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COUNCIL**Forty-Eighth Ordinary Session
Geneva, October 16, 2014****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***Document prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance*

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
DUS:	Distinctness, Uniformity and Stability
Office:	Office of the Union

TABLE OF CONTENTS

I. PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE	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)	4
<i>Matters for Information</i>	4
<i>Matters for Consideration by the Technical Committee</i>	4
Matters arising from the Technical Working Parties	5
<i>Matters for Information and for Possible Decision to be Taken by the Technical Committee</i>	5
<i>Matters for Information</i>	5
TGP documents	6
<i>TGP Documents Proposed for Revision in 2014</i>	6
<i>Future Revision of TGP Documents Previously Agreed by the TC</i>	9
<i>Future Revisions under Development</i>	9
<i>New Proposals for Future Revisions of TGP documents</i>	11
<i>Program for the development of TGP documents</i>	12
Molecular techniques	12
<i>Use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS)</i>	12
<i>Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)</i>	12
<i>Presentation of information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general</i>	13
Variety denominations	13
<i>Possible revision of Document UPOV/INF/12 "Explanatory notes on variety denominations under the UPOV Convention"</i>	13
<i>Possible development of a UPOV Similarity Search Tool for variety denomination purposes</i>	14
<i>Developments concerning potential areas for cooperation with the IUBS Commission and the ISHS Commission</i>	14
Information and databases	14
<i>UPOV information databases</i>	14
Variety description databases	15
Exchangeable software	15
Electronic application systems	16
Assessing uniformity by off-types on basis of more than one sample or sub-samples	16
Preparatory workshops	17
Discussion on improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops	17
<i>Background</i>	17
<i>Results from the surveys in 2013</i>	17
<i>Proposals for improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops</i>	17
<i>Technical Committee</i>	17
<i>Technical Working Parties and Preparatory Workshops</i>	17
Discussion on Opportunities for training in the examination of DUS	18
Discussion on Cooperation with breeders in the examination of DUS	18
Test Guidelines	18
<i>Corrections to Test Guidelines</i>	20
<i>Draft Test Guidelines Discussed by the Technical Working Parties in 2013</i>	20
<i>Draft Test Guidelines to be discussed by the Technical Working Parties in 2014</i>	20
<i>Test Guidelines on the UPOV Website</i>	20
List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability	20

Chairpersons	20
Program for the fifty-first session.....	21
II. PROGRESS REPORT ON THE WORK OF THE TECHNICAL WORKING PARTIES AND THE WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR IN 2013.....	22
Technical Working Party for Agricultural Crops (TWA)	22
Technical Working Party on Automation and Computer Programs (TWC).....	24
Technical Working Party for Fruit Crops (TWF)	26
Technical Working Party for Ornamental Plants and Forest Trees (TWO).....	28
Technical Working Party for Vegetables	31
Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT).....	34
ANNEX: PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS	
APPENDIX: PROGRAM FOR THE REVISION OF DOCUMENT TGP/8	

I. PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE

3. The Technical Committee (TC) held its fiftieth session in Geneva from April 7 to 9, 2014, chaired by Mr. Alejandro Barrientos Priego (Mexico), Chairman of the TC. The report on the conclusions of the session is contained in document TC/50/36 "Report on the Conclusions". The detailed report will be provided in document TC/50/37 "Report".

4. The meeting was attended by 66 participants from 40 members of the Union, 2 observer States and 5 observer organizations.

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)

(see document TC/50/36 "Report on the Conclusions", paragraphs 8 to 16)

5. The TC considered document TC/50/10 "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".

Matters for Information

6. The Vice Secretary-General provided an oral report on developments in UPOV, including developments at the sixty-seventh and sixty-eighth sessions of the CAJ, the eighty-fifth and eighty-sixth sessions of the Consultative Committee and the thirtieth extraordinary session and the forty-seventh ordinary session of the Council, on the basis of the annex to document TC/50/10.

*Matters for Consideration by the Technical Committee**Variety Descriptions*

7. The TC noted that the CAJ, at its sixty-ninth session, to be held in Geneva on April 10, 2014, would consider the proposal of the Administrative and Legal Committee Advisory Group (CAJ-AG) to invite the TC to develop further guidance on certain matters concerning variety descriptions, as set out in document TC/50/10, paragraphs 37 to 41.

Matters Raised by the International Seed Federation (ISF)

8. The TC noted that the Consultative Committee had agreed to the development of document UPOV/INF/15 "Guidance for Members of UPOV on Ongoing Obligations and Related Notifications and on the Provision of Information to Facilitate Cooperation" into an umbrella document that would identify key issues for the operation of a plant variety protection system, as set out in document TC/50/10, paragraphs 44 and 45.

9. The TC invited ISF to consider the relevant UPOV materials and to explain where it considered that further guidance might be developed in relation to the following matters, as set out in document TC/50/10, paragraph 46:

- (a) Photographs
- (b) Minimum sample size
- (c) Reference collections
- (d) Length of examination
- (e) Variety description of most similar variety
- (f) Variety description by applicant
- (g) Variety description databases

10. The TC noted that ISF was invited to express its views to the TC with regard to databases of variety descriptions and the criteria identified by the TC for the publication of variety descriptions, as set out in document TC/45/9 "Publication of Variety Descriptions".

Web-Based TG Template

11. The TC received a presentation on the web-based TG Template, a copy of which would be provided in an addendum to document TC/50/10. The TC noted the features of Version 1 of the web-based TG Template, as set out in document TC/50/10, paragraph 55.

12. The TC noted that the Office would request all Leading Experts to participate in the testing of Version 1 in May and June 2014. The TC also noted that the Leading and Interested Experts would be requested to use the web-based TG Template for the preparation of draft Test Guidelines for the forty-third session of the Technical Working Party for Agricultural Crops (TWA), to be held in Mar del Plata, Argentina, from November 17 to 21, 2014. The TC approved the plans for the implementation of the web-based TG Template, including the exclusive use of the web-based TG Template for the development of all Test Guidelines from 2015, as set out in document TC/50/10, paragraphs 56 to 58.

13. The TC noted the features and timetable for development of Version 2 of the web-based TG Template, as set out in document TC/50/10, paragraphs 59 to 63.

Matters arising from the Technical Working Parties

(see document TC/50/36 "Report on the Conclusions", paragraphs 18 to 24)

14. The TC considered document TC/50/3.

Matters for Information and for Possible Decision to be Taken by the Technical Committee

Guidance for drafters of Test Guidelines

15. The TC noted the report on developments concerning the new web-based TG Template in document TC/50/10 "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".

16. The TC agreed to the organization of a series of electronic workshops (e-workshops) to demonstrate the use of the new web-based TG template. The e-workshops would be organized to coincide with the start of drafting work by Leading Experts. The TC also agreed that a demonstration of the new web-based TG template should be made at the Technical Working Party sessions.

17. The TC noted that the Office of the Union would prepare a grid template for shape and ratio characteristics, for use by Leading Experts.

Data loggers

18. The TC requested the Office of the Union to issue a new circular concerning hand-held data capture devices, inviting further entries in advance of the thirty-second session of the TWC. The TC agreed that breeders should also be invited to provide information on the use of hand-held data capture devices.

Matters for Information

Subject for discussion

19. The TC noted the addition of subjects for discussion during the TWF and the TWV at their session in 2014, as set out in document TC/50/3, paragraphs 15 and 16.

Experiences with new types and species

20. The TC noted the information on experiences with new types and species presented to the TWO and the TWA at their sessions in 2013, as set out in document TC/50/3, paragraphs 18 and 19.

TGP documents

(see document TC/50/36 "Report on the Conclusions", paragraphs 25 to 75).

TGP Documents Proposed for Revision in 2014

TGP/0: List of TGP Documents and Latest Issue Dates

21. The TC considered document TC/50/5 "TGP Documents" and noted that the Council would be invited to adopt document TGP/0/7, in order to reflect the adoption of TGP documents

TGP/2: List of Test Guidelines Adopted by UPOV

22. The TC considered the revision of document TGP/2, as set out in document TC/50/5, paragraph 12, and agreed that document TGP/2 be amended to read as follows:

"A list and copies of adopted and published Test Guidelines can be obtained at http://www.upov.int/test_guidelines/en/".

TGP/5: Experience and Cooperation in DUS Testing: Section 10: Notification of Additional Characteristics

23. The TC considered document TC/50/15 and agreed that the guidance in document TGP/5: Section 10, should read as follows:

"4.2 Proposals for additional characteristics and states of expression notified to the Office of the Union by means of document TGP/5 Section 10, will be presented to the relevant Technical Working Party(ies) (TWP(s)) at the earliest opportunity with information on the extent of use of the characteristic. The characteristics will then, as appropriate, be posted on the TG Drafters' Webpage of the UPOV website (http://www.upov.int/restricted_temporary/tg/index.html) on the basis of comments made by the relevant TWP(s), and/or the TWP(s) may initiate a revision or a partial revision of the Test Guidelines concerned."

TGP/7: Development of Test Guidelines

24. The TC noted that the revisions to document TGP/7 previously agreed by the TC, as set out in document TC/50/5, Annex I, would be a basis for the adoption of document TGP/7/4 by the Council, at its forty-eighth ordinary session, subject to the following amendments:

Annex I, ASW 0	in the German version: to amend the translation of "Subject of these Test Guidelines" to read " <u>Gegenstand</u> dieser Prüfungsrichtlinien"
Annex I, GN 7	last paragraph to read: "In general, in the case of <i>plants</i> required only for a single growing trial (e.g. no plants required for special tests or variety collections), the number of plants requested in Chapter 2.3 often corresponds to the number of plants specified in Chapters 3.4 "Test Design" and 4.2 "Uniformity". In that respect, it is recalled the quantity of plant material specified in Chapter 2.3 of the Test Guidelines is the minimum quantity that an authority might request of the applicant. Therefore, each authority may decide to request a larger quantity of plant material, for example to allow for potential losses during establishment (see GN 7 (a))."
Annex I, GN 28, Section 3.2.2.	to read as follows: "3.2.2 Where different sets of example varieties are provided for different types of varieties covered by the same Test Guidelines, they are placed in the Table of Characteristics in the same column as normal. The sets of example varieties (e.g. winter and spring) are separated by a semicolon, and/or indicated by a key which is provided for each set and an explanation for the option chosen should be included in the legend of Chapter 6 of the Test Guidelines."
Annex I, GN 28, Section 4.	4.1 Reference to Section 2 to be replaced by reference to Section 4.2 4.2.3 Reference to Figure 1 to be replaced by reference to Section 4.2.3 4.2.5 Reference to Figure 1 to be deleted
Annex I, GN 35, Introduction	First sentence to read: "The taking of photographs is influenced by factors, such as light conditions, quality and setting of the camera, and the background."

25. The TC noted that the French, German and Spanish translations of the original English text would be checked by the relevant members of the Editorial Committee prior to submission of the relevant drafts of TGP documents that would be presented for adoption by the Council, at its forty-eighth ordinary session.

(i) Revision of document TGP/7: Additional Standard Wording for Growing Cycle for Tropical Species

26. The TC considered document TC/50/16 and agreed with the proposed ASW for evergreen species with indeterminate growth for inclusion in document TGP/7 to read as follows:

“New (after (b)): Evergreen species with indeterminate growth

“The growing cycle is considered to be the period ranging from the beginning of development of an individual flower or inflorescence, through fruit development and concluding with the harvesting of fruit from the corresponding individual flower or inflorescence.”

(ii) Revision of document TGP/7: Indication of Growth Stage in Test Guidelines

27. The TC considered document TC/50/18.

28. The TC agreed that document TGP/7, ASW 4, GN 24 and GN 9 should be amended to read as follows:

“ASW 4 (TG Template: Chapter 3.3) – Conditions for conducting the examination

“Information for conducting the examination of particular characteristics

“(a) Stage of development for the assessment

“The optimum stage of development for the assessment of each characteristic is indicated by a reference in the second column of the Table of Characteristics. The stages of development denoted by each reference are described in Chapter 8 [...]”

“GN 9 (TG Template: Chapter 3.3) – Growth stage key

“In some cases, where it is appropriate to provide a growth stage key for the observation of characteristics, the following is a useful guide:

‘Growth stages of mono- and dicotyledonous plants - BBCH Monograph’
(Federal Biological Research Centre for Agriculture and Forestry)

ISBN Number: 3-8263-3152-4

http://www.jki.bund.de/fileadmin/dam_uploads/_veroeff/bbch/BBCH-Skala_englisch.pdf

“In some other cases, a simplified growth stages key might be more appropriate, such as the example in the Test Guidelines for Potato (document TG/23/6):

“8.3 Optimal Stage of Development for the Assessment of Characteristics

1 = bud stage

2 = flowering stage

3 = ripening stage of tubers

4 = after harvest”

“GN 24 (TG Template: Chapter 7: column 2, header row 1) – Growth stage

“In some Test Guidelines, the growth stage at which the examination of the characteristic should be done is provided here. In such cases, the stages of development denoted by each reference are described in a section within Chapter 8, according to ASW 4(a).”

(iii) Revision of document TGP/7: Providing Illustrations of Color in Test Guidelines

29. The TC considered document TC/50/19.

30. The TC agreed to include the following guidance on the risks of providing illustrations of color in Test Guidelines in document TGP/7:

“It is generally not appropriate to use illustrations of color, as such, in the Test Guidelines because the color in photographs can be affected by the technology of the camera, the facilities used to display the photograph (including printer, computer and screen) and lighting conditions under which the photograph is/was taken. Furthermore, the expression of color may vary according to the environment in which the variety is grown. For example, a photograph of a ‘weak intensity’ of anthocyanin coloration (or ‘light intensity’ of a color) observed in one environment may not represent a ‘weak intensity’ of anthocyanin coloration (or ‘light intensity’ of a color) observed in another environment.”

(iv) Revision of document TGP/7: Presence of Leading Expert at Technical Working Party Sessions

31. The TC considered document TC/50/20.

32. The TC agreed to include the following guidance on the presence of Leading Experts in Technical Working Party sessions in document TGP/7, Section 2.2.5.3:

“In order to be considered by a Technical Working Party, the Leading Expert of the draft Test Guidelines should be present at the session. Subject to approval by the Technical Working Party Chairperson, and where arranged sufficiently in advance of the session, a suitable alternative expert may act as the Leading Expert at the session, or the Leading Expert may participate by electronic means, where that enables the Test Guidelines to be considered in an effective way.”

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

33. The TC noted that the revisions to document TGP/8 previously agreed by the TC, as set out in document TC/50/5, Annex II, would be a basis for the adoption of document TGP/8/2 by the Council, at its forty-eighth ordinary session subject to the following amendments:

Annex II, Part I, Section 2.3.3.6.2	to delete heading “The absolute zero point”
Annex II, Part I, Section 2.3.3.7.3	to correct format for case I and case II and formulas
Annex II, Part I, Sections 3.5.1 and 4.2.2	to reinsert scales to graphs and remove colors
Annex II, Part I, Section 5	<ul style="list-style-type: none"> • title to read as follows: “Cyclic planting of varieties from the variety collection to reduce trial size” • paragraph 1.1 to read as follows: “Cyclic planting of varieties from the variety collection (established varieties) to reduce trial size is appropriate for use in trials where:” • paragraph 1.1 to introduce a last bullet point: “three independent growing cycles are normally grown. The guidance below is for this case. However, it may also be adapted for crops where two independent growing cycles are normally grown.” • last sentence of second paragraph in 1.2 to read as follows: “If, after DUS testing, a variety is added to the variety collection it is allocated to a series and is cyclically omitted from the trial every third year.” • paragraph 1.3, sentences 5 and 6 to read as follows: “Because of a possible lag between final DUS testing and the decision on the application, candidate varieties are kept in trial for a fourth year after the three-year test period. If a positive decision is taken, they will become an established variety and will enter the cyclic planting system.” • note in paragraph 1.4, first sentence to read as follows: Note: if the DUSTNT software is used, a variety can be made to appear missing simply by removal of the variety from the “E file”. • paragraph 4.2.1, to remove extra dash in “t—test”

34. The TC noted that the French, German and Spanish translations of the original English text would be checked by the relevant members of the Editorial Committee prior to submission of the relevant drafts of

TGP documents that would be presented for adoption by the Council, at its forty-eighth ordinary session (see document TC/50/36 "Report on the Conclusions", paragraph 38).

Revision of document TGP/8: Part II: Section 10: Uniformity Assessment on the Basis of the Relative Variance Method

35. The TC considered document TC/50/23 and agreed with the proposed revision of document TGP/8, Section 10: "Uniformity Assessment on the Basis of the Relative Variance Method", as set out in document TC/50/23, Annex II.

TGP/14: Glossary of Terms Used in UPOV Documents – Correction (Spanish)

36. The TC noted the correction to the Spanish version of document TGP/14: Section 2: Subsection 3: Color, paragraph 2.2.2, as set out in document TC/50/5, paragraph 22.

Future Revision of TGP Documents Previously Agreed by the TC

TGP/9: Examining Distinctness

37. The TC noted the revisions already agreed by the TC for document TGP/9, as set out in document TC/50/5, Annex III.

38. The TC agreed to request an expert from Germany to develop guidance on the use of photographs for the analysis of distinctness for inclusion in document TGP/9. The new guidance would make reference to the complete guidance available in TGP/7.

Future Revisions under Development

TGP/7: Development of Test Guidelines

Revision of document TGP/7: Source of Propagating material

39. The TC considered document TC/50/17.

40. The TC encouraged experts to present to the TWPs, at their sessions in 2014, their experiences with regard to plant material submitted for examination and how they had addressed the problems that could arise, which could be developed into guidance that would reflect good practice. The title of the document should be amended accordingly.

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

(i) Revision of document TGP/8: Part I: New Section: Minimizing the Variation due to Different Observers

41. The TC considered document TC/50/21.

42. The TC noted that the TWF had requested an expert from New Zealand to report, at its session in 2014, on the previous work done on harmonized variety description for apple for an agreed set of varieties, as set out in document TC/50/21, paragraph 17.

43. The TC invited the expert from Australia, with the assistance of experts from the European Union, France, Germany, the Netherlands and the United Kingdom, to draft further guidance to be included in a future revision of document TGP/8 on minimizing the variation due to different observers, including guidance on PQ and QN/MG characteristics, for consideration by the TWPs at their sessions in 2014.

(ii) Revision of document TGP/8: Part II: Method of Calculation of COYU

44. The TC considered document TC/50/22 and received a presentation by Mr. Adrian Roberts, United Kingdom, on "Proposed Improvements to COYU". It noted that a copy of the presentation would be made available as an addendum to document TC/50/22.

45. The TC noted the developments in the work concerning the proposals to address the bias in the present method of calculation of COYU, as set out in document TC/50/22, paragraphs 8 to 21.

46. The TC agreed that the development of a demonstration module in DUST should be continued and demonstrated to the TWC at its session in 2014. The TC agreed that a practical exercise should be conducted using real data to compare decisions made using the current and the proposed improved method.

47. The TC requested the Office of the Union to issue a new circular inviting further information on the extent and modalities of use of the current COYU method, in advance of the thirty-second session of the TWC.

(iii) Revision of document TGP/8: Part II: New Section 11: Examining DUS in Bulk Samples

48. The TC considered document TC/50/24.

49. The TC invited experts from France and the Netherlands to provide examples of their experience in the development of characteristics based on bulk samples, for seed- and vegetatively propagated varieties, as a basis to develop guidance on the development of characteristics examined on the basis of bulk samples.

(iv) Revision of document TGP/8: Part II: New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions

50. The TC considered document TC/50/25.

51. The TC noted the invitation by the TWF to an expert from New Zealand to make a presentation at its forty-fifth session, on the project for "apple reference varieties" that began in New Zealand in 2011, and how that work would contribute to developing improved example varieties and variety descriptions.

52. The TC agreed to invite an expert from Germany to develop a text to explain the different forms that variety descriptions could take and the relevance of scale levels in that regard.

53. The TC agreed that the experts from France, Germany, Italy, Japan, Netherlands, Republic of Korea and United Kingdom should provide the results on the practical exercise to the Office of the Union and noted the plans for a summary of aspects in common and divergences between the methods to be presented to the TWPs in 2014 and to the TC at its fifty-first session.

54. The TC noted that, on the basis of the results of the practical exercise, it would be invited to consider whether to develop guidance on data processing for the assessment of distinctness and for producing variety descriptions that would be relevant for different types of propagation.

(v) Revision of document TGP/8: Part II: New Section: Guidance of Data Analysis for Blind Randomized Trials

55. The TC considered document TC/50/26 and agreed to request that experts from France continue the development of the proposed guidance on the basis of the comments in that document.

56. The TC agreed that the circumstances under which blind randomized trials would be appropriate should be clarified.

57. The TC agreed that the structure of the document should be reviewed in order to improve clarity and that consideration should be given to including guidance on the use of blind randomized trials without data analysis, which would require deletion of "Data analysis" from the title of document. The TC agreed that the Office of the Union should seek information on the use of blind randomized trials for presentation to the TWPs and the TC.

(vi) Revision of document TGP/8: Part II: New Section: Examining Characteristics Using Image Analysis

58. The TC considered document TC/50/27.

59. The TC agreed to the redrafting of the proposed text, by an expert from the European Union, into a standard TGP style of impersonal speech and to add the following introduction to the proposed text, as set out in document TC/50/27, paragraph 9:

“1. Introduction

“Characteristics which may be examined by image analysis should also be able to be examined by visual observation and/or manual measurement, as appropriate. Explanations for observing such characteristics, including where appropriate explanations in Test Guidelines, should ensure that the characteristic is explained in terms which would enable the characteristic to be understood and examined by all DUS experts.”

“2. Combined characteristics

“2.1 The General Introduction (document TG/1/3, Chapter 4, Section 4) states that:

‘4.6.3 Combined Characteristics

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

“2.2 Thus, the General Introduction clarifies that the use of image analysis is one possible method for examining characteristics which fulfill the basic requirements for use in DUS testing (see document TG/1/3, Chapter 4.2), which includes the need for the uniformity and stability of such characteristics to be examined. With regard to combined characteristics, the General Introduction also explains that such characteristics should be biologically meaningful.”

(vii) Revision of document TGP/8: Part II: New Section: Statistical Methods for Visually Observed Characteristics

60. The TC considered document TC/50/28.

61. The TC agreed to the development of a new method for multinomial distributed data.

62. The TC invited the TWC to compare the new method for multinomial distributed data and the Chi-square test, as set out in document TC/50/28, paragraph 10.

63. The TC requested the TWC to identify a suitable expert to draft the document.

TGP/14: Glossary of Terms Used in UPOV Documents

Revision of document TGP/14: Section 2: Botanical Terms, Subsection 3: Color: Definition for “Dot”

64. The TC considered document TC/50/29 and agreed not to develop a definition of “dot” for inclusion in document TGP/14, Section 2: “Botanical Terms, Subsection 3: Color”.

New Proposals for Future Revisions of TGP documents

TGP/7: Development of Test Guidelines

(i) Coverage of the Test Guidelines

65. The TC agreed to request the Office of the Union to develop guidance for Test Guidelines that are developed on the basis of varieties with one type of propagation when varieties may be developed in the future with other types of propagation.

(ii) Revision of document TGP/7: Drafter’s Kit for Test Guidelines

66. The TC agreed that document TGP/7 Section 4.3: “Drafter’s Kit for Test Guidelines” and Annex 4 “Collection of Approved Characteristics” should be revised, subject to the introduction of the web-based TG Template in 2014.

TGP/9: Examining Distinctness

(i) Method of Observation

67. The TC agreed that examples and illustrations to explain a single measurement (MG) on plant parts should be compiled by the Office of the Union and presented to the TWPs for inclusion in a future revision of document TGP/9, Subsections 4.3.2 and 4.3.4.

(ii) Schematic Overview of TGP Documents Concerning Distinctness

68. The TC considered the revision of the flow diagram in TGP/9, as set out in document TC/50/5, paragraph 34, and agreed that it should be reviewed in conjunction with other possible changes to be introduced in documents TGP/4 "Constitution and Maintenance of Variety Collections" and TGP/9 "Examining Distinctness" resulting from the adoption of document UPOV/INF/15 "Guidance for Members of UPOV on Ongoing Obligations and Related Notifications and on the Provision of Information to Facilitate Cooperation".

TGP/14: Glossary of Terms Used in UPOV Documents

Section 2.4: Apex/Tip Shape Characteristics

69. The TC requested the Office of the Union to develop an explanation that it may be possible in some cases for an apex characteristic to include a state of expression based on a differentiated tip, for consideration by the TWPs at their sessions in 2014.

Program for the development of TGP documents

70. The TC agreed to delay the revision of document TGP/9 until 2015.

71. The TC agreed the program for the development of TGP documents, as set out in the Annex to this document, subject to its conclusions, above, on matters concerning TGP documents.

Molecular techniques

(see document TC/50/36 "Report on the Conclusions", paragraphs 76 to 85)

72. The TC considered document TC/50/13.

Use of biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS)

73. The TC encouraged experts from China, the Republic of Korea and other members of the Union to make presentations at the fourteenth session of the BMT, on the use of molecular techniques to supplement the selection of similar varieties for inclusion in the growing trial, as set out in document TC/50/13, paragraph 6.

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

74. The TC noted that the fourteenth session of the BMT would be held in Seoul, the Republic of Korea, from November 10 to 13, 2014.

75. The TC agreed to the proposed amendment of the program of the fourteenth session of the BMT, as set out in paragraph 20 of this document.

76. The TC agreed to the proposed plan for the fourteenth session of the BMT to be held in conjunction with the Joint Workshop with ISTA and OECD, to be held on November 12, 2014, as set out in document TC/50/13, paragraph 21.

77. The TC agreed that the progress of work of the BMT and the outcomes of the Joint Workshop with ISTA and OECD should be reported to the TC at its fifty-first session.

Presentation of information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general

78. The TC considered the proposed explanation of the situation in UPOV with regard to the use of molecular techniques, as set out in document TC/50/13, paragraph 26.

79. The TC recalled that, at its forty-ninth session, held in Geneva from March 18 to March 20, 2013, it had agreed that there was a need to provide suitable information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general. That information should explain the potential advantages and disadvantages of the techniques, and the relationship between genotype and phenotype, which lay behind the situation in UPOV (see document TC/49/41 "Report on the Conclusions").

80. The TC agreed that the explanation provided in document TC/50/13, paragraph 26, provided suitable information on the situation in UPOV with regard to the use of molecular techniques for breeders and persons with knowledge of DUS testing, subject to the following amendments:

Question: Does UPOV allow molecular techniques (DNA profiles) in the DUS examination?

Answer: "It is important to note that, in some cases, varieties may have a different DNA profile but be ~~morphologically~~ phenotypically identical, whilst, in other cases, varieties which have a large phenotypic difference may have the same DNA profile for a particular set of molecular markers (e.g. some mutations).

"In relation to the use of molecular markers that are not related to phenotypic differences, the concern is that it might be possible to use a limitless number of markers to find differences between varieties. ~~In particular, differences could be found at the genetic level that are not reflected in morphological phenotypic characteristics.~~

"On the above basis, UPOV has agreed the following uses of molecular markers in relation to DUS examination:

"(a) Molecular markers can be used as a method of examining DUS characteristics that satisfy the criteria for characteristics set out in the General Introduction if there is a reliable link between the marker and the characteristic.

"(b) A combination of phenotypic differences and molecular distances can be used to improve the selection of varieties to be compared in the growing trial if the molecular distances are sufficiently related to phenotypic differences and the method does not create an increased risk of not selecting a variety in the variety collection which should be compared to candidate varieties in the DUS growing trial.

"The situation in UPOV is explained in documents TGP/15 'Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)' and UPOV/INF/18 'Possible use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)'".

81. With regard to a wider audience, the TC agreed that the question was not framed in an appropriate way and, therefore, it would not be appropriate to seek to develop an answer to that question. The TC agreed that the question should be rephrased after clarification of the issues of interest to a wider audience.

Variety denominations

(see document TC/50/36 "Report on the Conclusions", paragraphs 86 to 93)

82. The TC considered document TC/50/14.

Possible revision of Document UPOV/INF/12 "Explanatory notes on variety denominations under the UPOV Convention"

83. The TC noted the ongoing work of the CAJ-AG concerning the development of guidance on variety denominations, as set out in paragraphs 3 to 6 of document TC/50/14.

84. The TC noted that the CAJ, at its sixty-ninth session to be held in Geneva on April 10, 2014, would be invited to consider whether it would be appropriate to amend document UPOV/INF/12, paragraph 2.3.3(a)(i), as set out in document TC/50/14, paragraph 7.

85. The TC agreed that the example “Bough” and “Bow” in document UPOV/INF/12, paragraph 2.3.3(i) should be replaced by a suitable example and further noted that the work on the possible development of a UPOV similarity search tool might be reflected in a review of document UPOV/INF/12. It also agreed that guidance on confusion for phonetic reasons should continue to be included in document UPOV/INF/12.

Possible development of a UPOV Similarity Search Tool for variety denomination purposes

86. The TC noted the report concerning the possible development of a UPOV similarity search tool for variety denomination purposes provided in document TC/50/14, Section II.

87. The TC welcomed the establishment of a working group for the development of a UPOV similarity search tool and invited experts to contribute to its work.

88. The TC agreed that there were some challenges concerning linguistic and alphabet aspects which should be considered by the working group when defining the objectives of its work.

Developments concerning potential areas for cooperation with the IUBS Commission and the ISHS Commission

89. The TC noted the developments concerning potential areas for cooperation between the International Commission for the Nomenclature of Cultivated Plants of the International Union for Biological Sciences (IUBS Commission), the International Society for Horticultural Science Commission for Nomenclature and Cultivar Registration (ISHS Commission) and UPOV, as set out in document TC/50/14, Section III.

Information and databases

(see document TC/50/36 “Report on the Conclusions”, paragraphs 94 and 101)

UPOV information databases

90. The TC considered document TC/50/6.

Information on type of crop

91. The TC agreed to provide information on the type of crop for each UPOV code in the GENIE database, as set out in document TC/50/6, paragraph 8. It was clarified that more than one crop type could be allocated to a single UPOV Code

92. The TC noted that the proposed approach would enable the data in the PLUTO database to be analyzed with regard to applications filed, titles issued and titles having ceased to be in force by type of crop, whilst noting that the multiple crop types for some UPOV codes would result in some limitations in that regard.

UPOV Code System

93. The TC noted the developments concerning UPOV codes, as set out in document TC/50/6, paragraph 13.

94. The TC noted the plan of the Office of the Union to prepare tables of UPOV codes additions and amendments, for checking by the relevant authorities, for each of the TWP sessions in 2014, as set out in paragraph 14 of document TC/50/6.

PLUTO Database

95. The TC noted the developments concerning the program for improvements to the Plant Variety Database, as reported in document TC/50/6, paragraphs 16 to 38.

Survey of members of the Union on their use of databases and electronic application systems

96. The TC noted the results of the survey of members of the Union on their use of databases for plant variety protection purposes and also on their use of electronic application systems, as presented in document TC/50/6, Annex IV.

97. The TC noted that the CAJ would be invited to consider the results of the survey at its sixty-ninth session, to be held in Geneva on April 10, 2014.

Variety description databases

(see document TC/50/36 "Report on the Conclusions", paragraphs 102 to 108)

98. The TC considered document TC/50/7.

99. The TC noted the developments on variety description databases, as set out in document TC/50/7, paragraphs 10 to 21.

100. The TC noted that the TWV had requested an expert from France to make a presentation, at its forty-eighth session, on the GEMMA software being used by the Group for Study and Control of Varieties and Seeds (GEVES) in a Community Plant Variety Office of the European Union (CPVO) Research and Development project. In that regard, it noted the report from France that the presentation would not be possible for 2014.

101. The TC noted that the TWC had invited an expert from China to make a presentation on variation of variety descriptions over years in different locations, at its thirty-second session. The TC agreed that it would be beneficial to make a presentation to the TWA.

102. The TC noted that the TWC had suggested that the information presented by experts from China, at its thirty-first session, on the research on the construction of DNA fingerprint database in Maize, should be made available to the BMT.

103. The TC noted that the TWF had invited an expert from the European Union to present the development of a database for Peach and noted the report that this presentation would now be made in 2015.

104. The TC noted that the TWO had requested an expert from Australia to lead an initial study on the viability of the development of a database, in a similar way to the database being developed for Pea, at its forty-seventh session.

Exchangeable software

(see document TC/50/36 "Report on the Conclusions", paragraphs 109 to 120)

105. The TC considered document TC/50/8.

Proposal to develop a new information document

106. The TC agreed to propose document UPOV/INF/22 "Software and equipment used by members of the Union" for adoption by the Council at its forty-eighth ordinary session, to be held in Geneva on October 16, 2014, as set out in document TC/50/8, paragraphs 6 to 8.

107. The TC noted that the comments of the TC, at its fiftieth session, on the proposed new information document UPOV/INF/22, would be reported to the CAJ, at its sixty-ninth session, to be held on April 10, 2014.

108. Subject to adoption of document UPOV/INF/22 by the Council at its forty-eighth ordinary session, to be held in Geneva on October 16, 2014, the TC agreed to issue a circular to the designated persons of the members of the Union in the TC, inviting them to provide information regarding non-customized software and equipment used by members of the Union, as appropriate, as set out in document TC/50/8, paragraph 9.

Review of Document UPOV/INF/16 "Exchangeable software"

Software proposed for inclusion in document UPOV/INF/16 "Exchangeable software"

109. The TC agreed to include the SIVAVE software in document UPOV/INF/16, as set out in document TC/50/8, paragraph 15.

110. The TC noted that a revision of document UPOV/INF/16/3 concerning the inclusion of the SIVAVE software would be presented to the CAJ, at its sixty-ninth session, to be held on April 10, 2014, and if agreed by the CAJ, would be presented for adoption by the Council at its forty-eighth ordinary session, to be held on October 16, 2014, as set out in document TC/50/8, paragraphs 16 and 17.

111. The TC noted that Mexico had been invited to provide further information on the SISNAVA software at the thirty-second session of the TWC.

Information on use by members

112. The TC approved the revision of document UPOV/INF/16 concerning the inclusion of information on the use of software by members of the Union, as set out in document TC/50/8, Annex III.

113. The TC noted that the comments of the TC, at its fiftieth session, concerning the use of software by members of the Union, would be reported to the CAJ at its sixty-ninth session, to be held in Geneva on April 10, 2014.

Translation of software in document UPOV/INF/16/3

114. The TC noted that an expert from France would make a presentation on the AIM software at the thirty-second session of the TWC, based on the English translation of the software, as set out in document TC/50/8, paragraph 25.

115. The TC noted that the translation of the user interfaces of the "Information System (IS) used for Test and Protection of Plant Varieties in the Russian Federation" software would be technically very difficult.

116. The TC agreed that selected screenshots in English of the software "Information System (IS) used for Test and Protection of Plant Varieties in the Russian Federation" be presented to the TWC at its thirty-second session, in order to explain how the software worked, as set out in document TC/50/8, paragraph 28.

Electronic application systems

(see document TC/50/36 "Report on the Conclusions", paragraphs 121 and 122)

117. The TC considered document TC/50/9.

118. The TC noted the developments concerning the development of a prototype electronic form as set out in document TC/50/9.

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

(see document TC/50/36 "Report on the Conclusions", paragraphs 123 to 127)

119. The TC considered document TC/50/12.

120. The TC noted that the TWC had proposed to provide more detailed information and further analysis on the consequences of the use of the approaches presented in situations A, B, C and D at its session in 2014, as set out in document TC/50/12, paragraph 33. The TC agreed that the document should be modified in order to explain that, in Situations A and B, a variety might be rejected after a single growing cycle under certain circumstances.

121. The TC noted that the TWC had proposed that the statistical basis for the acceptable number of off-types in situation D be considered further at its session in 2014, as set out in document TC/50/12, paragraphs 34 and 35.

122. The TC agreed to develop guidance in document TGP/10 for situations A, B, C and D, as set out in document TC/50/12, Annexes I to IV, after consideration of the comments by the TWC.

123. The TC agreed that document TGP/10, paragraph 6 should be considered when considering the possible development of guidance on the approach presented in situation C, as set out in document TC/50/12, Annex III.

Preparatory workshops

(see document TC/50/36 "Report on the Conclusions", paragraphs 128 to 131)

124. The TC considered document TC/50/11.

125. The TC noted the report of the preparatory workshops held in 2013.

126. The TC noted that the results of a survey and possible measures for improving the effectiveness of the preparatory workshops were considered in document TC/50/35.

127. The TC considered the proposed program for preparatory workshops for 2014, as set out in document TC/50/11, paragraphs 10 to 12.

Discussion on improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops

(see document TC/50/36 "Report on the Conclusions", paragraphs 132 to 140)

128. The TC considered document TC/50/35 and received a presentation by the Office of the Union on improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops.

Background

129. The TC noted the measures implemented at the TWPs sessions in 2013, for improving the effectiveness of the TWPs, as set out in document TC/50/35, paragraph 10.

Results from the surveys in 2013

130. The TC noted the participation to the surveys in 2013, as presented in document TC/50/35, paragraphs 12 and 13.

131. The TC noted the results of the surveys in 2013 presented in document TC/50/35, Annex I.

Proposals for improving the effectiveness of the Technical Committee, Technical Working Parties and Preparatory Workshops

132. The TC noted the aims set out in document TC/50/35, paragraph 18, that were the basis of the proposals for improving the effectiveness of the TWPs.

133. The TC noted the information provided in document TC/50/35, Annex II, containing information on attendance of members of the Union to the TC and TWPs in the last five years.

Technical Committee

134. The TC agreed the proposals concerning possible means of improving the effectiveness of the Technical Committee, as set out in document TC/50/35, paragraph 21, and agreed that further consideration should be given to other proposals at its fifty-first session.

Technical Working Parties and Preparatory Workshops

135. The TC considered the proposals concerning possible means of improving the effectiveness of the TWPs, as set out in document TC/50/35, paragraphs 23 to 27, and agreed:

(a) to revise TWP invitations, as proposed in document TC/50/35, Annex III; and

(b) to make a survey of the participants at the TWP sessions in 2014, on the basis of document TC/50/35, Annex IV, and to include a question on whether participants to the TWPs and Preparatory Workshops had participated in the UPOV distance learning courses.

136. In the case of proposals that could imply cost or timing changes, it agreed that the TWPs should be invited to consider the proposals set out in document TC/50/35, paragraphs 23 and 24, on the basis of further information to be provided by the Office of the Union. The TC would consider those proposals, on the basis of the comments of the TWPs, at its fifty-first session.

Discussion on Opportunities for training in the examination of DUS

(see document TC/50/36 "Report on the Conclusions", paragraphs 141 and 142)

137. The TC received the following presentations on opportunities for training in the examination of DUS:

Australia: Training in DUS Examination	Australia (Mr. Nik Hulse)
Opportunities for Training in the Examination of DUS in Japan	Japan (Mr. Kenji Numaguchi)
Opportunities for Training in DUS Testing in the Netherlands	Netherlands (Mr. Kees van Ettehoven)
Formación en el examen DHE co-organizada por España	Spain (Mr. Luis Salaices)
Training resources in UPOV	UPOV Office (Mr. Peter Button)

138. The TC noted that a copy of the presentations would be made available on the UPOV website.

Discussion on Cooperation with breeders in the examination of DUS

(see document TC/50/36 "Report on the Conclusions", paragraphs 143 and 144)

139. The TC received the following presentations on cooperation with breeders in the examination of DUS:

Organization of DUS examination in Argentina	Argentina (Mr. Alberto Ballesteros)
Breeder Cooperation	Australia (Mr. Nik Hulse)
Canada's Plant Breeders' Rights (PBR) Framework: Breeder Cooperation	Canada (Mr. Anthony Parker)
Implementation of cooperation with breeders in the French Examination Office	France (Ms. Virginie Bertoux)
Cooperation with Breeders in New Zealand DUS Testing	New Zealand (Mr. Chris Barnaby)
Breeder Cooperation in DUS Examination in South Africa	South Africa (Mrs. Carensa Petzer)
Cooperation with Breeders in the Examination of DUS	United States of America (Mr. Paul Zankowski)

140. The TC noted that a copy of the presentations would be made available on the UPOV website.

Test Guidelines

(see document TC/50/36 "Report on the Conclusions", paragraphs 145 to 161).

141. The TC considered documents TC/50/2, TC/50/30, TC/50/31, TC/50/32, TC/50/33 and TC/50/34.

142. The TC adopted six new Test Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability and nine revised Test Guidelines, as listed in the table below, on the basis of the amendments specified in Annex II to this document and the linguistic changes recommended by the TC-EDC and agreed that they should be published on the UPOV website at the earliest opportunity:

**	TWP	Document No. No. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name
NEW TEST GUIDELINES / NOUVEAUX PRINCIPES DIRECTEURS D'EXAMEN / NEUE PRÜFUNGSRICHTLINIEN / NUEVAS DIRECTRICES DE EXAMEN							
NL	TWO	TG/HOSTA (proj.9)	Funkia, Hosta, Plantain Lily	Funkia, Hémérocalle du Japon	Funkie	Hosta	Hosta Tratt.
CN	TWO	TG/LILAC(proj.6)	Lilac	Lilas	Flieder	Lila	Syringa L.
CN	TWF	TG/LITCHI (proj.5)	Litchi, Lychee	Litchi	Litschi	Litchi	Litchi chinensis Sonn.
NL	TWO	TG/MANDE (proj.7)	Brazilian-jasmine		Brasilijasmin		Mandevilla Lindl., Dipladenia A. DC.
AU	TWA	TG/RHODES (proj.4)	Rhodesgrass	Herbe de Rhodes	Rhodesgras	Hierba de Rhodes	Chloris gayana Kunth
MX	TWF	TG/VANIL(proj.5)	Vanilla	Vanillier	Vanille-Pflanze	Vainilla, Xanath	Vanilla planifolia Jacks.
REVISIONS OF TEST GUIDELINES / RÉVISIONS DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / REVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES DE DIRECTRICES DE EXAMEN ADOPTADAS							
DE	TWA	TG/33/7(proj.4)	Kentucky Bluegrass	Pâturin des prés	Wiesenrispe	Poa de los prados	Poa pratensis L.
ZA	TWA	TG/93/4(proj.5)	Groundnut	Arachide	Erdnuß	Cacahuete, Mani	Arachis L.
HU	TWV	TG/166/4(proj.6)	Opium/Seed Poppy	OEillette, Pavot	Mohn, Schlafmohn	Adormidera, Amapola, Opio	Papaver somniferum L.
DE	TWF	TG/187/2(proj.4)	Prunus Rootstocks	Porte-greffes de Prunus	Prunus-Unterlagen	Portainjertos de prunus	Prunus L.
NL	TWV	TG/198/2(proj.4)	Chives, Asatsuki	Ciboulette, Civette	Schnittlauch	Cebollino	Allium schoenoprasum L.
PARTIAL REVISIONS OF TEST GUIDELINES / RÉVISIONS PARTIELLES DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / TEILREVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES PARCIALES DE DIRECTRICES DE EXAMEN ADOPTADAS							
FR	TWV	TG/7/10 and document TC/50/32	Pea	Pois	Erbse	Guisante, Arveja	Pisum sativum L.
FR	TWF	TG/53/7 and documents TC/50/33, TG/53/7 Rev. (proj.1)	Peach	Pêcher	Pfirsich	Durazno, Melocotonero	Prunus persica (L.) Batsch, Persica vulgaris Mill., Prunus L. subg. Persica
NL/FR	TWV	TG/61/7 and document TC/50/30	Cucumber, Gherkin	Concombre, Cornichon	Gurke	Pepino, Pepinillo	Cucumis sativus L.
NL/FR	TWV	TG/104/5 and document TC/50/31	Melon	Melon	Melone	Melón	Cucumis melo L.

143. UPOV has adopted 301 Test Guidelines, all of which are freely available on the UPOV website (http://www.upov.int/test_guidelines/en/).

144. With regard to the Test Guidelines for Peach (documents TC/50/33 and TG/53/7 Rev.(proj.1)), the TC adopted the Test Guidelines subject to the following issues being approved by the TWF at its forty-fifth session, as set out in Annex II to this report:

- grouping characteristics
- the deletion of "Fruit: flesh type" from TQ 5 (to be moved to TQ 7.3).
- change of method of observation for Characteristics 56 and 59

145. The TC adopted the Test Guidelines for Vanilla subject to the addition of asterisks to Characteristics 5, 7, 11, 14, 21 being approved by the TWF by correspondence, as set out in Annex II to this report.

146. The TC noted that the Leading Expert, Mr. Hennie Venter (South Africa), after consultation with Chairperson of the TWF, had requested that the draft Test Guidelines for Apple rootstocks (*Malus* Mill.) be rediscussed by the TWF at its forty-fifth session in order to agree on the proposals concerning example varieties, as set out in Annex II to this report.

147. The TC agreed to inform the TWPs that it would be helpful if the Leading Experts could be contacted by e mail during the TC-EDC meetings to resolve minor issues.

Corrections to Test Guidelines

148. The TC noted the corrections made to the adopted Test Guidelines for Curly Kale (document TG/90/6), Tomato Rootstocks (document TG/294/1) and African Lily (document TG/266/1 Rev.), on the basis of document TC/50/34.

Draft Test Guidelines Discussed by the Technical Working Parties in 2013

149. The TC noted the draft Test Guidelines discussed by the Technical Working Parties at their sessions in 2013, as listed in document TC/50/2, Annex II.

Draft Test Guidelines to be discussed by the Technical Working Parties in 2014

150. The TC agreed the program for the development of new Test Guidelines and for the revision of Test Guidelines, as shown in document TC/50/2, Annex III, subject to the inclusion of the partial revision of the Test Guidelines for Spinach (document TG/55/7 Rev. 2).

151. The TC noted the status of the existing Test Guidelines, as listed in Annex IV to document TC/50/2.

Test Guidelines on the UPOV Website

Superseded versions of Test Guidelines

152. The TC noted the list of superseded Test Guidelines, as presented in document TC/50/2, Annex V.

153. The TC noted that information on the date of adoption of Test Guidelines had been made available on the UPOV website.

154. The TC approved the cover page and location on the UPOV website of superseded versions of Test Guidelines, as set out in document TC/50/2, paragraphs 22 and 23.

Guidance for drafters of Test Guidelines

155. The TC noted that the provision of training on the use of the web-based TG Template was considered in document TC/50/3 "Matters arising from the Technical Working Parties".

156. The TC noted that a report on the development of a web-based Test Guidelines template was considered in document TC/50/10 "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".

157. The TC noted the importance of a harmonized approach in the different Test Guidelines so that the assessment of uniformity would take into consideration the specific question of cross-pollinated varieties (relative uniformity standard). This matter is addressed in TGP/7 which was not in effect when many of the existing Test Guidelines were adopted.

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

(see document TC/50/36 "Report on the Conclusions", paragraph 162)

158. The TC considered document TC/50/4 and noted the number of genera and species for which members of the Union indicated their practical experience in the examination of DUS increased from 2,589 in 2013 to 3,305 in 2014 (+ 27.7%). The information on members of the Union with practical experience in DUS examination is freely accessible via the GENIE database.

Chairpersons

159. The TC agreed to recommend to the Council the election of the next chairpersons of the TWPs as follows (see document TC/50/36 "Report on the Conclusions", paragraph 163):

<u>TWP</u>	<u>Proposal</u>
TWA	Mr. Tanvir Hossain (Australia)
TWC	Mr. Adrian Roberts (United Kingdom)
TWF	Mr. Katsumi Yamaguchi (Japan)
TWO	Mr. Kenji Numaguchi (Japan)
TWV	Ms. Swenja Tams (Germany)
BMT	Mr. Kees van Ettehoven (Netherlands)

Program for the fifty-first session

160. The following draft agenda was agreed for the fifty-first session of the TC, to be held in Geneva in 2015 (see document TC/50/36 "Report on the Conclusions", paragraphs 164 and 165):

1. Opening of the session
2. Adoption of the agenda
3. Discussion on:
 - (a) Molecular Techniques
 - (b) Possible ways of improving the effectiveness of the TC, TWPs and Preparatory Workshops
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)
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) Electronic application systems
 - (c) Exchangeable software
 - (d) Variety description databases
11. Assessing uniformity by off-types on the basis of more than one sample or sub-samples
12. Preparatory workshops
13. Test Guidelines
14. List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability
15. Program for the fifty-second session
16. Adoption of the report on the conclusions (if time permits)
17. Closing of the session

161. The TC agreed that consideration should be given to inviting other organizations e.g. the Convention on Biological Diversity (CBD), the Food and Agriculture Organization of the United Nations (FAO), ISTA, the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), OECD and the World

Intellectual Property Organization (WIPO) to make presentations at a future session. In that regard, it agreed that it would be appropriate to report this suggestion for consideration by the Consultative Committee.

II. PROGRESS REPORT ON THE WORK OF THE TECHNICAL WORKING PARTIES AND THE WORKING GROUP ON BIOCHEMICAL AND MOLECULAR TECHNIQUES, AND DNA-PROFILING IN PARTICULAR IN 2013

162. The following reports were made by the Chairpersons on the work of the TWA, TWC, TWF, TWO, TWV, and BMT at the fiftieth session of the TC.

Technical Working Party for Agricultural Crops (TWA)

163. The Technical Working Party for Agricultural Crops (TWA) held its forty-second session in Kiev, Ukraine, from June 17 to 21, 2013 under the chairmanship of Mrs. Robyn Hierse (South Africa). The report of this meeting can be found in document TWA/42/31 "Report".

164. The session was attended by 86 participants from 32 members of the Union. The preparatory workshop was held on the afternoon of June 16 and was attended by 36 participants from 16 members of the Union.

165. The TWA was welcomed by Mrs. Nataliya Khraپیчuk, Head of Seed Production Section of Agriculture Department, Ministry of Agrarian Policy and Food of Ukraine and then received a presentation from Mr. Petro Vasyliuk, Director, Ukrainian Institute for Plant Variety Examination on "Right Protection for Plant Variety in Ukraine" and from Mrs. Svitlana Gryniv, Head of Department for Qualifying Examination of Plant Varieties on Distinctness, Uniformity and Stability on "Qualifying Examination on Distinctness, Uniformity and Stability".

166. The TWA noted that the information on developments in plant variety protection from members and observers was provided in document TWA/42/28. This was then followed by a presentation from the Office of the Union on the latest developments within UPOV, and a presentation on the results of the 2012 survey on improving the effectiveness of the Technical Working Parties, as requested by the TC at its forty-ninth session, a copy of which was provided in document TWA/42/27 Add..

167. After the reports, the TWA noted the information on developments in UPOV on molecular techniques, which was provided in document TWA/42/2 "Molecular Techniques". It was also noted that the TC had proposed to hold a coordinated meeting of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) with the International Organization for Standardization (ISO), the International Seed Testing Association (ISTA) and the Organization for Economic Co-Operation and Development (OECD) which would also include breeders. If that was not possible a meeting of the BMT would be organized in the meantime. The TWA agreed with the TC that there was a need to provide suitable information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general.

168. Regarding the TGP documents, the TWA noted the matters approved by the TC for future revision of documents TGP/7 "Development of Test Guidelines", TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability" and TGP/9 "Examining Distinctness" and several TGP documents were discussed, namely TGP/7, TGP/8 and TGP/14 "Glossary of Terms Used in UPOV Documents".

169. In the revision of TGP/7, the TWA considered document TWA/42/9 "Revision of document TGP/7: Additional Standard Wording for Growing Cycle for Tropical Species" and noted the information provided. The TWA requested that the relationship between an individual flower and the harvesting of fruit be clarified by the drafter of the proposal. The TWA also considered documents: TWA/42/10 "Revision of document TGP/7: Source of Propagating Material", TWA/42/11 "Revision of document TGP/7: Indication of Growth Stage in Test Guidelines", TWA/42/12 "Revision of document TGP/7: Providing Illustrations of Color in Test Guidelines" and TWA/42/13 "Revision of document TGP/7: Presence of Leading Expert at Technical Working Party Sessions" and several proposals and comments were made and noted.

170. TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability": several documents were given consideration and the information in those documents was noted and discussed and certain proposals and recommendations were made.

171. Document TWA/42/21 "Revision of document TGP/14: Section 2: Botanical Terms, Subsection 3: Color, Definition of "Dot"" was considered and it was agreed that it would not be appropriate to provide a definition for "dot" in document TGP/14 and noted that the terms "dot" and "spot" were useful both as a synonym and as separate terms in the different UPOV languages.

172. The TWA noted the information provided in document TWA/42/4 "Variety Denominations" and the developments concerning the International Commission for the Nomenclature of Cultivated Plants of the International Union for Biological Sciences (IUBS Commission) and the International Society for Horticultural Science Commission for Nomenclature and Cultivar Registration (ISHS Commission) which are of relevance for UPOV. The TWA also noted the planned contribution from the Office of the Union to the Draft Joint Notice for publication in the *Hanburyana Journal* and the participation of UPOV in the IUBS Commission.

173. Uniformity assessment was discussed in document TWA/42/22 "Assessing Uniformity by Off-types on the Basis of more than one Sample or Sub-samples" and document TWA/42/26 "Testing uniformity of apple varieties arising from mutation".

174. The TWA received a presentation by an expert from Ukraine on experiences with new types and species in the country, including the new species, *Sorghum oryzoidum*, which is an intergeneric hybrid between *Sorghum bicolor* and *Oryza sativa*.

175. The TWA considered the document TWA/42/25 Add. "Addendum to Pea Study Database" and agreed with the draft partial revision of the Test Guidelines for Pea proposed by the TWV. On that basis, the TWA agreed to submit the partial revision of the Test Guidelines for Pea to the TC in April 2014. The TWA welcomed the results of the study on the pea database and noted that it presented a good method for improvement of Test Guidelines.

176. With regard to the "Guidance for drafters of Test Guidelines, the TWA considered document TWA/42/24. The TWA also noted the plan for the development of a prototype web-based TG Template for testing by interested experts by the end of 2013. The TWA supported the initiative and agreed to the continuation of work on the TG Template.

177. The developments regarding information and databases were considered in the following documents: TWA/42/5 "UPOV information databases", TWA/42/6 "Variety description databases", TWA/42/7 "Exchangeable software" and TWA/42/8 "Electronic application systems".

178. The TWA discussed 11 draft Test Guidelines and agreed to submit three of those Test Guidelines to the TC, namely, Groundnut, Kentucky Bluegrass and Rhodesgrass. It was agreed to discuss the following draft Test Guidelines in 2014: Adlay, Adzuki/Red bean, Cassava, Castor Bean, Elytrigia, Finger Millet, Ginseng, Quinoa, Scorpion Weed, Sorghum, Urochloa, Wheat and Yellow Potato.

179. At the invitation of Argentina, the TWA agreed to hold its forty-third session in Mar del Plata, Argentina from November 17 to 21, 2014, with the preparatory workshop on November 16, 2014.

180. The TWA proposed to consider the following items at its forty-third 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 (oral reports by the participants)
 - (b) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques (document to be prepared by the Office of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchangeable software (documents to be prepared by the Office of the Union)
 - (d) Electronic application systems (document to be prepared by the Office of the Union)
8. Uniformity assessment

9. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
10. Discussion on draft Test Guidelines (Subgroups)
11. Recommendations on draft Test Guidelines
12. Guidance for drafters of Test Guidelines
13. Date and place of the next session
14. Future program
15. Report on the session (if time permits)
16. Closing of the session

181. On the evening of June 17, 2013, the TWA visited the Grishko National Botanical Garden where it received a presentation on the collections of agricultural and numerous other crops, including roses and fruit trees by Mr. Dzhamal B. Rakhmetov, Doctor of Agricultural Sciences and Head of the Department of Alternative Crops of the Grishko National Botanical Garden and Ms. Olena Rubtsova, Doctor of Biological Sciences and leading Researcher at the Grishko Botanical Gardens.

182. On the afternoon of June 20, 2013, the TWA visited Mankivka State Variety Examination Station in Dzenzelivka village, Mankivka region, Cherkasy oblast, where it was welcomed by Mr. Oled Levchenko, Director, Mankivka State Variety Examination Station. The main task of the Mankivka State Variety Examination Station is to conduct field examination of varieties for value for cultivation and use (VCU) and DUS testing and post-control as well as disease resistance assessment of several agricultural crops, such as soft wheat, barley, durum wheat, oat and soy bean.

183. The TWA agreed to propose to the TC that it recommend to the Council to elect Mr. Tanvir Hossain (Australia) as the next Chairperson of the TWA.

Technical Working Party on Automation and Computer Programs (TWC)

184. The Technical Working Party on Automation and Computer Programs (TWC) held its thirty first session in Seoul, Republic of Korea, from June 4 to 7, 2013, under the chairmanship of Mr. Sami Markkanen (Finland).

185. The TWC session was attended by 43 participants from 12 members of the Union. The preparatory workshop was held during the afternoon of Monday, June 3, and was attended by 23 participants from 10 members of the Union. 37 documents were discussed during the meeting. Four presentations were made by electronic means, via the internet.

186. The TWC was welcomed by Mr. Shin Hyun Kwan, Director General, Korean Seed and Variety Service (KSVS), Ministry of Agriculture, Food and Rural Affairs (MAFRA). The TWC received a presentation on the plant variety protection (PVP) system in the Republic of Korea from Mr. Lee Sang Hyug, Director, Plant Variety Protection Division, KSVS, MAFRA.

187. The TWC received a presentation from experts from China on the research on the construction of DNA fingerprint database in maize and suggested that the information also be made available to the BMT.

188. TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability": The TWC considered document TWC/31/14 "Minimizing the variation due to different observers" for Part I of TGP/8 and noted that the drafter from the Netherlands was no longer participating in the TWC meetings. The TWO and TWV had proposed experts to help to develop further guidance with regard to guidance on PQ and QN/MG characteristics. The TWF had proposed that an expert from New Zealand would report at its forty-fifth session on the work done on the "Publication of harmonized variety description for apple for an agreed set of varieties", in order to consider if it could be relevant to further develop the study.

189. Part II of TGP/8: The TWC discussed the topic "Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions" and received a presentation by an expert from the United Kingdom on a preliminary use of the Flax data set, offered by the experts from France, to illustrate two different methods from the United Kingdom. The TWC noted that the document had been prepared to illustrate the way in which the different methods could be applied. The TWC was informed that data sets of Chrysanthemum and Pea had also been received from Japan and the Netherlands and would be made

available for the experts participating in the practical exercise. During discussions the TWC noted that there was no guidance on the production of variety descriptions for cross pollinated, self-pollinated or vegetatively propagated crops. The TWC agreed that the Office of the Union should seek to ensure that the crops and data in the practical exercise would enable all methods for self-pollinated and/or vegetatively propagated varieties to be included.

190. The TWC considered document "Statistical Methods for Visually Observed Characteristics" and agreed that the method proposed was new and considered that it had advantages over the Chi-square test already provided in document TGP/8 for multinomial distributed data, such as visually observed characteristics, whereas COYD for normally distributed data is not suitable for multinomial distributed data. The TWC agreed that it would be beneficial to further develop the method for multinomial data and to compare the decisions made using the two methods based on real data from Finland and the United Kingdom (Timothy, Red Clover and Meadow Fescue: growth habit).

191. Under the topic exchangeable software, the TWC received a presentation by an expert of France on the development of a color analysis process using AIM software which would be used in DUS testing in France. The TWC agreed on the importance of the environmental conditions when taking photos for the image analysis.

192. The TWC received a presentation by electronic means by an expert from Mexico on the SISNAVA and SIVAVE software proposed by Mexico for inclusion in document UPOV/INF/16 "Exchangeable software". The TWC agreed that the SIVAVE software proposed by Mexico was suitable for inclusion and requested Mexico to provide further information on the SISNAVA software to clarify the method of determination for the crop specific limits of acceptance (sum of differences), including the role of the crop experts in this process.

193. The issue of uniformity assessment by off-types was discussed with the expert from Germany, who made an presentation by electronic means on the subject. The TWC requested the experts from Germany to explain the Type I and Type II errors used in the statistical basis for the acceptable number of off-types in the subsample of 20 plants used in the context of a sample size of 100 plants. The TWC agreed that the statistical basis for this approach should continue to be discussed at its thirty-second session. The TWC agreed that it would not be appropriate to recommend this approach for other crops or sample sizes before it had agreed on the statistical basis.

194. The TWC considered document "Method of Calculation of COYU". The TWC noted that the present method of calculation of COYU was overly strict due to the method of smoothing used and that very low probability levels were used in compensation. The TWC agreed that the bias in the present method of calculation of COYU could be addressed by a change of smoothing method from "moving average" to "cubic smoothing splines". The TWC welcomed the offer by the experts from the United Kingdom to write software for the proposed COYU method in FORTRAN for integration into the DUST software and to present a demonstration version of the DUST software using the proposed COYU method at the thirty-second session of the TWC. The TWC agreed that the probability levels to be used in the proposed COYU method should be discussed on the basis of the experience of UPOV members in using the proposed method. The TWC agreed that a circular should be prepared by an expert from the United Kingdom and issued by the Office of the Union to the TC representatives, in order to investigate which members of the Union used the current COYU method and in which software it was used. The TWC agreed that guidance should be developed on the minimum number of varieties that would be suitable for using the COYU method.

195. The TWC agreed to propose to the TC that it recommend to the Council to elect Mr. Adrian Roberts (United Kingdom) as the next chairperson of the TWC.

196. The TWC agreed to hold its thirty-second session in Helsinki, Finland, from June 3 to 6, 2014, with the preparatory workshop on June 2, 2014.

197. The TWC planned to discuss the following items during the thirty-second 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 (written reports to be prepared by members and observers)
 - (b) Reports on developments within UPOV (document to be prepared by the Office of the Union)

4. Molecular techniques (document to be prepared by the Office of the Union and documents invited)
5. TGP documents
6. Information and databases
 - (a) UPOV information databases (document to be prepared by the Office of the Union and documents invited)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchangeable software (document to be prepared by the Office of the Union and documents invited)
 - (d) Electronic application systems (document to be prepared by the Office of the Union and documents invited)
7. Variety denominations (document to be prepared by the Office of the Union)
8. Uniformity assessment by off-types (documents to be prepared by France, Germany and the Office of the Union)
9. Data loggers (document to be prepared by the Office of the Union)
10. Image analysis (document to be prepared by the European Union)
11. Development of COYU (document to be prepared by the United Kingdom)
12. Database for researching TWC documents (document to be prepared by Germany)
13. Date and place of the next session
14. Future program
15. Report on the session (if time permits)
16. Closing of the session

Technical Working Party for Fruit Crops (TWF)

198. The Technical Working Party for Crops (TWF) held its forty-fourth session in Napier, New Zealand, from April 29 to May 30, 2013. The session was opened and chaired by Mrs. Carensa Petzer (South Africa). The report of the session is provided in document TWF/44/31 "Report"

199. The TWF session was attended by 42 participants from 14 members of the Union, 4 observer States and 2 observer organizations.

200. The preparatory workshop, which was held on April 28, 2014, was attended by 25 participants from 9 members of the Union and 3 observer States.

201. The TWF was welcomed by Mr. Chris Barnaby, Assistant Commissioner/Principal Examiner, Plant Variety Rights Office of New Zealand, who made a presentation on plant variety protection in New Zealand.

202. The TWF proposed that a suitable agenda item be added to the program of its forty-fifth session, under which the following items would be discussed:

- a) Management of reference collections for DUS examination (document to be prepared by France and the European Union);
- b) Duration of DUS tests in the fruit sector (document to be prepared by the European Union);
- c) Harmonized example varieties for Apple: historical data and possible new developments (document to be prepared by Germany, New Zealand and the Office of the Union)."
- d) The TWF agreed that it would be useful to receive more information on the use of molecular techniques in DUS examination and, in that regard, invited the experts from Spain to provide information on the use of such tools by the *Oficina Española de Variedades Vegetales* (OEVV).

203. The TWF also invited other participants to present their experiences on the use of biochemical and molecular techniques in fruit crops at the TWF session in 2014.

204. The TWF received a presentation by the expert from France on the study concerning Peach and molecular markers made by the Group for Study and Control of Varieties and Seeds (GEVES).

205. The TWF considered the following TGP documents on the basis of document TWF/44/3:

TGP/7: Development of Test Guidelines

- (i) *Coverage of Types of Varieties in Test Guidelines*
- (ii) *Selection of Asterisked Characteristics*
- (iii) *Standard References in the Technical Questionnaire*
- (iv) *Applications for Varieties with Low Germination*
- (v) *Procedure for the Development of Test Guidelines*
- (vi) *Quantity of Plant Material Required*
- (vii) *Minimum Quantity of Plant Material*
- (viii) *Guidance on Number of Plants to be Examined (for Distinctness)*
- (ix) *Guidance for Method of Observation*
- (x) *Example Varieties*
- (xi) *Providing Photographs with the Technical Questionnaire*
- (xii) *Duration of Test*
- (xiii) *Number of Plants Required for Description*

206. For document TGP/8, Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability, the TWF discussed:

- Part I: DUS Trial Design and Data Analysis*
- Part II: Techniques Used in DUS Examination*

207. The TWF noted document TWF/44/30 "Proposal for a Partial Revision of the Test Guidelines for Mandarins" and received a presentation from Mr. Jean Maison (European Union), the coordinator of the subgroup. The experts from Spain, Morocco and South Africa reported on their progress to date. Copies of those presentations were provided in the Annex to document TWF/44/30.

208. The TWF agreed that the following draft Test Guidelines should be submitted to the Technical Committee for adoption at its fifth session, to be held in Geneva in March, 2014.

Subject	Relevant document
Apple rootstocks (<i>Malus</i> Mill.) (Revision)	TG/163/4(proj.3)
Litchi (<i>Litchi chinensis</i> Sonn.)	TG/LITCHI(proj.3)
Peach (<i>Prunus persica</i> (L.) Batsch) (Partial revision)	TG/53/7 and TWF/44/29
Prunus rootstocks (<i>Prunus</i> L.) (Revision)	TG/187/2(proj.2)
Vanilla (<i>Vanilla planifolia</i> Jacks)	TG/VANIL(proj.3)

209. The TWF proposed to discuss the following 11 Test Guidelines at its forty fifth session:

*Acca (<i>Acca sellowiana</i> (Berg) Burret)
Apricot (<i>Prunus armeniaca</i> L.) (Partial revision: example varieties)
Avocado rootstock (<i>Persea</i> Mill.)
*Coconut (<i>Cocos nucifera</i> L.)
Chestnut (<i>Castanea sativa</i> Mill.) (Revision)
Date palm (<i>Phoenix dactylifera</i>)
Juglans rootstock
*Mandarins (<i>Citrus</i> L. - Group 1) (Partial revision)
*Papaya (<i>Carica papaya</i> L.)
*Pecan nut (<i>Carya illinoensis</i> (Wangenh.) K. Koch)
Walnut (<i>Juglans regia</i> L.) (Revision)

210. On the morning of May 1, the TWF visited the ENZA™ PAK fruit cool storage and packing facility, in Whakatu, near Hastings, followed by a visit to the New Zealand Institute for Plant and Food Research (Plant and Food Research), Hawke's Bay Research Center, near Havelock North Village, where it received presentations from Ms. Cath Kingston, Portfolio Manager, Food Innovation Portfolio and Mr. Satish Kumar, Senior Scientist, Breeding & Genetics. The TWF also visited one of the orchards containing an apple variety collection, where they were accompanied by Mr. Ben van Hooijdonk, Scientist, Sustainable Production - Crop & Fruit Production Systems, and Mr. Mike Malone, Scientist, Breeding & Genomics - Premium Crops.

211. At the invitation of Morocco, the TWF agreed to hold its forty-fifth session in Marrakesh, Morocco, from May 26 to 30, 2014, with the preparatory workshop on May 25, 2014.

212. The TWF agreed to propose to the TC that it recommend to the Council to elect Mr. Katsumi Yamaguchi (Japan), as the next chairperson of the TWF.

213. 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
 - (c) Reports from members and observers
 - (d) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques (document to be prepared by the Office of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchangeable software (documents to be prepared by the Office of the Union)
 - (d) Electronic application systems (document to be prepared by the Office of the Union)
8. Uniformity assessment
9. Management of reference collections for DUS examination (document to be prepared by France and the European Union)
10. Duration of DUS tests in the fruit sector (document to be prepared by the European Union)
11. Harmonized example varieties for Apple: historical data and possible new developments (document to be prepared by Germany, New Zealand and the Office of the Union)
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

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

214. The Technical Working Party for Ornamental Plants and Forest Trees (TWO) held its forty-sixth session in Melbourne, Australia, from April 22 to 26, 2013. The session was chaired by Mr. Nik Hulse (Australia), Chairperson of the TWO. The detailed report appears in document TWO/46/29.

215. The meeting was attended by 43 participants, from 18 members of the Union, 3 observer States and 1 observer organization. The preparatory workshop was held during the afternoon of April 21 and was attended by 30 participants from 13 members of the Union, 3 observer States and 1 observer organization.

216. The TWO was welcomed by Ms. Fatima Beattie, Deputy Director General, IP Australia, by electronic means. The former Chairperson of the TWO, Mrs. Andrea Menne, thanked Australia for hosting the TWO session.

217. The Chairperson, Mr. Nik Hulse, made a presentation on the PVP system in Australia.

218. The TWO noted the information on developments in variety protection from members and observers provided in document TWO/46/28 Prov. "Report on development in plant variety protection from members and observers". It received an oral report from the Office of the Union on the latest developments within UPOV.

219. The TWO considered document TWO/46/2 "Molecular Techniques". The TWO strongly agreed with the TC that there was a need to provide suitable information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general. That information should explain the relationship between genotype and phenotype and the reasons such techniques are generally not appropriate in DUS examination.

220. The TWO considered the proposed guidance on source of propagating material, as presented in Section IV "Guidance for drafting Test Guidelines" of the Annex to document TWO/46/10 "Revision of document TGP/7: Source of Propagating Material". Whilst the TWO agreed wording should not be included in section 9.2 of the Technical Questionnaire it noted that the document contained useful information on the possible effects of source of propagating material. In that regard the TWO requested the preparation of a condensed version for inclusion in TGP/7 as general guidance.

221. The TWO considered document TWO/46/11 "Indication of Growth Stage in Test Guidelines" and considered that the indication of growth stages in Test Guidelines should be optional and used where appropriate. Furthermore, the TWO agreed that the Additional Standard Wording 4 "Conditions for conducting the examination" (ASW 4) should be amended to reflect the current practice in UPOV Test Guidelines of indicating growth stages using letters, numbers or combinations of letter and numbers.

222. The TWO considered document TWO/46/12 "Providing Illustrations of Color in Test Guidelines" and proposed guidance for inclusion in a future revision of TGP/7 to indicate that it was generally not appropriate to use illustrations of color in Test Guidelines.

223. The TWO considered document TWO/46/14 "Minimizing the Variation Due to Different Observers" and proposed that experts from Australia, Germany, the Netherlands and the United Kingdom help to develop further guidance in relation to PQ and QN/MG characteristics in the proposed new section to be included in TGP/8 Part I: DUS Trial and Design and Data Analysis. However, the TWO also noted that the Test Guidelines were important in providing clear guidance for DUS examiners to ensure consistency of observations.

224. The TWO considered and noted several other documents regarding the revision of document TGP/8: Part II: Selected Techniques Used in DUS Examination. Those related to the method of calculation of COYU, relative variance method and examining DUS in bulk samples.

225. The TWO considered document TWO/46/18 "Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions". The TWO agreed with the practical exercise and requested the development of guidance on data processing for the assessment of distinctness and for producing variety descriptions of vegetatively propagated crops.

226. The TWO considered document TWO/46/19 "Guidance of Data Analysis for Blind Randomized Trials", noting comments made by the TWP's in 2012 and the TC-EDC in 2013. In addition, the TWO suggested the following improvements: amend the title of the new section to "Draft guidance for blind randomized trials conducted by the authority or a third party"; make the introduction more generic; and provide an example for ornamental plants.

227. The TWO considered document TWO/46/21 "Color, Definition of Dot" and agreed that "dot" was a small "spot". The TWO also agreed that in future Test Guidelines only the term "spot" should be used and existing Test Guidelines should be considered for revision whenever the use of those terms could cause confusion.

228. The TWO considered document TWO/46/24 "Guidance for Drafters of Test Guidelines" and noted progress in the development of a prototype web-based TG Template that would provide sufficient flexibility to allow proposals for new standard wording and structure to allow further development of Test Guidelines.

229. An expert from Australia gave a presentation on a new inter-generic hybrid variety between the Australian species *Disphyma crassifolium* ssp. *clavellatum* and the African species *Glottiphyllum longum*.

230. The TWO agreed to submit four Test Guidelines to the Technical Committee (TC) at its fiftieth session in April 2014; China Aster, Hosta, Lilac and Mandevilla. At its forty-seventh session in 2014, the TWO planned to discuss 15 Test Guidelines, consisting of the following five revisions and 10 new Test Guidelines:

Abelia (<i>Abelia</i> R.Br.)
<i>Aglaonema</i> Schott.
Aloe
<i>Campanula</i> L.
<i>Calibrachoa</i> L. (Revision)
Cordyline (<i>Cordyline</i> Comm. Ex. Juss.)
Cosmos (<i>Cosmos</i> Cav.)
Carnation (<i>Dianthus</i> L.) (Revision)
Freesia (Revision)
<i>Grevillea</i> (<i>Grevillea</i> R. Br. Corr. R. Br.)
Petunia (Revision)
<i>Plectranthus</i> L'Hér.
Regal Pelargonium (Revision)
Salvia (<i>Salvia</i> L.)
<i>Zinnia</i> L.

231. At the invitation of Kenya, the TWO agreed to hold its forty-seventh session in Naivasha, Kenya, from May 19 to 23, 2014 with the preparatory workshop in Nairobi on May 18, 2014.

232. The TWO agreed to propose to the Technical Committee that it recommend to the Council that Mr. Kenji Numaguchi (Japan) be appointed as the next chairperson of the TWO.

233. The TWO proposed to discuss the following items at its forty-seventy 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 (oral report by the Office of the Union)
4. Molecular Techniques (document to be prepared by the Office of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchangeable software (documents to be prepared by the Office of the Union)
 - (d) Electronic application systems (document to be prepared by the Office of the Union)
8. Uniformity assessment

9. Experience with new types and species
10. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
11. Discussion on draft Test Guidelines (Subgroups)
12. Recommendations on draft Test Guidelines
13. Guidance for drafters of Test Guidelines
14. Date and place of the next session
15. Future program
16. Report on the session (if time permits)
17. Closing of the session

Technical Working Party for Vegetables

234. The Technical Working Party for Vegetables (TWV) held its forty-seventh session in Nagasaki, Japan, from May 20 to 24, 2013. The session was opened and chaired by Mr. François Boulineau (France). The detailed report is available in document TWV/47/34 "Report".

235. The TWV session was attended by 53 participants from 16 members of the Union, 3 observer States and 2 observer organizations.

236. The Preparatory meeting was attended by 20 participants from 6 members of the Union and 2 observer States.

237. The TWV was welcomed by Mr. Junya Endo, Director, New Business and Intellectual Property Division, Food Industry Affairs Bureau, Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) who made a presentation on plant variety protection in Japan.

238. On the afternoon of May 22, 2013, the TWV visited the Unzen Station of the National Center for Seeds and Seedlings (NCSS), where the TWV was welcomed by Mr. Sanji Takemori, President of NCSS, and Mr. Kunio Tokunaga, Director General of the Unzen Station. The TWV received a presentation on NCSS and the Unzen Station by Mr. Kazuto Higasimura. At the facilities of Unzen Station the TWV visited DUS growing trials for several vegetable crops including tomato, lettuce, pumpkin, garlic, bitter gourd and bottle gourd.

239. The TWV considered the following TGP documents on the basis of document TWV/47/3:

- TGP/7: Development of Test Guidelines
- TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability
- TGP/14: Glossary of Terms Used in UPOV Documents

240. The TWV noted that the TC had proposed to hold a coordinated meeting of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) with the International Organization for Standardization (ISO), the International Seed Testing Association (ISTA) and the Organization for Economic Co-Operation and Development (OECD) and including breeders; and that if it was not possible to organize a coordinated meeting in 2014, a meeting of the BMT would be organized in the meantime.

241. The TWV agreed with the TC that there was a need to provide suitable information on the situation in UPOV with regard to the use of molecular techniques to a wider audience, including breeders and the public in general.

242. The TWV considered the proposed guidance on source of propagating material, as presented in Section IV "Guidance for drafting Test Guidelines" of the Annex to document TWV/47/10 "Revision of document TGP/7: Source of Propagating Material", which was presented by an expert from the European Union.

243. The TWV noted that the document provided useful information on the effects of the source of propagating material as a source of general guidance for drafters of Test Guidelines, for inclusion in document TGP/7, and requested the expert from the European Union, with the support of experts from France and the Netherlands, to prepare a condensed version of the wording to be presented to the TWV at its forty-eighth session in 2014.

244. The TWV agreed to request the addition of examples for vegetatively propagated vegetables

245. The TWV noted that the TC had agreed to replace the proposed text for new Section 11 “Examining DUS in Bulk Samples” in the Annex to document TC/49/28 “Revision of document TGP/8: Part II: Techniques used in DUS Examination, New Section 11: Examining DUS in Bulk Samples” with guidance on the use of characteristics examined on the basis of bulk samples, in order to ensure that the characteristics fulfill the basic requirements for a characteristic.

246. The TWV agreed that Leading Experts of Test Guidelines could be requested to provide data from different years to demonstrate that the expression of the characteristic is “sufficiently consistent and repeatable in a particular environment”.

247. The TWV considered the developments presented in document TWV/47/18 “Revision of document TGP/8: Part II: New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions” on a practical exercise with a common data set to produce variety descriptions of self-pollinated and/or vegetatively propagated varieties, in order to determine the aspects in common and divergence between methods, with a view to developing general guidance. The TWV agreed that the COY method was working well for cross pollinated crops and highlighted the importance of developing guidance for producing variety descriptions for self-pollinated and/or vegetatively propagated varieties.

248. The TWV agreed with the value of a practical exercise and requested the development of guidance on data processing for the assessment of distinctness and for producing variety descriptions of vegetatively propagated crops.

249. The TWV noted that a draft of the new section “Examining Characteristics Using Image Analysis” for document TGP/8 would be presented to the TWC in 2013.

250. The TWV invited experts from Czech Republic, France, Germany, the Netherlands and the United Kingdom to make a presentation at its forty-eighth session, on the use of image analysis on pea, carrot, onion and parsley respectively. With regard to pea, the TWV agreed to receive presentations from the Czech Republic, France and the United Kingdom in order to compare the method used for image analysis in different UPOV members on the same crop.

251. The TWV requested the expert from France to make a presentation, at its forty-eighth session, on the GEMMA software being used by the Group for Study and Control of Varieties and Seeds (GEVES) in a CPVO R&D project. This software was seen as being adapted for the development of such a common database.

252. The TWV agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fiftieth session, to be held in Geneva in April 2014.

Subject	Basic Documents (2013)
Chives (<i>Allium schoenoprasum</i> L.) (Revision)	TG/198/2(proj.2)
Cucumber (<i>Cucumis sativus</i> L.) (Partial revision: disease resistance)	TG/61/7, TWV/47/29
Melon (<i>Cucumis melo</i> L.) (Partial revision: disease resistance)	TG/104/5, TWV/47/30

Sweet Pepper, Hot Pepper, Paprika, Chili (<i>Capsicum annuum</i> L.) (Partial revision: disease resistance)	TG/76/8, TWV/47/31
*Pea (<i>Pisum sativum</i> L.) (Partial revision: grouping characteristics) ¹	TG/7/10, TWV/47/25, TWV/47/25 Add.
*Opium/Seed Poppy (<i>Papaver somniferum</i> L.) (Revision)	TG/166/4(proj.4), TWV/47/32

253. The TWV agreed to discuss the following draft Test Guidelines at its forty-eighth session

Subject
Basil (<i>Ocimum basilicum</i> L.) (Revision)
Bottle Gourd, Calabash (<i>Lagenaria siceraria</i> (Molina) Standl.)
*Brassica (Partial revision: male sterility for all concerned subspecies)
Brown Mustard (<i>Brassica juncea</i> (L.) Czern.)
*Cassava (<i>Manihot esculenta</i> Crantz.)
*Cucumber (Partial revision: Cucurbit yellow stunting disorder virus (CYSDV))
<i>Cucurbita maxima</i> x <i>Cucurbita moschata</i>
*French Bean (<i>Phaseolus vulgaris</i> L.) (Partial Revision: format of disease resistance explanations)
*Leaf Chicory (<i>Cichorium intybus</i> L. var. <i>foliosum</i> Hegi) (Revision)
*Lentil (<i>Lens culinaris</i> Medik.) (Revision)
Lettuce (<i>Lactuca sativa</i> L.) (Revision)
*Shiitake (<i>Lentinula edodes</i> (Berk.) Pegler) (Partial revision: plant material required)
Turnip (<i>Brassica rapa</i> L. var. <i>rapa</i> L. (Revision)
Witloof Chicory (<i>Cichorium intybus</i> L. partim) (Revision)

254. At the invitation of Italy, the TWV agreed to hold its forty-eighth session in Paestum, Italy, from June 23 to 27, 2014, with the preparatory workshop on June 22, 2014.

255. The TWV agreed to propose to the TC that it recommend to the Council to elect Mrs. Swenja Tams (Germany) as the next chairperson of the TWV.

256. 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
 - (c) Reports from members and observers
 - (d) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques
 - (a) Developments in UPOV (document to be prepared by the Office of the Union)
 - (b) Presentation on the use of molecular techniques in DUS examination (document to be prepared by the Netherlands and presentations invited from members of the Union)
5. TGP documents
6. Presentation on the use of statistical approaches in DUS examination (document to be prepared by the Netherlands and presentations invited from members of the Union)
7. Variety denominations (document to be prepared by the Office of the Union)
8. Information and databases

¹ Subject to approval by the TWA at its forty-second session.

- (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchangeable software (documents to be prepared by the Office of the Union)
 - (d) Electronic application systems (document to be prepared by the Office of the Union)
9. Uniformity assessment
 10. Presentation on the use of disease resistance characteristics in DUS examination (document to be prepared by the European Union and presentations invited from members of the Union)
 11. Management of reference collections (document to be prepared by France and presentations invited from members of the Union)
 12. New issues arising for DUS examination (presentations invited from members of the Union)
 13. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
 14. Discussion on draft Test Guidelines (Subgroups)
 15. Recommendations on draft Test Guidelines
 16. Guidance for drafters of Test Guidelines
 17. Date and place of the next session
 18. Future program
 19. Report on the session (if time permits)
 20. Closing of the session

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

257. No session of the BMT was held between the forty-ninth and fiftieth session of the TC.

258. 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 of the TC and the work programs of the TWPs and BMT reported to the TC, as provided in this document.

[Annex follows]

C/48/10
ANNEX
PROGRAM FOR TGP DOCUMENTS

	Title of document	Current approved documents	2014						2015						2016						
			TC-EDC	TC/50	CAJ/69	TWPs	CAJ/70	C/48	TC-EDC	TC/51	CAJ/71	TWPs	CAJ/72	C/49	TC-EDC	TC/52	CAJ/73	TWPs	CAJ/74	C/50	
TGP/0	List of TGP Documents and Latest Issue Dates	TGP/0/6 ADOPTED						TGP/0/7 Adopt							TGP/0/8 Adopt						TGP/0/9 Adopt
TGP/1	General Introduction with Explanations	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
TGP/2	List of Test Guidelines Adopted by UPOV	TGP/2/1 ADOPTED	TGP/2/2 Draft 1	TGP/2/2 Draft 2	TGP/2/2 Draft 3			TGP/2/2 Adopt													
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 10/2 Adopted	TC-EDC/Jan14/2	TC/50/5	CAJ/69/3			Sec. 10/3 Adopt													
TGP/6	Arrangements for DUS Testing	TGP/6/1 ADOPTED																			
TGP/7	Development of Test Guidelines	TGP/7/3 ADOPTED																			
	TC Approved Revisions (document TC/50/5 Annex I)		TC-EDC/Jan14/2	TC/50/5	CAJ/69/3			TGP/7/4 Adopt													
	Plant Material Submitted for Examination (Drafter: Jens Wegner (European Union))		TC-EDC/Jan14/5	TC/50/17			TWP/XX/12		x	x		x			x	x	x			TGP/7/5 Adopt	
	Coverage of the Test Guidelines (Drafter: Office of the Union)			TC/50/5			TWP/XX/13		x	x										TGP/7/5 Adopt	
	Drafter's Kit for Test Guidelines (Drafter: Office of the Union)			TC/50/5			TWP/XX/14		x	x										TGP/7/5 Adopt	
TGP/8	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability	TGP/8/1 ADOPTED	see Appendix					TGP/8/2 Adopt	see Appendix						see Appendix					TGP/8/3 Adopt	
TGP/9	Examining Distinctness	TGP/9/1 ADOPTED																			
	TC Approved Revisions (document TC/50/5 Annex III)		TC-EDC/Jan14/2	TC/50/5	CAJ/69/3						x				TGP/9/2 Adopt						
	Revision of Section 2.5: Photographs (Drafter: Beate Ruecker (Germany))						TWP/XX/22		x	x	x				TGP/9/2 Adopt						
	Method of Observation (single measurement - MG) Drafter (Office of the Union)						TWP/XX/22		x	x	x				TGP/9/2 Adopt						
	Schematic Overview of TGP Documents Concerning Distinctness Drafter (Office of the Union)						TWP/XX/22		x	x	x				TGP/9/2 Adopt						
TGP/10	Examining Uniformity	TGP/10/1 ADOPTED																			
TGP/11	Examining Stability	TGP/11/2 ADOPTED																			
TGP/12	Guidance on Certain Physiological Characteristics	TGP/12/2 ADOPTED																			
TGP/13	Guidance for New Types and Species	TGP/13/1 ADOPTED																			
TGP/14	Glossary of Terms Used in UPOV Documents	TGP/14/2 ADOPTED																			
	Section 2.4: Apex/Tip Characteristics Drafter (Office of the Union)						TWV/48/23		x	x	x				TGP/14/3 Adopt						
TGP/15	Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)	TGP/15/1 ADOPTED																			

[Appendix follows]

C/48/10
ANNEX, APPENDIX
PROGRAM FOR THE REVISION OF DOCUMENT TGP/8

Title of document	2014						2015						2016						
	TC-EDC	TC/50	CAJ/69	TWPs	CAJ/70	C/48	TC-EDC	TC/51	CAJ/71	TWPs	CAJ/72	C/49	TC-EDC	TC/52	CAJ/73	TWPs	CAJ/74	C/50	
TGP/8 PART I: DUS TRIAL DESIGN AND DATA ANALYSIS																			
TC Approved Revisions (document TC/50/5 Annex II)		TC/50/5	CAJ/69/3			TGP/8/2 Adopt													
Minimizing variation due to different observers (Drafter: Nik Hulse (Australia))	TC-EDC/Jan14/9	TC/50/21		TWP/XX/15			x	x		x			x	x	x			TGP/8/3 Adopt	
TGP/8 PART II: TECHNIQUES USED IN DUS EXAMINATION																			
TC Approved Revisions (document TC50/5 Annex II)		TC/50/5	CAJ/69/3			TGP/8/2 Adopt													
Method of Calculation of COYU (Drafter: Adrian Roberts (United Kingdom))	TC-EDC/Jan14/10	TC/50/22		TWP/XX/16			x	x		x			x	x	x			TGP/8/3 Adopt	
Examining DUS in Bulk Samples (Drafter: Office of the Union)	TC-EDC/Jan14/12	TC/50/24		TWP/XX/17			x	x		x			x	x	x			TGP/8/3 Adopt	
Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions (Drafter: Office of the Union)	TC-EDC/Jan14/13	TC/50/25		TWP/XX/18			x	x		x			x	x	x			TGP/8/3 Adopt	
Guidance of Data Analysis for Blind Randomized Trials (Drafter: Richard Brand (France))	TC-EDC/Jan14/14	TC/50/26		TWP/XX/19			x	x		x			x	x	x			TGP/8/3 Adopt	
Examining Characteristics Using Image Analysis (Drafter: Jean Maisson (European Union))	TC-EDC/Jan14/15	TC/50/27		TWP/XX/20			x	x		x			x	x	x			TGP/8/3 Adopt	
Statistical Methods for Visually Observed Characteristics (Drafter: TWC to identify)	TC-EDC/Jan14/16	TC/50/28		TWP/XX/21			x	x		x			x	x	x			TGP/8/3 Adopt	

[End of Annex and of document]