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

Document prepared by the Office of the Union

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EXECUTIVE SUMMARY

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 Council will be 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.
3. 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

EXECUTIVE SUMMARY	1
PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE	3
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)	3
<i>Matters for adoption by the Council in 2016</i>	4
<i>Possible future revision of TGP documents</i>	5
<i>New proposals for revision of TGP documents</i>	8
<i>Program for the development of TGP documents</i>	8
Molecular techniques	8
Discussion session	9
(a) <i>Discussion on variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination</i>	9
(b) <i>Discussion on quality parameters for DUS examination</i>	9
(c) <i>Discussion on facilitating development of databases</i>	9
(d) <i>Discussion on minimum distance between varieties</i>	9
Matters concerning variety descriptions	10
Definition of color groups from RHS Colour Charts	11
Statistical methods for visually observed characteristics	12
Variety denominations	12
Information and databases	12
<i>UPOV information databases</i>	12
<i>Electronic application form</i>	13
<i>Exchange and use of software and equipment</i>	14
<i>Variety description databases</i>	14
Preparatory workshops	14
Test Guidelines	15
<i>Corrections to Test Guidelines</i>	16
<i>Draft Test Guidelines discussed by the Technical Working Parties in 2015</i>	16
<i>Draft Test Guidelines to be discussed by the Technical Working Parties in 2016</i>	16
<i>Status of existing Test Guidelines or draft Test Guidelines</i>	17
<i>Superseded Test Guidelines</i>	17
<i>Publication of Test Guidelines on the UPOV website</i>	17
List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability	17
UPOV Medal	18
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 2015	19
<i>Technical Working Party for Agricultural Crops</i>	19
<i>Technical Working Party on Automation and Computer Programs</i>	21
<i>Technical Working Party for Fruit Crops</i>	23
<i>Technical Working Party for Ornamental Plants and Forest Trees</i>	25
<i>Technical Working Party for Vegetables</i>	27
<i>Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular</i>	28
ANNEX: PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS	

PROGRESS REPORT OF THE WORK OF THE TECHNICAL COMMITTEE

4. The Technical Committee (TC) held its fifty-second session in Geneva from March 14 to 16, 2016, chaired by Mr. Alejandro Barrientos Priego (Mexico), Chairman of the TC. The report of the session is contained in document TC/52/29 Rev. "Revised Report".

5. The meeting was attended by 83 participants from 39 members of the Union, 2 observer States and 6 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)

6. The TC considered document TC/52/10 and received an oral report by the Vice Secretary-General.

7. The TC noted the developments in UPOV including relevant matters discussed in the last sessions of the Administrative and Legal Committee, the Consultative Committee and the Council, as set out in paragraphs 3 to 41 of document TC/52/10.

Matters arising from the Technical Working Parties

8. The TC considered document TC/52/3.

9. The TC agreed to request UPOV members' experts to provide data to the United Kingdom for developing the methodology for excluding varieties of common knowledge from the second growing cycle when COYD is used, as set out in paragraph 6 of document TC/52/3. The TC noted that the Office of the Union would issue a circular inviting contributions of data.

10. The TC agreed to include the development of calculated thresholds for excluding varieties of common knowledge from the second growing cycle when COYD is used as an agenda item for the fifty-third session of the TC on the basis of a document to be prepared by the United Kingdom.

11. The TC noted developments in the Technical Working Parties (TWPs) concerning the following matters reported in document TC/52/3:

- (a) experiences with new types and species;
- (b) new issues arising from DUS examination;
- (c) use of disease resistance characteristics in DUS examination;
- (d) influence of different sources on vegetatively propagated material used in DUS examination;
- (e) examples of different growing practice in DUS testing;
- (f) management of reference collections;
- (g) harmonized example varieties for apple: historical data and possible new development;
- (h) Application Management System (AMS) and Variety Description Database (VDD) in China;
- (i) Image Analysis System in China;
- (j) hand-held data capture systems in France and Germany;
- (k) weighting matrix in the GAIA software for soybean;
- (l) meeting documents from previous TWPs sessions;
- (m) TWPs schedule of the week (Workplan); and
- (n) distance learning course "DL-305".

12. The TC agreed that the use of disease resistance characteristics, as presented in paragraphs 17 to 20 of document TC/52/3, should be included in the agenda item for its fifty-third session. It also agreed that the item should also address the use of insect resistance characteristics and agreed to invite presentations from the European Union and other members of the Union.

13. The TC agreed that management of variety collections that are not managed directly by the authority, as provided in paragraphs 25 to 27 of document TC/52/3, should be included as an agenda item for its fifty-third session and agreed to invite presentations from France and other members of the Union.

TGP documents

Matters for adoption by the Council in 2016

TGP/7: Development of Test Guidelines

- (i) Coverage of the Test Guidelines

14. The TC considered document TC/52/5.

15. The TC noted the new section on “Coverage of the Test Guidelines” already agreed by the TC for inclusion in the revision of document TGP/7 that would be proposed for adoption by the Council in October 2016, as set out in paragraph 7 of document TC/52/5.

- (ii) Use of proprietary text, photographs and illustrations in Test Guidelines

16. The TC considered document TC/52/14 and agreed to propose guidance in relation to text, photographs, illustrations or other material that could be subject to third party rights for inclusion in the revision of document TGP/7 that would be proposed for adoption by the Council in October 2016, to read as follows:

“In the case of text, photographs, illustrations or other material that is subject to third party rights, it is the responsibility of the author of the document, including Test Guidelines, to obtain the necessary permission of the third party. Material must not be included in documents where such permission is required but has not been obtained.

“Where any text, photographs, illustrations or other material that are subject to third party rights are used in Test Guidelines it should be indicated that the third party has waived their rights for the purposes of DUS testing and development of variety descriptions (e.g. indicating ‘Courtesy of [name of copyright owner]’ alongside the image protected by copyright).”

17. The TC agreed to include an acknowledgement in the web-based TG template in relation to text, photographs, illustrations or other material that could be subject to third party rights.

- (iii) Regional sets of example varieties

18. The TC considered document TC/52/15 and agreed that, for the purposes of developing regional sets of example varieties for Test Guidelines:

- (a) a “region” should be comprised of more than one country;

(b) the TWP responsible for the Test Guidelines should decide on the need and determine the basis on which the region would be established for a regional set of example varieties;

(c) the procedure for the development of sets of example varieties for a region would be determined by the TWP concerned and could, for example, be coordinated by a leading expert for the region concerned; and

- (d) example varieties would need to be agreed by all UPOV members in the region concerned.

19. The TC agreed to propose the above guidance for inclusion in the revision of document TGP/7 that would be proposed for adoption by the Council in October 2016.

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

- (iv) New section: Examining characteristics using image analysis

20. The TC noted the new section on “Examining characteristics using image analysis” already agreed by the TC, as set out in document TC/52/5, Annex I, for inclusion in the revision of document TGP/8 that would be proposed for adoption by the Council in October 2016.

- (v) New Section: Minimizing the Variation due to Different Observers of the Same Trial

21. The TC considered document TC/52/16 and the draft guidance on “Minimizing the variation due to different observers of the same trial”, as presented in the Annex to document TC/52/16, in conjunction with the comments by the TWPs at their sessions in 2015, and the TC-EDC at its meeting in 2016.

22. The TC agreed that the draft guidance would be included in a revision of document TGP/8: “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”, Part I: DUS Trial Design and Data Analysis that would be proposed for adoption by the Council in October 2016.

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

23. The TC considered document TC/52/5 “TGP Documents” and noted that the Council would be invited to adopt document TGP/0/9, in order to reflect the revisions of TGP documents

Possible future revision of TGP documents

TGP/7: Development of Test Guidelines

- (i) Drafters’ kit for Test Guidelines

24. The TC considered document TC/52/28 and received a presentation by the Office of the Union, which it noted would be made available as an addendum to document TC/52/28 (in English only). The TC also received a demonstration of Version 1 of the web-based TG Template.

25. The TC noted that all Leading Experts had prepared the draft Test Guidelines for discussion during the TWPs at their sessions in 2015 using the web-based TG Template.

26. The TC noted that all Interested Experts had been required to provide their comments on draft Test Guidelines for discussion during the TWPs at their sessions in 2015 using the web-based TG Template.

27. The TC noted the issues addressed in response to the comments by Leading and Interested Experts that had participated in the testing of the prototype of the web-based TG Template, as set out in paragraphs 26 and 27 of document TC/52/28.

28. The TC agreed to standardize the format of the Table of Characteristics in all Test Guidelines according to the following structure:

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7	
	Name of characteristics in English	Nom du caractère en français	Name des Merkmals auf Deutsch	Nombre del carácter en español			
	states of expression	types d'expression	Ausprägungsstufen	tipos de expresión			

Legend

- 1 Characteristic number
2 (*) Asterisked characteristic – see Chapter 6.1.2
3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3
4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5
5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
6 (a)-{x} See Explanations on the Table of Characteristics in Chapter 8.1
7 Growth stage key

Example:

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
100. (*)	QN MG A/VG B	(+) (a) (b) (c)	2201, 2202, 2302			
	Plant: growth habit	Plante: port	Pflanze: Wuchsform	Planta: porte		
	upright					1
	semi upright				Okayamazairai	2
	spreading					3

29. The TC agreed that the most commonly used method of observation for a characteristic in the Table of Characteristics should be displayed first in the field “method of observation”.

30. The TC noted that Version 1 of the web-based TG Template had been finalized prior to beginning the drafting of Test Guidelines for the TWPs in 2016, including the resolution of the issues set out in document TC/52/28, paragraph 28. The TC also noted that the development of Version 2 of the web-based TG Template would not start before 2018, subject to availability of resources, after Version 1 had been fully stabilized and tested.

31. The TC noted that all Test Guidelines would be generated automatically by the web-based TG Template from 2016.

32. The TC agreed to revise document TGP/7 to reflect the introduction of the web-based TG Template after Version 1 had been fully stabilized and tested.

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

(ii) The Combined-Over-Years Uniformity Criterion (COYU)

33. The TC considered document TC/52/17 and received a presentation by an expert from the United Kingdom, a copy of which is provided in document TC/52/17 Add. (in English only).

34. The TC noted that experts from Finland, France, Germany, Kenya and the United Kingdom had participated in the exercise to test the software module on the new method for calculation of COYU.

35. The TC noted that the TWC had agreed that the new method for calculation of COYU worked well in practice and had agreed to request the expert from the United Kingdom to provide guidance on extrapolation when the candidate had a level of expression outside that seen in the reference varieties.

36. The TC agreed to request members of the Union to provide larger data sets to the United Kingdom for developing probability levels for the new method that would match results obtained using the previous probability levels. Such data sets should include at least 100 candidate varieties, with a possibility that data for those 100 varieties could be derived from several years. The TC noted that the Office of the Union would issue a circular inviting contributions of data sets.

37. The TC noted that the TWC had agreed to invite experts from China and France to join in the next steps of the practical exercise and to provide their data sets for use in the testing.

38. The TC noted that the TWC had proposed to invite the TWA to provide large data sets from field crops in order to identify suitable probability levels on the new method for calculation of COYU.

(iii) Examining DUS in Bulk Samples

39. The TC considered document TC/52/18.

40. The TC agreed that the Netherlands should be invited to develop guidance, with the inclusion of examples, for examining DUS in bulk samples for inclusion in a future revision of document TGP/8, on the following basis:

- (a) the characteristic should fulfill the requirements of a characteristic, as set out in the “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of new Varieties of Plants” (see document TG/1/3, Section 4.2.1);
- (b) there should be knowledge of the genetic control of the characteristic;
- (c) the suitability of the characteristic should be validated through an initial assessment of uniformity on individual plants;
- (d) information on plant-by-plant variation and differences between growing cycles should be provided (data from routine measurement of the characteristic from different years);
- (e) a full description of the method of assessment should be provided;
- (f) states of expression should be based on existing variation between varieties considering environmental influence.

41. The TC agreed that the draft guidance should be considered by the TWPs, at their sessions in 2016.

- (iv) Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions

42. The TC considered document TC/52/19.

43. The TC noted that the TWC had considered information on the steps used in the methods provided by the participants in the practical exercise to determine the aspects in common and where there was divergence among the methods. The TC also noted that the TWC had agreed that the methods to assign a note to the candidate varieties had some variations in the use of division into equal-spaced states, use of the results of examples varieties and crop expert judgment.

44. The TC agreed to request the TWPs, at their sessions in 2016, to consider the analysis provided by the TWC, as reproduced in the Annex to document TC/52/19. The TC agreed to request the expert from France to provide further information on the data analyzed in the study. The TC also agreed to request that participants in the practical exercise provide information on the reasons and situations in which example varieties, crop expert judgement and equal-spaced states would/would not be appropriate for transforming observations into notes.

45. The TC agreed with the TWC and the TWA that the guidance on “Different forms that variety descriptions could take and the relevance of scale levels”, as reproduced in Annex I to document TC/51/19, should be used as an introduction to future guidance to be developed on data processing for the assessment of distinctness and for producing variety descriptions.

TGP/10: Examining uniformity

- (v) New section: Assessing Uniformity by Off-Types on Basis of More than One Growing Cycle or on the Basis of Sub-Samples

46. The TC considered document TC/52/20 and received a presentation by an expert from the United Kingdom on assessing uniformity by off-types on the basis of more than one growing cycle, a copy of which is provided in document TC/52/20 Add. (in English only).

47. The TC agreed that the new proposed “Approach 3: Combining the results of two growing cycles” for the assessment of uniformity by off-types, as presented in Annex I to document TC/52/20, should be considered by the TWPs, at their sessions in 2016.

48. The TC noted that the TWA had agreed to request a video link with the experts from the TWC to discuss the new proposed “Approach 3: Combining the results of two growing cycles” at its forty-fifth session, to be held in 2016, and agreed that the video link should be open to all interested experts.

49. The TC agreed to clarify that the guidance in document TC/52/20, Annex I, was not intended to be used for the assessment of uniformity by off-types on the same plants in two growing cycles, as the same off-type plants observed in the first growing cycle would still be off-types in the second growing cycle.

New proposals for revision of TGP documents

TGP/7: Development of Test Guidelines

- (i) Duration of DUS tests in the fruit sector

50. The TC agreed to consider whether to seek to amend the guidance in document TGP/7 on the duration of DUS testing for fruit crops after further discussions by the TWF, at its session in 2016. In that regard, it requested the TWF to review whether the existing guidance in TGP documents precluded the conclusion of a DUS examination after one growing cycle.

TGP/14: Glossary of Terms Used in UPOV Documents

- (ii) Definition of “recurved”

51. The TC noted the plans of the TWF to consider whether to propose to revise the definition of “recurved” in document TGP/14.

Program for the development of TGP documents

52. The TC agreed the program for the development of TGP documents, as set out in Annex II to document TC/52/5, subject to its conclusions above.

53. The TC agreed that explanation should be provided on the symbols used in the program for development of TGP documents.

Molecular techniques

54. The TC considered document TC/52/11.

55. The TC noted the report on developments in the TWPs and BMT, as set out in paragraphs 5 to 15 of document TC/52/11.

56. The TC noted the plans for the OECD Seed Schemes to organize a Joint OECD/UPOV/ISTA/AOSA Workshop on Biochemical and Molecular Techniques and received an oral report from the representative of OECD that the joint workshop would be held in Paris, France, on June 8, 2016.

57. The TC noted that, at its fifty-first session, it had agreed:

- (a) to develop a joint document explaining the principal features of the systems of the OECD, UPOV and ISTA;
- (b) to develop an inventory on the use of molecular marker techniques, by crop, with a view to developing a joint OECD/UPOV/ISTA document containing that information, in a similar format to UPOV document UPOV/INF/16 “Exchangeable Software”, subject to the approval of the Council and in coordination with OECD and ISTA; and
- (c) the proposal for the BMT, at its fifteenth session, to develop lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques for consideration by the TC to be presented at the TC, at its fifty-third session.

58. The TC agreed that the BMT should include the development of a list of terminology (definitions) used by OECD, UPOV and ISTA in the list of joint initiatives in relation to molecular techniques, for consideration by the TC, at its fifty-third session.

59. The TC agreed a draft question and answer concerning the information on the situation in UPOV with regard to the use of molecular techniques for a wider audience, including the public in general, to read as follows:

“Is it possible to obtain protection of a variety on the basis of its DNA-profile?”

“For a variety to be protected, it needs to be clearly distinguishable from all existing varieties on the basis of characteristics that are physically expressed, e.g. plant height, time of flowering, fruit color, disease resistance etc. The DNA-profile is not the basis for obtaining the protection of a variety, although this information may be used as supporting information.

“A more detailed explanation is provided in the FAQ ‘Does UPOV allow molecular techniques (DNA profiles) in the examination of Distinctness, Uniformity and Stability (“DUS”)?’

“See also:

“What are the requirements for protecting a new plant variety?”

60. The TC noted that the BMT agenda item 5 “Report of work on molecular techniques in relation to DUS examination” would provide an opportunity for UPOV members to report on latest developments concerning the use of molecular techniques in DUS examination, and that this could form the basis to propose new application models for inclusion in document TGP/15 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”.

61. The TC noted that the European Union was conducting a project on the use of molecular marker techniques in DUS examination in different crops.

Discussion session

(a) *Discussion on variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination*

62. The TC received the following presentations on variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination (in order of presentation):

Variety descriptions and the role of plant material, including minimum number of growing cycles for DUS examination	France (Mr. Richard Brand)
Development and use of variety descriptions	Germany (Ms. Beate Rücker)
Minimum number of growing cycles	Netherlands (Mr. Kees van Ettehoven)
Using variety descriptions and length of testing – A New Zealand perspective	New Zealand (Mr. Chris Barnaby)

(b) *Discussion on quality parameters for DUS examination*

63. The TC received the following presentations on quality parameters for DUS examination (in order of presentation):

Quality parameters for DUS examination	European Union (Mr. Gerhard Schuon)
Quality parameters for DUS examination	Netherlands (Mr. Kees van Ettehoven)

(c) *Discussion on facilitating development of databases*

64. The TC received the following presentations on facilitating development of databases (in order of presentation):

Facilitating development of databases for DUS examination	France (Mr. Richard Brand)
Facilitating development of databases	Netherlands (Mr. Kees van Ettehoven)

(d) *Discussion on minimum distance between varieties*

65. The TC received the following presentations on minimum distance between varieties (in order of presentation):

Minimum Distance/Distinctness	International Association of Horticultural Producers (AIPH) and International Community of Breeders of Asexually Reproduced Ornamental and Fruit Varieties (CIOPORA) (Ms. Dominique Thevenon)
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Matters concerning variety descriptions

66. The TC considered document TC/52/21.

67. The TC noted that the CAJ, at its seventy-first session, had endorsed the conclusion of the CAJ-AG, at its ninth session, on the:

(i) purpose of the variety description developed at the time of the grant of the breeder's right (original variety description), as follows:

"37. The CAJ-AG agreed that, on the basis of document TGP/5 "Experience and Cooperation in DUS Testing", Section 6 "UPOV Report on Technical Examination and UPOV Variety Description", the purpose of the variety description developed at the time of the grant of the breeder's right (original variety description) might be summarized as follows:

- (a) to describe the characteristics of the variety; and
- (b) to identify and list similar varieties and differences from these varieties;
combined with the information on the basis for (a) and (b), namely:
 - Date and document number of UPOV Test Guidelines;
 - Date and/or document number of Reporting Authority's test guidelines;
 - Reporting Authority;
 - Testing station(s) and place(s);
 - Period of testing;
 - Date and place of issue of document;
 - Group: (Table: Characteristics; States of Expression; Note; Remarks);
 - Additional Information;
 - (a) Additional Data
 - (b) Photograph (if appropriate)
 - (c) RHS Colour Chart version used (if appropriate)
 - (d) Remarks."

and

(ii) status of the original variety description in relation to the verification of the conformity of plant material to a protected variety for enforcement of the breeder's right, as follows:

"38. The CAJ-AG considered the status of the original variety description in relation to the verification of plant material of a protected variety for the purposes of enforcement of the breeder's right and noted that UPOV guidance on the enforcement of breeders' rights contained in document UPOV/EXN/ENF/1 "Explanatory notes on the enforcement of breeders' rights under the UPOV Convention" explains as follows:

"SECTION II: Some possible measures for the enforcement of breeders' rights

"While the UPOV Convention requires members of the Union to provide for appropriate legal remedies for the effective enforcement of breeders' rights, it is a matter for breeders to enforce their rights."

[...]

"39. The CAJ-AG agreed that, in relation to the use of the original variety description, it should be recalled that the description of the variety characteristics and the basis for distinctness from the most similar variety are linked to the circumstances of the DUS examination, as set out in paragraph 10 (c) of this document, namely:

- Date and document number of UPOV Test Guidelines;
- Date and/or document number of Reporting Authority's test guidelines;
- Reporting Authority;
- Testing station(s) and place(s);
- Period of testing;
- Date and place of issue of document;
- Group: (Table: Characteristics; States of Expression; Note; Remarks);
- Additional Information;
 - (a) Additional Data
 - (b) Photograph (if appropriate)

- (c) RHS Colour Chart version used (if appropriate)
- (d) Remarks”

68. The TC noted the presentations on “matters concerning variety descriptions” received by the TWPs, at their sessions in 2015, as set out in paragraph 17 of document TC/52/21.

69. The TC noted the comments by the TWPs, at their sessions in 2015, on matters concerning variety descriptions and the role of plant material used as the basis for the DUS examination, as set out in paragraphs 18 to 40 of document TC/52/21.

70. The TC agreed to invite experts to present to the TWPs, at their sessions in 2016, their experiences with regard to the role of plant material used as the basis for the DUS examination in relation to matters presented in paragraph 5 of document TC/52/21, as reproduced below:

(a) use of information, documents or material provided by the breeder for verifying the maintenance of the variety, as set out in paragraph 15 of document CAJ-AG/13/8/4 “Matters concerning cancellation of the breeder’s right”, with an explanation that the information, documents or material could be maintained in a different country;

(b) use of Test Guidelines for verifying the maintenance of the variety that were different from the Test Guidelines used for the examination of Distinctness, Uniformity and Stability (“DUS”);

(c) the status of the original variety description in relation to the verification of the conformity of plant material to a protected variety for the purposes of:

- (i) verifying the maintenance of the variety (Article 22 of the 1991 Act, Article 10 of the 1978 Act);
- (ii) the examination of distinctness, uniformity and stability (“DUS”) of candidate varieties;

(d) the status of a modified variety description produced, for example, as a result of:

- (i) a recalibration of the scale in the Test Guidelines (particularly for non-asterisked characteristics);
- (ii) variation due to the environmental conditions of the years of testing for characteristics that are influenced by the environment;
- (iii) variation due to observation by different experts; or
- (iv) the use of different versions of scales (e.g. different versions of the RHS Colour Chart); and

(e) situations where an error is subsequently discovered in the initial variety description.

Definition of color groups from RHS Colour Charts

71. The TC considered document TC/52/22.

72. The TC noted the information presented and comments made at the TWPs in 2015.

73. The TC noted that the TWO had agreed to request the expert from Germany to prepare a study with support from the experts from Australia, Canada, the European Union, the Netherlands, New Zealand and the United Kingdom on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purposes of grouping of varieties and organization of the growing trial.

74. The TC noted that the TWO had agreed to request an expert from the United Kingdom to organize the compilation of examples of varieties without matching color in the Sixth Edition of the RHS Colour Chart (gaps) with a view to proposing new colors and possible harmonization on terminology. The TC agreed that increasing the cooperation with the Royal Horticultural Society (RHS) would be beneficial for UPOV and RHS and requested the Office of the Union to explore ways of achieving greater cooperation.

75. The TC noted that color names could have relevance for variety denominations and could have consequences for the acceptance of variety denominations for some UPOV members.

Statistical methods for visually observed characteristics

76. The TC considered document TC/52/23.

77. The TC noted that the TWF had agreed that statistical methods were not routinely used for fruit crops, and that the TWO had agreed that statistical methods were not used for the analysis of visually observed characteristics in DUS examination of ornamental plants.

78. The TC noted that China had been invited to make a presentation at the thirty-fourth session of the TWC to describe the statistical methods used in the DUSTC software package for the analysis of distinctness and uniformity.

79. The TC noted that Finland intended to use the new statistical method described in the Annex to document TC/52/23 for the analysis of seven visually observed ordinal characteristics in Timothy, Meadow Fescue and Tall Fescue, White Clover and Red Clover.

80. The TC agreed that the naming of the different methods should be clarified to avoid confusion with other methods used in UPOV, such as COYD.

81. The TC noted that the TWC had welcomed the offer by an expert from France to study the development of software to implement the method developed by experts from Denmark and Poland, in collaboration with experts from Finland and the United Kingdom.

Variety denominations

82. The TC considered document TC/52/12.

83. The TC noted the work on the possible development of a UPOV similarity search tool for variety denomination purposes by the WG-DST, including the test study, as set out in paragraphs 5 to 15 of document TC/52/12.

84. The TC noted that the revision of document UPOV/INF/12 in relation to changes of registered variety denominations had been adopted by the Council at its forty-ninth ordinary session, as set out in paragraph 17 of document TC/52/12.

85. The TC noted that the mandate and the composition of the WG-DST had been expanded to prepare recommendations for the CAJ concerning a possible revision of document UPOV/INF/12 "Explanatory Notes on Variety Denominations under the UPOV Convention" (to become the WG-DEN) and that the WG-DEN would meet on March 18, 2016.

86. The TC noted that the Office of the Union had issued a circular inviting CAJ members and observers, and WG-DST members, to express their interest in participating in the WG-DEN and to provide comments on document UPOV/INF/12/5.

87. The European Union welcomed the development of a UPOV similarity search tool for variety denomination, highlighting the importance of comparing results of the new algorithm with other existing algorithms to ensure that it would provide an improvement in terms of precision and recall. The Office of the Union confirmed that the new algorithm would be available for testing in the PLUTO database and confirmed that the testing and evaluation of the new algorithm, as mentioned by the European Union, was an integral part of the work.

Information and databases

UPOV information databases

88. The TC considered document TC/52/6.

UPOV code system

89. The TC noted that, in 2015, 188 new UPOV codes had been created and amendments had been made to 11 existing UPOV codes, increasing the total number of UPOV codes in the GENIE database at the end of 2015 to 7,992.

90. The TC noted that the Office of the Union would prepare tables of UPOV codes additions and amendments for checking by the relevant authorities for each of the TWP sessions in 2016, as set out in paragraph 8 of document TC/52/6.

91. The TC agreed to invite the European Union to make a proposal to the TWPs, at their sessions in 2016, to revise the Guide to the UPOV Code System with regard to UPOV codes for hybrid genera and species.

92. The TC noted the intervention from Japan on the new administrative procedures adopted to facilitate the exchange of DUS test reports between Japan and other UPOV members and that, as a result, DUS test reports would be provided free of charge for those UPOV members with which they have a memorandum of cooperation.

PLUTO database

93. The TC noted the summary of contributions to the PLUTO database from 2012 to 2015 and the current situation of members of the Union on data contribution, as presented in the Annex to document TC/52/6.

94. The TC noted the introduction of an additional column showing the latest date on which the information had been provided in the PLUTO database.

95. The TC noted the introduction of a function to search denominations using the data field "Denomination" and "Breeder's Ref", independently or in combination, in the "Denomination Search" page of the PLUTO database.

96. The TC noted that the CAJ, at its seventy-second session, had agreed that the WG-DEN should consider proposals for the expansion of the content of the PLUTO database to include all recognized varieties, including those that had not been, or were no longer, registered/protected.

97. The TC noted the information concerning the training courses "Contributing data to the PLUTO database", held in Geneva in September and October 2015, as set out in paragraphs 29 to 31 of document TC/52/6, with the participation experts from the following members of the Union: Oman, South Africa and the former Yugoslav Republic of Macedonia (in English); and Argentina, Bolivia (Plurinational State of), Chile, Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Panama, Paraguay and Uruguay (in Spanish).

Electronic application form

98. The TC considered document TC/52/7 and received a presentation by the Office of the Union.

99. The TC noted developments concerning the development of a prototype electronic form and the plans for the development of a fully functioning system (PV2) by August 2016 for a final test campaign in September 2016, before presentation at the sessions of the CAJ, the Consultative Committee and the Council in October 2016. The TC noted that the following crops would be added, in the following order of priority according to the interest of participating PVP Offices and breeders and the ability of the participating PVP Offices to provide relevant Technical Questionnaire information:

- 1) Rose
- 2) Soya Bean
- 3) Lettuce
- 4) Apple – fruit varieties
- 5) Potato

100. The Delegation of Japan requested clarification of the language requirements for the EAF. The Office of the Union clarified that the EAF would allow users to view all questions in any of the languages of the participating UPOV members. However, users would be required to provide the requested information in a language accepted by the authority concerned. The acceptable language(s) would be indicated in the form.

Exchange and use of software and equipment

101. The TC considered document TC/52/8.

Document UPOV/INF/16 “Exchangeable Software”

102. The TC noted that the Council, at its forty-ninth ordinary session, held in Geneva, on October 29, 2015, had adopted document UPOV/INF/16/5 “Exchangeable Software”.

103. The TC noted that the discussions on the inclusion of the SISNAVA software in document UPOV/INF/16 would be continued in the TWC, subject to the conclusion on discussions on the variation of variety descriptions over years in different locations.

104. The TC agreed to propose the revision of document UPOV/INF/16/5 to include information on the use of software by members of the Union, as set out in Annex I to document TC/52/8.

105. The TC noted that the comments of the TC, at its fifty-second session, concerning the use of software by members of the Union, would be reported to the CAJ at its seventy-third session, to be held in Geneva in October 2016, and if agreed by the CAJ, a draft of document UPOV/INF/16/6 would be presented for adoption by the Council at its fiftieth ordinary session, to be held on October 28, 2016.

Document UPOV/INF/22 “Software and Equipment Used by Members of the Union”

106. The TC noted that the Council, at its forty-ninth ordinary session, held in Geneva, on October 29, 2015, had adopted document UPOV/INF/22/2 “Software and equipment used by members of the Union”.

107. The TC agreed to propose the revision of document UPOV/INF/22/2 to include information on the use of software by members of the Union, as presented in Annex II to document TC/52/8, subject to the amendments proposed by the TC-EDC:

Annex II, Part (a), second row	Microsoft Office Professional Plus 2010
Annex II, Part (a), third row	Microsoft Access
Annex II, Part (b), third row	Adobe Acrobat Reader
Annex II, Part (b), fourth row	Microsoft Office (Word) and Adobe Acrobat Reader

108. The TC noted that the comments of the TC concerning the use of software by members of the Union would be reported to the CAJ at its seventy-third session and, if agreed by the CAJ, a draft of document UPOV/INF/22/3 would be presented for adoption by the Council at its fiftieth ordinary session, to be held on October 28, 2016.

Variety description databases

109. The TC considered document TC/52/9.

110. The TC noted that there had been a discussion on facilitating the development of databases under agenda item 3 (c) “Facilitating development of databases” at the fifty-second session of the TC.

111. The TC noted that the TWC, at its thirty-third session, had received a presentation by an expert from China on the analysis of variance for the interaction “variety x location” (environment) of QN characteristics using the statistical module of the new software “DUSTC” developed by China, a copy of which is provided in document TWC/33/27 Rev.

112. The TC noted that the TWF, at its forty-sixth session, had agreed that databases for fruit crops containing morphological and/or molecular data could be useful for grouping varieties and organizing the growing trials and for the analysis of distinctness.

Preparatory workshops

113. The TC considered document TC/52/13.

114. The TC noted the report of the preparatory workshops held in 2015.

115. The TC agreed the proposed program for preparatory workshops for 2016, as set out in paragraphs 9 to 11 of document TC/52/13.

116. The TC noted that document TC/52/13, paragraph 8, should be amended to read:
TWA (Japan)
TWV (European Union)

Test Guidelines

117. The TC considered documents TC/52/2, TC/52/24, TC/52/25, TC/52/26 and TC/52/27.

118. According to the procedures established in document TGP/7, the TC adopted five new Test Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability, two revised Test Guidelines and nine partially 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
<u>NEW TEST GUIDELINES / NOUVEAUX PRINCIPES DIRECTEURS D'EXAMEN / NEUE PRÜFUNGSRICHTLINIEN / NUEVAS DIRECTRICES DE EXAMEN</u>							
BR	TWF	TG/COCOS(proj.6)	Coconut	Cocotier	Kokosnuß	Cocotero	Cocos nucifera L.
NZ	TWO	TG/CORDY(proj.5)	Cordyline, Cabbage Tree, Torquay Palm	Cordyline	Cordyline; Keulenbaum; Keulenlilie	Cordyline	Cordyline Comm. ex Juss. excluding C. brasiliensis Planch. and C. fruticosa (L.) A. Chev.
MX	TWF	TG/PERSE (proj.4) (Rootstock)	Avocado; Coyo avocado (rootstock)	Avocatier (Porte- greffe)	Avocado; wilde Avocado (Unterlagen)	Aguacate, Palta; Chinini; Coyó (Porta injerto)	Persea americana Mill.; Persea schiedeana Nees (Rootstock)
ZA	TWO	TG/PLECT(proj.4)	Plectranthus, Spur Flower	Plectranthe	Harfenstrauch	Plectranthus	Plectranthus L'Hér. excluding P. scutellarioides
JP	TWO	TG/SALVI(proj.5)	Salvia, Sage	Sauge	Salbei; Salvie	Salvia	Salvia L.
<u>REVISIONS OF TEST GUIDELINES / RÉVISIONS DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / REVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES DE DIRECTRICES DE EXAMEN ADOPTADAS</u>							
DE	TWV	TG/200/2(proj.4)	Basil	Basilic	Basilikum	Albahaca	Ocimum basilicum L.
DE	TWO	TG/207/2(proj.4)	Calibrachoa	Calibrachoa	Calibrachoa	Calibrachoa	Calibrachoa Cerv.
<u>PARTIAL REVISIONS OF TEST GUIDELINES / RÉVISIONS PARTIELLES DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / TEILREVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES PARCIALES DE DIRECTRICES DE EXAMEN ADOPTADAS</u>							
NL	TWV	TG/45/7 (document TC/52/27)	Cauliflower	Chou-fleur	Blumenkohl	Coliflor	Brassica oleracea L. convar. botrytis (L.) Alef. var. botrytis, Brassica cauliflora Lizg.
NL	TWV	TG/48/7 (document TC/52/27)	Cabbage	Chou pommé	Kopfkohl	Col, Repollo	Brassica oleracea L. convar. capitata (L.) Alef.
NL	TWV	TG/54/7 (document TC/52/27)	Brussels Sprouts	Chou de Bruxelles	Rosenkohl	Col de Bruselas	Brassica oleracea L. var. gemmifera DC.

**	TWP	Document No. No. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name
NL	TWV	TG/55/7 Rev. 3 (document TC/52/25)	Spinach	Épinard	Spinat	Espinaca	Spinacia oleracea L.
DE	TWV	TG/63/7 - TG/64/7 (document TC/52/24)	Black Radish	Radis d'été, d'automne et d'hiver	Rettich	Rabano de invierno, Rabano negro	Raphanus sativus L. var. niger (Mill.) S. Kerner (Raphanus sativus L. var. major A. Voss, Raphanus sativus L. var. longipinnatus L.H. Bailey)
NL	TWV	TG/65/4 (document TC/52/27)	Kohlrabi	Chou-rave	Kohlrabi	Col rábano	Brassica oleracea L. var. gongylodes L.
NL	TWV	TG/90/6 Corr. (document TC/52/27)	Curly Kale	Chou frisé	Grünkohl	Col rizada	Brassica oleracea L. var. sabellica L.
NL	TWV	TG/151/4 (document TC/52/27)	Calabrese, Sprouting Broccoli	Broccoli	Brokkoli	Brócoli	Brassica oleracea L. convar. botrytis (L.) Alef. var. cymosa Duch.
QZ	TWV	TG/294/1 Corr. (document TC/52/26)	Tomato Rootstocks	Porte-greffe de tomate	Tomatenunterla gen	Portainjertos de tomate	Solanum lycopersicum L. x Solanum habrochaites S. Knapp & D.M. Spooner; Solanum lycopersicum L. x Solanum peruvianum (L.) Mill.; Solanum lycopersicum L. x Solanum cheesmaniae (L. Ridley) Fosberg

119. At the request of the Leading Expert and Chairperson of the TWO, Mr. Kenji Numaguchi (Japan), the draft Test Guidelines for *Aglaonema* (*Aglaonema* Schott.) will be re-discussed by the TWO at its forty-ninth session in order to consider the comments of the TC-EDC concerning the approach of presenting color characteristics.

120. At the request of the Leading Expert, Mr. Nik Hulse (Australia), in agreement with the Chairperson of the TWO, Mr. Kenji Numaguchi (Japan), the draft Test Guidelines for *Grevillea* (*Grevillea* R. Br. corr. R. Br.) will be re-discussed by the TWO at its forty-ninth session in order to clarify leaf characteristics.

Corrections to Test Guidelines

121. The TC noted that a corrected version of the Test Guidelines for Cucumber in French and Spanish (document TG/61/7 Rev. 2 Corr.) had been published on the UPOV website and that a corrected version of the Test Guidelines for Vegetable Marrow, Squash (document TG/119/4 Corr.) would be published after the TC session.

Draft Test Guidelines discussed by the Technical Working Parties in 2015

122. The TC noted the draft Test Guidelines discussed by the TWPs at their sessions in 2015, as listed in document TC/52/2, Annex II.

Draft Test Guidelines to be discussed by the Technical Working Parties in 2016

123. The TC agreed the program for the development of new Test Guidelines and for the revision of Test Guidelines, as shown in document TC/52/2, Annex III.

124. The TC noted that the Leading Expert for the Test Guidelines for Onion and Shallot (document TG/46/7), Mr. Kees van Ettehoven (Netherlands), had requested that these Test Guidelines be withdrawn from the agenda of the TWV at its fiftieth session, to be held in 2016.

125. The TC agreed to include discussions on the partial revision of the Test Guidelines for Tomato (document TG/44/11 Rev.), characteristic 57 "Resistance to Tomato yellow leaf curl virus (TYLCV)", at the fiftieth session of the TWV, on the basis of a document to be prepared by an expert from the European Union.

126. The TC agreed that the partial revision of the Test Guidelines for cauliflower should be deleted from the list for discussion in 2016.

Status of existing Test Guidelines or draft Test Guidelines

127. The TC noted the status of the existing Test Guidelines, as listed in document TC/52/2, Annex IV.

Superseded Test Guidelines

128. The TC noted the list of superseded Test Guidelines, as presented in Annex V to document TC/52/2, and noted that the superseded versions of Test Guidelines were available on the Test Guidelines page of the UPOV website.

Publication of Test Guidelines on the UPOV website

129. The TC noted that the partial revisions of the Test Guidelines for *Citrus* L. had been published on the UPOV website to reflect the changes in the revised Test Guidelines for Mandarin (document TG/201/1 Rev.).

130. The TC agreed that information should be provided on the date of publication of Test Guidelines on the Test Guidelines page of the UPOV website.

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

131. The TC considered document TC/52/4 and noted that the number of genera and species for which members of the Union indicated their practical experience in the examination of DUS had increased from 3,382 in 2015 to 3,462 in 2016 (+ 2.4%). Information on members of the Union with practical experience in DUS examination is freely accessible via the GENIE database.

Program for the fifty-third session

132. The TC considered the discussion on the number of growing cycles in DUS examination and agreed to invite members of the Union to simulate the impact of using different numbers of growing cycles on DUS decisions using actual data and to report on their results at the TWP sessions in 2016 and at the fifty-third session of the TC.

133. The TC noted that the Community Plant Variety Office of the European Union (CPVO) was conducting a study on minimum distance between varieties and noted that the results of this study would be presented to the TWF at its session in 2016. The TC agreed to include an agenda item for its fifty-third session to consider the study in conjunction with the comments by the TWPs.

134. The TC considered discussions on facilitating the development of databases and agreed to invite members of the Union to make presentations at the next session of the BMT on how databases containing molecular data might be developed in UPOV. It noted that the outcome of those discussions would be reported to the TC at its fifty-third session under the agenda item "Variety description databases".

135. As a result of the discussion under agenda item 3 "Discussion on quality parameters for DUS examination", the TC noted that there may be obstacles to cooperation in examination, including exchange of DUS reports, and agreed to explore the situation further. As a starting point for discussion, the TC agreed that it would be useful for the Office of the Union to conduct a survey of the current situation of members of the Union and to report the results to the TC at its fifty-third session.

136. The following draft agenda was agreed for the fifty-third session of the TC, to be held in Geneva in 2017:

1. Opening of the session
2. Adoption of the agenda
3. 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
4. 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)
5. Matters arising from the Technical Working Parties
6. TGP documents
7. Molecular techniques
8. Development of calculated thresholds for excluding varieties of common knowledge from the second growing cycle when COYD is used (document to be prepared by the United Kingdom)
9. Discussion on:
 - (a) Use of disease and insect resistance characteristics in DUS examination
 - (b) Management of variety collections
 - (c) Minimum distance between varieties
 - (d) Increasing participation of new members of the Union in the work of the TC and TWPs
11. Number of growing cycles
12. Cooperation in examination
13. Statistical methods for visually observed characteristics
14. Preparatory workshops
15. Variety denominations
16. Information and databases
 - (a) UPOV information databases
 - (b) Electronic application form
 - (c) Exchange and use of software and equipment
 - (d) Variety description databases
17. List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability
18. Test Guidelines
19. Program for the fifty-fourth session
20. Adoption of the report (if time permits)
21. Closing of the session

Chairperson and Vice-chairperson

137. The TC noted that the term of chairmanship of Mr. Alejandro Barrientos Priego (Mexico) would end with the closing of the forthcoming ordinary session of the Council in October. It proposed to the Council that it elect Mr. Kees van Ettehoven (Netherlands) as new Chairperson and Mr. Nik Hulse (Australia) as new Vice-Chairperson of the TC for the forthcoming three-year term.

UPOV Medal

138. At the close of the session, Mr. Alejandro Barrientos-Priego (Mexico) was awarded a UPOV Silver Medal on completing his term as Chairman of the TC, from 2014 to 2016. In awarding the medal, Mr. Francis Gurry, Secretary-General of UPOV, recalled that Mr. Barrientos-Priego had been Mexico's

representative at the UPOV TWF since 1999, during which time he had: acted as the Leading Expert for 9 UPOV Test Guidelines (Cactus Pear and Xoconostles; Avocado; Hawthorn; Vanilla; Cacao; Dragon Fruit; Pecan Nut; Papaya; and Avocado rootstock); and had previously been Chairman of the TWF from 2006 to 2008; Vice-Chairman of the TC from 2011 to 2013 and Chairman of the BMT from 2012 to 2014. Mr. Barrientos-Priego had also acted as a speaker and trainer in several UPOV capacity-building activities in Latin America and the Caribbean.

139. With regard to the achievements of the TC under Mr. Barrientos-Priego's chairmanship, Mr. Gurry highlighted: a review to seek ways of improving the effectiveness of the TC, TWPs and Preparatory Workshops; introduction of "Open discussion sessions" on a range of issues in the TC; organization of joint UPOV/OECD/ISTA workshop on molecular techniques; adoption of document INF/22 "Software and equipment used by members of the Union"; revision of documents TGP/7 "Development of Test Guidelines", TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", TGP/9 "Examining Distinctness" and TGP/14 "Glossary of Terms Used in UPOV Documents"; the introduction of the web-based TG Template to facilitate development of Test Guidelines and the adoption of 56 new or revised Test Guidelines.

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 2015

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

Technical Working Party for Agricultural Crops

141. The TWA held its forty-fourth session in Obihiro, Japan, from July 6 to 10, 2015, under the Chairmanship of Mr. Tanvir Hossain (Australia), Chairperson of the TWA. The detailed report of the meeting is provided in document TWA/44/23 "Report".

142. The session was attended by 38 participants from 17 members of the Union, 9 observer states and 3 observer organizations. The Preparatory Workshop was held on the afternoon of July 5, 2015, and was attended by 22 participants from 9 members of the Union and 10 observer States.

143. The TWA was welcomed by Mr. Katsuhiko Saka, Director, New Business and Intellectual Property Division, Ministry of Agriculture, Forestry and Fisheries (MAFF). After the welcome, the TWA received a presentation on the Plant Variety Protection system in Japan by Mr. Katsumi Yamaguchi, Director, Plant Variety Protection Office, New Business and Intellectual Property Division, MAFF. The TWA also received a presentation on breeding for agricultural crops in Japan, by Mr. Ikuo Ando, Director, Rice Research Area, National Agricultural and Food Research Organization (NARO).

144. The TWA adopted the agenda as presented in document TWA/44/1 Rev.

145. The TWA considered document TWA/44/21 "Reports on Developments within UPOV" and agreed to propose that the on-line distance learning course DL-305 be held twice in 2016, once in the spring and once in the autumn, to allow maximum participation of DUS experts.

146. The TWA agreed with the proposed guidance set out in document TWA/44/13 "Use of proprietary text, photographs and illustrations in UPOV documents", paragraph 7, in relation to text, photographs or illustrations that could be subject to third party rights, for inclusion in a future revision of document TGP/7. The TWA also agreed that references should be provided in Chapter 9 "Literature" of the Test Guidelines for all text, photographs and illustrations that were subject to third party rights and for which permission had been obtained. The TWA agreed that the third party granting permission should be informed about the extent of use of UPOV documents by its members.

147. The TWA agreed with the proposal to revise document TGP/7 to reflect the introduction of the web-based TG Template after Version 1 is finalized. The TWA agreed with the proposal to standardize the format of the Table of Characteristics in all Test Guidelines with a structure as set out in document TWA/44/12 "Revision of document TGP/7: drafter's kit for test guidelines".

148. With regard to "Regional sets of example varieties" (document TWA/44/14), the TWA agreed with the TWV that, in the case of regional sets of example varieties, a "region" should be defined by the environmental conditions rather than national boundaries. The TWA agreed to include guidance in

document TGP/7 that the TWP should determine the basis on which the region would establish an agreed regional set of example varieties (e.g. by an exchange of information, or by a ring-test).

149. The TWA considered document TWA/44/15 "Revision of document TGP/8: part I: DUS trial design and data analysis, new section: minimizing the variation due to different observers" and agreed with the draft guidance in the Annex to document TWA/44/15, for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers.

150. The TWA considered document TWA/44/9 "Revision of document TGP/10: Assessing uniformity by off-types on basis of more than one growing cycle or on the basis of sub-samples" and agreed that the draft guidance for inclusion in a future revision of document TGP/10, as presented in document TWA/44/9, Annex I, should continue to be developed considering the information provided by the TWC on the proposed "Approach 3: combining the results of two growing cycles" and the comparison between the overall risk of the combined samples and the risks for each stage of evaluation separately. The TWA agreed to propose that the first sentence in Annex I be amended to read: "Two independent growing cycles could take place in a single location in different years, or in different locations in the same year, according to document TGP/8 Part I, Sections 1.2 and 1.3." The TWA also agreed that a variety should not be rejected if the uniformity standard was slightly exceeded in the first year. This possibility should only be used if it could be foreseen that the maximum limit would be exceeded also in another growing cycle. In that regard, the TWA agreed to propose that the explanation provided in Annex I, on the possibility to reject a variety on the basis of a lack of uniformity after a single growing cycle, should be amended to read: "Furthermore, on the basis of a clear lack of uniformity, a variety may be rejected after a single growing cycle."

151. On matters concerning variety descriptions, the TWA considered document TWA/44/10 "Matters concerning variety descriptions" and received a presentation by an expert from the European Union on "Experience with regard to variety descriptions and verifying the maintenance of the variety at the Community Plant Variety Office (CPVO)". The TWA agreed to invite Australia, the European Union and Germany to make a presentation on matters concerning variety descriptions at its forty-fifth session, to be held in 2016.

152. With regard to experiences with new types and species, an expert from Argentina reported on new varieties of *Trichloris crinita*, which had been granted plant variety protection and listed in the National List. An expert from the Netherlands reported on applications for new varieties of *Solanum sisymbriifolium* and for an application for a potato variety propagated by true potato seed (TPS).

153. The TWA discussed the draft Test Guidelines of Cotton (revision), Field Bean (revision), Oats (revision), Quinoa, Soya Bean (revision) and Wheat (revision). None of these guidelines were finalized for submission to the TC in 2016.

154. The TWA agreed to further discuss the following Test Guidelines at its forty-fifth session: Barley (revision) Castor Bean, Cotton (revision), Elytrigia, Field Bean (revision), Oats (revision), Quinoa, Red Clover (revision), Scorpion Weed, Soya Bean (revision) and Wheat (revision). It was expected that the Test Guidelines for Wheat (revision) would reach the stage of submission to the TC in 2016.

155. At the invitation of Mexico, the TWA agreed to hold its forty-fifth session in Queretaro, Mexico, from July 11 to 15, 2016, with the preparatory workshop on July 10, 2016.

156. The TWA proposed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular Techniques
5. TGP documents
6. Variety denominations
7. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
8. Uniformity assessment
9. Experiences on matters concerning variety descriptions

10. Experiences with new types and species
11. Impact of endophytes on DUS characteristics in grasses
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

157. On the afternoon of July 8, 2015, the TWA visited the Hokkaido Agricultural Research Center (HARC) of the National Agriculture and Food Research Organization (NARO) in Memuro, Kasai-gun, Hokkaido. The TWA was welcomed by Mr. Masayuki Hirafuji, Director, HARC, NARO, who gave a presentation on NARO and HARC in Memuro. The TWA also visited field trials for sugar beet, potato, winter wheat, adzuki bean and common bean at the Tokachi Agricultural Experiment Station.

Technical Working Party on Automation and Computer Programs

158. The TWC held its thirty-third session in Natal, Brazil, from June 30 to July 3, 2015, under the Chairmanship of Mr. Adrian Roberts (United Kingdom).

159. The TWC session was attended by 18 participants from 10 members of the Union. The Preparatory Workshop was held during the afternoon of June 29 and was attended by 11 participants from 7 members of the Union.

160. The TWC was welcomed by Mr. Roberto Papa, Deputy Superintendent of Agriculture in the State of Rio Grande do Norte, Brazil. The TWC received a presentation on the plant variety protection system in Brazil from Mr. Fabricio Santana Santos, Coordinator of the National Plant Variety Protection Office, Ministry of Agriculture, Livestock and Food Supply.

161. The TWC noted that the information on developments in plant variety protection from members and observers was provided in document TWC/33/22 "Reports on Development in Plant Variety Protection from Members and Observers". The Office of the Union made a presentation on the latest developments within UPOV (document TWC/33/21).

162. The TWC considered document TWC/33/16 "Revision of Document TGP/8: Part II: Selected Techniques used in DUS Examination, Section 3: Method of Calculation of COYU". A presentation was made by an expert from the United Kingdom on a practical exercise to gather experience from UPOV members on the proposed modification of the Combined-Over-Years Uniformity (COYU) criterion. There were 6 participants in the exercise from 4 UPOV members. Software implementing the proposed method was supplied to the participants for evaluation on example data sets. From the exercise, it was concluded that the modified COYU method worked satisfactorily. Whilst the software performed correctly, some areas for improvement were noted. As was expected, higher probability levels would be required with the new method. However more example data sets would be required to identify suitable levels more precisely. The TWC agreed to seek further data sets and in particular to invite the TWA to provide large data sets from field crops. The TWC requested that the expert from the United Kingdom provide further guidance on extrapolation when the candidate had a level of expression outside that seen in the reference varieties.

163. As part of the development of guidance on examining DUS in bulk samples, document TWC/33/17 Annex I, was presented by an expert from the Netherlands. To provoke discussion around this issue, this paper presented different potential approaches. There was good discussion within the TWC over which of these would be most appropriate. The TWC agreed that the following approaches in document TWC/33/17, Annex I, might be further developed as a basis for guidance on the analysis of characteristics examined on the basis of bulk samples:

- (a) Control of the characteristic before it is accepted in the relevant guideline;
- (d) Subplots;
- (g) DNA analysis; and
- (i) Plant number.

164. An expert from France made a presentation on a practical exercise to compare several different approaches for producing variety descriptions for quantitative characteristics, using a common data set on flax varieties (document TWC/33/18). This comparison identified key aspects that differed between the approaches: whether example varieties were used to set the scale, whether crop expert judgement was used and whether notes were evenly spaced on the original scale of the characteristic. The TWC agreed that this division provided a basis for understanding the different approaches.

165. Following consideration of document TWC/33/10 "Matters Concerning Variety Descriptions", there was discussion on the experiences of experts in the usage of variety descriptions. It was clear that there were some differences in the use of variety descriptions and the degree of importance that they had in the DUS systems. An expert from China gave a presentation on an investigation of variety-by-location interaction for quantitative characteristics (document TWC/33/27).

166. The TWC considered the draft guidance for the revision of document TGP/10 "Assessing uniformity by off-types on basis of more than one growing cycle or on the basis of sub-samples" in document TWC/33/9, Annex I. The TWC agreed to propose to amend the title of Approach 2 to read "Combining the results of two growing cycles in the case of inconsistent results". The TWC received a presentation from experts from Germany and the United Kingdom (document TWC/33/25), which proposed the addition of a third approach to the draft guidance: "Approach 3: Combining the results of two growing cycles". This approach always combined the off-types over the two growing cycles. The presentation compared the three approaches, in particular illustrating how different risks relevant to the testing process might be computed. The guidance on off-types might be extended to include such factors when determining the choice of approach.

167. The TWC considered information on the new methods proposed by experts from Denmark and Poland for visually assessed characteristics (document TWC/33/26). There were presentations by experts from China and from Finland on the assessment of distinctness for visually assessed characteristics; the latter using the new methods. An expert from France offered to investigate the development of software for the new method, with the support of experts from Finland and the United Kingdom. The TWC agreed that the new methods should be named so as to avoid confusion with COYD.

168. An expert from the United Kingdom gave a presentation on "Calculated thresholds for excluding varieties of common knowledge from the second growing cycle when COYD is used" (document TWC/33/20). This proposed methodology may be appropriate for quantitative characteristics and was an improvement on a previously described method because it took into account variability in the COYD criterion from year-to-year. The method was illustrated on a large pea data set. The expert requested more example data sets to test the methods further.

169. Experts from China gave presentations on software used in China: the Application Management System (AMS) and Variety Description Database (VDD) in China (document TWC/33/33), DUSTC for DUS assessment and the plant variety protection image analysis system (document TWC/33/28). Experts from Germany and France gave a presentation comparing software for hand-held data capture systems or data loggers (document TWC/33/24). An expert from Brazil gave a presentation describing how the GAIA system is used for soybean in Brazil.

170. At the invitation of China, the TWC agreed to hold its thirty-fourth session in Shanghai, China, from June 7 to 10, 2016, with the Preparatory Workshop on June 6, 2016.

171. The TWC planned to discuss the following items during the thirty-fourth session:

1. Opening of the session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular techniques
5. TGP documents
6. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchangeable software
 - (d) Electronic application systems
 - (e) Management of large databases
 - (f) Bio-informatics
7. Variety denominations

8. Experience with new types and species
9. Uniformity assessment by off-types
 - (a) Uniformity assessment by off-types
 - (b) Practical experience of uniformity by off-types on oilseed rape, wheat, maize and sunflower
10. Statistical methods
 - (a) Method of calculation of COYU
 - (b) Statistical methods used in the DUSTC software package
 - (c) Excluding varieties of common knowledge from the second growing cycle
11. Software for DUS examination
 - (a) Software for ordinal, nominal and binomial
 - (b) Software to define reference collections
 - (c) Weighting matrix for the GAIA software on soybean
 - (d) Integration of GAIA, COYU and COYD processes with the same interface
 - (e) A ring-test comparing three different software packages for COYD
12. Image analysis
 - (a) Demonstration of Chinese software on image analysis
 - (b) Search for reference varieties in a photo database
13. Minimizing variation between observers
14. Genotype-by-environment interaction, DUS tests and data transformation into notes
15. Date and place of the next session
16. Future program
17. Report on the session
18. Closing of the session

172. On the afternoon of July 1, the TWC received demonstrations by the National Plant Variety Protection Office (SNPC) of their management system database and electronic application system. There was also a demonstration by Mr. Joel Yutaka Sugano of *Universidade Federal de Lavras* of a complete hardware and software system for automated measurement by image analysis.

Technical Working Party for Fruit Crops

173. The TWF held its forty-sixth session in Mpumalanga, South Africa, from August 24 to 28, 2015. The session was opened by Mr. Katsumi Yamaguchi (Japan), Chairman of the TWF.

174. The TWF session was attended by 39 participants from 16 members of the Union, 3 observer States and 1 observer organization. The Preparatory Workshop was attended by 17 participants from 7 members of the Union and 3 observer States.

175. The TWF was welcomed by Mr. Julian Jaftha, Chief Director, Plant Production & Health, Department of Agriculture, Forestry and Fisheries. Mr. Luvuyo Khoza, Senior Scientific Technician Production, Directorate Genetic Resources, Department of Agriculture, Forestry and Fisheries, made a presentation on the Plant Breeders' Rights (PBR) system in South Africa and Mr. Arthur Sippel, Research Team Manager Plant Breeding, made a presentation on breeding and commercialization of citrus and sub-tropical crops by the Agricultural Research Council (ARC).

176. The TWF considered document TWF/46/13 "Use of Proprietary Photographs and Illustrations in Test Guidelines" and agreed with the proposed guidance in relation to text, photographs, illustrations or other material that could be subject to third party rights, as set out in paragraph 7 of document TWF/46/13, for inclusion in a future revision of document TGP/7. The TWF agreed that acknowledgment of the third party granting permission for any material used in UPOV documents should be made according to the terms of permission.

177. The TWF considered document TWF/46/14 "Regional sets of example varieties" and agreed with the TWV that the purpose of UPOV Test Guidelines was international harmonization and therefore was not in favor of regional sets of example varieties as a common practice. However, the TWF agreed that when example varieties were not available or suitable for cultivation in a particular geographical region the information on example varieties used in different regions facilitated the interpretation of DUS test results and the use of variety descriptions for the purposes of distinctness.

178. The TWF considered document TWF/46/15 "Revision of document TGP/8: Part I: DUS Trial Design and Data Analysis, New Section: Minimizing the Variation Due to Different Observers". The TWF received an explanation by the drafter, Mr. Nik Hulse (Australia), on the proposed guidance on "minimizing variation due to different observers of the same trial." The TWF agreed with the draft guidance in the Annex to

document TWF/46/15, for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers, subject to the editorial change which was provided in paragraph 39 of document TWF/46/29 Rev. The TWF recalled that, at its forty-fifth session, it had agreed on the importance of minimizing the variation between different observers and also between authorities and had suggested to consider the possibility to start a project on harmonized variety descriptions for an agreed set of varieties.

179. The TWF considered document TWF/46/27 “Harmonized example varieties for Apple: historical data and possible new development”. The TWF agreed that it would be useful to develop guidance on minimizing variation between authorities and agreed to study the possible development of a calibration book for the harmonization of variety descriptions. The TWF agreed that Mr. Jean Maison (European Union) would coordinate the project and would search varieties that had been described by different UPOV members using the current version of the Test Guidelines for Apple.

180. The TWF considered document TWF/46/10 “Matters concerning variety descriptions” and received a presentation by an expert from the European Union on “Experience with regard to variety descriptions and verifying the maintenance of the variety at the Community Plant Variety Office (CPVO)”. The TWF agreed that the plant material used as the basis for DUS examination was representative of the protected variety. The TWF agreed that, whenever possible, authorities should maintain a reference sample of the plant material of a protected variety and that the description of a variety had limitations due to its link to the circumstances of the DUS examination but was an important element of the plant variety protection system and a useful tool for the analysis of distinctness.

181. The TWF considered document TWF/46/2 “Molecular Techniques”. The TWF considered the initial draft question and answer concerning the information on the situation in UPOV with regard to the use of molecular techniques for a wider audience, including the public in general, discussed during the TC, at its fifty-first session as reproduced in paragraph 32 of document TWF/46/2, and agreed with the TWA that it should read as follows (see document TWF/46/29 Rev. “Revised Report”, paragraph 72):

“Is it possible to obtain protection of a variety on the basis of its DNA-profile?

“A variety cannot be protected on the basis of DNA profiles. For a variety to be protected, it needs to be clearly distinguishable from all existing varieties on the basis of characteristics that are physically expressed, e.g. plant height, time of flowering, fruit color, disease resistance etc. ~~[Molecular techniques (DNA profiles) may be used as supporting information].~~”

182. The TWF considered document TWF/46/25 Rev “Duration of DUS tests in the fruit sector.” The TWF noted that the total duration of DUS testing for fruit crops for some authorities would include the period required for establishment of the plants and agreed, that over the establishment period, it should be possible to conclude the DUS testing when the examining authority was certain of a negative outcome. The TWF also agreed that the DUS examination and the variety description could be completed after the first growing cycle and agreed to invite the European Union to continue drafting a proposal for a reduction of the duration of DUS tests in the fruit sector, taking into consideration the comments received and agreed to continue discussions at its next session.

183. The TWF agreed that the following draft Test Guidelines should be submitted to the TC for adoption: Avocado rootstock; Coconut. The TWF agreed to discuss 12 draft Test Guidelines at its forty-seventh session.

184. At the invitation of the European Union, the TWF agreed to hold its forty-seventh session in Angers, France, from November 14 to 18, 2016, with the Preparatory Workshop on November 13, 2016.

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

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers (written reports to be prepared by 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 (documents to be prepared by the Office of the Union)
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
 - (a) UPOV information databases (documents to be prepared by the Office of the Union)

- (b) Variety description databases (documents to be prepared by the Office of the Union)
- (c) Exchangeable software (document 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 (document to be prepared by the Office of the Union)
- 9. Experiences with new types and species (oral reports invited)
- 10. Management of variety collections (oral reports invited)
- 11. Duration of DUS tests in the fruit sector (document to be prepared by the European Union)
- 12. Calibration book for harmonized variety description in apple (document to be prepared by the European Union)
- 13. Matters concerning variety descriptions (document to be prepared by the Office of the Union and documents invited)
- 14. Proposal for revision of the term "recurved" (document to be prepared by Israel)
- 15. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
- 16. Proposals for partial revision/corrections of Test Guidelines
- 17. Discussion on draft Test Guidelines (Subgroups)
- 18. Recommendations on draft Test Guidelines
- 19. Guidance for drafters of Test Guidelines
- 20. DUS examination of mutant varieties of apple (document to be prepared by the European Union)
- 21. Minimum distance between varieties (document to be prepared by the European Union)
- 22. Method of observation for derived characteristics (document to be prepared by New Zealand and documents invited)
- 23. Date and place of the next session
- 24. Future program
- 25. Adoption of the Report of the session (if time permits)
- 26. Closing of the session

186. On the afternoon of August 26, 2015, the TWF visited the Agricultural Research Council for Tropical and Subtropical Crops (ARC-ITSC) in Mbombela, Mpumalanga Province, where it was welcomed by Mr. Mduduzi Ngcobo, Research Team Manager, Horticulture and Postharvest Division, ARC-ITSC, who provided an overview of the ARC-ITSC. The TWF also received a presentation on avocado breeding and production by Mr. Theo Bekker, Technical Manager, Westfalia Technological Services, and a presentation on Marula by Mr. Dudley McKnight, General Manager, Mirma Products. The TWF also visited the variety collections and breeding programs of passion fruit, litchi, avocado and macadamia of the ARC-ITSC.

Technical Working Party for Ornamental Plants and Forest Trees

187. The TWO held its forty-eighth session in Cambridge, United Kingdom, from September 14 to 18, 2015. The session was opened by Mr. Kenji Numaguchi (Japan), Chairman of the TWO. The detailed report is provided in document TWO/48/26 "Report".

188. The meeting was attended by 56 participants, from 16 members of the Union, 2 observer States and 2 observer organizations. The Preparatory Workshop was held during the afternoon of September 13 and was attended by 36 participants.

189. The TWO was welcomed by Mr. Andrew Mitchell, Head of Varieties and Seeds Policy, Controller of Plant Variety Rights, Department for Environment, Food and Rural Affairs (DEFRA), who made a presentation on agriculture and plant variety testing in the United Kingdom. The TWO was also welcomed by Ms. Tina Barsby, Chief Executive Officer, National Institute of Agricultural Botany (NIAB).

190. The TWO considered document TWO/48/9 "Assessing Uniformity by Off-Types on Basis of more than one Growing Cycle or on the Basis of Sub-Samples" and agreed that it should be clarified in the document that the guidance provided was not intended to be used for the assessment of uniformity by off-types on the same plants in two growing cycles. The TWO also agreed that the numbers of off-types in the examples provided in Annex I, second growing cycle column, lines 2 and 3 (number of off-types = 3), should have an asterisk to indicate that "care is needed when considering results that were very different in each of the growing cycles, such as when a type of off type was observed at a high level in one growing cycle and was absent in another growing cycle."

191. The TWO considered document TWO/48/10 "Matters concerning variety descriptions" and received a presentation by an expert from the European Union on "Experience with regard to variety descriptions and verifying the maintenance of the variety at the Community Plant Variety Office (CPVO)". A copy of the presentation is provided in document TWF/46/10 Add. The TWO noted that, in some members, in litigation cases, there were ongoing discussions on access and ownership of plant material that was not maintained

by the authority and agreed that verification of conformity was more difficult when the authority did not maintain a standard sample of the material used for DUS examination. The TWO agreed to invite Australia, the European Union, Germany and the Netherlands to make a presentation on matters concerning variety descriptions at its forty-ninth session, to be held in 2016.

192. The TWO considered document TWO/48/12 "Revision of document TGP/7: Drafter's Kit for Test Guidelines" and noted that there was no guidance on the order of the methods of observation for a characteristic in the Table of Characteristics (e.g. VG/MS) and agreed to propose to provide guidance in document TGP/7 and the Test Guidelines, e.g. to state that the most commonly used method was displayed first. The TWO agreed to request the Office of the Union to explore the possibility to include the comments by the Office of the Union on draft Test Guidelines in the web-based TG Template, in order that the Leading Expert would have all the comments in the web-based TG Template. The TWO agreed that online tutorials and guidance notes would be useful for Leading and Interested Experts.

193. The TWO considered document TWO/48/14 "Regional sets of example varieties". The TWO agreed that it would be important to explain the rationale for the establishment of regional sets of example varieties in particular Test Guidelines. The TWO agreed with the inclusion of guidance in document TGP/7 that the TWP should determine the basis on which the region would establish an agreed regional set of example varieties (e.g. by an exchange of information, or by a ring-test).

194. The TWO considered document TWO/48/19 "Definition of color groups from RHS Colour charts" and received presentations by the Royal Horticultural Society (RHS), Japan, the United Kingdom and the European Union. The TWO noted that the latest edition of the RHS Colour Chart (Sixth Edition) provided a name for each individual color and agreed to request the expert from Germany to prepare a study with support by the experts from Australia, Canada, European Union, the Netherlands, New Zealand and the United Kingdom on the possibility to use the Sixth Edition of the RHS Colour Chart for defining color groups for the purposes of grouping of varieties and organization of the growing trial. The TWO agreed that the overlapping of some colors should be taken into account. The TWO also agreed that the study should consider whether the allocation of UPOV Color Groups for each RHS color, as set out in document TGP/14, should be revised. The TWO noted that the Royal Horticultural Society (RHS) was considering the process for the review of the Sixth Edition of the RHS Colour Chart prior to organizing the Seventh Edition and agreed to request an expert from the United Kingdom to organize the compilation of examples of varieties without a matching color in the Sixth Edition of the RHS Colour Chart (gaps). The examples compiled would be submitted to the RHS with a view to propose new colors and possible harmonization on terminology. The TWO noted that color names may have relevance for variety denominations and could have consequences for the acceptance of variety denominations for some UPOV members.

195. The TWO received an oral report by an expert from Germany on DUS examination of a new variety of Calibrachoa with a high tendency to change flower color with temperature change. The TWO noted that the new variety was very sensitive to changes in temperature under standard conditions of cultivation in greenhouses and was different from other varieties in that regard. The TWO noted that similar changes in flower color and intensity of spots due to temperature and light intensity had also been observed in Chrysanthemum and Phalaenopsis varieties, respectively.

196. The TWO agreed to submit four Test Guidelines to the TC for adoption: Calibrachoa (Revision); Cordyline; Plectranthus; and Salvia. At its forty-ninth session to be held in 2016, the TWO planned to discuss 16 Test Guidelines, consisting of 8 revisions and 8 new Test Guidelines.

197. At the invitation of the Republic of Korea, the TWO agreed to hold its forty-ninth session in Gimcheon City, Republic of Korea, from June 13 to 17, 2016, with the preparatory workshop on June 12, 2016.

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

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV
4. Molecular Techniques
5. TGP documents
6. Variety denominations
7. Information and databases
 - (a) UPOV information databases

- (b) Variety description databases
 - (c) Exchange and use of software and equipment
 - (d) Electronic application systems
8. Uniformity assessment
 9. Experiences with new types and species
 10. Variety descriptions
 11. Case study on minimum distances between vegetatively reproduced ornamental and fruit varieties
 12. Definition of color groups for RHS Colour Charts
 13. Experience with the RHS Colour Chart and possible future addition of colors
 14. Creation of illustrations for Test Guidelines
 15. Web-based TG Template
 16. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
 17. Proposals for partial revision/corrections of Test Guidelines
 18. Discussion on draft Test Guidelines (Subgroups)
 19. Recommendations on draft Test Guidelines
 20. Guidance for drafters of Test Guidelines
 21. Date and place of the next session
 22. Future program
 23. Adoption of the Report of the session (if time permits)
 24. Closing of the session

199. On the afternoon of September 16, 2015, the TWO visited the National Institute of Agricultural Botany (NIAB) field station in Cambridge, where more than 1,000 agricultural and ornamental varieties were tested annually for Plant Breeders' Rights and National Listing. The test site comprised 250 hectares, including 3,300 m² of greenhouses. The TWO was welcomed by, and received an introductory talk from, Ms. Elizabeth Scott, Head of Crop Characterization, NIAB. The TWO visited the greenhouses complex and various DUS trials of ornamental plants. The TWO had practical discussions in subgroups on the draft Test Guidelines of Abelia, Coleus, Salvia and Zinnia, using a collection of varieties provided by NIAB.

Technical Working Party for Vegetables

200. The forty-ninth Session of the TWV was held from June 15 to 19, 2015, in Angers, France, hosted by the Community Plant Variety Office (CPVO) representing the European Union.

201. The session was attended by 52 participants from 20 member, 4 observer States and 3 observer organizations. The Preparatory Workshop on June 14, 2015, was attended by 17 participants from 11 members, 4 observer States and 1 observer organization.

202. The TWV was welcomed by Mr. Martin Ekvad, President of the Community Plant variety Office of the European Union (CPVO), who made a presentation on the plant variety protection system in the European Union.

203. The TWV considered revisions of TGP documents and received presentations on "matters concerning variety descriptions", "experience with new types and species" and "new issues arising from DUS examinations". A lively exchange of views and experiences in relation to these topics took place and the group welcomed the possibility to have space in the agenda for such open discussions in the future. The discussion on use of disease resistance characteristics in DUS examination will be an important topic for the next TWV session.

204. The TWV agreed to submit the following draft Test Guidelines for adoption by the TC: Basil (revision); Brassicas (Cauliflower, Cabbage, Brussel sprouts, Kohlrabi, Curly Kale and Sprouting Broccoli - partial revision for the characteristic male sterility); Spinach (partial revision); Tomato Rootstocks (partial revision); and Radish/Black radish (partial revision).

205. At its fiftieth session, the TWV plans to discuss 3 new Test Guidelines, 7 revisions of Test Guidelines, and 1 partial revision.

206. At the invitation of the Czech Republic, the TWV agreed to hold its fiftieth session in Brno, Czech Republic, from June 27 to July 1, 2016, with the Preparatory Workshop on June 26, 2016.

207. The TWV agreed to discuss the following items at its next session:

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
4. Reports from members and observers
5. Reports on developments within UPOV
6. Molecular Techniques
7. Developments in UPOV
8. Presentation on the use of molecular techniques in DUS examination
9. TGP documents
10. Variety denominations
11. Information and databases
 - (a) UPOV information databases
 - (b) Variety description databases
 - (c) Exchange and use of software and equipment
 - (d) Electronic application systems
12. Uniformity assessment
13. Experiences with new types and species
14. New issues arising for DUS examination
15. Use of disease resistance characteristics in DUS examination
16. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee (if appropriate)
17. Discussions on draft Test Guidelines (Subgroups)
18. Recommendations on draft Test Guidelines
19. Guidance for drafters of Test Guidelines
20. Date and place of the next session
21. Future program
22. Report on the session (if time permits)
23. Closing of the session

208. On the afternoon of June 17, 2015, the TWV visited the Brion testing station of the *Groupe d'étude et de contrôle des variétés et des semences* (Variety and Seed Study and Control Group, GEVES), where it was welcomed by Mr. Pascal Coquin, Director of the Brion station. The TWV visited DUS trials of lettuce, shallots, peas and quinoa and the special tests on disease resistance characteristics on lettuce. The TWV also visited a ring trial organized in conjunction with the revision of the Test Guidelines for Lettuce.

209. The TWV visited the business unit HM Clause of the Limagrain seed company in La Bohalle, France. The company specializes in the breeding and production of vegetable seeds of nine species including tomato, pepper and melon. The breeding facilities and the laboratories for molecular marker, cell biology and pathology were visited.

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

210. No meeting of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) was held in 2015.

211. The TC received a video presentation by the Russian Federation on the venue of fifteenth session of the BMT, to be held in Moscow, from May 24 to 27, 2016, with a Preparatory Workshop on May 23, 2016. The TC noted that a copy of the video would be made available on the UPOV BMT website.

212. *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/50/10

ANNEX

PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS

Title of document	Current approved documents	2016					2017					2018							
		TC-EDC	TC/52	TWPs	CAJ/73	C/50	TC-EDC	TC/53	CAJ/74	TWPs	CAJ/75	C/51	TC-EDC	TC/54	CAJ/76	TWPs	CAJ/77	C/52	
TGP/0	List of TGP Documents and Latest Issue Dates	TGP/0/8 ADOPTED																	TGP/0/10 Adopt
TGP/1	General Introduction with Explanations	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TGP/2	List of Test Guidelines Adopted by UPOV	TGP/2/2 ADOPTED																	
TGP/3	Varieties of Common Knowledge	C(Extr.)/19/2 Rev.																	
TGP/4	Constitution and Maintenance of Variety Collections	TGP/4/1 ADOPTED																	
TGP/5	Experience and Cooperation in DUS Testing	ADOPTED																	
TGP/6	Arrangements for DUS Testing	ADOPTED																	
TGP/7	Development of Test Guidelines	TGP/7/4 ADOPTED																	
	Drafter's Kit for Test Guidelines (Drafter: Office of the Union)			TC/52/28	TWP/[xx]/9			x	x		x			x	x	x			TGP/7/6 Adopt
	Coverage of the Test Guidelines (Drafter: Office of the Union)		TC-EDC/Jan16/2	TC/52/15		CAJ/73/8	TGP/7/5 Adopt												
	Use of Proprietary Text, Photographs and Illustrations in Test Guidelines (Drafter: Office of the Union)		TC-EDC/Jan16/3	TC/52/14		CAJ/73/8	TGP/7/5 Adopt												
	Regional Sets of Example Varieties (Drafter: Office of the Union)		TC-EDC/Jan16/4	TC/52/15		CAJ/73/8	TGP/7/5 Adopt												
TGP/8	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability	TGP/8/2 ADOPTED																	
	Examining characteristics using image analysis (document TC-EDC/Jan16/2 Annex I)		TC-EDC/Jan16/2	TC/52/5		CAJ/73/8	TGP/8/3 Adopt												
	Minimizing variation due to different observers (Drafter: Nik Hulse (Australia))		TC-EDC/Jan16/5	TC/52/16		CAJ/73/8	TGP/8/3 Adopt												
	Method of Calculation of COYU (Drafter: Adrian Roberts (United Kingdom))			TC/52/17	TWP/[xx]/10				x		x			x	x	x			TGP/8/4 Adopt
	Examining DUS in Bulk Samples (Drafter: Office of the Union)			TC/52/18	TWP/[xx]/11				x		x			x	x	x			TGP/8/4 Adopt
	Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions (Drafter: Office of the Union)			TC/52/19	TWP/[xx]/12				x		x			x	x	x			TGP/8/4 Adopt

C/50/10
Annex, page 2

			2016					2017					2018							
	Title of document	Current approved documents	TC-EDC	TC/52	TWPs	CAJ/73	C/50	TC-EDC	TC/53	CAJ/74	TWPs	CAJ/75	C/51	TC-EDC	TC/54	CAJ/76	TWPs	CAJ/77	C/52	
TGP/9	Examining Distinctness	TGP/9/2 ADOPTED																		
TGP/10	Examining Uniformity	TGP/10/1 ADOPTED																		
	Assessing Uniformity by Off-types on the Basis of More than One Growing Cycle or on the Basis of Sub-Samples (Drafter: Office of the Union)			TC/52/20	TWP/[xx]/13				x		x			x	x	x				TGP/10/2 Adopt
TGP/11	Examining Stability	TGP/11/1 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/14/3 ADOPTED																		
TGP/15	Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)	TGP/15/1 ADOPTED																		

[End of Annex and of document]