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**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**  
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**TECHNICAL WORKING PARTY FOR VEGETABLES**

**Forty-Eighth Session**  
**Paestum, Italy, June 23 to 27, 2014**

ADDENDUM TO TGP DOCUMENTS

*Document prepared by the Office of the Union*

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1. The purpose of this document is to provide comments on TGP documents made by the Technical Working Party for Ornamental Plants and Forest Trees (TWO), at its forty-seventh session, held in Naivasha, Kenya, from May 19 to 23, 2014, the Technical Working Party for Fruit Crops (TWF), at its forty-fifth session in Marrakesh, Morocco, from May 26 to 30, 2014 and the Technical Working Party on Automation and Computer Programs (TWC), at its thirty-second Session in Helsinki, June 3 to 6, 2014.

2. The structure of this document is as follows:

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3. The TWO, TWF and TWC considered developments concerning TGP documents on the basis of documents TWO/47/3, TWF/45/3 and TWC/32/3, respectively (see document TWO/47/28 "Report", paragraph 12, document TWF/45/32 "Report", paragraph 16, and document TWC/32/28 "Report", paragraph 9).

TGP Documents

*Program for the development of TGP documents*

4. The TWO, TWF and TWC noted the program for the development of TGP documents, as set out in document TWO/47/3, Annex II, document TWF/45/3, Annex II and document TWC/32/3, Annex II, respectively.

5. The TWO, the TWF and the TWC considered the TGP documents below on the basis of documents TWO/47/3, TWF/45/3 and TWC/32/3 "TGP documents" and other documents, as indicated.

TGP/7: Development of Test Guidelines*(i) Revision of Document TGP/7: Plant Material Submitted for Examination*

6. The TWO considered document TWO/47/12.

7. The TWO received presentations by the experts from the European Union and the Netherlands on experiences with regard to plant material submitted for examination, and the solutions that have been developed to address problems. It noted that a copy of the presentations would be provided as an addendum to document TWO/47/12.

8. The TWO noted that plant material of vegetatively propagated varieties submitted for examination could be adversely affected by factors such as: transportation handling; inappropriate use of chemicals; different methods of micro-propagation; adverse effects of tissue culture, etc., resulting in variability within the material that could present problems for the examination of uniformity. The TWO observed that such problems would normally appear during the establishment phase of the variety and might, as appropriate, require a new submission of material, testing for an additional growing cycle, or rejection of the application. It clarified that such problems, which arose prior to receipt of material by the examining authority, needed to be addressed by the breeder. The TWO agreed that such problems only concerned a small proportion of plant material received for examination.

9. The TWO agreed that authorities in charge of receiving plant material for examination should provide guidance on the requirements of material submitted such as quality and age.

10. The TWF considered document TWF/45/12.

11. The TWF considered the examples presented by the experts from the European Union and Germany, on their experiences with regard to plant material submitted for examination, and the solutions that had been developed to address problems. The TWF noted in case of the examination of fruit species, the "cyclophysis" effect, which means the effect of the place where the scion is taken from within the mother plant, due to different degrees of maturity, that may have a specific impact on the expression of a particular characteristic. If for example, graftwood material is taken from older trees of one authority's reference collection, in order to produce young trees for comparing them with the plants of a new candidate variety at same age, the fresh grafting, the scion of which represents generative but not vegetative material, subsequently needs removing their immediately occurring inflorescences. This needs to be done during the establishment period, in order to produce a proper tree, with a central leader and sufficient side shoots attached to it.

12. The TWF noted the actions taken to avoid the influence of the method of propagation on the outcome of the DUS examination in certain crops. It was also noted that, in the case of blueberry and grapevine, plant material resulting from meristematic tissue could not be accepted for examination due to the risk of somaclonal variation.

13. The TWF agreed that authorities in charge of receiving plant material for examination should provide guidance on the requirements of material submitted such as quality and age.

14. The TWC considered document TWC/32/12.

15. The TWC noted that the TWO, TWF, TWV and TWV would consider the presentations of experts, on their experiences with regard to plant material submitted for examination, and the solutions that have been developed to address problems, and would consider how those experiences and solutions could be developed into guidance that reflects good practice.

*(ii) Revision of Document TGP/7: Coverage of the Test Guidelines*

16. The TWO and the TWF considered documents TWO/47/13 and TWF/45/13, respectively and agreed that Approach 3 "Specify existing type of propagation and anticipate future developments" was the most appropriate guidance for Test Guidelines that are developed on the basis of varieties with one type of propagation when varieties may be developed in the future with other types of propagation. The TWO and the TWF, therefore, agreed that ASW 8 should be amended to read as follows:

“ASW 8 (TG Template: Chapter 4.2) – Uniformity assessment(a) *“Cross-pollinated varieties*(i) *“Test Guidelines covering only cross-pollinated varieties*

“The assessment of uniformity should be according to the recommendations for cross-pollinated varieties in the General Introduction.’

“These Test Guidelines have been developed for the examination of cross-pollinated varieties. For varieties with other types of propagation the recommendations in the General Introduction and document TGP/13 “Guidance for new types and species”, Section 4.5: “Testing Uniformity” should be followed.”

[..]

(c) *Uniformity assessment by off-types (all characteristics observed on the same sample size)*~~(i) *Test Guidelines covering only varieties with uniformity assessed by off-types*~~

~~“For the assessment of uniformity, a population standard of { x }% and an acceptance probability of at least { y } % should be applied. In the case of a sample size of { a } plants, [{ b } off-types are] / [1 off-type is] allowed.”~~

~~(ii) *Test Guidelines covering varieties with uniformity assessed by off-types and other types of varieties*~~

~~“For the assessment of uniformity of [self-pollinated] [vegetatively propagated] [seed-propagated] varieties, a population standard of { x }% and an acceptance probability of at least { y } % should be applied. In the case of a sample size of { a } plants, [{ b } off-types are] / [1 off-type is] allowed.’~~

“These Test Guidelines have been developed for the examination of [type of propagation] varieties. For varieties with other types of propagation the recommendations in the General Introduction and document TGP/13 “Guidance for new types and species”, Section 4.5: “Testing Uniformity” should be followed.”

17. The TWC considered document TWC/32/13 and agreed the approach 3, “specify existing type of propagation and anticipate future development”, of the proposal for revision of document TGP/7, Section 4.2, to provide guidance on the use of the Test Guidelines for varieties with other types of propagation.

(iii) *Revision of Document TGP/7: Drafter's Kit for Test Guidelines*

18. The TWO, TWF and TWC considered documents TWO/47/14, TWF/45/14 and TWC/32/14, respectively.

19. The TWO, TWF and TWC noted the plans for a revision of document TGP/7 and the TG Drafter's webpage for consistency with the introduction of the web-based TG Template in 2014, as set out in documents TWO/47/14, TWF/45/14, TWC/32/14, respectively, paragraphs 6 to 8.

TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability(i) *Revision of Document TGP/8: Part I: DUS Trial Design and Data Analysis, New Section: Minimizing the Variation due to Different Observers*

20. The TWO considered document TWO/47/15.

21. The TWO noted that the TWF had requested an expert from New Zealand to report at its session in 2014, on the previous work done on harmonized variety description for apple for an agreed set of varieties, as set out in document TWO/47/15, paragraph 18.

22. The TWO agreed that the draft guidance in the Annex to document TWO/47/15 should continue to be developed for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers, including guidance on PQ and QN/MG characteristics, in conjunction with the points raised by the expert from Australia in document TWO/47/15, paragraph 21. The TWO agreed that the document should focus on variation between observers at the authority level and not on minimizing observer variation between authorities.

23. The TWF considered document TWF/45/15.

24. The TWF agreed that the draft guidance in the Annex to document TWF/45/15, should continue to be developed for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers, including guidance on PQ and QN/MG characteristics, taking into account the points raised by the expert from Australia in document TWF/45/15, paragraph 21.

25. The TWF received a presentation from the experts from Germany and New Zealand on the previous work done on harmonized variety description for apple for an agreed set of varieties, as reproduced in document TWF/45/28.

26. The TWF received information from an expert from the Community Plant Variety Office of the European Union (CPVO) on a ring test project on Apple for the management of variety description to be launched in 2015. The aim of the project will be to identify the reason for differences in variety description between offices in Europe, when using similar varieties and the same rootstock. The TWF requested an expert from CPVO to report on progress with this project at its forty-sixth session.

27. The TWF agreed on the importance on minimizing the variation between different observers and also between authorities and therefore suggest to consider a study on the possibility to start a new project on harmonized variety description for an agreed set of varieties. The expert from Germany proposed to present to the TWF, at its forty-sixth session, a protocol for the project with an agreed list of varieties to be examined, in order to consider if it could be relevant to further develop the study.

28. The TWF also noted the importance of the quality of the Test Guidelines in providing clear guidance for DUS examiners and in ensuring the consistency of observations, and the importance of the continuous training of examiners.

29. The TWF invited the expert from Australia to report at its forty-sixth session, on the effect of location, observer and year on the conformity of a characteristic for a specific crop.

30. The TWC considered document TWC/32/15.

31. The TWC noted that the expert from New Zealand reported at the forty-fifth session of the TWF on the previous work done on harmonized variety description for apple for an agreed set of varieties.

32. The TWC agreed that the draft guidance in the Annex to document TWC/32/15 should continue to be developed for inclusion in a future revision of document TGP/8 on minimizing the variation due to different observers, including guidance on PQ and QN/MG characteristics, in conjunction with the points raised by the expert from Australia in document TWC/32/15, paragraph 21.

33. The TWC agreed that the draft guidance should start on variation between observers at the authority level and between different authorities at a future stage.

(ii) *Revision of Document TGP/8: Part II: Selected Techniques Used in DUS Examination, Section 3: Method of Calculation of COYU*

34. The TWO noted the developments in document TWO/47/16 concerning the method of calculation of COYU, including the development of a demonstration module in DUST and the practical exercise that would be conducted using real data to compare decisions made using the current and the proposed improved method.

35. The TWF considered document TWF/45/16 and noted the developments concerning the method of calculation of COYU, including the development of a demonstration module in DUST and the practical exercise that would be conducted using real data to compare decisions made using the current and the proposed improved method.

36. The TWC considered document TWC/32/16 and TWC/32/16 Add..

37. The TWC received a presentation by an expert from the United Kingdom on the method for improving the calculation of COYU, including a demonstration version of a module for the DUST software.

38. The TWC agreed to request the experts from China, Czech Republic, France, Finland, Germany, Kenya, Netherlands and Poland to test the new software on COYU.

39. The TWC agreed to invite other users of the COYU method to test the new software. The TWC agreed that an invitation should be developed by the Leading Expert and sent by the Office of the Union to the users of the DUST software package.

40. The TWC agreed that the software module for calculation of COYU developed using the "R" software should be sent to the interested experts that use other systems than DUST (e.g. SAS and GenStat) for testing the new method.

41. The TWC agreed that participants should seek to define probability levels to match decisions using the previous COYU method for continuity in decisions and that the test should be run for rejection probabilities of 1, 2 and 5% levels. The TWC agreed that participants should assess whether the results are consistent in all crops.

42. The TWC agreed with the timetable for the development of the new software package for the COYU method as follows:

- By the end of July 2014, the UPOV Office with assistance from the expert of the United Kingdom would invite participants for the practical exercise.
- By the end of September 2014, the expert of the United Kingdom would develop further the DUST module demonstrated at the thirty-second session of the TWC for evaluation by the participants and would prepare code for "R" software for participants that prefer this option to the DUST module.
- By early October 2014, the expert of the United Kingdom would send details of the practical exercise, including access to software, to the participants.
- By March 15, 2015, participants of the practical exercise should send a report on their experiences to the expert of the United Kingdom.
- The expert of the United Kingdom would compile a report on the practical exercise and the development of DUST module for the thirty-third session of the TWC.

(iii) *Revision of Document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Examining DUS in Bulk Samples*

43. The TWO considered in document TWO/47/17.

44. The TWO considered the example of a bulk characteristic from the Netherlands and agreed that the scale used should have non-overlapping notes (0-5; ~~5~~6-10; ~~10~~11-15; ...)

45. The TWO noted the information that "[...] *the results per variety are stable over the years with only 3 plants per variety. This is an indication that the characteristic is uniform between plants within the variety. [...]*". The TWO agreed that the usual approach was to confirm uniformity prior to the establishment of stability and that care would be needed on the examination of stability allowing for the establishment of uniformity of a variety for a given characteristic.

46. The TWO agreed that examples of other characteristics examined on the basis of bulk samples could be considered for the development of guidance.

47. The TWF considered document TWF/45/17.
48. The TWF considered the example of a bulk characteristic from the Netherlands and agreed with the TWO at its forty-seventh session that the scale used should have non-overlapping notes (0-5; ~~5~~6-10; ~~10~~11-15; ...).
49. The TWF agreed on the development of guidance on the development of characteristics examined on the basis of bulk samples.
50. The TWC received a presentation by an expert from the Netherlands on the use of the characteristic content of Glyceraphanin in broccoli based on bulk samples, as set out in the Annex to document TWC/32/17.
51. The TWC agreed that a sufficient number of plants should be used to assess uniformity in bulk samples and noted that care would be needed to attest stability due to known variation in chemical content in other crops such as oilseed rape.
52. The TWC noted that the routine measurement of this characteristic in the Netherlands would allow sufficient data set to be generated for further consideration and agreed to invite the Netherlands to provide further information.
53. The TWC agreed that the assessment of uniformity for characteristics based on bulk samples should consider the analysis of individual plants to validate characteristics and noted the possible cost implication of this approach.
- (iv) *Revision of Document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions*
54. The TWO considered document TWO/47/18.
55. The TWO noted that an expert from New Zealand had been invited to make a presentation at the forty-fifth session of the TWF, on the project for "apple reference varieties" that began in New Zealand in 2011.
56. The TWO noted the explanation of the different forms that variety descriptions could take and the relevance of scale levels in that regard, as presented in Annex II to document TWO/47/18.
57. The TWO noted the information on the guidance for varieties description in Italy, as presented in Annex III to document TWO/47/18.
58. The TWO noted that the results of the practical exercise would be presented to the TWC at its thirty-second session.
59. The TWF considered document TWF/45/18.
60. The TWF received a presentation from an expert from New Zealand on the project for "apple reference varieties", as reproduced in Annex II to document TWF/45/18. The TWF noted the importance of the quality of the Test Guidelines in providing good consistent characteristics, and a complete set of example varieties ensuring harmonized variety descriptions.
61. The TWF noted the explanation of the different forms that variety descriptions could take and the relevance of scale levels in that regard, as presented in Annex III to document TWF/45/18.
62. The TWF noted the guidance for producing variety description in Italy, as presented in Annex IV to document TWF/45/18.
63. The TWF noted that the results of the practical exercise with a common data set would be presented to the TWC at its thirty-second session.
64. The TWC considered document TWC/32/18.

65. The TWC noted that an expert from New Zealand made a presentation at the forty-fifth session of the TWF, on the project for “apple reference varieties” that began in New Zealand in 2011.

66. The TWC noted that the descriptions of the methods used in France, Germany, Japan and the United Kingdom were provided in the document considered in previous sessions of the TWC.

67. TWC received an explanation by an expert from Germany on Annex II to document TWC/32/18 “Different forms that variety descriptions could take and the relevance of scale levels” and agreed that it should be used as introduction to future guidance to be developed on this matter.

68. The TWC received a presentation by an expert from Italy on the Italian method for the development of variety description, as presented in Annex III to document TWC/32/18.

69. The TWC agreed that the method presented by the expert from Italy had similarities with the method used in the United Kingdom. The TWC noted that the range of expression of the variety means was divided by the amount of notes used for a characteristic, but that in Italy the extreme notes were not always used (e.g. 1 and 9) allowing space for future progress in plant breeding.

70. The TWC considered the results of a practical exercise presented in document TWC/32/18 Add. and agreed to request those participants to the practical exercise to complement the information provided with regard to the steps used in the procedure to obtain the calculated results in order to clarify the methods used.

71. The TWC agreed to request an expert from France to compare the results of the practical exercise presented by the different participants to identify differences in the results obtained for further understanding of the different methodologies. The TWC agreed that the comparison of results should be presented for consideration at the next session of the TWC.

72. The TWC agreed to invite the expert from China to provide information on the methods used for data processing for the assessment of distinctness and for producing variety descriptions in China at the next session of the TWC.

(v) *Revision of Document TGP/8: Part II: Selected Techniques used in DUS Examination, New Section: Guidance for Blind Randomized Trials*

73. The TWO considered document TWO/47/19 and agreed that blind randomized trials were rarely used. The TWO noted that blind randomized trials were used: in Brazil to confirm, in some cases, the assessment of distinctness under a breeder-based testing system for agricultural crops and vegetables; in New Zealand, for some fruit crops and in cases of dispute regarding distinctness; and in the United Kingdom and the Netherlands to confirm lack of distinctness between varieties.

74. The TWO noted that the example in document TWO/47/19 referred to seed-propagated varieties and agreed that other aspects of the trial set up should be considered for vegetatively propagated plants, such as the type and source of plant material used, as considered under the item “Plant Material Submitted for Examination”.

75. The TWO noted the proposal from the expert from France to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

76. The TWF considered document TWF/45/19.

77. The TWF noted the information provided by the TWO at its forty-seventh session on the use of blind randomized trials in Brazil, New Zealand and in the United Kingdom, including the circumstances under which blind randomized trials are used.

78. The TWF noted that the expert of the International Community of Breeders of Asexually Reproduced Ornamental and Fruit Varieties (CIOFORA) was not in favor of the use of Blind Randomized Trials.

79. The TWF noted the proposal from the expert from France to continue to work on a new draft incorporating comments from other experts, for consideration by the Technical Committee (TC) and the TWPs at their sessions in 2015.

80. The TWC considered document TWC/32/19 and agreed that blind randomized trials were rarely used. The TWC noted that blind randomized trials have been used in the Netherlands to confirm lack of distinctness between varieties. The TWC noted that some tests for disease resistance were organized by the Netherlands at the breeders' premises but the varieties were not coded. The TWC noted the suggestion by the expert from the Netherlands that guidance for such trials organized at the breeders' premises could be developed for inclusion in document TGP/6 "Arrangements for DUS testing".

81. The TWC noted the proposal from the expert from France to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

(vi) *Revision of Document TGP/8: Part II: Selected Techniques used in DUS Examination, New Section: Examining Characteristics using Image Analysis*

82. The TWO considered document TWO/47/20 and noted the proposal from the expert from the European Union to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

83. The TWO agreed to request the drafter to consider including typical examples of characteristics that could be assessed by image analysis, such as leaf area and length / width of grain.

84. The TWF considered document TWF/45/20 and noted the proposal from the expert from the European Union to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

85. The TWC considered document TWC/32/20.

86. The TWC noted the proposal from the expert from the European Union to prepare a new draft for consideration by the TC and the TWPs at their sessions in 2015.

87. The TWC agreed with the comment made by the TWO to request the drafter to consider including typical examples of characteristics that could be assessed by image analysis, such as leaf area and length / width of grain. The TWC agreed to request France to provide examples for inclusion in the revised document.

88. The TWC noted that experiences on the use of image analysis would be presented to the TWV.

(vii) *Revision of Document TGP/8: Part II: Selected Techniques Used in DUS Examination, New Section: Statistical Methods for Visually Observed Characteristics*

89. The TWO considered document TWO/47/21 and noted the developments concerning a possible New Section: "Statistical Methods for Visually Observed Characteristics" to be introduced in document TGP/8: Part II: Techniques Used in DUS Examination, in a future revision of document TGP/8.

90. The TWO agreed that it should be clarified that the new proposed method was used for the visual observation of individual plants or parts of plants (VS).

91. The TWF considered document TWF/45/21.

92. The TWF noted the developments concerning a possible New Section: "Statistical Methods for Visually Observed Characteristics" to be introduced in document TGP/8: Part II: Techniques Used in DUS Examination, in a future revision of document TGP/8.

93. The TWF agreed with the comment made by the TWO at its forty-seventh session that it should be clarified that the new proposed method was used for the visual observation of individual plants or parts of plants (VS).

94. The TWC considered document TWC/32/21.



95. The TWC noted the developments concerning a possible New Section: “Statistical Methods for Visually Observed Characteristics” to be introduced in document TGP/8: Part II: Techniques Used in DUS Examination, in a future revision of document TGP/8.

96. The TWC considered a comparison of the results on distinctness decisions between the new COYD method for visually observed characteristics and the Chi-square test, which was presented by an expert from Finland, as set out in the Annex to document TWC/32/21 Add..

97. The TWC agreed that the new method was tailored for the analysis of visually observed characteristics and had better fundamental basis when compared to the Chi-square test. The TWC noted that the new method allowed for distinctness to be established between more pairs of varieties than the Chi-square test in the example of meadow fescue “growth habit” considered.

98. The TWC agreed that software should be developed using the new method for the software packages available and noted that the code was currently available for SAS. The TWC noted the information that the United Kingdom was currently assessing how GenStat could be used for this method.

99. The TWC agreed to invite an expert from China to make a presentation on the analysis of visually observed characteristics using the DUST China (DUSTC) software package using the same data set of meadow fescue provided by Finland to be presented at the next session of the TWC.

#### TGP/9: Examining distinctness

##### *(i) Revision of Document TGP/9: Schematic Overview of TGP Documents Concerning Distinctness*

100. The TWO considered document TWO/47/22 and agreed with the proposed revision of the flow diagram in TGP/9, Section 1.6 “Schematic overview of TGP documents concerning distinctness”, as set out in document TWO/47/22, paragraph 7 and Annexes I and II.

101. The TWF considered document TWF/45/22 and agreed with the revision of the flow diagram in TGP/9, Section 1.6 “Schematic overview of TGP documents concerning distinctness”, as set out in Annex I to document TWF/45/22. With regard to the Annex II to document TWF/45/22, the TWF proposed to extend the box for TGP/5 to supplementary procedures.

102. The TWC considered document TWC/32/22.

103. The TWC agreed with the proposed revision of the flow diagram in TGP/9, Section 1.6 “Schematic overview of TGP documents concerning distinctness”, as set out in document TWC/32/22, paragraph 7 and Annexes I and II.

##### *(ii) Revision of Document TGP/9: Section 2.5: Photographs*

104. The TWO, TWF and TWC considered documents TWO/47/22, TWF/45/22 and TWC/32/22, respectively and agreed with the proposed guidance on photographs for inclusion in document TGP/9, Section 2.5 “Photographs”, as follows:

“2.5.3 The suitability of photographs for the identification of similar varieties is strongly influenced by the quality of the photographs taken by the authority for the varieties in the reference collection and the photograph of the candidate variety provided by the applicant with the Technical Questionnaire. Comprehensive guidance for taking suitable photographs is provided in TGP/7, GN 35 (new). The guidance was developed in particular for the applicants to provide suitable photographs of the candidate variety. The same instructions are important and useful for the authorities to take photographs of the varieties in the variety collection under standardized conditions.”

##### *(iii) Revision of Document TGP/9: Method of Observation (Single Measurement – MG)*

105. The TWO considered document TWO/47/22 and the proposed example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Section 4.3.2 “Single

record for a group of plants or parts of plants (G)” and Section 4.3.4 “Schematic Summary”, as set out in document TWO/47/22, paragraphs 16 and 17.

106. The TWO noted that in order to obtain a single record for a group of plants (MG) taken on plant parts of vegetatively propagated plants the DUS examiner would visually assess the plants and confirm they are uniform before proceeding further. The approach is the same as in the “Plant: height” example but organs are removed to conduct the assessment. A typical plant is used to record the measurement. The TWO noted that no variety mean was calculated and that the measurement was used for comparing data with other varieties in the variety collection.

107. The TWO agreed that the example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Section 4.3.2 “Single record for a group of plants or parts of plants (G)” and Section 4.3.4 “Schematic Summary” should read as follows:

“Example (MG)”

“Measurement (MG): “Leaf blade: width” in Hosta (vegetatively propagated): a representative measurement in the plot.”

108. The TWO agreed that a suitable illustration should be provided for inclusion in document TGP/7, Subsection 4.3.4.

109. The TWF considered document TWF/45/22 and proposed example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Subsections 4.3.2 “Single record for a group of plants or part of plants (G)” and 4.3.4 “Schematic summary”, as set out in document TWF/45/22, paragraphs 16 and 17.

110. The TWF agreed with the comment made by the TWO at its forty-seventh session, that the example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Section 4.3.2 “Single record for a group of plants or parts of plants (G)” and Section 4.3.4 “Schematic Summary” should read as follows:

“Example (MG)”

“Measurement (MG): “Leaf blade: width” in Hosta (vegetatively propagated): a representative measurement in the plot.”

111. The TWF also agreed with the comment made by TWO at its forty-seventh session that a suitable illustration should be provided for inclusion in document TGP/7, Subsection 4.3.4.

112. The TWF noted the comment from the expert from Germany in relation to the method of observation MG in current adopted Test Guidelines for fruit species, where all morphological characteristics are indicated as VG/MS, with phenological characteristics indicated as MG. In the case of assessments made on organs taken from all over the plot without noting the individual plants, (e.g. taking a representative fruit sample after harvest), the method of observation should be indicated as MG. In a number of existing guidelines for fruit crops, the method of observation should therefore be reconsidered.

113. The TWF agreed that the comment made by the TWO at its forty-seventh session, to declare a single plant as representative for the entire plot, as soon as uniformity aspects has been found sufficiently fulfilled, is not so applicable in the fruit sector.

114. The TWF agreed that MS should only be considered where each individual plant is measured. In case of several measurements taken for a group of plants or a few groups of plants within the same sample, it should be considered as MG.

115. The TWC noted the proposed example of a single record for a group of plants (MG) taken on plant parts for inclusion in a future revision of document TGP/9, Subsections 4.3.2 “Single record for a group of plants or part of plants (G)” and 4.3.4 “Schematic summary”, as set out in document TWC/32/22, paragraphs 16 and 17.

TGP/14: Glossary of Terms Used in UPOV Documents*Revision of Document TGP/14: Section 2.4: Apex/Tip Characteristics*

116. The TWO and the TWF considered documents TWO/47/23 and TWF/45/23, respectively.

117. The TWO and the TWF considered the proposal to develop an explanation on the inclusion of a state of expression based on a differentiated tip in shape of apex characteristics and proposed that document TGP/14, section 2.4 be amended as follows:

“2.4.1 The apex of an organ or plant part is the end furthest from the point of attachment. In some cases, the distal extremity of the apex may be differentiated into a “TIP”.

“2.4.2 In considering the approach to describe the apex, the size of the organ and the number of apex shapes should be taken into account. Apex characteristics can be described in simple terms and if a differentiated tip is present it could be further described as a separate characteristic. Generally, it is not necessary to separate the apex shape characteristic.

“2.4.3 In cases where it is appropriate to separate into differentiated tip and apex characteristics, the shape of the apex is taken as the general shape, excluding any differentiated tip. For example: [...]”

118. The TWO and the TWF agreed that the approach in document TGP/14 for shape of apex and tip characteristics was most suitable for leaves or larger structures and should be used in particular cases only.

119. The TWC noted document TWC/32/23 and the proposals to develop an explanation on the inclusion of a state of expression based on a differentiated tip in shape of apex characteristics.

Summary of Assessing Uniformity by Off-Types on Basis of more than one Sample or Sub Samples

120. The TWO considered document TWO/47/9 and the situations described in the Annexes I to IV as a basis to develop guidance in document TGP/10.

121. The TWO agreed that clarification should be provided on the decision to be taken in Situation B, Alternative (a) “the trial is repeated at both locations for a second year”, in case after repeating a trial for the second year a variety is within the uniformity standard in one growing location but is not within the uniformity standard in the other growing location.

122. The TWF considered document TWF/45/9 and the Situations described in the Annexes I to IV as a basis to develop guidance in document TGP/10.

123. The TWF agreed with the comment made by the TWO at its forty-seventh session that clarification should be provided on the decision to be taken in Situation B, Alternative (a) “the trial is repeated at both locations for a second year”, in case after repeating a trial for the second year a variety is within the uniformity standard in one growing location or year but is not within the uniformity standard in the other growing location or year.

124. The TWF agreed that the approaches were not relevant for the fruit sector, because vegetatively propagated varieties did not appear to be in the scope of the document.

125. The TWC considered document TWC/32/9.

126. The TWC agreed that the values for type I and type II errors should be included in each of the examples described in situations A and B for the development of guidance in document TGP/10. The type I error is associated with a decision for non-uniformity (rejection of the true null hypothesis) and the type II error is associated with a decision for uniformity (acceptance of the alternative hypothesis).

127. The TWC agreed that the guidance provided in document TGP/10 “Examining Uniformity”, Section 6 “Combining all observations on a variety” was sufficient to address situation C “More than one sample or subsample for a characteristic in the same growing trial”, Annex III to document TWC/32/9. The TWC agreed that the example provided could be considered as a special test and that results of the uniformity assessment should be considered independently.

128. In relation to situation D, the TWC considered the use of a stepwise approach in the off-type procedure within the same growing cycle and the statistical basis for the acceptable number of off-types in the subsample of 20 plants used in the context of a sample size of 100 plants, as provided in Annex V to document TWC/32/9, which was introduced by an expert from Germany.

129. The TWC agreed that the type I and type II errors used in the statistical basis for the acceptable number of off-types in the subsample of 20 plants used in the context of a sample size of 100 plants were comparable to those of the entire sample for the example provided in wheat and barley.

130. The TWC noted that the stepwise approach in the off-type procedure was intended to reduce costs without increasing risks in the uniformity assessment. The TWC agreed to propose the guidance as follows:

**“SITUATION D: ASSESSING SUB-SAMPLES WITHIN A SINGLE TEST/TRIAL**

**“Approach: Use of sub-sample as a first step of assessment**

“A variety is considered uniform if the number of off-types does not exceed a predefined lower limit in the sub-sample.

“A variety is considered non-uniform if the number of off-types exceeds a predefined upper limit in the sub-sample.

“If the number of off-types is between the predefined lower and upper limits the whole sample is assessed. The lower and upper limits have to be chosen considering comparable type I and type II errors in the sub-sample and the whole sample.

“Example:

“In a sample size of 100 plants, the acceptable number of off-types is 3 (based on a population standard of 1% and an acceptance probability of at least 95%).

“In a subsample of 20 plants used in the context of the sample size of 100 plants above:

“A variety is considered uniform if no off-types are observed in the sub-sample.

“A variety is considered non-uniform if the number of off-types in the sub-sample exceeds 3.

“If the number of off-types is 1 to 3, the whole sample of 100 plants is assessed.

“Annex V to document TWC/32/9 provides a full description of the statistical basis for this approach.”

[End of document]