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PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE,
THE TECHNICAL WORKING PARTIES AND THE WORKING GROUP
ON BIOCHEMICAL AND MOLECULAR TECHNIQUES,
AND DNA-PROFILING IN PARTICULAR

prepared by the Office of the Union

1. This document presents a progress report of the work of the Technical Committee (TC) and its Technical Working Parties (TWPs), including the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT).

2. The following abbreviations are used in this document:

CAJ:	Administrative and Legal Committee
TC:	Technical Committee
TC-EDC:	Enlarged Editorial Committee
TWPs:	Technical Working Parties
TWA:	Technical Working Party for Agricultural Crops
TWC:	Technical Working Party on Automation and Computer Programs
TWF:	Technical Working Party for Fruit Crops
TWO:	Technical Working Party for Ornamental Plants and Forest Trees
TWV:	Technical Working Party for Vegetables
BMT:	Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular
BMT Review Group:	<i>Ad hoc</i> Subgroup of Technical and Legal Experts of Biochemical and Molecular Techniques
WG-PVD:	<i>Ad hoc</i> Working Group on the Publication of Variety Descriptions
Crop Subgroups:	<i>Ad hoc</i> Crop Subgroups for Molecular Techniques
DUS:	Distinctness, Uniformity and Stability
Office:	Office of the Union

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I. PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE

3. The Technical Committee (TC) held its forty-eighth session in Geneva from March 26 to 28, 2012, chaired by Mr. Joël Guiard (France), Chairperson of the TC. The report on the conclusions of the session is contained in document TC/48/22 "Report on the Conclusions". The detailed report will be provided in document TC/48/23.

4. The meeting was attended by 100 participants from 42 members of the Union, four observer States and six observer organizations.

Discussion on experiences of members of the Union on measures to improve the efficiency and effectiveness of DUS testing

Tools for the management of variety collections

5. The TC discussed tools for the management of variety collections on the basis of a presentation by Mr. Kees van Ettehoven (Netherlands).

6. The Chairman concluded that the identification of varieties that should be included in the variety collection was a major challenge and that increasing worldwide knowledge of varieties increased that challenge. He noted that it was preferable to have as much knowledge as possible and to try to find effective tools that could meet that challenge. In that regard, he observed that molecular techniques had an important role to play in supplementing, while not replacing, existing tools. He emphasized that the expertise of the DUS examiners was of paramount importance in any approach to the management of variety collections (see document TC/48/22 "Report on the Conclusions", paragraphs 8 and 9).

Examples varieties

7. The TC discussed example varieties on the basis of a presentation by Mr. Richard Brand (France).

8. The Chairman recalled that the discussion concerned the inclusion of example varieties in the (UPOV) Test Guidelines and noted that a complete set of example varieties would be important for each member of the Union. With regard to example varieties in the Test Guidelines, he concluded that, in many cases, it would be difficult to identify a "universal" set of example varieties that would be suitable for all members of the Union. However, where it was not possible to develop a universal set of example varieties, he noted that it might still be beneficial to try to preserve similar ranges for the states of expression for all members of the Union. With regard to solutions where a universal set of example varieties could not be agreed for all members of the Union, he recalled that regional sets of example varieties could be an effective measure. He also observed that the making available of variety descriptions by members of the Union could be an important source of information, whilst noting that the development of such databases would involve substantial cost.

9. With regard to Test Guidelines, the Chairman noted a suggestion that the Leading Expert might provide a full list of varieties that might be available as example varieties, rather than suggesting a limited list. He also recalled that, where appropriate, example varieties might be replaced by illustrations and references to calibration books of members of the Union, in the Test Guidelines' Chapter on Literature (see document TC/48/22 "Report on the Conclusions", paragraphs 10 to 12).

Discriminative power of characteristics

10. The TC discussed the discriminative power of characteristics on the basis of a presentation by Mrs. Sally Watson (United Kingdom).

11. The Chairman noted that the following observations in the presentation would provide useful guidance for the TWPs:

(a) the asterisked characteristics in the Test Guidelines are observed on all varieties in DUS trials by all members of the Union;

(b) some characteristics are useful only rarely, maybe not every year, but when used they are invaluable;

- (c) in some crops where the varieties are all from a similar genetic base and discrimination is difficult, more characteristics may be necessary;
- (d) a reduction in the number of characteristics does not necessarily save costs: more direct comparison plots may be needed at greater overall cost;
- (e) not all characteristics are equally discriminatory for all members of the Union; and
- (f) TWP discussions on experiences with characteristics and consequent harmonization are invaluable.

The Chairman added that an important role of the TWPs was to ensure the selection of suitable characteristics and to ensure that the number of characteristics was appropriate for the purpose of the examination of DUS. In particular, he emphasized that it was not necessary to have a set of characteristics that would describe all germplasm (see document TC/48/22 "Report on the Conclusions", paragraphs 13 and 14).

Grouping characteristics

12. The TC discussed example varieties on the basis of a presentation prepared by Mr. Dirk Theobald (European Union) and presented, in his absence, by Mr. Carlos Godinho (European Union).

13. The Chairman recalled that the selection of grouping characteristics in the UPOV Test Guidelines was based on the information that was likely to be available from other members of the Union and to be requested from the breeder in the Technical Questionnaire. Further characteristics might also be useful for grouping where the information available to the DUS examiner provided useful discrimination between varieties from documented states of expression for those characteristics, e.g. where the variety descriptions were obtained from the same growing trial, such as could be the case from the first growing cycle where the DUS examination involved two growing cycles. He concluded by recalling that the use of different characteristics for grouping could lead to a different route to the decision on distinctness, but that the decision on distinctness would be the same if the UPOV principles for grouping were followed (see document TC/48/22 "Report on the Conclusions", paragraphs 15 and 16).

Uniformity: harmonization between species

14. The TC discussed the harmonization of uniformity standards between species on the basis of a presentation by Mrs. Radmila Safarikova (Czech Republic).

15. The Chairman concluded that it was important for the uniformity standards to reflect the genetic structure and type of propagation of the crop/species concerned. However, with regard to harmonization for uniformity, he noted that the intention was to ensure that the UPOV principles were implemented in a harmonized, i.e. consistent, manner. Therefore, he considered that it would be valuable to review the current situation and reflect if there were any Test Guidelines where it would be appropriate to seek greater consistency (see document TC/48/22 "Report on the Conclusions", paragraphs 17 and 18).

Number of plants to be examined

16. The TC discussed the number of plants to be examined on the basis of a presentation by Mrs. Beate Rucker (Germany).

17. The Chairman suggested that the following observations in the presentation would provide effective guidance and might be considered by the TWPs:

Considerations for the number of plants to be observed for distinctness in case of QN (PQ) characteristics:

- (a) Observation on the plot as a whole (VG/MG)
 - indicated number to be considered as minimum number
- (b) Observation on subsample from plot (VG/MG)
 - indicated number to be considered as minimum number

- (c) Observations on individual plants (VS/MS)
- number of plants important for precision of record
 - specific number to be indicated

Considerations for the number of plants for candidate varieties and varieties to be compared with

If uniformity has not to be observed for similar varieties of common knowledge (reference varieties), it can be considered to include in the trial a lower number of plants for the reference varieties (see document TC/48/22 "Report on the Conclusions", paragraphs 19 and 20).

Overall Conclusion

18. The Chairman thanked the speakers for their presentations and the participants for their active involvement in the discussions. He noted that the presentations were a valuable source of information and confirmed that they would be available via the UPOV website for further consideration by the TC and the TWPs.

19. The Chairman observed that the discussions had highlighted the crucial importance of expertise in the form of crop knowledge, breeding developments and UPOV/DUS knowledge. The complexity of factors involved in designing and interpreting DUS tests meant that it was not feasible to provide a comprehensive guide to address all situations. Acknowledgement of that situation added further emphasis to the importance of cooperation between members of the Union. He concluded that practical experience in DUS testing was essential and pointed to the unique role of the TWPs in developing expertise and transferring knowledge for both experienced and less experienced DUS examiners (see document TC/48/22 "Report on the Conclusions", paragraphs 21 and 22).

Report on developments in UPOV including relevant matters discussed in the last sessions of the Administrative and Legal Committee, the Consultative Committee and the Council

20. The Vice Secretary-General provided an oral report, in the form of a Powerpoint presentation, on the sixty-third and sixty-fourth sessions of the Administrative and Legal Committee (CAJ), eighty-first and eighty-second sessions of the Consultative Committee and the twenty-eighth extraordinary session and the forty-fifth ordinary session of the Council. The TC noted that a copy of that presentation would be provided as an annex to the report of the session (see document TC/48/22 "Report on the Conclusions", paragraph 23).

Progress reports on the work of the Technical Working Parties, including the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT), and the Ad Hoc Crop Subgroups on Molecular Techniques

21. The TC received oral reports from the Chairpersons, in the form of Powerpoint presentations, on the work of the Technical Working Party for Agricultural Crops (TWA), the Technical Working Party on Automation and Computer Programs (TWC), the Technical Working Party for Fruit Crops (TWF), the Technical Working Party for Ornamental Plants and Forest Trees (TWO), the Technical Working Party for Vegetables (TWV) and the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT). It noted that copies of those presentations would be provided in an annex to the report of the session (see Part II of this document).

22. The TC noted that the Republic of Korea proposed to change the venue for the forty-fifth session of the TWO from Seoul to Jeju (see document TC/48/22 "Report on the Conclusions", paragraphs 24 and 25).

Matters arising from the Technical Working Parties

23. The TC considered document TC/48/3 "Matters Arising from the Technical Working Parties".

Guidance for drafters of Test Guidelines

24. The TC agreed to the proposal to revise the "Practical Guidance for Drafters (Leading Experts) of UPOV Test Guidelines", Section "Test Guidelines for Discussion at the Technical Working Party", as set out

in the Annex to document TC/48/3. It noted that the revision specified that draft Test Guidelines should not show revisions to previous versions and should not include comments, other than in an annex or separate document, and that the Leading Expert should present a clear draft on the basis of the comments received by interested experts on the interim draft (see document TC/48/22 "Report on the Conclusions", paragraph 27).

Short reports from Members and Observers at the Technical Working Party sessions

25. The TC agreed that, for future sessions of the TWPs, it would be beneficial for the presentation from the Office of the Union on the latest developments within UPOV to be provided in advance of the sessions, thereby allowing the Office of the Union to focus on certain key elements during the presentation (see document TC/48/22 "Report on the Conclusions", paragraph 28).

Data loggers

26. The TC agreed that a new circular concerning hand-held data capture devices should be sent by the Office of the Union, inviting further entries in advance of the thirtieth session of the TWC, as set out paragraph 10 of document TC/48/3 (see document TC/48/22 "Report on the Conclusions", paragraph 29).

TGP documents

27. The TC considered the following documents in conjunction with document TC/48/5 "TGP Documents".

(a) *New TGP document*

TGP/15 [Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)]

28. The TC considered document TGP/15/1 Draft 2 "Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)".

29. The TC agreed with the recommendation of the TC-EDC, as set out in paragraphs 7 to 9 of document TC/48/5, that document TGP/15/1 Draft 1 should be redrafted (restructured) to provide the following:

- firstly, to present the principles, including the assumptions which provided the basis for the positive assessment of the examples in the approved models; and
- secondly, to provide practical experience in the form of examples in the implementation of the principles.

30. With regard to TGP/15/1 Draft 2, Annex I, paragraph 3(a), the representative of the International Seed Federation (ISF) questioned whether it was necessary for markers to be examined more than once on the same sample. He also suggested that paragraph 3(b) be amended to clarify that, if there was a difference between the information provided in the Technical Questionnaire and the result of the bioassay, the result of the bioassay would prevail.

31. The TC agreed that, on the basis of the comments above, a new draft should be prepared by the Office of the Union in conjunction with the Chairman of the TC and the Chairman of the BMT, which would be presented to the TC-EDC at its meeting in January 2013 and a further draft presented to the TC at its forty-ninth session. The TC noted that the timetable for the development of document TGP/15 would be reported to the TWPs at their sessions in 2012 (see document TC/48/22 "Report on the Conclusions" paragraphs 32 to 35).

(b) *Revision of TGP documents*

TGP/7: Development of Test Guidelines

32. The TC considered the revision of document TGP/7 "Development of Test Guidelines" on the basis of document TC/48/18 "Development of Test Guidelines" (see document TC/48/22 "Report on the Conclusions", paragraphs 36 to 48).

33. The TC recalled that, at its forty-seventh session, held in Geneva from April 4 to 6, 2011, it had agreed to include the following matters in a future revision of TGP/7 "Development of Test Guidelines":

(a) Coverage of Types of Varieties in Test Guidelines

The addition of new Additional Standard Wording (ASW) for Chapter 1 of the Test Guidelines, as follows:

"In the case of [ornamental] [fruit] [industrial] [vegetable] [agricultural] [etc.] varieties, in particular, it may be necessary to use additional characteristics or additional states of expression to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability."

with an explanation in document TGP/7 that such wording should not lead to any particular conclusions as to whether other types of varieties should or should not be covered by the development of separate Test Guidelines, since that would need to be considered on a case-by-case basis (see document TC/47/26 "Report on the Conclusions", paragraph 54);

(b) Selection of Asterisked Characteristics

The final sentence of document TGP/7/2, GN 13.1 "Asterisked characteristics", Section 1.2, should be amended to read "The number of asterisked characteristics should, therefore, be determined by the characteristics which are required to achieve useful internationally harmonized variety descriptions". On the basis of that change, the TC agreed that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics was appropriate and sufficient and that it would only be necessary to ensure that the guidance was followed in the development of Test Guidelines (see document TC/47/26 "Report on the Conclusions", paragraph 59); and

(c) Quantity of Plant Material Required

The guidance in document TGP/7, GN 7 "Quantity of plant material required" should be extended to encourage Leading Experts to consider the quantity of plant material required in relation to the following factors (see document TC/47/26 "Report on the Conclusions", paragraph 55):

- (i) Number of plants/ parts of plants to be examined
- (ii) Number of growing cycles
- (iii) Variability within the crop
- (iv) Additional tests (e.g. resistance tests, bolting trials)
- (v) Features of propagation (e.g. cross-pollination, self-pollination, vegetative propagation)
- (vi) Crop type (e.g. root crop, leaf crop, fruit crop, cut flower, cereal, etc.)
- (vii) Storage in variety collection
- (viii) Exchange between testing authorities
- (ix) Seed quality (germination) requirements
- (x) Cultivation system (outdoor/glasshouse)
- (xi) Sowing system
- (xii) Predominant method of observation (e.g. MS, VG)

The TC agreed that Additional Standard Wording (ASW) should be developed in order to provide guidance in the Test Guidelines on whether the quantity of plant material required in Chapter 2 of the Test Guidelines relates to both growing cycles in the case of Test Guidelines indicating two growing cycles (see document TC/47/26 "Report on the Conclusions", paragraph 56).

The TC further agreed that the guidance in document TGP/7, GN 7 should be extended to encourage Leading Experts to consider the quantity of plant material required for similar crops in order to seek consistency as far as that was appropriate. In that regard, it agreed that a summary of the following information should be prepared by the Office of the Union for all adopted Test Guidelines and made available to Leading Experts on the TG Drafters' webpage in order that information on Test Guidelines for similar crops could be presented to the Subgroup of Interested Experts by the Leading Expert (see document TC/47/26 "Report on the Conclusions", paragraph 57):

- (a) Chapter 2.3 Minimum quantity of plant material to be supplied by the applicant
- (b) Chapter 3.1 Number of growing cycles
- (c) Chapter 3.4.1 Each test should be designed to result in a total of at least X plants

- (d) Chapter 4.1.4 Number of plants / parts of plants to be examined for distinctness
- (e) Chapter 4.2 Number of plants to be examined for uniformity
- (f) Number of plants for special tests (e.g. disease resistance)

34. The TC recalled that, at its forty-seventh session, it had agreed to delay consideration of the approach for providing standard references for the UPOV Technical Questionnaire and for the characteristics in the Test Guidelines with a view to a future revision of document TGP/7, pending the outcome of work on the Linear Blank Form for PBR Applications (see document TC/47/26 "Report on the Conclusions", paragraph 68).

35. The TC further recalled that, at its forty-seventh session, it had agreed that, for the time being, no revisions should be considered for document TGP/7 in relation to applications for varieties with low germination (see document TC/47/26 "Report on the Conclusions", paragraph 58). It further recalled that it had agreed that it would not be appropriate to revise document TGP/7 in order to include an indication of grouping characteristics in the Table of Characteristics in the UPOV Test Guidelines (see document TC/47/26 "Report on the Conclusions", paragraph 60).

Guidance on Number of Plants to be Examined (for Distinctness)

36. The TC agreed with the proposal made by the TWA (see document TC/48/18, Annex I, paragraph 2) to prepare guidance on:

- (a) the number of plants in the trial;
- (b) the number of plants/parts of plants to be examined for the assessment of distinctness;
- (c) the number of plants/parts of plants for the assessment of uniformity.

37. In that regard, the TC agreed that guidance for points (a) and (c) would be considered in relation to paragraph 33 (c) "Quantity of Plant Material Required", above. With regard to the number of plants/parts of plants to be examined for the assessment of distinctness, the TC agreed that the information provided in presentation by Mrs. Beate Rücker (Germany) on the number of plants to be examined, under agenda item "Discussion on experiences of members of the Union on measures to improve the efficiency and effectiveness of DUS testing", would provide a good basis for such guidance, as set out in paragraph 17 of this document.

38. The TC agreed that Mrs. Beate Rücker (Germany), in conjunction with the Office of the Union, should be invited to prepare draft guidance for consideration by the TWPs in 2012, on the above basis.

Guidance for Method of Observation

39. The TC agreed that document TGP/7/2, GN 25 "Recommendations for conducting the examination" should be extended to provide guidance, by means of illustrative examples, on the appropriate type of observation for characteristics such as dates (e.g. time of flowering) and counts (e.g. number of leaf lobes), on the basis of the examples as provided in Annex II to document TC/48/18 and the comments made on those examples by the TWPs in 2010 (see document TC/47/26 "Report on the Conclusions", paragraph 61).

40. The TC agreed that the Office of the Union should draft guidance on that basis, for consideration by the TWPs at their sessions in 2012.

Example Varieties

41. The TC agreed that the experts from France should be requested to make a presentation to the TWPs at their sessions in 2012 on the basis of the presentation made under agenda item "Discussion on experiences of members of the Union on measures to improve the efficiency and effectiveness of DUS testing" and reflecting the comments and suggestions made during the discussion.

Providing Photographs with the Technical Questionnaire

42. The TC recalled that, at its forty-seventh session, it had agreed that further consideration should be given to the nature of the guidance of the document in order to avoid setting requirements that were not realistic for breeders. It was also agreed that the relationship between the characteristics in the Technical

Questionnaire and the photographs should be clarified (see document TC/47/26 "Report on the Conclusions", paragraphs 69 and 70).

43. The TC agreed that a new draft of the guidance in document TC/48/18, Annex IV, reflecting the comments of the TWPs and the TC-EDC, should be prepared by the experts from the European Union, for consideration by the TWPs at their session in 2012.

Procedure for the Development of Test Guidelines

44. The TC agreed that paragraphs 2.2.3.2 of document TGP/7 "Development of Test Guidelines" should read as follows:

"2.2.3.2 In cases where more than one TWP has proposed the development of Test Guidelines with the same coverage, the Technical Committee will decide which TWP should be responsible for the drafting of the Test Guidelines and which other TWPs should cooperate. This will be decided on the basis of the level of experience in the TWPs concerned. In such cases, the Technical Committee will request the approval of other cooperating TWPs before a draft is submitted for adoption."

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

45. The TC considered the revision of document TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability" on the basis of document TC/48/19 Rev. The TC noted that new drafts of relevant sections would need to be prepared by April 26, 2012, in order that the sections could be included in the draft to be considered by the TWPs at their sessions in 2012.

ANNEX I TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 2 - Data to be recorded

46. The TC agreed that New Section 2- "Data to be recorded", with certain improvements to the structure and the removal of duplications, could be considered by the TWPs in 2012 and by the TC at its forty-ninth session, for adoption as a revision of document TGP/8/1. It agreed that the next draft should be prepared by Mr. Uwe Meyer (Germany), in conjunction with the Office of the Union.

ANNEX II TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 3 - Control of variation due to different observers

47. The TC agreed to request the drafter to prepare a new draft of the Section on the basis of the comments made by the TWPs in 2011, as set out in document TC/48/19 Rev., Annex II.

ANNEX III TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 6 – Data processing for the assessment of distinctness and for producing variety descriptions

48. The TC considered Annex III in conjunction with Annex VIII of document TC/48/19 Rev. "Revision of Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability". It agreed that the information provided in Annex VIII and at the UPOV DUS Seminar, held in Geneva, in March 2010, together with the method provided by Japan and the method used in France for producing variety descriptions for herbage crops, as presented at the TWC, provided a very important first step in developing common guidance on data processing for the assessment of distinctness and for producing variety descriptions, but concluded that the information as presented in Annex VIII would not be appropriate for inclusion in document TGP/8. It agreed that the Office of the Union should summarize the different approaches set out in Annex VIII with regard to aspects in common and aspects where there was divergence. As a next step, on the basis of that summary, consideration could be given to developing general guidance. The TC agreed that the section should include examples to cover the range of variation of characteristics. It further agreed that the detailed information on the methods, as presented in Annex VIII, should be made available via the UPOV website, with references in document TGP/8.

ANNEX IV TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section – Information of good agronomic practices for DUS field trials

49. The TC noted the importance of employing good agronomic practice in the conduct of DUS trials and on the need to ensure that staff had the appropriate training and experience for conducting DUS trials. However, it agreed that it would not be desirable to seek to develop detailed guidance in document TGP/8.

ANNEX V TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section after Section COYU Statistical Methods for Very Small Sample Sizes

50. The TC agreed that realistic examples should be included in the document, based on actual cases. If no such cases could be provided, the section should be deleted. The TC noted that the United Kingdom TWO experts would need to provide an example by April 26, 2012, in order that the section could be included in the draft to be considered by the TWPs at their sessions in 2012.

ANNEX VI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 11 Examining DUS in bulk samples

51. The TC agreed that the section should be redrafted with assistance from DUS experts in Denmark in order to focus on guidance for DUS examiners and should replace detailed statistical models with a general reference to suitable statistical methods. It was also agreed that the example of sugar beet should be replaced by a crop for which there were UPOV Test Guidelines.

ANNEX VII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 12 - Examining characteristics using image analysis

52. The TC agreed to the development of a questionnaire by Mr. Gerie van der Heijden (Netherlands), the TWC Chairman and the Office of the Union, concerning software and hardware used for image analysis, which would be issued to the TC and TWC representatives of UPOV members. The results of the questionnaire would be presented to the TWC at its thirtieth session, to be held in Chisinau, Republic of Moldova, from June 26 to 29, 2012. The TC also noted that presentations on image analysis would be invited for the thirtieth session of TWC session.

53. The TC agreed that Section 12.1 should be reworded to explain that image analysis would be an alternative method for observing a characteristic, rather than a principal method for observing a characteristic.

54. The TC agreed that the TWC should develop subsection 12.3 “Guidance on the use of image analysis” and agreed that a new section should be prepared on the basis of the discussion on documents TWC/29/19 “Image Analysis for DUS in the United Kingdom”, TWC/29/21 “The Use of Image Tool in Measurements of Grain Length of Rye (*Secale Cereale* L.)”, TWC/29/27 “Image Analysis in the Czech Republic” and TWC/29/29 “Image Analysis in the Netherlands”. The drafters would be the experts from Netherlands (first drafter), Czech Republic, Finland and the United Kingdom.

ANNEX VIII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 13 - Methods for data processing for the assessment of distinctness and for producing variety descriptions

55. See comments on Annex III.

ANNEX IX TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Guidance of data analysis for blind randomized trials

56. The TC agreed that the experts from France should develop guidance on data analysis for blind randomized trials from their experience, including their use of blind randomized trials for disease resistance and other examples.

ANNEX X TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Statistical methods for visually observed characteristics

57. The TC agreed that the section should be redrafted with assistance from DUS experts in Denmark in order to focus on guidance for DUS examiners and should replace detailed statistical models with a general reference to suitable statistical methods. The TC agreed that the examples based on sugar beet should be replaced by a crop for which there are Test Guidelines and that the example for wheat should be replaced by a realistic example, such as could be found in Hemp or Spinach. The TC also agreed that the TWC should explore the consequences of the decisions for DUS examination, because the method is a test for differences in the distribution (both location and dispersion). It also agreed that the consequences of excluding certain varieties from the test, where there were insufficient numbers in some cells, should be further investigated.

ANNEX XI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Guidance for the development of variety descriptions

58. The TC recalled that, at its forty-sixth session, it had requested that consideration be given to guidance on the development of variety descriptions with information from:

- (i) more than one growing cycle in one location, and
- (ii) more than one location

The TC agreed that the experts from the Netherlands should be invited to draft guidance on the development of variety descriptions with information from more than one growing cycle in one location and more than one location.

ANNEX XII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 4 – 2x1 % Method - Minimum number of degrees of freedom for the 2x1% Method

59. The TC noted that at least 10 degrees of freedom were required for the residual mean square used to estimate the standard error in the t-test in each year. It agreed that further clarification was needed with regard to the significance of the wording “preferably at least 20 degrees of freedom”.

ANNEX XIII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 9 - The Combined-Over-Years Uniformity Criterion (COYU) - Minimum number of degrees of freedom for COYU

60. The TC agreed that the reference to COYD and COYU should be checked throughout the section. The TC also requested data to be provided in support of the proposal to reduce the minimum degrees of freedom for the varieties-by-years mean square in the COYD analysis of variance from 20 to 10. It also agreed that the following wording in Section 3.1 “Summary of requirements for application of method” should be amended because it meant that Long-Term COYD could be used with less than 10 degrees of freedom:

“- there should be at least 10, and preferably at least 20, degrees of freedom for the varieties-by-years mean square in the COYD analysis of variance, or if there are not, then Long-Term COYD can be used (see 3.6.2 below);”

ANNEX XIV TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 10 – Minimum number of comparable varieties for the Relative Variance Method

61. The TC noted the comments of the TWC with regard to certain of the assumptions of the method and noted that further investigations would be done by Australia with respect to these assumptions and the F value used in the calculations.

ANNEX XV WORKPLAN FOR THE DEVELOPMENT OF TGP/8

62. The TC agreed a workplan for the development of TGP/8/2 (see document TC/48/22 “Report on the Conclusions”, paragraphs 49 to 66).

TGP/12: Guidance on Certain Physiological Characteristics

63. The TC considered document TGP/12/2 Draft 2 “Guidance on Certain Physiological Characteristics” and document TC/48/5, Annex I “Guidance on Certain Physiological Characteristics”.

64. The TC agreed, subject to certain modifications and to agreement by the CAJ at its sixty-fifth session, to be held in Geneva on March 29, 2012, to submit document TGP/12/2 Draft 2 “Guidance on Certain Physiological Characteristics” as the basis for adoption of TGP/12 by the Council, at its forty-sixth session, to be held on November 1, 2012. The TC noted that the editing of the original English text and the French, German and Spanish translations would be checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/12/2 to the Council (see document TC/48/22 “Report on the Conclusions”, paragraphs 67 to 69).

TGP/14: Glossary of Terms Used in UPOV Documents

65. The TC considered the revision of document TGP/14 “Glossary of Terms Used in UPOV Documents” on the basis of documents TC/48/20 “Revision of document TGP/14: Revision of Existing Sections of document TGP/14” and TC/48/21 “Revision of Document TGP/14: New Section for Color Characteristics”.

(i) *Revision of existing sections of document TGP/14*

Perspective from which to observe plant shapes

66. The TC recalled that it had agreed to recommend that, where appropriate, an explanation for shape characteristics should provide guidance on the perspective from which to observe the shape.

Definition for Botanical Terms

67. With regard to a future revision of TGP/14 “Glossary of Terms Used in UPOV Documents”, Section 2: Botanical Terms: Subsection 2: Shapes and Structures: I. Shape: II. Structure: Section 2.4, the TC recalled that it had agreed that additional definitions for botanical terms, such as for peduncle and petiole, should be added to document TGP/14 where the provision of such definitions would help to avoid confusion. However, it had confirmed that this should not result in a change to the explanation in document TGP/14/1 that “In general, the meaning of botanical terms which are used in the Test Guidelines to indicate the relevant part of the plant to be examined, but which are not themselves used as states of expression (e.g. bract, petal, berry, etc.), do not require a UPOV specific definition and are not included in this document.”

68. The TC recalled that it had agreed the following definition of “spike” for inclusion in a future revision of document TGP/14/1: Section 2: Botanical Terms: Subsection 2: Shapes and Structures: III. Definitions for Shape and Structure Terms (see document TC/47/26 “Report on the Conclusions”, paragraphs 81 to 83):

Spike	an indeterminate inflorescence with sessile flowers on an unbranched axis.
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Components of Shape: states of expression for ratios

69. With regard to the use of characteristics for ratios, the TC agreed that it should be possible to use states such as “high” or “low”, provided that explanations and illustrations were provided to avoid any risk of confusion. It also agreed that it should be possible to use states such as “elongated” and “compressed” for characteristics that were worded as shapes, rather than ratios.

Avoidance of duplication of characteristics

70. The TC welcomed the study concerning “Examination of the use component and composite characters for determining distinctness”, prepared by experts from Denmark, Germany and the United Kingdom, as presented in the Annex to document TC/48/20. The TC agreed that guidance, based on that study, should be prepared for the TWPs sessions in 2012, by the experts from Germany, Denmark and the United Kingdom (see document TC/48/22 “Report on the Conclusions”, paragraphs 70 to 75).

(ii) *New Section for Color Characteristics*

TGP/14 Section 2: Botanical Terms: New Subsection 3: Color

71. The TC considered the draft of Section 2: Botanical Terms, Subsection 3: Color, as set out in the Annex to document TC/48/21.

72. The TC agreed that a new draft, based on the document TC/48/21 and the comments of the TWPs, should be prepared by the experts from Germany and the Netherlands, for consideration by the TWPs at their sessions in 2012. It agreed that a website reference for the Royal Horticultural Society should be included in Part VI: Literature (see document TC/48/22 "Report on the Conclusions", paragraphs 76 to 77).

(c) *Program for the Development of TGP Documents*

73. The program for the development of TGP documents, as approved by the TC at its forty-eighth session is provided as the Annex to this document (see document TC/48/5, Annex II).

Molecular Techniques

74. The TC considered document TC/48/7 "Molecular techniques" (see document TC/48/22 "Report on the Conclusions", paragraphs 78 to 87).

Document BMT/DUS "Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)"

75. The TC noted the adoption of document UPOV/INF/18/1 "Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)".

Development of document TGP/15

76. The TC noted that document TGP/15/1 Draft 2 was considered under agenda item 6 "TGP documents".

International Guidelines on Molecular Methodologies

77. The TC noted the development of international guidelines on molecular methodologies, as set out in paragraphs 18 to 22 of document TC/48/7. The TC noted the importance of avoiding duplication and promoting harmonization between such international guidelines.

Ad hoc Crop Subgroups on Molecular Techniques (Crop Subgroups)

78. The TC agreed to discontinue separate meetings of the *Ad hoc* Crop Subgroups and to include the discussions within the BMT sessions, as set out in paragraph 26 of document TC/48/7.

Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)

79. The TC noted the report on developments in the BMT, as set out in paragraphs 28 to 30 of document TC/48/7.

80. The TC agreed that it would be appropriate for the Office of the Union to investigate the possibility of a coordinated meeting of the BMT and the Working Group on DNA Methods of the Variety Committee of the International Seed Testing Association (ISTA), for the fourteenth session of the BMT.

81. The TC approved the program for the fourteenth session of the BMT to be held in 2013, including the dedication of a particular date ("Breeders' Day"), for the items on the use of molecular techniques in the consideration essential derivation and in variety identification, as set out in paragraphs 32 and 33 of document TC/48/7.

82. The TC noted that a presentation on matters considered by the BMT at its thirteenth session, with particular regard to the use of molecular techniques in the consideration of essential derivation and in variety identification, would be made at the sixty-fifth session of the CAJ (see document TC/48/22 "Report on the Conclusions", paragraphs 79 to 87).

Variety denominations

83. The TC considered document TC/48/8 "Variety Denominations".

84. The TC agreed to propose the creation of a new denomination class in document UPOV/INF/12 "Explanatory notes on variety denominations under the UPOV Convention", Annex I: Part II. "Classes encompassing more than one genus", as follows:

	<u>Botanical names</u>	<u>UPOV codes</u>
Class 213	Eupatorium L. Acanthostyles R. M. King & H. Rob. Ageratina Spach Asplundianthus R. M. King & H. Rob. Bartlettina R. M. King & H. Rob. Campuloclinium DC. Chromolaena DC. Conoclinium DC. Cronquistianthus R. M. King & H. Rob. Eutrochium Raf. Fleischmannia Sch. Bip. Praxelis Cass. Vioreckia R. M. King & H. Rob.	EUPAT - AGERT - - - - - - - EUTRO - - -

85. The TC noted the report by the Delegation of Japan that the International Commission for the Nomenclature of Cultivated Plants of the International Union for Biological Sciences (IUBS) (ICNCP) was in the process of revising the Code of Nomenclature for Cultivated Plants and would make proposals to the IUBS Commission for the Nomenclature of Cultivated Plants in 2013. It agreed that the Office of the Union should contact ICNCP in order to explain the guidance provided by UPOV in document UPOV/INF/12 "Explanatory notes on variety denominations under the UPOV Convention" (see document TC/48/22 "Report on the Conclusions", paragraphs 88 to 90).

Information and databases

UPOV information databases

86. The TC considered document TC/48/6 "UPOV Information Databases".

Genie Database

87. The TC noted the plans of the Office of the Union to introduce a user guide for the GENIE database in 2012, following the revisions to UPOV code system, as set out below (see document TC/48/22 "Report on the Conclusions", paragraphs 91 and 92).

UPOV Code System

UPOV code developments

88. The TC noted the creation of 173 new UPOV codes and the amendment to 12 UPOV codes, which brought the total number of UPOV codes in the GENIE database at the end of 2011 to 6,851.

89. In accordance with the procedure set out in Section 3.3 of the Guide to the UPOV Code System, the TC noted that the Office of the Union would prepare tables of UPOV code additions and amendments, for checking by the relevant authorities, for each of the Technical Working Party (TWP) sessions in 2012.

Proposals to amend the Guide to the UPOV Code System

90. The TC agreed to amend the Guide to the UPOV Code System as follows:

(i) *UPOV codes for hybrids: Section 2.2.6*

91. The approach for introducing UPOV codes for hybrid genera and species will be amended such that a single UPOV code will cover all hybrid combinations of the same genera/species.

(ii) *UPOV codes for hybrids: Section 2.2.7*

92. Section 2.2.7 to be deleted.

(iii) *UPOV codes for hybrids: Binomial names*

93. To amend the UPOV Code System with regard to hybrids to refer to "binomials".

(iv) *Variety Types*

94. To delete Section 2.4. In agreeing with that deletion, the TC noted that information on types of variety could be provided in GENIE by means of notes. It was also noted that the deletion did not preclude the introduction of new features in GENIE and PLUTO in the future in order to provide relevant information on variety types.

(v) *Publication of UPOV Codes*

95. To amend Section 4, as follows:

"4. Publication of UPOV Codes

"4.1 As explained in Section 3.2, all UPOV codes can be accessed in the GENIE database, which is made available on the ~~freely accessible area of the~~ UPOV website (see <http://www.upov.int/genie/en/>).

"4.2 In addition, the UPOV codes, together with their relevant botanical and common names, and variety denomination class and linked hybrid/parent UPOV codes, as contained in the GENIE database, are published on the ~~first restricted area of the~~ UPOV website (see http://www.upov.int/restrict/en/upov_rom_upov_code_system/index.htm <http://www.upov.int/genie/en/updates/>). That information is published in a form that facilitates electronic downloading of the UPOV codes for use by contributors to the UPOV-ROM."

(see document TC/48/22 "Report on the Conclusions", paragraphs 93 to 100).

Plant Variety Database

96. The TC considered the program for improvements to the Plant Variety Database ("Program") on the basis of document TC/48/6 (see document TC/48/22 "Report on the Conclusions", paragraphs 101 to 113).

Title of the Plant Variety Database (Program: Section 1)

97. The TC noted that the name of the Plant Variety Database had been changed to "PLUTO".

Web-based version of the Plant Variety Database (Program: Section 6)

98. The TC noted the developments concerning the program for improvements to the Plant Variety Database as reported in document TC/48/6, and further noted that the following features would be introduced to PLUTO in 2012:

(a) information on the latest date of submission by the contributors, in the form of a pdf document, with further plans to link the date of submitted information to particular data;

(b) an explanation of the search rules, which would be developed in conjunction with the introduction of the denomination search facility; and

(c) a facility to save search settings.

99. The TC agreed to amend the “Program for Improvements to the Plant Variety Database”, as set out in Annex II to document TC/48/6, with regard to Section 3.2 “Data quality and completeness” and Section 3.3 “Mandatory items”, in order to introduce the possibility for contributors to the Plant Variety Database to provide data in the original alphabet, in addition to the data being provided in Roman alphabet. That amendment was on the basis that:

(a) data in the original alphabet could be provided for the following fields (see Section 3.2 “Data quality and completeness”, Table):

- (i) Species: common name (see new TAG <520>);
- (ii) Denomination (see <550>, <551>, <552>, <553>);
- (iii) Breeder’s reference (see <650>);
- (iv) Synonym of variety denomination (see <651>);
- (v) Trade name (see <652>);
- (vi) Applicant’s name (see <750>);
- (vii) Breeder’s name (see <751>);
- (viii) Maintainer’s name (see <752>);
- (ix) Title holder’s name (see <753>);
- (x) Type of other party (see <760>);
- (xi) Other relevant information (see <950>); and
- (xii) Remarks (see <960>); and

(b) data would not be included in the Plant Variety Database unless all data provided in the original alphabet was also provided in Roman alphabet (see Sections 3.2 and 3.3 “Required data”).

Provision of assistance to contributors (Program: Section 2)

100. The TC noted the summary of the contributions to the Plant Variety Database in 2011, as set out in document TC/48/6, Annex III.

101. The TC noted that the WIPO Brand Database Unit had been contacted by the following members of the Union: Albania; Argentina; Azerbaijan; Belarus; Bolivia; China; Colombia; Costa Rica; Croatia; Dominican Republic; Georgia; Iceland; Jordan; Kenya; Kyrgyzstan; Mexico; Morocco; Nicaragua; Oman; Panama; Paraguay; Republic of Korea; Singapore; South Africa; Trinidad and Tobago; Tunisia; Ukraine; Uruguay; Uzbekistan and Viet Nam in order to investigate the arrangements that would be needed in order for them to start to contribute data. It noted that solutions had been developed to allow the contribution of data in non-TAG format by Kenya and South Africa.

102. With regard to contributors that did not provide UPOV codes for their data supplied, the TC noted that a method for providing missing UPOV codes for data submitted for the Plant Variety Database had been developed by the WIPO Brand Database Unit. That method had been used to suggest UPOV codes for consideration by the contributors, in order that UPOV codes could be entered for all data in the Plant Variety Database. On that basis, the TC noted that UPOV codes had been allocated for virtually all entries in the Plant Variety Database.

103. The TC noted that a report on developments concerning the provision of assistance to contributors of data to the Plant Variety Database would be made to the to the CAJ at sixty-fifth session.

Data to be included in the Plant Variety Database (Program: Section 3)

104. The TC agreed to the proposal to amend the “Program for Improvements to the Plant Variety Database”, as set out in document TC/48/6, Annex II, with regard to Section 3.2 “Data quality and completeness” (see new TAG <800>), in order to introduce the possibility for contributors to the Plant Variety Database to provide information on dates on which a variety was commercialized for the first time in the territory of application and other territories, as set out in document TC/48/6, Annex IV.

105. The TC noted that the following disclaimer would be added:

“The absence of information in [item XXX] does not indicate that a variety has not been commercialized. With regard to any information provided, attention is drawn to the source and status of the information as set out in the fields ‘Source of information’ and ‘Status of information’. However, it should also be noted that the information provided might not be complete and accurate.”

Frequency of data submission (Program: Section 4)

106. The TC agreed that there should be no changes to the frequency for publication of that data, i.e. six updates per annum, for the time being. However, it noted that it would be possible to correct any important data errors in PLUTO at the earliest possible opportunity where requested by the data contributor.

107. The TC noted that the Office of the Union had issued circular E-12/013, on January 23, 2012, to recipients of the UPOV-ROM, informing them of the launch of the freely-accessible PLUTO database on the UPOV website and requesting an indication on whether they wished to continue to receive the UPOV-ROM. In the replies received: 14 recipients from members of the Union had indicated that they wished to continue to receive the UPOV-ROM; and 13 recipients from members of the Union and 7 paying subscribers, had indicated that they did not wish to continue to receive the UPOV-ROM. The TC also noted the plans for WIPO Brand Database Unit to develop its own version of the UPOV-ROM as a part of the program for improvements to the Plant Variety Database.

Common search platform (Program: Section 7)

108. The TC noted that there had been no substantial developments concerning the development of a common search platform since 2010. It also noted that the World Intellectual Property Organization (WIPO), the Community Plant Variety Office (CPVO), the Royal General Bulb Growers' Association (KAVB) (Netherlands) and the Commission for Nomenclature and Cultivar Registration of the International Society for Horticultural Science (ISHS) might be consulted on possible approaches later in 2012.

Variety description databases

109. The TC considered document TC/48/9 "Variety Description Databases" (see document TC/48/22 "Report on the Conclusions", paragraphs 114 to 116).

110. The TC noted the information provided on variety description databases at the sessions of the TWA, TWC, TWV, TWO, TWF and BMT, held in 2011.

111. The TC requested the experts from France to continue their work on grouping characteristics and on the development of a database containing Pea variety descriptions of members of the Union, as set out in paragraphs 7 to 10 of document TC/48/9, and to report on their work to the TWPs at their sessions in 2012 and to the TC at its forty-ninth session.

Exchangeable software

112. The TC considered document TC/48/12 "Electronic Application Systems" (see document TC/48/22 "Report on the Conclusions", paragraphs 117 to 120).

113. The TC noted the adoption of document UPOV/INF/16/2 "Exchangeable Software".

114. The TC noted that the Consultative Committee, at its eighty-second session, held in Geneva on October 19 and on the morning of October 20, 2011, had endorsed the inclusion of the offers by Naktuinbouw, provided in the form of a helpdesk on practical technical questions as well as information on internship, in section "(ii) Offers of assistance for the development of plant variety protection" of the "Assistance" webpage. It noted that the Consultative Committee had also endorsed the inclusion of the offer for assistance on the development of electronic office management systems made by the CPVO in section "(ii) Offers of assistance for the development of plant variety protection" of the "Assistance" webpage.

115. The TC considered the recommendation of the TWC at its twenty-ninth session concerning the inclusion of "Bionumerics Software for Databasing and Data Analysis" in document UPOV/INF/16, in conjunction with the comments of the TWV, TWF, TWO and BMT. The TC noted different views on whether commercial software should be considered in document UPOV/INF/16 and suggested that it would be appropriate to review the title of document UPOV/INF/16 "Exchangeable Software" and Section "1. Requirements for exchangeable software", before taking a view on the inclusion of the "Bionumerics Software for Databasing and Data Analysis" software. It agreed that the review should be included in the agenda for its forty-ninth session.

Electronic application systems

Standard References to the UPOV Model Application Form

116. The TC considered document TC/48/13 "Electronic Application Systems" (see document TC/48/22 "Report on the Conclusions", paragraphs 121 to 124).

117. The TC noted that the Office of the Union would issue a survey on the extent to which members of the Union use the standard references of the UPOV Model Application Form in their application forms and would present the results of that survey to the CAJ at its sixty-sixth session, to be held in October 2012.

Electronic Version of the UPOV Model Application Form

118. The TC noted the developments concerning meetings between experts of UPOV, WIPO, CPVO and ISF, in order to develop proposals for consideration by the CAJ.

119. The TC noted that the CAJ would be invited to consider whether to discuss the potential benefits of a unique variety identifier, as set out in paragraph 24 of document TC/48/13.

Method of Calculation of COYU

120. The TC considered document TC/48/11 "Method of Calculation of COYU" (see document TC/48/22 "Report on the Conclusions", paragraphs 125 to 127).

121. The TC noted the latest developments concerning the method of calculation of COYU, as set out in paragraphs 10 to 13 of document TC/48/11.

122. The TC agreed to request the TWC to continue its work with the aim of developing recommendations to the TC concerning the proposals to address the bias in the present method of calculation of COYU.

Assessing uniformity by off-types on the basis of more than one sample or sub-sample

123. The TC considered document TC/48/14 "Assessing Uniformity by off-types on the basis of more than one sample or sub-sample" (see document TC/48/22 "Report on the Conclusions", paragraphs 128 to 130).

124. The TC requested the Office of the Union to prepare a summary of the information in the Annexes to document TC/48/14, corresponding to the assessment of uniformity by off-types on the basis of more than one sample or sub-sample. The summary would categorize the different situations where more than one sample or sub-sample were used and how the results from separate samples / sub-samples were combined for an overall assessment of uniformity of a variety.

125. The TC agreed to invite the TWC to consider the information contained in the replies to the questionnaire "Population standards used for assessing uniformity by off types on the basis of more than one sample", as contained in the annexes to document TC/48/14 and in the summary to be produced by the Office of the Union, and to provide guidance on the consequences of different approaches.

DUS examination of seed-propagated varieties of Papaya

126. The TC considered documents TC/48/15 Rev. "DUS Examination of Seed-Propagated Varieties of Papaya" and TG/264/2(proj.3) (see document TC/48/22 "Report on the Conclusions", paragraphs 131 to 133).

127. The TC noted the progress in the development of the draft of the Test Guidelines for Papaya, in order to cover seed-propagated varieties. The TC noted that it would be difficult to assess the proportion of male plants, hermaphrodite plants and female plants (Chars. 17-19) on the basis of the proposed sample sizes: 5 plants and 20 plants. Therefore, it agreed that the draft Test Guidelines for Papaya be referred back to the TWF for further consideration in that regard.

128. The TC agreed with the general approach taken in the Test Guidelines in order to cover seed-propagated varieties of Papaya. In particular, it noted that the use of characteristics such as

“Plant: proportion of hermaphrodite plants”, “Plant: proportion of female plants” and “Plant: proportion of male plants” was an approach that had already been used for other adopted Test Guidelines.

Preparatory workshops

129. The TC considered document TC/48/10 “Preparatory Workshop”, (see document TC/48/22 “Report on the Conclusions”, paragraphs 134 to 136).

130. The TC noted the report of the preparatory workshops held in 2011 and the high level of participation by observer States, as follows:

	Participation								
	2003	2004	2005	2006	2007	2008	2009	2010	2011
<i>Members of the Union</i> number of participants / (number of members of the Union)	55 (23)	69 (20)	130 (25)	136 (19)	167 (22)	162 (31)	95 (21)	117 (25)	115 (24)
<i>Observer States / Authorities</i> number of participants / (number of States / Authorities)	10 (9)	2 (1)	3 (3)	-	3 (1)	3 (2)	-	-	15 (6)
<i>Observer Organizations</i> number of participants / (number of Organizations)	3	2	5 (3)	2 (2)	4 (2)	25 (2)	3 (2*)	10 (2*)	5 (2*)

131. The TC approved the proposed program for 2012, as set out in document TC/48/10, subject to the inclusion of an item on information on the use of molecular techniques in the examination of DUS.

Webcasting of UPOV sessions

132. The TC considered document TC/48/16 “Webcasting of UPOV Sessions”.

133. The TC agreed that it would be appropriate to consider broadcasting live webcasts, and place video recordings on the UPOV website, for future sessions of the TC, subject to arrangements to be agreed by the Consultative Committee. It noted that the WebEx facility for the TC-EDC meeting had been very effective and endorsed the continuation of that practice. The TC also agreed that the Office of the Union should discuss with the hosts of the TWPs in 2012 whether they would wish to arrange for WebEx to be used for selected Test Guidelines’ subgroup (TG Subgroup) discussions. It welcomed the offer of France to test WebEx for [a] selected TG Subgroup[s] at the forty-first session of the TWA, to be held in Angers, France, from May 21 to 25, 2012, and invited the host and the Chairperson of the TWA to investigate a suitable TG Subgroup, in conjunction with the Office of the Union and the relevant Leading Expert[s]. It also noted that the Chairman of the TWC and the hosts of the thirtieth session of the TWC, to be held in Chisinau, Republic of Moldova, from June 26 to 29, 2012, would discuss possibilities to make selected presentations via the internet.

134. The TC agreed to request the Office of the Union to prepare a report on the use of WebEx at the TWP session[s], in order that the TC could review how to develop that approach further (see document TC/48/22 “Report on the Conclusions”, paragraphs 137 to 139).

Test Guidelines

135. The TC considered documents TC/48/2 “Test Guidelines” and TC/48/17 “Partial Revisions of Test Guidelines”.

Test Guidelines for Adoption

136. The TC noted the following procedure for the adoption of Test Guidelines, as set out in paragraphs 2 and 3 of document TC/48/2,

“2. The Technical Committee (TC), at its forty-seventh session, held in Geneva from April 4 to 6, 2011, noted that the Council, at its forty-third ordinary session, held in Geneva on October 22, 2009, had

endorsed the practice whereby Test Guidelines are adopted by the TC on behalf of the Council on the basis of the program of work approved by the Council, without the individual Test Guidelines being submitted to the Council for review (see document C/43/17 "Report", paragraph 38).

"3. At its forty-fifth ordinary session, held in Geneva on October 20, 2011, the Council noted the work of the TC, the TWPs and the BMT, as provided in document C/45/10, and approved the programs of work set out in document C/45/10 (see document C/45/17 "Report on the decisions", paragraph 34)."

137. The TC noted the adoption of the Test Guidelines that were considered by the TC at its forty-seventh session, as set out in paragraphs 4 and 5 of document TC/48/2 as follows:

"4. The TC, at its forty-seventh session, held in Geneva from April 4 to 6, 2011, agreed that the wording of document TGP/7/2, as adopted by the Council at its forty-fourth ordinary session, held in Geneva on October 21, 2010, with regard to Chapter 4.1.4 should not be followed in the Test Guidelines to be adopted at its forty-seventh session. It agreed that the Test Guidelines to be adopted by the TC should incorporate the amended wording for Chapter 4.1.4, as follows: (see document TC/47/26 "Report on the Conclusions", paragraph 98).

"Alternative 1: "Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on { x } plants or parts taken from each of { x } plants and any other observations made on all plants in the test, disregarding any off-type plants."

"Alternative 2: "Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on { x } plants or parts taken from each of { x } plants and any other observations made on all plants in the test, disregarding any off-type plants. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be { y }."

"5. The TC noted that the Council, at its forty-fifth ordinary session held on October 20, 2011, would need to adopt the revised text for document TGP/7 before the Test Guidelines could be adopted. Therefore, it agreed to adopt the Test Guidelines subject to the Council adopting the necessary revision to document TGP/7 (see document TC/47/26 "Report on the Conclusions", paragraph 99)."

138. The TC adopted the Test Guidelines listed in the table below and agreed that they should be published on the UPOV website at the earliest opportunity:

**	TWP	Document No. N°. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name Nom botanique Botanischer Name Nombre botánico
NEW TEST GUIDELINES							
JP	TWA	TG/278/1	Buckwheat	Blé noir; Sarrasin	Buchweizen	Alforfón	<i>Fagopyrum esculentum</i> Moench (<i>Fagopyrum sagittatum</i> Gilib.)
FR	TWO	TG/279/1	Canna	Balisier; Canna	Blumenrohr	Platanillo	<i>Canna</i> L.
PL/GB	TWO/ TWV	TG/281/1	Echinacea, Cone flower	Échinacée	Igelkopf		<i>Echinacea</i> Moench.
NL	TWA	TG/276/1	Hemp	Chanvre	Hanf	Cáñamo	<i>Cannabis sativa</i> L.
GB	TWO	TG/280/1	Heuchera, Coral Flower, Heucherella, Foamy Bells	Heuchera	Purpurglöckchen		<i>Heuchera</i> L., <i>xHeucherella</i> H. R. Wehrh., <i>Heuchera x Tiarella</i>
DE	TWF	TG/277/1	Blue Honeysuckle, Bush Honeysuckle; Honeyberry		Blaue Honigbeere		<i>Lonicera caerulea</i> L.
JP	TWO	TG/ONCID#	Oncidium	Orchidée danseuse, Oncidium	Oncidium	Oncidium	<i>Oncidium</i> Sw.
JP	TWV	TG/SHIITK#	Shiitake	Shiitake	Pasaniapilz	Shiitake	<i>Lentinula edodes</i> (Berk.) Pegler, <i>Lentinus elodes</i> (Berk.) Sing.

**	TWP	Document No. N°. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name Nom botanique Botanischer Name Nombre botánico
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REVISIONS OF TEST GUIDELINES

NZ	TWF	TG/98/7	Actinidia, Kiwifruit	Actinidia	Actinidia	Actinidia	<i>Actinidia</i> Lindl.
AU/ES	TWA	TG/120/4	Durum wheat, Hard Wheat, Macaroni Wheat	Blé dur	Durumweizen; Hartweizen	Trigo duro	<i>Triticum turgidum</i> L. subsp. <i>durum</i> (Desf.) Husn., <i>Triticum durum</i> Desf., <i>Triticum turgidum</i> subsp. <i>turgidum</i> conv. <i>durum</i> (Desf.) MacKey, <i>Triticum turgidum</i> L.
GB	TWV	TG/218/2	Parsnip	Panais	Pastinake	Chirivía	<i>Pastinaca sativa</i> L.
DE	TWV	TG/63/7- TG/64/7	Black radish, Oriental radish	Radis rave	Rettich	Rabano de invierno, Rabano negro	<i>Raphanus sativus</i> L. var. <i>niger</i> (Mill.) S. Kerner, = (N) <i>Raphanus sativus</i> L. var. <i>longipinnatus</i> L.H. Bailey
			Radish, Garden Radish, European Radish, Chinese Small Radish, Western Radish	Radis de tous les mois	Radieschen	Rabanito	<i>Raphanus sativus</i> L. var. <i>sativus</i> = (S)

PARTIAL REVISIONS OF TEST GUIDELINES

FR	TWV/ TWA	TG/12/9 Rev.	French Bean	Haricot	Gartenbohne	Judía común, Alubia	<i>Phaseolus vulgaris</i> L.
DE	TWO	TG/78/4 Rev.	Kalanchoe	Kalanchoe	Kalanchoe, Flammendes Kätchen	Kalancho	<i>Kalanchoe blossfeldiana</i> Poelln. and its hybrids
DE	TWO	TG/196/2 Rev.	New Guinea Impatiens	Impatiende de Nouvelle-Guinée	Neu-Guinea- Impatiens	Impatiens de Nueva Guinea	New Guinea Impatiens Group
DE	TWF	TG/22/10 Rev.	Strawberry	Fraisier	Erdbeere	Fresa, Frutilla	<i>Fragaria</i> L.

**ISO code of UPOV member providing the leading expert in the drafting of the Test Guidelines

Not yet published (no TG reference)

139. The TC noted the following comments of the Delegation of Italy on the Test Guidelines for Durum Wheat (document TG/120/4(proj.5)):

- Importance of single ear rows testing for uniformity assessment (optional in Test Guidelines);
- Sample size of 20 plants in the first step for uniformity assessment might be too small; and
- Characteristic 19 "Lower glume": hairiness of external surface should be assessed in a sample of 2,000 plants ("B"), not on the sample of 100 plants ("A").

140. The TC agreed that the Test Guidelines for *Oncidium* should be adopted subject to the relevant amendments, being approved by the TWO by correspondence.

141. The TC noted that, in response to a number of technical questions raised by interested experts after the TWA session, it was agreed by the Chairperson and former Chairperson of the TWA, and the Leading Experts to consider a new draft of TG/SESAME at the forty-first session of the TWA to be held in Angers, France, from May 21 to 25, 2012.

142. The TC noted that, in response to a number of technical questions concerning disease resistance, raised by interested experts after the TWV session, it was agreed by the Chairperson and former Chairperson of the TWV, and the Leading Expert to consider a new draft of the Test Guidelines for Tomato Rootstocks and the partial revision of the Test Guidelines for Tomato at the forty-sixth session of the TWV to be held near the city of Venlo, Netherlands, from June 11 to 15, 2012.

143. The TC considered the proposed revision of the Test Guidelines for Papaya, as set out in document TG/264/2(proj.3) and summarized in Annex V to document TC/48/15 Rev., in conjunction with the consideration of the TWF and the recommendation of the TC-EDC, as set out in paragraphs 30 to 32 of document TC/48/15 Rev.

144. The TC agreed with the recommendation of the TC-EDC, as set out in paragraph 32 of document TC/48/15 Rev., that the draft Test Guidelines for Papaya be referred back to the TWF for further consideration.

145. The TC agreed, on the basis of the recommendation of the TC-EDC, that the draft Test Guidelines for Tree Paeony should be referred back to the TWO in order to resolve technical issues as presented in the comments by the TC-EDC, as set out in Annex II to this document.

Draft Test Guidelines to be discussed by the Technical Working Parties in 2012

146. The TC agreed the program for the development of new Test Guidelines and for the revision of Test Guidelines, as shown in Annex III to document TC/48/2 (see document TC/48/22 "Report on the Conclusions", paragraphs 140 to 151).

List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability

147. The TC noted the information provided in document TC/48/4 and heard that the number of genera and species for which members of the Union had practical experience had increased from 2,679 in 2011 to 2,726 in 2012.

148. The TC agreed that document TC/48/4 should be updated for the forty-ninth session of the TC (see document TC/48/22 "Report on the Conclusions", paragraphs 159 and 160).

Program for the forty-eighth session

149. The following draft agenda was agreed for the forty-ninth session of the TC, to be held in Geneva in 2013:

1. Opening of the session
2. Adoption of the agenda
3. Discussion on:
 - (a) molecular techniques:
 - (i) application of models by members of the Union; and
 - (ii) presentation of the situation with regard to molecular techniques in other international organizations;
 - (b) use of DUS test reports by members of the Union
4. Report on developments in UPOV including relevant matters discussed in the last sessions of the Administrative and Legal Committee, the Consultative Committee and the Council (oral report by the Vice Secretary-General)
5. Progress reports on the work of the Technical Working Parties, including the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT), and the Ad Hoc Crop Subgroups on Molecular Techniques
6. Matters arising from the Technical Working Parties
7. TGP documents
8. Molecular techniques
9. Variety denominations
10. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
11. Method of calculation of COYU
12. Assessing uniformity by off-types on the basis of more than one sample or sub samples
13. Electronic communications for the TC, TC-EDC and TWPs
14. Preparatory workshops
15. Test Guidelines
16. List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability
17. Program for the fiftieth session

18. Adoption of the report on the conclusions (if time permits)
19. Closing of the session

150. The TC agreed that the forty-ninth session should be held over three days: Monday morning to Wednesday afternoon. It agreed that the discussions under agenda item 3 should be organized for Monday afternoon and Tuesday morning or afternoon. The TC agreed that the TWP chairpersons should be invited to make a visual presentation under agenda item 5 in the same way as for the forty-eighth session. It agreed that the TC-EDC should hold a two-day meeting in January 2013 (see document TC/48/22 "Report on the Conclusions", paragraphs 161 and 162).

II. PROGRESS REPORT OF THE WORK OF THE TECHNICAL WORKING PARTIES AND THE WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR IN 2011

151. The following reports were made by the Chairpersons on the work of the TWA, TWC, TWF, TWO, TWV, and BMT at the forty-eighth session of the TC.

Technical Working Party for Agricultural Crops (TWA)

152. The Technical Working Party for Agricultural Crops (TWA) held its fortieth session in Brasilia, Brazil, from May 16 to 20, 2011, under the Chairmanship of Mr. Dirk Theobald (European Union). The report of that meeting can be found in document TWA/40/23 "Report".

153. The session was attended by 60 participants from 23 members of the Union, 1 observer State and 2 organizations. The preparatory workshop was held on the afternoon of May 15 and was attended by 26 participants from 11 members of the Union, 2 observer States and 1 organization.

154. The TWA was welcomed by Mr. Erikson Camargo Chandoha, Secretary of Agricultural Development and Cooperativism, Ministry of Agriculture, Livestock and Food Supply, Brazil, followed by a presentation on plant variety protection in Brazil by Mrs. Daniela de Moraes Aviani, Coordinator, National Plant Variety Protection Service, Ministry of Agriculture, Livestock and Food Supply.

155. The TWA adopted the agenda and received summarized short reports on developments in plant variety protection from the participants, followed by a presentation from the Office of UPOV on the latest developments within UPOV. After the reports, the TWA noted the information on developments in UPOV on molecular techniques, as provided in document TWA/40/2 "Molecular Techniques".

156. A number of TGP documents were discussed: TGP/7 "Development of Test Guidelines", TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", TGP/12 "Guidance on Certain Physiological Characteristics" and TGP/14 "Glossary of Terms Used in UPOV Documents". Regarding the revision of TGP/7, the TWA considered document TWA/40/11 "Summary of Revisions Proposed for Document TGP/7 Development of Test Guidelines" and noted the different aspects considered for revision.

157. With regard to the guidance on the number of plants to be examined (for distinctness), the TWA discussed whether a proposal in Annex I of document TWA/40/11 should refer only to the assessment of distinctness, or whether it should be elaborated further in order to cover also uniformity and stability. A proposal was made to prepare a general document based on general considerations and to consider separately the number of plants in the trial, the number of plants/parts of plants to be examined for the assessment of distinctness and the number of plants/parts of plants to be examined for the assessment of uniformity.

158. The TWA considered the background information contained in Annex II of document TWA/40/11 concerning the "Guidance for method of observation: Revision of TGP/7" and noted the comments by the TWPs in 2010.

159. Consideration was given to document TWA/40/12 "Revision of TGP/7: Providing Photographs with the Technical Questionnaire" and changes to the text were proposed.

160. Document TWA/40/19 "Revision of TGP/7: Quantity of Plant Material Required" was considered and the TWA noted the information provided.

161. The TWA considered document TWA/40/18 "Example Varieties: Revision of Document TGP/7" on example varieties and noted the comments made by the TWPs in 2010, but agreed it was not necessary to redraft the proposal already prepared, as yet.

162. With regard to document TGP/8, consideration was given to document TWA/40/14 "Revision of Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability" which consisted of a number of annexes covering the different aspects to be revised. The information in these annexes was noted and discussed and certain proposals and recommendations were made.

163. The information in document TWA/40/15 "Revision of Document TGP/12: Disease Nomenclature and Disease Resistance Characteristics" was considered and noted by the TWA.

164. The TWA considered the documents TWA/40/3 "TGP Documents", Annexes I and II and TWA/40/16Rev. "Revision of Document TGP/14: New Section for Color Characteristics" covering the revision of TGP/14 and received a presentation on a study concerning the "Examination of the use of component and composite characters for determining distinctness". The modifications proposed to document TWA/40/16 Rev. with regard to Section 2: Botanical terms, Subsection 3: Color were also noted and a recommendation with regard to the subsection on "Variegation" was made.

165. The information provided in document TWA/40/10 "Method for calculation of COYU" and document TWA/40/9 "Assessment of Uniformity by Off-types on the Basis of More than One Sample or Sub-samples" was noted, as well as the developments with regard to "Variety Denominations" (document TWA/40/4) and Information and databases which included the following documents: TWA/40/5 "UPOV Information Databases", TWA/40/6 "Variety Description Databases", TWA/40/7 "Exchangeable Software" and TWA/40/8 "Electronic Application Systems".

166. The TWA received a presentation on the development of a regional set of example varieties for South East Asia for the asterisked characteristics in the UPOV Test Guidelines for Rice by Mr. Edilberto D. Redoña from the International Rice Research Institute (IRRI). The TWA concluded that the results of the project were of high value.

167. The TWA considered document TWA/40/17 "Partial Revision of Test Guidelines for French Bean (document TG/12/9)".

168. The TWA took note of the information in document TWA/40/22 "Matters to be resolved concerning Test Guidelines adopted by the Technical Committee" concerning the Test Guidelines for Foxtail Millet and also noted that the subgroup did not have enough time to consider the reply of the Leading Expert to the request made by the Technical Committee (TC) at its forty-seventh session. It was agreed that the Test Guidelines for Foxtail Millet should be re-discussed at the forty-first session of the TWA.

169. Ten draft Test Guidelines were discussed and it was agreed to submit 4 of those Test Guidelines to the TC; namely, Buckwheat, Durum Wheat, Hemp and Sesame.

170. The TWA planned to discuss 13 Test Guidelines in 2012, of which 3 were new.

171. The TWA agreed to discuss the following draft Test Guidelines at its forty-first session:

- Adlay (*Coix ma-yuen* Roman.)
- Adzuki/Red bean (*Vigna angularis*)
- Cassava (*Manihot esculenta* Crantz.)
- *Common Vetch (*Vicia sativa* L.) (Revision)
- *Foxtail Millet (*Setaria italica* (L.) P. Beauv.)
- Groundnut (*Arachis* L.) (Revision)
- Kentucky Bluegrass (*Poa pratensis* L.) (Revision)
- Rhodesgrass (*Chloris gayana* Kunth)

- Scorpion Weed (*Phacelia tanacetifolia* Benth.)
- Sorghum (*Sorghum bicolor* L.) (Revision)
- Tall wheatgrass (*Elytrigia elongata* (Host) Nevski), (*Agropyron elongatum* (Host) P. Beauv.)
- **Urochloa* (*Brachiaria*)
- Wheat (*Triticum aestivum*) (Revision).

172. At the invitation of France, the TWA agreed to hold its forty-first session in Angers, from May 21 to 25, 2012, with the preparatory workshop on May 20.

173. The TWA proposed to consider the following items at its forty-first session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular Techniques
5. TGP documents
6. Variety denominations Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems Uniformity assessment
7. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
8. Discussion on draft Test Guidelines (Subgroups)
9. Recommendations on draft Test Guidelines
10. Guidance for drafters of Test Guidelines
11. Date and place of the next session
12. Future program
13. Report on the session (if time permits)
14. Closing of the session.

174. On the morning of May 18, 2011, the TWA visited Pioneer Seeds, Brasilia D.F. Seed Processing and Research Unit, and its soybean seed production plant as well as the Brazilian Enterprise for Research on Farming and Cattle Raising, Brazilian Agriculture Research Cooperation (EMBRAPA) Cerrados, where the TWA visited field trials of Cassava and *Urochloa*.

175. The TWA thanked Mr. Dirk Theobald and took note that he was awarded a UPOV bronze medal in recognition of his chairmanship of the TWA from 2009 to 2011.

Technical Working Party on Automation and Computer Programs (TWC)

176. The Technical Working Party on Automation and Computer Programs (TWC) held its twenty-ninth session in Geneva, from June 6 to June 10, 2011, under the chairmanship of Mr. Gerie van der Heijden (Netherlands).

177. The TWC session was attended by 22 participants from 16 members of the Union. The preparatory workshop was held during the afternoon of Monday, June 6, and was attended by 13 participants from 10 members of the Union. The TWC session was webcast so that other participants could attend the meeting via the internet. This was a trial for UPOV to see if this type of meeting was suitable for webcasting. In total, 25 participants from 10 members of the Union participated through the internet. In total, 32 documents were discussed during the meeting.

178. The TWC considered document TWC/29/11 "Summary of Revisions Proposed for Document TGP/7 'Development of Test Guidelines'". With regard to Annex I "Number of plants to be considered for the assessment of Distinctness", the TWC proposed that experts from Germany and Poland should establish a sub-group to develop further guidance on the number of plants to be examined for distinctness.

179. The TWC discussed the Annexes to document TWC/29/14, "TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", as follows:

TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

ANNEX I: New Section 2 - Data to be recorded.

180. After some amendments this section will be discussed in the Technical Working Parties (TWPs) in 2012 with a view to its incorporation into TGP/8.

ANNEX II: New Section 3 - Control of variation due to different observers

181. The TWC agreed that a new document, taking into account the information contained in document TWC/25/12 Rev. "Review of Test Design: Checking Levels of Quality (Revised)", should be prepared.

ANNEX III: New Section 6 – Data processing for the assessment of distinctness and for producing variety descriptions

182. The TWC expressed a preference to develop this section for Part I in TGP/8, describing the principles for producing variety descriptions

New Section –on the reduction of trials

183. The document TWC/29/26 "Cyclic Planting of Established Varieties to Reduce Trial Size; Proposal for Text to be Added to TGP/8", which was introduced under agenda item 11, was prepared to be included in Part I of TGP/8.

TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

ANNEX V: New Section after Section COYU Statistical Methods for Very Small Sample Sizes

184. The TWC agreed that it would be useful to extend the draft with a view to presenting possible solutions to the different situations presented.

ANNEX VI: New Section 11 Examining DUS in bulk samples

185. It was agreed that New Section 11: "Examining DUS in bulk samples" to be included in TGP/8, but the content of sections "Distinctness" and "Uniformity" should be removed from the main text and presented in an appendix.

ANNEX VII: New Section 12 - Examining characteristics using image analysis

186. Several presentations were made on the use of image analysis software in the examination of DUS. The TWC agreed that relevant information on image analysis as a method should be included in TGP/8 and a new section be prepared on the basis of the presentations.

ANNEX VIII: New Section 13 - Methods for data processing for the assessment of distinctness and for producing variety descriptions

187. The TWC agreed that the information on the species presented in the method from the United Kingdom should be updated and that it should be included in TGP/8. The TWC also agreed that the methods provided by Japan and France should be included in TGP/8. The discussion of similarities and differences in these proposals will continue in the TWC meeting in 2012, with the objective to identify methods that could serve as generic models for producing variety descriptions.

ANNEX X: New Section - Statistical methods for visually observed characteristics

188. The TWC agreed that it would be necessary to explore the consequences of the decisions for DUS examination, as the method is a test for differences in the distribution - both location and dispersion. The consequences of excluding certain varieties from the test, because they did not have sufficient numbers in some cells, should be further investigated.

ANNEX XII: Section 4 – 2x1 % Method - Minimum number of degrees of freedom for the 2x1% Method

189. The TWC agreed that the explanation proposed in Annex XII should be included in TGP/8. The TWC also agreed that the explanation in Annex XIII concerning the subject “Minimum number of degrees of freedom for COYU” should be included in TGP/8.

ANNEX XIV: Section 10 – Minimum number of comparable varieties for the Relative Variance Method

190. The TWC conditionally agreed with the proposal made by Australia. However, doubts were expressed regarding some assumptions of the method and further investigation will be made with respect to these assumptions and the F value used in the calculations.

191. The TWC agreed that a proposal in document TWC/29/25 “An Adjustment to the COYD Method When Varieties are Grouped Within the DUS Trial; Proposal for Text to be Added to TGP/8” presented under agenda item 11 Development of COY” should be included in TGP/8 Part II Section 3 “The Combined over year’s criteria for distinctness (COYD)”.

192. The TWC noted that different color groups, as established in Section 3 of Annex I to document TWC/29/16 “Revision of document TGP/14: New Section for Color Characteristics”, were not created for the purpose of grouping varieties for DUS trials and should not be used for that purpose. The TWC agreed to invite papers on how information on colors is used for DUS examination for presentation at the next session of the TWC.

193. A presentation was given on the latest prototype of the online UPOV plant variety database. The request for storing personalized search results was noted, as was the request for the facility to download data from the database for local purposes and the addition of phonetic fields. The TWC agreed that there was a strong need for unique identifiers in the data provided by the contributors.

194. The TWC considered document TWC/29/13 “Concept of a Database Containing Pea Variety Descriptions”. The TWC suggested that the TWV should continue to discuss the concept and ways to achieve harmonization. The TWC received a presentation on “Gemma: A Technical Website to Share DUS Data” (see document TWC/29/24), in which it is possible to store phenotypic and molecular data and digital pictures in “Gemma”, for the management of reference collections.

195. The TWC agreed that the “Bionumerics Software for Databasing and Data Analysis” (see document TWC/29/30) should be included in the exchangeable software for biochemical and molecular data, subject to agreement by the BMT at its thirteenth session. The TWC noted the proposals made by the Russian Federation provided in Annex II to document TWC/29/7 “Exchangeable Software” and looked forward to receiving a presentation by experts from the Russian Federation at a future session.

196. The TWC considered document TWC/29/8 “Electronic Application Systems”. The TWC agreed that the inclusion of the possibility of transferring data from the database hosted by UPOV to the form of the authority would be very useful.

197. The TWC agreed to propose the development of a questionnaire concerning software and hardware used for image analysis and invited UPOV members to make presentations on image analysis at the thirtieth session of the TWC in 2012. It was agreed to include image analysis as a regular item in the agenda of the TWC.

198. The TWC noted the updated information on data loggers provided in document TWC/29/28 “Survey on Hand-Held Data Capture Devices” and agreed that a new circular concerning hand-held data capture devices should be sent by the Office of the Union, inviting further entries in advance of the thirtieth session of the TWC.

199. The TWC considered document TWC/29/9 “Assessing Uniformity by Off-Types on the Basis of More Than one Sample or Sub-Sample” and concluded that the concerned TWC experts with the assistance of crop experts should prepare a document to explore the consequences of different approaches on using real data.

200. With regard to the development of COYU, the TWC considered document TWC/29/22 “Analysis of the Relation Between Log SD and Mean of Varieties”. The TWC agreed that a new document based on the cubic spline model should be prepared for the next session of the TWC.

201. The TWC took note of the information in document TWC/29/23 "A Comparison of COYU and a Method Based on Bennett's Test for Coefficients of Variation". Some experts wondered whether better results could be obtained if the Bennett's Test were compared with COYU at other significance levels and with COYU improved with the cubic spline model.

202. The expert from Germany provided the participants with a CD containing the latest database of TWC working documents.

203. It was concluded that attendance through the internet to the TWC session was not very effective: the meeting should be a forum where people can discuss. A very strict agenda that is needed for web meetings may harm the discussion and interaction is too limited.

204. The TWC agreed to hold its thirtieth session in Chisinau, Republic of Moldova, from June 26 to 29, 2012, with the preparatory workshop on June 25, 2012. During the thirtieth session, the TWC planned to discuss the following items:

1. Opening of the session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection:
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular techniques
5. TGP documents
6. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
7. Variety denominations
8. Data loggers
9. Image analysis
10. Assessing uniformity by off-types on the basis of more than one sample or sub-samples
11. Development of COY
 - (a) COYU: possible proposals for improvements to COYU
 - (b) A rationale for excluding varieties of common knowledge from the second growing cycle when COYD is used
12. Statistical analysis of categorical data
13. Database for researching TWC documents
14. Date and place of the next session
15. Future program

205. Mr. Gerie van der Heijden was awarded a UPOV bronze medal in recognition of his chairmanship of the TWC from 2009 to 2011.

Technical Working Party for Fruit Crops (TWF)

206. The Technical Working Party for Fruit Crops (TWF) held its forty-second session in Hiroshima, Japan, from November 14 to 18, 2011. The session was opened and chaired by Mrs. Bronislava Bátorová (Slovakia).

207. The TWF session was attended by 50 participants from 17 members of the Union, four observer States and one observer organization.

208. The TWF was welcomed by Mr. Takashi Ueki, Director, PVP Office, New Business and Intellectual Property Division from the Ministry of Agriculture, Forestry and Fisheries. A presentation on the examination system in Japan was given by Mr. Katsumi Yamaguchi, Chief Examiner from the PVP Office.

209. A number of TGP documents were discussed by the TWF and the following key issues can be highlighted:

210. The TWF noted the summary of revisions proposed for document TGP/7 "Development of Test Guidelines" as set out in document TWF/42/11 "Summary of Revisions Proposed for document TGP/7 "Development of Test Guidelines":

- Example varieties.
- Providing photographs with the Technical Questionnaire.
- Quantity of plant material required.
- Guidance for method of observation.
- Guidance on the number of plants to be examined.

211. The TWF agreed that Mr. Erik Schulte (Germany) be invited to participate in the development of guidance on the number of plants to be examined.

212. For document TGP/8, "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", the TWF considered document TWF/42/14. It was concluded that Annex I provided valuable information and should be included in document TGP/8. Annex II to Annex XIV were discussed and comments and recommendations made.

213. The TWF considered document TWF/42/15 "Revision of Document TGP/12: "Disease Nomenclature and Disease Resistance Characteristics" and agreed with the proposal for explanations for disease resistance characteristics in Test Guidelines and nomenclature of pathogens, as presented in the annex to that document. After considering document TWF/42/21 "Disease Resistance Characteristics in Test Guidelines for Fruit Crops", the TWF agreed that there was no pressing need to adopt further disease resistance testing within the fruit Test Guidelines, although that might change in the future.

214. In relation to document TGP/14 "Glossary of Terms Used in UPOV Documents", the TWF considered documents TWF/42/3 "TGP Documents", Annexes I and II and TWF/42/16 "Revision of Document TGP/14: New Section for Color Characteristics". The TWF noted that Table 1.2 (Characteristic: ratio length/width) contained in Annex I to document TWF/42/3 should be updated to reflect the order of states as indicated in TGP/14.

215. The TWF noted the report on developments in Variety Denominations provided in document TWF/42/4 "Variety Denominations".

216. Proposals for Partial Revisions: Mandarins: the TWF discussed documents TWF/42/19 "Proposal for a Partial Revision of the Test Guidelines for Mandarin (Citrus; Group 1)" and TWF/42/19 Add., "Addendum to Proposal for a Partial Revision of the Test Guidelines for Mandarin (Citrus; Group 1)" in particular the proposal for a new characteristic after existing characteristic 98 ("Fruit: number of seeds controlled manual cross-pollination"). Experts from Morocco requested that the methodology of controlled manual cross-pollination be clarified before any such characteristic could be introduced and made specific reference to the requirements in document TG/1/3 Section 4.2.1 "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants. The TWF discussed the proposed mandarin partial revision and agreed that further studies were necessary to test the methodology and also agreed that the wording of the characteristic might need to be reviewed. With these objectives in mind, the TWF agreed to form a subgroup in which Morocco, South Africa and Spain would participate. Australia and Brazil also showed an interest in participating; however they were unable to commit at that time. The TWF requested Mr. Jean Maison (European Union) to coordinate the work of the subgroup. It was agreed to postpone any decision on the proposed mandarin partial revision until the subgroup had presented its results to the TWF.

217. The TWF agreed that the following draft Test Guidelines should be sent to the Technical Committee for adoption at its forty-eighth session, to be held in Geneva from March 26 to 28, 2012: Actinidia (*Actinidia* Lindl.), Blue Honeysuckle, Honeyberry (*Lonicera caerulea* L.), Papaya (*Carica papaya* L.), Pineapple (*Ananas comosus* (L.) Merr.) and the Partial Revision for Strawberry.

218. The TWF agreed to discuss the following 11 Test Guidelines at its forty-third session:

- *Acca sellowiana* (Berg) Burret
- Apple rootstocks (*Malus* Mill.) (Revision)
- *Fortunella* Swingle
- *Litchi* Sonn

- Mandarins (partial revision)
- Pecan nut
- Pomegranate (*Punica granatum* L.)
- *Vanilla* Mill.
- *Cocos nucifera* L.
- Prunus rootstocks (revision)
- Peach

219. At the invitation of the expert from China, the TWF agreed to hold its forty-third session in Beijing, China, from July 30 to August 3, 2012.

220. The TWF proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular techniques:
5. TGP documents
6. Variety denominations
7. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
8. Assessing uniformity by off-types on the basis of more than one sample or sub-samples
9. Experiences with new types and species
10. Proposals for Partial Revision/Corrections of Test Guidelines (if appropriate)
11. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
12. Discussion on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. Guidance for drafters of Test Guidelines
15. Date and place of next session
16. Future program
17. Adoption of the Report of the session (if time permits)
18. Closing of the session.

221. Mrs. Bronislava Bátorová was awarded a UPOV bronze medal in recognition of her chairmanship of the TWF from 2009 to 2011.

Technical Working Party for Ornamental Plants and Forest Trees (TWO)

222. The Technical Working Party for Ornamental Plants and Forest Trees (TWO) held its forty-fourth session in Fukuyama City, Hiroshima Prefecture, Japan, from November 7 to 11, 2011. The session was chaired by Ms. Andrea Menne (Germany), Chairperson of the TWO. The detailed report appears in document TWO/44/25.

223. The meeting was attended by 67 participants, from 16 members of the Union and six observer States and one observer organization. The preparatory workshop was held during the afternoon of November 6 and was attended by 34 participants.

224. The TWO was welcomed by Mr. Jyunya Endo, Director, New Business and Intellectual Property Division, Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries. Mr. Endo made a presentation on the plant variety protection system in Japan.

225. The TWO noted the information on developments in plant variety protection from members and observers provided in document TWO/44/19 "Reports on Development in Plant Variety Protection from

Members and Observers” and received an oral report from the Office of the Union on the latest developments within UPOV.

226. The TWO considered the proposal in Annex I to document TWO/44/11 “Summary of revisions Proposed for document TGP/7 Development of Test Guidelines” and agreed that guidance be considered to explain when the number of plants in Test Guidelines can be considered to be a minimum number rather than a specific number. It further agreed that guidance be developed on the number of plants in a DUS trial required for examining distinctness, determining typical expression of a variety of common knowledge and establishing a variety description.

227. The TWO welcomed the observation by the TWC, at its twenty-ninth session, held in Geneva, from June 7 to 10, 2011, that any records of observation by notes correspond to a visual (V) observation. The TWO agreed this guidance should be included in document TGP/7 “Development of Test Guidelines”.

228. The TWO considered document TWO/44/18 “Revision of document TGP/7: Example Varieties”. The TWO did not agree with the general view expressed by the TWV at its forty-fifth session, that example varieties in the UPOV Test Guidelines could not be expected to provide internationally harmonized variety descriptions. The TWO noted the model study for Petunia (document TWO/37/8 “Project to Consider the Publication of Variety Descriptions: Model Study on Petunia”) where it had been seen that there was a high level of consistency for the states of expression across varieties.

229. The TWO agreed with the TWV proposal that consideration should be given, where possible, to allocate Test Guidelines to only one Technical Working Party.

230. The TWO considered document TWO/44/14 “Revision of Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”. The TWO agreed, among other things, that realistic examples of statistical methods for very small sample sizes should be included in the document or, if no cases are provided, the section should be deleted.

231. The TWO considered Annex II to document TWO/44/3 “TGP Documents” concerning component and composite characteristics and endorsed the overall observations and related considerations. It noted that each case would need to be considered on its merits. Further, it considered that states for ratios such as “high” or “low” should be possible provided explanations and illustrations are included to avoid confusion.

232. The TWO considered document TWO/44/16 “Revision of Document TGP/14: New Section for Color Characteristics” and agreed to further explanation on the three elements of color hue, saturation, brightness and the precision of color determinations. These will vary according to circumstances and the states will reflect the level of precision, for example yellowish orange versus RHS Colour Chart Reference. The TWO further agreed to amend and clarify a number of terms used to describe colors and color patterns. These included main color/secondary color, ground color and conspicuousness. A number of other terms in color distribution and color patterns were also considered and suggestions made for review or amendment.

233. The TWO noted the information provided in documents TWO/44/5 “UPOV Information Databases” and TWO/44/6 “Variety Description Databases”.

234. The TWO also noted document TWO/44/7 “Exchangeable Software” and agreed that information on the cost and on intellectual property rights should be considered for inclusion in document UPOV/INF/18/1 “Exchangeable Software”.

235. The TWO noted the report on developments in document TWO/44/14 “TGP/8: trial design and techniques used in the examination of distinctness, uniformity and stability” and agreed to the creation of a new denomination class in document UPOV/INF/12/3 “Explanatory Notes on Variety Denominations under the UPOV Convention”, Annex I: Part II to cover *Eupatorium* L., *Eutrochium* Raf. and *Ageratina* Spach.

236. No reports were received on experiences with new types and species; however, the TWO agreed that document TGP/13 “Guidance for New Types and Species” provides effective guidance in this respect.

237. The TWO agreed to submit seven Test Guidelines to the Technical Committee (TC), five being new Test Guidelines for: *Canna* (*Canna* L.), *Echinacea* (*Echinacea* Moench), *Heuchera*, *Heucherella* (*Heuchera* L.; *xHeucherella* H. R. Wehrh), *Oncidium* (*Oncidium* Sw.) and Tree Peony (*Paeonia* Sect. *Moutan*). Two were partial revisions of the Test Guidelines for *Kalanchoe* and New Guinea Impatiens. At its forty-fifth session in 2012, the TWO planned to discuss 18 Test Guidelines, consisting of four revisions and 14 new Test Guidelines.

238. The TWO agreed to discuss drafts of the following Test Guidelines at its forty-fifth session:

- *Aglaonema* Schott.
- *Aloe* L.
- *Campanula* L.
- *Cosmos* (*Cosmos* Cav.)
- *Dianella* (*Dianella* Lam. ex Juss.)
- *Dianthus* (Revision)
- *Gladiolus* (Revision)
- *Hebe* Comm. ex Juss.
- *Hosta*
- *Lilac* (*Syringa* L.)
- *Lobelia erinus* L.
- *Lomandra* Labill.
- *Mandevilla*
- *Osteospermum* (Revision)
- *Phalaenopsis* (Revision)
- *Zinnia* L.
- *Eucalyptus* (part of genus only)
- *Callistephus chinensis* (L.) Nees (China Aster)

239. At the invitation of the expert from the Republic of Korea, the TWO agreed to hold its forty-fifth session in Seoul, from August 6 to 10, 2012, with the preparatory workshop to be held on August 5, 2012.

240. The TWO recalled that Australia and New Zealand had offered to jointly host the TWO and TWF sessions, respectively, in April/May 2013 and that the TWO had expressed its support for that offer.

241. The TWO proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular techniques:
5. TGP documents
6. Variety denominations
7. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
8. Assessing uniformity by off-types on the basis of more than one sample or sub-samples
9. Experiences with new types and species
10. Proposals for Partial Revision/Corrections of Test Guidelines (if appropriate)
11. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
12. Discussion on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. Guidance for drafters of Test Guidelines
15. Date and place of next session
16. Future program
17. Adoption of the Report of the session (if time permits)
18. Closing of the session.

242. Ms. Andra Menne was awarded a UPOV bronze medal in recognition of her chairmanship of the TWO from 2009 to 2011.

Technical Working Party for Vegetables (TWV)

243. The Technical Working Party for Vegetables (TWV) held its forty-fifth session in Monterey, United States of America, from July 25 to 29, 2011 with a preparatory workshop held on July 24. The session was chaired by Ms. Radmila Safarikova (TWV Chairperson). The full report of the meeting is available in document TWV/45/26 "Report".

244. The TWV was welcomed by Ms. Kitisri Sukhapinda, Patent Attorney, Office of Policy and External Affairs, United States Patent and Trademark Office (USPTO) and Mr Paul M. Zankowski, Commissioner, Plant Variety Protection Office, United States Department of Agriculture (USDA).

245. The session was attended by 27 participants from 13 members of the Union and two observer organizations. The preparatory workshop was attended by 14 participants. The session was opened by Mrs. Radmila Safarikova (Czech Republic), Chairperson of the TWV, who welcomed the participants.

246. The TWV noted the reports from members and observers on developments in plant variety protection and the report on the latest developments within UPOV.

247. The TWV considered document TWV/45/2 "Molecular Techniques". An expert from the Netherlands reported that experts from the Netherlands and France were planning to prepare a document for the thirteenth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) on issues concerning the possible use of characteristic-specific molecular markers (formerly "Option 1(a)" approach) for disease resistance in vegetables.

248. The TWV agreed that it would be useful for the experts from the Netherlands and France to make a presentation on issues concerning the possible use of characteristic-specific molecular markers for disease resistance in vegetables at the thirteenth session of the BMT, to be held in Brasilia, Brazil, from November 22 to 24, 2011. It agreed that it would be important for those issues to be reported to the forty-sixth session of the TWV, and subsequently to other Technical Working Parties and the Technical Committee.

249. The TWV considered the following TGP documents:

TGP/7 – Development of Test Guidelines

250. The TWV noted the summary of revisions proposed for document TGP/7 "Development of Test Guidelines", as set out in Part I of document TWV/45/11 "Revision of Document TGP/7: Summary of Revisions Proposed for Document TGP/7 'Development of Test Guidelines'".

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

ANNEX I TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 2 Data to be recorded

ANNEX II TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 3 – Control of variation due to different observers

251. The TWV agreed that the information provided in document TWV/45/14 "Revision of Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", Annex II, provided valuable information that should be included in document TGP/8.

ANNEX III TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section 6 – Data processing for the assessment of distinctness and for producing variety descriptions

252. The TWV considered document TWV/45/14 "Revision of Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", Annex III, in conjunction with

Annex VIII of that document. It agreed that the information provided in Annex VIII was a very important first step in developing common guidance on data processing for the assessment of distinctness and for producing variety descriptions, but concluded that the information as presented in Annex VIII would not be appropriate for inclusion in document TGP/8. It agreed to propose that the Office of the Union be requested to summarize the different approaches set out in Annex VIII with regard to aspects in common and aspects where there was divergence. As a next step, on the basis of that summary, consideration could be given to developing general guidance.

ANNEX IV TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS

New Section – Information of good agronomic practices for DUS field trials

253. The TWV agreed on the importance of employing good agronomic practice in the conduct of DUS trials and on the need to ensure that staff had the appropriate training and experience for conducting DUS trials. However, it concluded that it would not be desirable to seek to develop detailed guidance in document TGP/8.

ANNEX V TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section after COYU – Statistical Methods for very small sample sizes

254. The TWV noted the proposal made by the TWA, at its fortieth session, to amend, in the first paragraph, “two varieties different” as “two varieties distinct”.

ANNEX VI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 11 Examining DUS in bulk samples

255. The TWV agreed that the example of sugar beet should be replaced by a crop for which there are UPOV Test Guidelines.

ANNEX VII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section 12 Examining characteristics using image analysis

256. The TWV agreed that Section 12.1 should be reworded to explain that image analysis would be an alternative method for observing a characteristic, rather than a principal method for observing a characteristic.

ANNEX IX TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section – Guidance of data analysis for blind randomized trials

257. The TWV agreed that the experts from France should develop guidance on data analysis for blind randomized trials from their experience, including their use of blind randomized trials for disease resistance.

ANNEX XI TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

New Section - Guidance for the development of variety descriptions

258. The TWV agreed that the experts from the Netherlands should draft guidance on the development of variety descriptions with information from more than one growing cycle in one location and more than one location.

ANNEX XII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 4 – 2x1 % Method - Minimum number of degrees of freedom for the 2x1% Method

259. The TWV noted that at least 10 degrees of freedom were required for the residual mean square used to estimate the standard error in the t-test in each year. The TWV proposed that further clarification was needed with regard to the significance of the wording “preferably at least 20 degrees of freedom”.

ANNEX XIII TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

Section 9 - The Combined-Over-Years Uniformity Criterion (COYU) - Minimum number of degrees of freedom for COYU

260. The TWV agreed that it would be necessary to provide data in support of the proposal to reduce the minimum degrees of freedom for the varieties-by-years mean square in the COYD analysis of variance from 20 to 10.

261. The TWV agreed that the following wording in Section 3.1 "Summary of requirements for application of method" should be amended because it meant that Long-Term COYD could be used with less than 10 degrees of freedom:

"- there should be at least 10, and preferably at least 20, degrees of freedom for the varieties-by-years mean square in the COYD analysis of variance, or if there are not, then Long-Term COYD can be used (see 3.6.2 below);"

ANNEX XIV TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION

TGP/12. Guidance on Certain Physiological characteristics (document TWV/45/15).

262. The TWV agreed with the proposal for explanations for disease resistance characteristics in Test Guidelines and nomenclature of pathogens.

263. The TWV considered document TWV/45/24 "Partial Revision of the Test Guidelines for Pea (document TG/7/10)", presented by Mr. François Boulineau (France), in conjunction with documents TWV/45/6 "Variety Description Databases" and TWV/45/13 "Concept of a Database containing Pea Variety Descriptions". It agreed that Mr. Boulineau should seek variety descriptions from members of the Union for the 2,400 (approximate) varieties of common knowledge that he had identified, to examine if a selection of characteristics were sufficiently reliable for use as grouping characteristics.

264. The TWV discussed 13 Test Guidelines: Cassava, Echinacea, Endive, French bean, Tomato rootstocks, Parsnip, Pea, Pleurotus, Seed Poppy, Raphanus sativus, Shitake, Tomato, Watermelon.

265. It was agreed that Echinacea, French Bean (Partial revision), Tomato (Partial revision), Seed Poppy (Revision), Parsnip (Revision), Raphanus sativus (Revision), Shiitake should be submitted to the TC for adoption.

266. The TWV agreed to discuss the following draft Test Guidelines at its forty-sixth session:

- Cassava
- Coriander
- Chives (Revision)
- *Lagenaria ciceraria* Standley
- Lettuce (Partial revision: *Fusarium* resistance, big vein virus)
- Leaf Chicory (Revision)
- Pea (Partial revision: grouping characteristics)
- *Pleurotus*
- Spinach (Partial revision: mildew resistance and possible new characteristics)
- Watermelon (revision)

267. The TWV discussed and agreed the program for its forty-sixth session, which it agreed to be held at the invitation of the Netherlands near the city of Venlo from June 11 to 15, 2012 with the preparatory workshop on the Sunday, June 10, 2012.

268. The TWV proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
4. Reports from members and observers
5. Reports on developments within UPOV
6. Molecular Techniques
7. TGP documents
8. Variety denominations
9. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
10. Uniformity assessment
11. Levels of Uniformity According to the State of Expression of Obligatory Disease Resistance Characteristics and Varieties not bred for having such Disease Resistance
12. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
13. Discussion on draft Test Guidelines (Subgroups)
14. Recommendations on draft Test Guidelines
15. Guidance for drafters of Test Guidelines
16. Date and place of the next session
17. Future program
18. Report on the session (if time permits)
19. Closing of the session

269. On the afternoon of July 27, the TWV visited an iceberg lettuce field site in Spreckels. It also received a presentation on genetic diversity and breeding program of lettuce in the United States of America, United States Department of Agriculture (USDA) and visited the TAKII Seed facilities in Salinas.

270. Mrs. Radmila Safarikova was awarded a UPOV bronze medal in recognition of her chairmanship of the TWV from 2009 to 2011.

Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)

271. The thirteenth session of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) was held in Brasilia, Brazil, from November 22 to 24, 2011, with a preparatory workshop on November 21, 2011. The meeting was chaired by Mr. Andrew Mitchell (United Kingdom) and attended by 48 participants, from 14 members of the Union and 4 observer organizations. The report of the meeting is reproduced in document BMT/13/36.

272. The meeting was welcomed by Mr. Hélicio Campos Botelho, Director of the Department of Intellectual Property Rights, Ministry of Agriculture, Livestock and Food Supply.

273. A presentation of the plant variety protection system of Brazil was received by Mrs. Daniela de Moraes Aviani, Coordinator of the National Plant Variety Protection Service, Ministry of Agriculture, Livestock and Food Supply.

274. The main items discussed were:

- Developments in UPOV concerning biochemical and molecular techniques;
- Use of molecular techniques in examining essential derivation;
- Use of molecular techniques in variety identification;
- Work of the *Ad hoc* Crop Subgroups on molecular techniques;
- New developments in biochemical and molecular techniques;
- Work on molecular techniques on a crop-by-crop basis;
- International guidelines on molecular methodologies;
- Variety Description Databases;
- Methods for analysis of molecular data;
- Recommendations on the establishment of new crop specific subgroups.

275. The Office of the Union reported on developments in UPOV, based on document BMT/13/2 "Reports on developments in UPOV concerning biochemical and molecular techniques". The BMT also considered how document TGP/15 "New Types of Characteristics" should be developed and agreed that it should be developed separately and in parallel to the document UPOV/INF/18/1 "Possible Use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)". It was agreed that document TGP/15 should provide guidance for the use of those models which had received a positive assessment and for which accepted examples could be provided.

276. The BMT received three papers on essential derivation, the first on use of SNPs to have High-density Fingerprinting and Line-Specific-Recombination Haplotypes as tools to detect suspected derivation from inbred lines. The second presentation was from a representative of the International Seed Federation (ISF) on a case of EDV court dispute where SSRs markers were used. The third presentation considered the use of SSRs markers to determine EDV arising from backcrossing.

277. The BMT received 13 papers on the use of molecular markers for variety identification. This covered a wide range of species, including rose, rice, soybean, wheat, gypsophila, sugarcane and maize, and also a method for molecular data analysis in variety characterization.

278. The BMT noted the report on planned meetings of the Crop Subgroups as set out in document BMT/13/2, "Reports on Developments in UPOV Concerning Biochemical and Molecular Techniques", paragraph 18.

279. The BMT noted the information on new developments in biochemical and molecular techniques from members and observers provided in document BMT/13/30.

280. The BMT received three presentations for vegetatively propagated crops, including a general presentation and presentations on potato and peach. For self-pollinated crops, four presentations were given for barley, lettuce, soybean and a general paper. Presentations on cross-pollinated crops were received to oilseed rape and *Bracharia*.

281. The BMT took note of the report from the Office of the Union that contact had been made between UPOV and ISTA to explore the possibility of a coordinated meeting of the BMT and the Working Group on DNA Methods of the Variety Committee of ISTA in conjunction with the fourteenth session of the BMT in 2013.

282. The BMT discussed the possibility for the BMT to have a joint meeting on the use molecular markers with ISTA, and possibly also with the International Organization for Standardization (ISO) and the Organization for Economic Co-operation and Development (OECD).

283. The BMT received presentations on GEMMA: a technical website to share DUS data and on molecular database for soybean variety identification.

284. The BMT received a presentation on BioNumerica: a universal platform for databasing and analysis of biological data.

285. The BMT proposed that the Technical Committee (TC) consider discontinuing the meetings of the *Ad hoc* crop subgroups and having discussion on the individual species within the BMT sessions.

286. The BMT planned to discuss the following items during its fourteenth session:

1. Opening of the session
2. Adoption of the agenda
3. Reports on developments in UPOV concerning biochemical and molecular techniques
4. Reports on the work of the *Ad Hoc* Crop Subgroups on molecular techniques (Crop Subgroups)
5. Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations
6. Report of work on molecular techniques on a crop-by-crop basis:
 - (a) vegetatively propagated crops
 - (b) self-pollinated crops
 - (c) cross-pollinated crops
7. International guidelines on molecular methodologies
8. Variety description databases
9. Methods for analysis of molecular data
10. The use of molecular techniques in examining essential derivation

11. The use of molecular techniques in variety identification
12. Recommendations on the establishment of new crop specific subgroups
13. Date and place of next session
14. Future program
15. Report of the session (if time permits)
16. Closing of the session

287. Mr. Andrew Mitchell was awarded a UPOV bronze medal in recognition of his chairmanship of the BMT from 2009 to 2011.

288. *The Council is invited to:*

(a) note the work of the TC and that of the TWPs and BMT reported to the TC, as provided in this document; and

(b) approve the work program of the TC and the work programs of the TWPs and BMT reported to the TC, as provided in this document.

[Annex follows]

C/46/10
ANNEX
(in English only)

Ref.	Title of document	Current approved* documents	2011						2012						2013						
			TC-EDC	TC/47	CAJ/63	TWPs	CAJ/64	C/45	TC-EDC	TC/48	CAJ/65	TWPs	CAJ/66	C/46	TC-EDC	TC/49	CAJ/67	TWPs	CAJ/68	C/47	
TGP/0	List of TGP Documents and Latest Issue Dates	TGP/0/4 ADOPTED							TGP/0/4 Draft 1 Adopt						TGP/0/5 Draft 1 Adopt						TGP/0/6 Draft 1 Adopt
TGP/1	General Introduction with Explanations	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TGP/2	List of Test Guidelines Adopted by UPOV	TGP/2/1 ADOPTED																			
TGP/3	Varieties of Common Knowledge	C(Extr.)/19/2 Rev.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TGP/4	Constitution and Maintenance of Variety Collections	TGP/4/1 ADOPTED																			
TGP/5	Experience and Cooperation in DUS Testing	ADOPTED																			
	Section 10: Notification of Additional Characteristics	Section 10/1 Adopted	Section 10/2 Draft 1	Section 10/2 Draft 2	Section 10/2 Draft 2				Section 10/2 Draft 3 Adopt												
TGP/6	Arrangements for DUS Testing	TGP/6/1 ADOPTED																			
TGP/7	Development of Test Guidelines	TGP/7/3 ADOPTED	TC-EDC/Jan11/ 2, 6, 7, 10	TC/47/16- 19	---	(revisions)	(revision)	TGP/7/3 Adopt	(revision)	(revision)	(revision)	(revision)	---	---	(revision)	(revision)	(revision)	---	---	TGP/7/4 Adopt	
TGP/8	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability	TGP/8/1 ADOPTED	TC-EDC/Jan11/ 8	TC/47/20	---	(new sections & revisions)	---	---	(new sections & revisions)	(new sections & revisions)	---	(new sections & revisions)	---	---	(new sections & revisions)	(new sections & revisions)	TGP/8/2 (new section 2)	(new sections & revisions)	---	TGP/8/2 Adopt (new section 2)	
TGP/9	Examining Distinctness	TGP/9/1 ADOPTED																			
TGP/10	Examining Uniformity	TGP/10/1 ADOPTED																			
TGP/11	Examining Stability	TGP/11/1 ADOPTED	TGP/11 /1 Draft 9	TGP/11 /1 Draft 10	TGP/11 /1 Draft 10	---	---	TGP/11 /1 Draft 11 Adopt													
TGP/12	Guidance on Certain Physiological Characteristics	TGP/12/1 ADOPTED	TC-EDC/Jan11/ 12	TC/47/23		(new sections & revisions)			TGP/12/2 Draft 1	TGP/12/2 Draft 2	TGP/12/2 Draft 2			TGP/12/2 Draft 3 / Adopt							
TGP/13	Guidance for New Types and Species	TGP/13/1 ADOPTED																			
TGP/14	Glossary of Terms Used in UPOV Documents	TGP/14/1 ADOPTED	TC-EDC/Jan11/ 13	TC/47/21, 22	---	(Color Subsection & revisions)	---	---	(Color Subsection & revisions)	(Color Subsection & revisions)	---	(Color Subsection & revisions)	---	---	(Color Subsection & revisions)	(Color Subsection & revisions)	(Color Subsection & revisions)	---	---	TGP/14/2 Adopt ??	
TGP/15	[New Types of Characteristics] [Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)]		---	---	---	---	---	---	TGP/15/1 Draft 1	TGP/15/1 Draft 2	TGP/15/1 Draft 2	---	---	---	TGP/15/1 Draft 3	TGP/15/1 Draft 4	TGP/15/1 Draft 4	---	---	TGP/15/1 Adopt	

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