative characteristics are not influenced by the environment", but to add a sentence explaining that there are exceptions to that rule and that an assumption should not be made. It was also proposed that the same explanation should be included in the relevant sections in TGP/8.	TWA
2.3.3.3	If possible to provide further guidance for the use of QN and PQ characteristics as grouping characteristics	TWC
2.3.3.3	the TWA noted that the TWC had proposed that further guidance might be provided on the use of quantitative and pseudo-qualitative characteristics for grouping, but observed that it would be very difficult to go beyond the existing generalized text because the matter needed to be considered on a case-by-case basis	TWA
2.3.5.1	it was agreed that a reference should be made to the need for differences to be consistent	TWA
2.4.2	The TWC considered that discrepancies between the characteristics of the variety and the appearance of the variety in the photograph should not be basis for rejecting the application for the variety. That situation of rejection may also be the case for other information provided in the Technical Questionnaire for which an explanation, as presented in the	TWC

highlighted text of section 2.4.2, has not been developed. Therefore the TWC proposed that the additional text of paragraph 2.4.2 read as follows: "If such a photograph is required by the testing authority, the breeder should follow the guidelines as close as possible. However, if despite the breeder's endeavor, the resulting photograph does not meet the required standards, this should not be a basis for rejecting the application". the TWA proposed that the following changes should be made to TWA Section 2.6 and, in addition, that the amended section should be moved after Section 2.3: (a) title of Section 2.6.1 to be changed to a title, such as "Combining and Weighting [Differences in] Characteristics", which made no reference to phenotypic distance; the existing text in Section 2.6.1 to be deleted and replaced (b) by a brief explanation that information on characteristics could be combined and weightings given to differences in characteristics in order to determine if varieties were "distinct plus" for the purpose of selecting varieties for the growing trial (and for organizing the growing trial in relation to Section 3). To further explain that, in such an approach, the characteristics would be considered on a characteristic-by-characteristic basis and that weightings would only be given to differences for a characteristic where those differences were, on the basis of experience, clear and consistent differences. It agreed that the explanation should, in particular, ensure that it was clear that it would not be appropriate to use a combination of many small differences in order to arrive at a "distinct plus" threshold; Section 2.6.2.1 to be retained with the phrase "because they (c) have a 'distinctness plus' GAIA distance with respect to" being replaced by "because they are 'distinct plus' from" in Section 2.6.2.1.1 and the deletion of "for the combined phenotypic distance" in the first sentence of 2.6.2.1.2.1; and Section 2.6.2.2 to be deleted (d) TWV 2.6.1 to explain that: the combined phenotypic distance / GAIA approach is used (a) predominantly with data obtained from the first growing cycle; (b)the differences for individual characteristics used to calculate the combined phenotypic distance should be meaningful; and

> the combined phenotypic distance / GAIA approach is used to identify similar varieties, but distinctness against similar varieties is then on a characteristic-by-characteristic basis.

2.6

2.6.1 General	The wording is confusing; the section is aimed to be an introduction to combined phenotypic distance approach of selecting varieties for the growing trial but the first two paragraphs explain the characteristic by characteristic approach to testing for distinctness.	TWC
	It is too much GAIA oriented and not an introduction to phenotypic distance in general.	
	To create a new section: 2.6 COMPARISON OF VARIETY DESCRIPTIONS 2.6.1 Introduction (to be developed) 2.6.2 Characteristic-by-characteristic approach (to be developed) 2.6.3 Combined Phenotypic Distance 2.6.4 Methods 2.6.4.1 GAIA (applicable for 2.6.2 and 2.6.3) 2.6.4.2 Other Methods	
2.6.1.2	To be reworded as follows:	TWC
	"2.6.1.2 In the characteristic-by-characteristic/minimum distance approach, at least as a first step, differences between varieties which are less than the minimum difference for a characteristic do not contribute towards distinctness."	
2.6.1.5	The paragraph is contradictory. It first states that the parameters for the combined phenotypic distance are determined by the DUS expert and later affirm that it provide an objective basis for decisions of distinctness.	TWC
2.6.1.6	To replace the word "optimizes" by "helps" and "distinguish" by "identify/select"	TWC
2.6.1.7	to add "and vegetatively propagated" after "self-pollinated"	TWV
2.6.2.2	To replace "ANOVA and multiple range tests" by "Mahalanobis and other multivariate methods"	TWC
3.2	to be updated according to changes to Section 2.6	TWA
4.2.3(a)	To add "(PQ)" to Pseudo-qualitative characteristics	TWC
4.2.3 (a)	the extract from 5.4.1 of the General Introduction to be deleted and that explanation to be moved to Section 4.2.3 (b), where it would be explained in relation to qualitative, quantitative and pseudo-qualitative characteristics	TWA
4.2.3(b)	Measurements can be helpful even in vegetatively propagated and self- pollinated varieties when there is variability due to environmental effect, e.g. different locations/years.	TWC
4.2.3 (b), (c) and (d)	To have the same structure as the previous subparagraphs (i.e. title, followed by explanation in other line)	TWC
4.3	it was agreed that Section 4.3 should be amended in accordance with the following changes to the schematic summary in 4.3.2:	TWV

	(a) "G" to refer to observation of a group of plants or part of plants	
	and to explain that "G" observations could not be used for the assessment of uniformity by statistical methods;	
	(b) "S" to refer to observation of (at least) the number of single, individual plants or parts of plants recommended in Section 3.5 of the Test Guidelines and to explain that the individual plant data obtained could be used for the assessment of uniformity by statistical analysis;	
	(a) box G1 to show a general overall observation of the plot and not individual plant observations;	
	(c) box G2 to indicate more than one measurement; and	
	(d) to add a new box to the "S" illustration, corresponding to the existing box G1 and indicating that the number of plants observed would correspond to the number of plants specified in Section 3.5 of the Test Guidelines	
4.3	it was noted that there was particular confusion over the indication of "VG" where individual plants or parts of plants were to be observed in order to record a single value for a plot. It was proposed that the explanation of the rationale for the indication of "G" and "S" should be clarified. In that respect, it was agreed that it would be helpful to reword the first sentence of Section 4.3.2.4 to read "In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness." and to include Section 4.3.2.4 in the explanation of the rationale for "G" and "S".	TWA
4.4	to include reference to taste, flavor and smell for "V"	TWV
4.4	the TWA agreed with the TWV proposal to include flavor, taste and smell in "V"	TWA
5.2.1.1 (b)	to amend the term "combination of characteristics" to avoid confusion with "combined characteristics" as defined in the General Introduction, Section 4.6.3, i.e. where the combination is biologically meaningful, for example the ratio of length to width.	TWV
5.2.1.1 (b)	To delete "or a combination of characteristics"	TWC
5.2.1.1 (b)	to read "Assessment by Notes / single variety records ("Notes"): the assessment of distinctness is based on the recorded state of expression of the characteristics of the variety"	TWA
5.2.3	It is difficult to identify the titles in pages 24, 25 and 26, making difficult to follow the content.	TWC
5.2.3.14	final sentence: to delete "when based solely on notes"	TWV
5.2.3.14	in addition to the possibility of a side-by-side comparison, to add the possibility to use statistical analysis to establish distinctness where a pair of varieties is not distinct on the basis of Notes and to provide Case 2 of Section 5.4.2.1 as an example. In the Case 2 example, to specify that any use of statistical analysis to establish distinctness should be in accordance with the requirements set out in TGP/8.	TWA

	Final sentence of Section 5.2.3.14 to read "However, in general, varieties with the same Note in the UPOV Test Guidelines would not normally be considered to be clearly distinguishable.".	
5.2.4.9	To check whether the reference in the last sentence should be to paragraph 5.2.4.10 instead of 5.2.4.12	TWC
5.2.4.13	To remove the words "for cross-pollinated varieties" - it is unnecessary	TWC
5.2.4.13	the TWA agreed with the TWC proposal to delete "for cross-pollinated varieties"	TWA
5.2.4.14	To delete the word "statistical"	TWC
5.2.4.21	to accept the text	TWV
5.2.4.21	To read "5.2.4.21 There are a range of other statistical methods in use in agricultural research that can be used in the examination of distinctness, provided their statistical assumptions are met."	TWC
5.2.4.21	to read "There are a range of other statistical methods that can be used in the examination of distinctness. Those include ANOVA and multiple range tests, providing the underlying assumptions are met."	TWA
5.3	To explain the reasons for the different order of the methods of observation in the different boxes.	TWC
5.3 Table	to explain why the order of "Notes", Side-by-side" and "Statistics" changes within the table	TWA
5.4.1	to delete "variety collections which contain"	TWA
5.4.2	to be deleted (see comments on Sections 2.6 and 5.2.3.14)	TWA
5.4.2 General	The TWC has little experience in the use of phenotypic distance for the assessment of distinctness and therefore is not in the position to make comments on this section. However, the TWC acknowledge the use of phenotypic distance as one of a number of methods for selecting varieties for the growing trial as well as for organizing the growing trial and would like further clarification in the form of TWC papers from experts on the use of these methods for the assessment of distinctness in the growing trial. The TWC noted that to-date it has looked at determining DUS characteristic by characteristic at the behest of UPOV and that it welcomed the opportunity to investigate the use of combinations of characteristic, both for distinctness and for uniformity testing. It also commented that it was not being given the full guidance on when the phenotypic distance method is to be used and when it is not to be used.	TWC
5.4.2.1	to use Case 1 and Case 2 as examples and to add an example with a candidate and similar variety with the same notes for length and for width, but with a difference for the combined characteristic width / length ratio	TWV
5.4.2.1	To explain what is intended to illustrate with each of the examples and to clarify that they are not related to GAIA.	TWC
5.4.2.2	to be amended to reflect the comments made above in respect of Section 2.6.1.	TWV

5.4.2.2.1. 6	To delete the last sentence.	TWC
6.5	to accept the text "panels of"	TWV
6.5	to delete "[panels of]"	TWA

TGP/10: Examining Uniformity

4. The TWV, TWC and TWA discussed document TGP/10/1 Draft 4 and agreed to propose the following:

- 1.2 to add "It is therefore a matter for the authority to decide, in addition to TWA those characteristics included in the UPOV Test Guidelines or national guidelines, which other characteristics it may include in its consideration of uniformity"
- 2.1 To clarify that the environmental variation has two components; the TWC environmental component and the observer/technical component.
- 2.1 first two sentences to read "The variation in the expression of relevant TWA characteristics within varieties is the basis for the assessment of uniformity. This variation has both genetic components and environmental components (e.g. temperature, light, soil etc.)."
- 2.3.1(a) to consider providing an example for vegetatively propagated varieties TWA
- 2.3.1(c) to read "in cross-pollinated varieties (including synthetic varieties), TWA variation in the expression of characteristics within varieties results from both genetic and environmental components. The overall level of variation is, therefore, generally higher in cross-pollinated and synthetic varieties. In relation to self-pollinated, vegetatively propagated and mainly self-pollinated varieties a higher genetic variation is accepted;"
- 2.3.1(d) last sentence to read "The tolerance limits for uniformity of hybrid TWA varieties are set ..."
- 2.4.2 to add "This can be determined by using a standard statistical TWA procedure such as the χ^2 test."
- 3.3 to explain the cases in cross-pollinated varieties where uniformity is TWV assessed for some characteristics on the basis of off-types and standard deviations, i.e. any off-type plants are identified and then standard deviations are applied (disregarding off-type plants).
- 3.3 last sentence to read "Thus, the uniformity of a variety may be TWA determined exclusively by off-types, exclusively by standard deviations, or by off-types and by standard deviations."

The TWA heard that there were several crops where varieties were examined using a combination of off-types and standard deviations. It also noted that the table in Section 2.5 indicated that a combination of off-types and standard deviations would probably be needed in crosspollinated varieties which were examined using quantitative and

qualitative and/or pseudo-qualitative characteristics. Therefore, it was agreed that a new Section 6 "Combination of Off-types and Standard Deviations" should be created to provide guidance on the examination of uniformity where a combination of off-types and standard deviations was used. In particular, it was noted that it would be helpful to explain that standards would need to be set for both off-types and standard deviations and that a variety would need to meet both standards. It was also considered important to provide guidance on whether off-type plants should be disregarded from the calculation of standard deviations for some or all characteristics.

- 4.2.3 it was agreed that atypical plants which were not off-types should be TWA disregarded from the assessment of uniformity in all cases and not just in those cases where the assessment of uniformity was by off-types. Therefore, it proposed that the section be combined with Section 4.2.4.3 and moved into a general section. It also proposed that the section should explain that it may be necessary to undertake further investigations to determine whether atypical plants were off-types.
- 4.2.4.2 The combination of small differences on individual characteristics to TWC determine off-types is not in consistency with the characteristic by characteristic approach used for the assessment of distinctness.
- 4.2.4.2 to read "An off-type plant may be clearly distinguishable for a single TWA characteristic or may be clearly distinguishable for more than one characteristic on a characteristic-by-characteristic basis. However, there can be cases where the expression for individual plant characteristics do not make the plant clearly distinguishable, but, when put together, the differences indicate a plant that is atypical. The definition of an off-type implies that any atypical expression of a characteristic, even if that characteristic is not present in the Test Guidelines, could make a plant an off-type. However, the definition clarifies that any off-type plant must be "clearly distinguishable" in accordance with the principles in TGP/9 "Examining Distinctness"."
- 4.2.4.3 The penultimate sentence to read: ".....For example, a plant does not TWC belong to the species of the candidate variety may not be considered not to be an off-type and might be disregarded..."
- 4.2.5.1 the TWV agreed that Version 2 should be retained, whilst noting that TWV the ISF representatives preferred Version 1.
- 4.2.5.1 the TWA supported version 2 on the basis that this would promote a TWA more harmonized approach within UPOV, whilst still allowing some flexibility for exceptional cases.
- 4.3 to explain that measurements might be used to identify off-types TWV where, for example, the observations were done at different times (e.g time of flowering), but to explain that the use of measurements would reflect off-types which could be observed visually.
- 4.3 it was noted that counting was an example of a form of measurement TWA which could be used to identify off-types. It was also noted that it might be possible for "off-types" to be determined by statistical analysis of measurements (e.g. leaf length). However, for such cases,

concern was expressed at how the link between the determination of off-types and the standard for distinctness could be achieved.

4.4 To include the definition of population standard and acceptance TWC General probability in Section 3: Statistical Terms

4.4.1.1 To read as follows (additions are underlined, deletions are TWC strikethrough):

4.4.1.1 The General Introduction (Chapter 6: Section 6.4.1.3) explains that "The acceptable number of off-types tolerated in samples of various sizes is often based on a fixed "population standard" and <u>an</u> "acceptance probability". The "population standard" can be expressed as the <u>maximum</u> 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 <u>as</u> uniform a variety with the population standard of off-types is called the "acceptance probability".

- 4.4.1.2 to introduce a specific paragraph to explain the higher off-type TWV tolerance for inbred plants in hybrid varieties
- 4.4.1.2 it was noted that the extract from the General Introduction addressed TWA both mainly self-pollinated varieties and inbred lines of hybrid varieties, which could cause confusion. Therefore, the TWA proposed that further elaboration should be provided to explain that:

(i) where appropriate, it was possible for the same tolerance to be used for truly self-pollinated and mainly self-pollinated varieties; and

(ii) that an additional tolerance could be accepted for clear cases of out-crossed plants in inbred lines as well as plants obviously resulting from the selfing of a parent line in single-cross hybrids.

- 4.4.1.3 To include that care is needed when choosing the sample size in order TWC and to produce a good test.
- 4.4.1.4
- 4.4.1.3 to read "The Test Guidelines recommend for a particular type(s) of TWA variety a population standard and acceptance probability and provide the maximum acceptable number of off-types for a given sample size."
- 4.4.1.4 to replace "acceptable number of off-types" with "maximum TWA acceptable number of off-types"
- 4.4.1.5 to replace "maximum numbers of off-types" with "maximum TWA acceptable numbers of off-types"
- 4.5 to correct the cross-reference to 4.4.1.4 TWV
- 4.5 to make a cross-reference to TGP/13 "Guidance for New Types and TWA Species"

5.2 To clarify whether off-types are removed for the calculations for TWC General COYU.

5.2.1.2 Second sentence, to replace "variations" by "variation". TWC

- 5.2.1.4 To include information on the $1.6 \times$ variance method in TGP/8, to TWC remove the reference to long term LSD and to add mention of the $1.26 \times$ standard deviation method in 5.2.1.4 as the alternative name for the $1.6 \times$ variance method.
- 5.2.1.4 text in brackets to read "(1.26 × standard deviations, 1.6 × variance and TWA long-term LSD)"
- 5.3 to make a cross-reference to TGP/13 "Guidance for New Types and TWA Species"
- General the TWA proposed that document TGP/10 should be considered again TWA by the Technical Working Parties in 2007.

(b) <u>Other TGP Documents</u>

TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability

5. The TWV agreed that, as a result of its late availability, it would not be appropriate to discuss document TGP/8/1 Draft 4 at the session. It was agreed that written comments should be sent to the Office of the Union by the end of July.

6. The TWC and TWA considered document TGP/8/1 Draft 4 and agreed to propose the following:

Table of
contentsTo have upper case in the first word only in the titles of the following
sections: PART I: 2.5; 3.4.3; 1.1.8.1; 1.1.8.2; PART II: 3.1.3; 3.1.4;
3.2.9 and 3.2.9.1TWC

Table ofThe TWA agreed with the proposed structure and table of contents.TWAcontentsTWA

<u>PART I</u>

- 2.2.1.1To refer to "independent growing cycles" in the first sentence.TWA2.2.2To add a paragraph to explain the notion of independence from the
statistical point of view, which may differ from the and word hasTWC
- statistical point of view, which may differ from the one used by crop experts in DUS testing.
- 2.2.2.2 To replace "grown" by "planted/sowed" and to delete "usually TWC considered to be"
- 2.2.2.3 To read as follows (additions are underlined, deletions are TWC strikethrough):

"2.2.2.3 For some perennial crops, for example in perennial ryegrass, the age of the plants may significantly influence the expression of characteristics of varieties in subsequent years. In such cases, it is appropriate to observe two independent growing cycles in the form of two separate plantings."

"NEW However, in some other perennial vegetatively propagated crops <u>which are expensive and slow to establish</u>, for example fruit trees, the two independent growing cycles can be achieved by

	examining the same plants over two successive years."	
2.2.2.5	To read as follows (additions are underlined): "2.2.2.5 Where two growing cycles are conducted in the same	TWC
2.2.2.6	year and at the same time, a suitable distance or a suitable difference in growing conditions between two locations may <u>under</u> <u>certain circumstances</u> satisfy the requirement for independence." To read as follows (additions are underlined): "2.2.2.6 Where the two growing cycles are in the same location and the same year, a suitable time period between plantings may <u>under</u> <u>certain circumstances</u> satisfy the requirement for independence."	TWC
2.2.3 General	To format Section 2.2.3.1 in the same way as section 2.2.3.2 for clarity. To check the cross references in the whole section 2.2.3.	TWC
2.2.3.1.3	To delete the last sentence.	TWC
2.2.3.1.3	To amend to explain that the COYD criterion has not been tested for combining data from different locations.	TWA
2.2.3.2 (c)	The penultimate sentence of the second paragraph to read as follows (additions are underlined, deletions are strikethrough):	TWC
	For example, the COYD criterion was <u>tested</u> developed for combining <u>on</u> data over different years and not <u>tested on</u> for combining data from different locations.	
2.4 General	To consider whether the quotation of TGP/9 can be replaced by cross references.	TWC
2.5.1.1	To replace "plots" by "plant pots" at the end of the second sentence.	TWC
2.5.2.1	The first sentence to read as follows (additions are underlined, deletions are strikethrough): "In deciding on trial layout, it is important that local variation in in conditions are controlled.	TWC
2.5.3.2	The second sentence to read as follows (additions are underlined, deletions are strikethrough): "For example, if tall varieties are planted next to short ones there could be a negative influence of the tall ones on interfering with the short ones and a positive influence in the other direction."	TWC
2.6	The first sentence of the first paragraph to read as follows (additions are underlined): "This section describes a number of concepts that are relevant when designing growing trials for which distinctness <u>and/or</u> uniformity are to be assessed by statistical analysis of the growing trial data."	TWC
2.6	The TWA noted that some aspects of the section were not only relevant when statistical analysis would be used and supported a restructuring of the document to reflect that.	TWA
2.6.1 General	To explain that the acceptance of H0 is different for distinctness than for uniformity.	TWC
New paragrap h before 2.6.1.4	"Note that if the null hypothesis is rejected for distinctness, this leads to the conclusion that the candidate variety is distinct and, hence may lead to the acceptance of that candidate variety.	TWC

On the other hand, if the null hypothesis is rejected for uniformity, the candidate variety is considered not uniform and this leads to the rejection of that candidate variety.

- 2.6.1.3 The penultimate sentence to read as follows (additions are underlined, TWC deletions are strikethrough): ". If the absolute value test statistic is not greater than its chosen critical value, the null hypothesis H0 is accepted."
- 2.6.1.7 The last sentence to read as follows (additions are underlined): "The TWC Crop Expert can reduce the risk of making a type II error by increasing the precision e.g. by increasing the number of replicates and reducing the random variability by choice of number of plants per plot (or sample size), by controlling local, unwanted or nuisance variation through careful choice of experimental design, and <u>improving the way</u> measurements/observations are made and so reducing observer error.

2.6.3 General	To amend paragraph numbering.	TWC
2.6.3.1	To move the arrow of the diagram to the right side.	TWC

- 2.6.4.1 In the fourth sentence to replace "unbalances" by "partially balanced". TWC
- 3 The TWA considered that it was important to include a section on the TWA validation and calibration of data within and between observers. It noted that this would be relevant in relation to quality assurance. It was agreed that experts from France and the Netherlands should help to draft this new section.
- 3 To provide references for standard statistical methods (e.g. ANOVA, TWA X^2).
- 3.1 To number the last paragraph TWC
- 3.2.3 and Are incomplete paragraphs TWC
- 3.2.4
- 3.3.1.1 To add bullet points to the list of assumptions of variance methods and TWC to delete "and additivity of year and variety effects for COYD", and to change "involve randomisation" to "involves randomisation".
- 4 The TWC considers that this section provides useful information for TWC crop experts and therefore it should be kept in TGP/8. However it has no objection to move Section 4 to other part of TGP/8 if necessary.

<u>PART II</u>

- General To provide guidance in non-parametric methods. Australia will TWA provide information in X^2 .
- 1 To redraft to avoid terms such as wrong and incorrect decisions, e.g. to TWA speak about "risks"
- 1 To restructure the section to reflect the actual practice and the TWA importance of selecting an appropriate sample size..

new To add the $1.26 \times$ standard deviation method as the alternative for the TWA section $1.6 \times$ variance method

1.1 The TWC agreed to modify the section in reply to the comments raised TWC by the TWPs. 2 It is necessary to specify the type of LSD to which this section refers TWC to, e.g. within year/cycle LSD. The TWC does not have experience with this technique and it needs advice from other TWP's on the detail to be included in this section. 2 Australia will provide information and examples of using the LSD TWA method, the multiple range test and the *t* test. To replace "criterion" by "criteria" in the title of the section. 3.1 TWC 3.1.1.1 To replace "variations" by "variation" in the third sentence. TWC 3.2 To replace explain that a reference variety is an established variety TWC which has been included in the growing trial. General 3.3 The TWC considered that TGP/8 should include recommendation on TWC General the probability level which can be prepared on the basis of document TWC/23/10 plus the comments of that document from the other TWPs or a reference to TWC/23/10. 3.3 Change the title to read "Schemes used for the application of COYD TWC and COYU" To reword the introduction in line with the comments made on TWC 5 Section 2.6.1.6 of TGP/9 5 To update GAIA according to the changes proposed in TGP/9. TWA 5.1.1 To replace "distinctness" by "differences" in the first sentence and to TWC do the same where relevant throughout the document, except where referring to "distinct-plus", and to put species names in italics throughout. To replace "distinct" by "different" in the first sentence and to do the TWC 5.1.2 same where relevant throughout the document. 5.1.3 To add a sentence to clarify that the weighting can be used to nullify TWC the apparent difference. 522 To delete "e" and to make reference to the proper section. TWC 5.2 To be renumbered and to change title word "informatin" to . TWC "information" "Weighting of characteristics": To clarify that for a given characteristic TWC 5.2.1 the matrix is fixed and that it is changed only when there is a good reason and with the agreement of the crop experts and the breeders. To explain that the weightings are selected in order to work always on the safe side. To consider simplifying the formula for weighting. In the second sentence to replace "its expertise" by "his expertise". 5.2.1.2 TWC To refer to the matrix on page 120 as "Weighting matrix "shape of TWC 5.2.1.6 ear"". 6 6.3.2 and 6.3.3 provides general useful information, to move them at TWA the beginning of section 6.

- 6.2.2 To make changes to formulae to insert words "variance components TWC due to" after each variance symbol
- 6.3.1.1 To verify the text of the formula. TWC

TGP/12 Section 1 Special Characteristics: Characteristics expressed in response to external factors

7. The TWV and TWA discussed document TGP/12/ Section 1 Draft 3 and agreed to propose the following:

- 1.3 Table text in square brackets to read "[in general, tolerance is not a suitable TWV (d) (ii) characteristic for DUS purposes]"
- 2.2.1 to remove repetition of the introduction TWA
- 2.2.3 to restructure the paragraphs to follow the order of the basic TWA requirements ((a) to (f)) in the introduction
- 2.2.5 to replace the reference to an annex with a reference to the ISF website TWA
- 2.2.10 paragraph to be reviewed to reflect the fact that quantitative TWA characteristics are accepted as shown in paragraph 2.4.2
- 2.3.2 paragraph before "<u>Tolerance</u>" to be deleted. Definition of tolerance to TWV read "<u>Tolerance</u> is the ability of a plant variety to endure biotic stress (including disease) or abiotic stress, without serious consequences for growth, appearance and yield." Title of Section 2.3 to be amended accordingly.
- 2.3.2 to clarify that the definitions are intended for UPOV purposes only. To TWA explain that the term sensitivity is the opposite of tolerance.
- 2.4.2 to make reference to the general requirement for two notes difference TWA in quantitative characteristics for the establishment of distinctness, as set out in TGP/9, i.e. to clarify that only pairs of varieties which were susceptible (Note 1) and highly resistant (Note 3) could be considered distinct on the basis of Notes
- 3. to replace "resistant" with "tolerant" and "susceptible" with "sensitive" TWA in relation to herbicide effects
- 3.2.2.2, to remove the attribution of Notes to herbicide effects, except in TWA
 3.2.2.3 relation to plant death, and to clarify that effects other than plant death are not being used as DUS characteristics
- 4 to be moved before Section 3 in recognition of the fact that Sections 2 TWA and 3 concern resistance, whereas Section 4 concerns tolerance
- 4.1.5 to delete "In this first draft document" TWA
- 4.2 To delete reference to "GM" in the title and provide a brief explanation TWA of the development of corn borer resistance through genetic modification in the introduction.

The paragraphs up to 4.2.3 to be deleted and replaced by reference to the situation in UPOV concerning the use of molecular techniques as

set out in documents TC/38/14 -CAJ/45/5 and TC/38/14 Add.-CAJ/45/5 Add., explaining in particular that only a bioassay approach had been developed and that an Option 1(a) approach would require that a reliable linkage between the presence of the transgene and the expression of corn borer resistance be established

TGP/13: Guidance for New Types and Species

8. The TWV and TWA discussed document TGP/13/1 Draft 6 and agreed to propose the following:

- 2.1.3 to read "[...] In some instances, however, particular vigilance is TWA required where this has a bearing on the consideration of distinctness e.g. Festulolium: it may be that the introduction of characteristics from Festuca into Lolium does not necessarily render the candidate variety to be a Festulolium. For further guidance on the subject, please refer to Section 3.3 below."
- 2.3 experts from the European Community, in conjunction with experts TWV from the Netherlands, to draft a section on the process for developing descriptions where the variety is the first of the species to be examined for DUS by any member of the Union.
- 2.3 in relation to the proposal from the TWV for a section to be drafted on TWA the process for developing descriptions where the variety is the first of the species to be examined for DUS by any member of the Union., the TWA suggested that any text should be developed in conjunction with Section 2.7
- 2.3.4 final sentence to be deleted TWA
- 2.4.2 to be deleted or to be revised to avoid any general indications or TWA assumptions with regard to the non-existence of varieties of common knowledge

TWA

- 2.4.4 numbering to be corrected
- 2.5.3 the sentences after 2.5.3 (c) to be moved to the beginning of Section TWA 2.5 and the final sentence of Section 4.5.5 to be added to the text. To replace the guidance in 2.5 with a reference to the relevant sections in TGP/10 (currently Sections 4.5 and 5.3.)
- 3.3 to explain the importance of developing national guidelines as a first TWA step before considering whether it would be appropriate to develop UPOV Test Guidelines
- General it was agreed that it would be helpful to review the report of the TWA breeding panel, published by the Plant Breeders' Rights Office in Australia, when preparing the next draft

9. The TWA noted that the Technical Committee and the CAJ Advisory Group would be invited to consider the situation of "multi-line varieties" and, in particular, whether they might be eligible for plant variety protection.

10. The TWC did not have sufficient time to examine document TGP/13/1 Draft 6.

TGP/14 Section 2: Glossary of Technical, Botanical and Statistical Terms Used in UPOV Documents: Botanical Terms

Plant shapes (including hair types)

11. The TWV discussed document TGP/14.2.1(&.2) Draft 5 and agreed to propose the following:

Section the TWV expressed concern at the replacement of single overall shape II characteristics by a number of characteristics describing the individual components of shape. In particular, it was agreed that a characteristic describing the overall shape was important for variety description purposes. Therefore, it proposed that both approaches should be acceptable. However, it considered that, where an overall shape characteristic was included in the Test Guidelines, it would be worthwhile considering the inclusion of charts such as that in section 2.2, Examples 4 and 5 in the explanations in Chapter 8.

In order to consider the matter further, it was agreed that an exercise should be undertaken. Experts from Germany and France will provide photographs of up to 50 onion varieties and experts from France, the Netherlands and South Africa will provide photographs of up to 50 varieties of *Cucurbita maxima* to the Office. Selected photographs will then be circulated to the TWV, who will be invited to classify the varieties according to characteristics for overall shape, as contained in the Test Guidelines, and according to components of shape according to the proposals in TGP/14.

Section it was agreed that, for the purposes of translation, it would be preferable to use IV non-botanical terms e.g. "kidney-shaped" rather than "reniform".

12. Further written comments were also invited to be sent by the TWV to the Office by the end of November 2006.

13. The TWV agreed that Sergio Semon (European Community) should participate in the TGP14 subgroup on behalf of the TWV.

14. The TWC did not have sufficient time to examine document TGP/14.2.1(&.2) Draft 5.

15. The TWA received a brief overview of document TGP/14.2.1(&.2) Draft 5 from the Office, but concluded that it would be more appropriate to await discussions in the TWF, TWO and TWV before considering the document in detail.

(c) <u>TGP/7: Development of Test Guidelines</u>

16. The TWV agreed that the revision of TGP/7 should include elaboration of the two uses of the grouping characteristics, i.e.

1. [...] "to select, either individually or in combination with other such characteristics, *varieties of common knowledge that can be excluded from the growing trial* used for examination of distinctness."

2. [...] "to organize the growing trial so that *similar varieties are grouped together*."

and to consider indicating in Chapter 5.3 of the Test Guidelines for which purpose the grouping characteristics were intended.

[End Annex II and of document]