

Technical Committee

TC/55/25 Corr.

**Fifty-Fifth Session
Geneva, October 28 and 29, 2019****Original:** English
Date: January 7, 2020

REPORT*adopted by the Technical Committee**Disclaimer: this document does not represent UPOV policies or guidance*

1. The Technical Committee (TC) held its fifty-fifth session in Geneva on October 28 and 29, 2019. The list of participants is reproduced in Annex I to this report.
2. The session was opened by Mr. Kees van Ettekooven (Netherlands), Chairperson of the TC, who welcomed the participants.
3. The Vice Secretary-General introduced Ms. Wen Wen, who had joined UPOV under a one-year Fellowship, starting in September 2019. He reported that, prior to starting her fellowship, Ms. Wen was Deputy Division Director at the Development Center of Science and Technology, Ministry of Agriculture and Rural Affairs, China. He also introduced Ms. Trang Thi Thu Tran, who had joined UPOV in September 2019 on an ICS contract for the East Asia Plant Variety Protection Forum Pilot Project. He also reported that Ms. Sarra Berich had joined UPOV under a fellowship in March 2019, to work on IT projects for a period of nine months.

Adoption of the agenda

4. The TC adopted the agenda as presented in document TC/55/1 Rev. 2. The TC noted that no documents had been received for the discussion scheduled under item 15.

Report by the Vice Secretary-General on developments in UPOV

5. The TC received a presentation by the UPOV Office, a copy of which would be provided as document TC/55/INF/8.

Progress report on the work of the Technical Working Parties and the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT)

6. The TC noted that, since its fifty-fourth session, the Technical Working Party for Agricultural Crops (TWA), Technical Working Party on Automation and Computer Programs (TWC), Technical Working Party for Ornamental Plants and Forest Trees (TWO), Technical Working Party for Vegetables (TWV) and the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT), had each held one session. The TC noted that, during the same period, the Technical Working Party for Fruit Crops (TWF) had held two sessions.
7. The TC received oral reports from the Chairpersons on the work of the TWA, TWC, TWF, TWO, TWV and BMT. The Chairpersons provided the following summaries of the work:

Technical Working Party for Agricultural Crops (TWA)

Report by Ms. Beate Ruecker (Germany), on behalf of Ms. Cheryl Turnbull (United Kingdom), Chairperson of the TWA

Forty-eighth session of the TWA

8. The TWA held its forty-eighth session in Montevideo, Uruguay, from September 16 to 20, 2019, under the chairmanship of Ms. Cheryl Turnbull (United Kingdom). The report of the session is provided in document TWA/48/9 "Report".
9. The session was attended by 42 participants from 20 members of the Union and 4 observer organizations. Items that would previously have been discussed during a separate preparatory workshop were incorporated for the first time into the main body of the meeting discussions.
10. The TWA was welcomed by Mr. Pedro Queheille, President of the National Seed Institute (INASE) and Mr. Daniel Bayce, Executive Director of the National Seed Institute (INASE). Mr. Pedro Queheille gave a presentation on Plant Variety Protection in Uruguay.
11. The TWA adopted the agenda as presented in document TWA/48/1 Rev..
12. The TWA considered document TWP/3/9 "Characteristics that only apply to certain varieties" and discussed the potential risks for decisions on distinctness as a result of using the proposed approach. They agreed that the risk was low, as was the risk of two examiners making different decisions. They also agreed that use of the proposed approach could increase the difficulty of excluding varieties for comparison but that this was unlikely to have a significant effect.
13. The TWA considered documents TWP/3/10 and TWA/48/7 'Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions' and noted the summary of approaches set out in TWP/3/10 Annex II. They agreed that, for guidance purposes, a decision-tree or flow chart could facilitate selection of the most suitable method to convert observations in notes and suggested some elements to include in such a tool as a starting point.
14. The TWA considered document TWP/3/12 "Characteristic-specific marker with incomplete information on state of expression" and agreed that the wording for the proposed new example required further clarification.
15. The TWA considered the proposal for the revision of document TGP/7 to have all states of expression for quantitative characteristics presented in Test Guidelines and agreed that it would not be possible for them to reach a conclusion on the matter at that stage. They agreed that this approach could be useful for less experienced DUS examiners and some other users of Test Guidelines, and also that full presentation was important for IT applications. They also noted that presenting all states of expression could increase the length of the Test Guidelines and render the document less practical for use in the field.
16. The TWA discussed cooperation between international organizations and, in particular, the development on an inventory of the use of molecular marker techniques. It agreed that the meaning of "validation" in the context of the question "Is the molecular technique validated" could cause confusion and that the question should be considered for exclusion from the survey. The TWA also agreed that to avoid duplication of work on behalf of the respondents, the survey should be coordinated with OECD, if possible.
17. The TWA formed small discussion groups to exchange information about their work on biochemical and molecular techniques and explore areas for cooperation. The sessions were fruitful and well received and summaries of crop and authorities currently using (or developing) molecular techniques, the actual techniques used and for what and also possible areas for cooperation were produced for future reference.
18. The TWA also formed small discussion groups to discuss technical concerns that prevent cooperation in DUS examination and how these could be overcome. Summaries of these discussions were also prepared. The small groups were productive and positive feedback regarding this method of working was received.
19. The TWA considered document TWP/3/13 "Differences in notes for the assessment of distinctness" and noted that the GAIA method was a pre-selection tool and was not used to compare data in the growing trial. It also agreed that explanations for certain shape and color characteristics could be provided in the form of a matrix indicating which state of expression could be considered as distinct from one another.

20. The TWA received a presentation on “Experiences with new types and species of agricultural crops in the Czech Republic” (document TWA/48/6) and agreed that the information provided by the Czech Republic on how deal with new types and species was a useful guide for new and experienced members. The TWA noted the experience of the Czech Republic with different modalities of cooperation in DUS examination, such as the takeover of test reports, commissioning examination by another authority and cooperation with breeders, in addition to performing the examination directly.

21. The TWA discussed nine draft Test Guidelines and agreed to submit the draft Test Guidelines for Ginseng (*Panax ginseng* C.A. Mey) (Revision), Red Clover (*Trifolium pratense* L.) (Revision) and Triticale (*xTriticosecale* Witt.) (Revision) to the Technical Committee for adoption.

22. The TWA agreed to discuss 10 Test Guidelines at its forty-ninth session, to be held in 2020. The TWA agreed that the Test Guidelines for Rice, Soya Bean, Tea and Timothy should be marked with an asterisk for 2020. New discussions are expected to begin on Test Guidelines for Potato, Rape Seed, Sugar Cane, Sunflower and Zoysia grasses.

23. At the invitation of Canada, the TWA agreed to hold its forty-ninth session in Saskatoon, Canada, from June 22 to 26, 2020.

24. The TWA agreed to propose to the TC that it recommend to the Council to elect Ms. Renée Cloutier (Canada), as the next chairperson of the TWA.

25. The TWA 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
 - (a) Reports from members and observers (written reports to be prepared by members and observers)
 - (b) Report 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. Developments in UPOV (document to be prepared by the Office of the Union)
6. Presentation on the use of molecular techniques in DUS examination (presentations invited from members of the Union)
7. TGP documents (documents to be prepared by the Office of the Union)
8. Variety denominations (document to be prepared by the Office of the Union)
9. 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) Exchange and use of software and equipment (document to be prepared by the Office of the Union)
 - (d) UPOV PRISMA (documents to be prepared by the Office of the Union)
10. Experiences with new types and species (oral reports invited)
11. Guidance for drafters of Test Guidelines
12. Discussion on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. New technology used in DUS examination (documents to be prepared by Argentina, Denmark and documents invited)
15. Examining hybrid varieties (document to be prepared by United Kingdom and documents invited)
16. Date and place of the next session
17. Future program
18. Adoption of the Report on the session (if time permits)
19. Closing of the session

26. The TWA agreed that discussion groups provided a useful opportunity for the exchange of experiences among participants and agreed to propose that discussion groups be formed to discuss “New technology used in DUS examination” (Item 12) at its forty-ninth session.

Technical Working Party on Automation and Computer Programs (TWC)

Report by Mr. Kees van Ettehoven (Netherlands), in the absence of Mr. Christophe Chevalier (France), Chairperson of the TWC

Thirty-seventh session of the TWC

27. The TWC held its thirty-seventh session in Hangzhou, China, from October 14 to 16, 2019. In the absence of Mr. Christophe Chevalier (France), Chairperson of the TWC, the session was opened and chaired by Mr. Kees van Ettehoven (Netherlands).

28. The TWC was welcomed by Mr. Hao Tang, Division Director, Division for DUS Tests, Development Center of Science and Technology, Ministry of Agriculture and Rural Affairs (MARA), China. The TWC received a presentation by Ms. Xuhong Yang, Deputy Division Director, Division for DUS Tests, Development Center of Science and Technology, Ministry of Agriculture and Rural Affairs, China, on developments in plant variety protection in China. The report of the meeting is provided in document TWC/37/12 "Report".

Method of calculation of the Combined-Over-Years Uniformity Criterion (COYU)

29. The TWC agreed to invite members who use "R" or "DUST" Software to review the new COYU package to identify possible improvement points. The TWC noted the expression of interest by experts from China, Finland, France and the United Kingdom to review the new COYU package.

30. The TWC considered the proposed draft revision for document TGP/8, Section 9 "The Combined Over Years Uniformity Criterion (COYU)", as presented in the Annex to document TWC/37/7. The TWC agreed to invite the expert from the United Kingdom to prepare a revised version of the draft guidance, to be presented to the TWC at its thirty-eighth session.

Risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle

31. The TWC noted that software had been developed in Excel to calculate the number of off-types and risks associated with assessment of uniformity by off-types on the basis of more than one growing cycle, as provided in document TWC/37/5, Annex II. It welcomed the availability of software that enabled determination of the maximum number of off-types, both for when the acceptance probability is applied in each cycle separately, or over the two-cycle test.

32. The TWC agreed to propose that the software be made available for download from the UPOV website.

Experience with using two locations by one year for DUS decisions

33. The TWC recalled that, where two growing cycles were conducted in the same year and at the same time, a suitable distance or a suitable difference in growing conditions between two locations would be needed to satisfy the requirement for independence.

Development and innovation of DUS test tools

34. The TWC recalled that documents UPOV/INF/16 "Exchangeable software" and/or UPOV/INF/22 "Software and equipment used by members of the Union" could be used for sharing information on the developments reported by China, as appropriate.

Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions

35. The TWC noted that the different approaches described in the document were used for producing variety descriptions and did not mention assessment of distinctness. The TWC agreed to propose amending the title of the document to read "Data processing for the ~~assessment of distinctness and for producing production of~~ variety descriptions for measured quantitative characteristics".

36. The TWC noted the request by the TC for the experts from France, Germany, Japan and the United Kingdom to provide information on the circumstances in which their methods would be suitable, including the method of propagation of the variety and other factors considered in deciding to use the method. The TWC noted that the descriptions of the methods were not sufficient for application, and the situations when the methods would or would not be suitable, and agreed that the experts from France, Germany, Italy and Japan should be invited to provide the information requested by the TC to the expert from the United Kingdom.

37. The TWC considered the proposal for developing a decision tree on requirements and situations for using the different approaches described. The TWC agreed to invite the experts from France, Germany, Italy, Japan and the United Kingdom to consider providing the necessary information as a starting point for describing the requirements of each approach.

Guidance for drafters of Test Guidelines

38. The TWC noted that the different elements displayed in the web-based TG template provided links to the respective "Guidance Notes" or "Additional Standard Wording" in document TGP/7. The TWC agreed to propose that links to standard wording from other TGP documents could also be accessible from the web-based TG template.

Presentation of full scale of notes for quantitative characteristics in Test Guidelines

39. The TWC noted the usefulness of presenting the full scale of notes for electronic application systems and agreed with the TWO, TWV and TWF that all states of expression for quantitative characteristics should be presented in Test Guidelines.

Session to facilitate cooperation in relation to the use of molecular techniques and international cooperation in DUS examination

40. The TWC formed discussion groups to discuss cooperation in relation to the use of molecular techniques, the technical concerns that prevent cooperation in DUS examination and how to overcome the technical concerns raised.

Software, Information and databases

41. The TWC considered document TWC/37/8 and received a presentation on "A statistical analysis Software - DUS EXCEL".

42. The TWC considered the validation of the software presented. The TWC noted the offer by the United Kingdom to provide a common data set to China, France and Kenya for comparing results obtained for COYD and COYU procedures using different software.

43. The TWC noted the offer by China to make the software available for other UPOV members. The TWC noted that the user interface was available in Chinese and in English, while the user manual was available in Chinese language only. The TWC noted the offer by the United States of America to translate a short description of the system to assess the interest for translating the entire user manual.

Date and place of the next session

44. At the invitation of the United States of America, the TWC agreed to hold its thirty-eighth session in Alexandria, Virginia, jointly with the BMT, during the week of September 21 to 25, 2020.

Future program

45. The TWC evaluated the organization of the TWC and BMT meetings in the same week. The TWC noted the duplication of content presented at both the TWC and BMT meetings and agreed there should be a single opening and introductory parts for both meetings at the same time.

46. The TWC agreed that agenda items scheduled for discussion at its thirty-eighth session should be focused on relevant items for the group and all other items presented for information only. The TWC agreed that agenda items should be grouped by topic in different days and participants informed in advance of the order of discussion.

47. The TWC agreed that the above proposals could enable the allocation of time during the meeting for a technical visit.

48. The TWC 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) Report on developments within UPOV (oral report by the Office of the Union)
4. Statistical methods (documents invited)
 - Document TGP/8
 - i. Reorganization of document TGP/8 (document to be prepared by China)
 - ii. Genotype x Environment interaction (document to be prepared by Finland and Italy)
 - iii. The Combined Over Years Uniformity Criterion (COYU) (document to be prepared by the United Kingdom)
 - Document TGP/10
 - iv. Data processing for producing variety descriptions (document to be prepared by the United Kingdom)
5. Software, Information and databases (documents invited)
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchange and use of software and equipment (document to be prepared by the Office of the Union)
 - (d) UPOV PRISMA (document to be prepared by the Office of the Union)
 - (e) DUS Excel (document to be prepared by China)
 - (f) Validation of software (document to be prepared by the United Kingdom)
6. Molecular Techniques and bioinformatics (document to be prepared by the Office of the Union and documents invited)
 - Revision of document TGP/15 (document to be prepared by the Office of the Union)
7. Phenotyping and image analysis (documents invited)
8. Tools and methods for DUS examination (documents invited)
9. Date and place of the next session
10. Future program
11. Adoption of the Report on the session (if time permits)
12. Closing of the session

Technical Working Party for Fruit Crops (TWF)

Report by Mr. Jean Maison (European Union), Chairperson of the TWF

Forty-ninth session of the TWF

49. The Technical Working Party for Fruit Crops (TWF) held its forty-ninth session in Santiago de Chile, Chile, from November 19 to 23, 2018, under the chairmanship of by Mr. Jean Maison (European Union).
50. The TWF session was attended by 40 participants from 18 members of the Union and 1 observer organization.
51. The TWF was welcomed Mr. Guillermo Federico Aparicio Muñoz, Head, Seed Division, *Servicio Agrícola y Ganadero* (SAG), Ministry of Agriculture, who gave a presentation on plant variety protection in Chile.
52. On TGP documents discussions, the TWF - at the origin of the proposal - noted the agreement of the TC to include the following sentence as standard wording in Test Guidelines:

"The testing of a variety may be concluded earlier or later at the moment when the competent authority can determine with certainty the outcome of the test."
53. The TWF received a presentation from the European Union on the DUS testing of apple mutant varieties and agreed in particular that, in the case of DUS examination of mutant varieties of apple, the exchange of information among DUS offices was important in order to ensure that authorities were aware of all existing potentially similar varieties. The TWF agreed that the project on the subject, focused on certain mutation groups, should therefore continue, with all members involved in DUS testing of apple encouraged to contribute to this exchange of information.
54. The TWF was informed about the outcome of the survey on approaches for obtaining plant material from breeders and on deciding on varieties whose existence is a matter of common knowledge. It agreed that

obtaining plant material was a key requirement for DUS Examination and that it would be interesting to discuss further current challenges faced by DUS authorities in the fruit sector under a specific agenda item at its next session.

55. The TWF addressed the matters to be resolved concerning the draft Test Guidelines for Black Walnut, as recommended by the TC-EDC. It agreed that the following revisions or the partial revisions of Test Guidelines should be submitted to the TC for adoption: Almond, Blueberry, Coconut, Kiwifruit and Macadamia. It further discussed draft Test Guidelines for Apple fruit, Apricot, Argania and Grapevine.

56. At the co-invitation of Hungary and the European Union, the TWF agreed to hold its fiftieth session in Budapest, Hungary, from June 24 to 28, 2019.

57. The TWF visited the experimental research center of “Universidad de Chile” and the breeding programs for nectarine, peach, plum and almond. The TWF also visited the research station of *Universidad Católica de Chile* and heard about their experiences with sweet cherry breeders.

Fiftieth session of the TWF

58. The Technical Working Party for Fruit Crops (TWF) held its fiftieth session in Budapest, Hungary, from June 24 to 28, 2019. The session was chaired by Mr. Jean Maison (European Union), Chairperson of the TWF.

59. The TWF session was attended by 60 participants from 19 members of the Union and 1 observer organization.

60. The TWF was welcomed Mr. Tamás Tarpataki, Deputy State Secretary for Agricultural Markets, Ministry of Agriculture. Mr. Tarpataki gave a presentation on the agricultural sector in Hungary and on the National Agricultural Research and Innovation Centre (NARIC FRI).

61. On TGP documents, the TWF welcomed the possibility to revise the procedure for partial revisions of Test Guidelines, allowing the possibility for experts to make new proposals in the course of the year. It provided clarifications on the situations for which such an accelerated procedure would apply.

62. The TWF discussed the access to plant material for the purpose of management of variety collections and DUS examination on the basis of the following presentations:

- “Canada’s experience in accessing plant material for DUS testing”
- “China’s practice in accessing plant materials for variety collection management and DUS tests”
- “Access to plant material for variety testing purposes: *Status quo*, problems and possible solutions” from an expert from Italy.

63. The TWF agreed that breeders were an important source of information and living plant material and that it was in the interest of the breeders to cooperate in the constitution and maintenance of variety collections. The TWF noted the comment by a representative from CIOPORA on the importance to protect breeders’ interests when plant material is provided by breeders. It further discussed the risk perceived by breeders when examination offices performed breeding activities and how to ensure that the living collections were not used for breeding purposes. The TWF highlighted the need to have a high level of trust between PVP offices and breeders to ensure fruitful cooperation. The TWF noted that the European Union had adopted a policy on the use of plant material submitted for DUS testing purposes.

64. The TWF agreed to continue the discussion at its next session and invited the expert from Italy to prepare a document summarizing the issues faced by PVP offices and breeders, and to make proposals on how these issues might be addressed within UPOV.

65. The TWF received an update on the situation of DUS testing of apple mutant varieties from the European Union and noted that, without an appropriate variety collection for the DUS examination, the accuracy of the DUS report might be affected, which could inhibit cooperation and exchange of DUS reports between PVP Offices for apple mutant varieties.

66. The TWF held a session to facilitate cooperation in relation to the use of molecular techniques and another session on cooperation in examination.

67. The TWF agreed in particular to discuss at its next session:
- Access to plant material for the purpose of management of variety collections and DUS examination (document to be prepared by Italy)
 - DUS examination of mutant varieties of apple (document to be prepared by the European Union)
68. The TWF considered matters to be resolved on the draft Test Guidelines for Macadamia and for Black Walnut, as recommended by the TC. It agreed that the partial revision of the Test Guidelines for Oranges and Pummelo should be submitted to the TC for adoption. It further discussed the draft Test Guidelines for Apple fruit, Apricot, Argania, Grapevine, Mulberry, Pistachio, Strawberry and Sweet Cherry.
69. The TWF agreed to discuss 17 Test Guidelines at its fifty-first session.
70. At the invitation of France, the TWF agreed to hold its fifty-first session in Nîmes, France, from July 6 to 10, 2020.
71. 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)
 - (a) Developments in UPOV (document to be prepared by the Office of the Union)
 - (b) Presentation on the use of molecular techniques in DUS examination (presentations invited from members 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) Exchange and use of software and equipment (document to be prepared by the Office of the Union)
 - (d) UPOV PRISMA (document to be prepared by the Office of the Union)
 8. Experiences with new types and species (oral reports invited)
 9. Access to plant material for the purpose of management of variety collections and DUS examination (Italy to prepare a document)
 10. DUS examination of mutant varieties of apple (document to be prepared by the European Union)
 11. Matters relevant in DUS examination for the fruit sector (presentations invited from members and observers)
 12. Guidance for drafters of Test Guidelines
 13. Matters to be resolved concerning Test Guidelines put forward for adoption by the Technical Committee (if appropriate)
 14. Discussion on draft Test Guidelines (Subgroups)
 15. Recommendations on draft Test Guidelines
 16. Date and place of the next session
 17. Future program
 18. Adoption of the Report of the session (if time permits)
 19. Closing of the session
72. The TWF visited the visited the NÉBIH testing station in Pölöske in the West Transdanubian Region and the Research Institute for Viticulture and Enology in Badacsony, one of the 16 institutes of the National Agricultural Research and Innovation Center (NARIC).
73. The TWF agreed to propose to the TC that it recommend to the Council to elect Mr. Christopher Barnaby, from New Zealand, as the next chairperson of the TWF.

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

Report by Mr. Nik Hulse (Australia), in the absence of Mr. Henk de Greef (Netherlands), Chairperson of the TWO

Fifty-first session of the TWO

74. The TWO held its fifty-first session in Christchurch, New Zealand, from February 18 to 22, 2019. In the absence of Mr. Henk the Greef (Netherlands), Chairperson of the TWO, the session was chaired by Mr. Nik Hulse (Australia). The report of the session is provided in document TWO/51/12 "Report".

75. The session was attended by 28 participants from 12 members of the Union, 1 observer State and 1 observer organization. A preparatory workshop was held on the afternoon of February 17, 2019, and was attended by 18 participants from 10 members of the Union and 1 observer organization.

76. The TWO was welcomed by Mr. Simon Gallagher, National Manager, Intellectual Property Office of New Zealand (IPONZ). The TWO received a presentation by Mr. Chris Barnaby, Assistant Commissioner / Principal Examiner for Plant Variety Rights, Plant Variety Rights Office, IPONZ, on plant variety rights in New Zealand.

77. The TWO considered the proposal for the revision of document TGP/7 and agreed that all states of expression for quantitative characteristics should be presented in Test Guidelines.

78. The TWO recalled that guidance in document TGP/7 required quantitative characteristics with "1 to 9" scale to have example varieties for at least three states of expression and "1-5" / "1-4" / "1-3" scales for at least two states of expression. The TWO agreed with the proposal to present all states of expression of quantitative characteristics in Test Guidelines and agreed that this would not change the minimum number of example varieties required in document TGP/7.

79. The TWO considered document TWP/3/9 "Characteristics which only apply to certain varieties" and the request to provide suitable examples of quantitative and pseudo-qualitative characteristics to demonstrate how the proposed approach might be used in a way that would not present risks for decisions on distinctness.

80. The TWO agreed that when a structure was "absent or very weak" on a plant part, the observation of further characteristics on that structure could be difficult or impractical. For example, it would not be practical to observe "hair: color" on a plant part with "presence of hairs: absent or very weak."

81. The TWO agreed that the following pseudo-qualitative characteristic from the Test Guidelines for Dahlia (TG/226/1) was a suitable example to demonstrate how the proposed approach might be used in a way that would not present risks for decisions on distinctness.

(PQ) Flower head: type: single (1); semi-double (2); daisy-eyed double (3); double (4)

82. The TWO agreed that the header of the characteristic should preferably contain the exclusion and, if necessary, with an explanation in the Test Guidelines.

83. The TWO considered document TWP/3/11 "Color names for the RHS Colour Chart"

84. The TWO considered the proposal for the revision of the list of UPOV Color Groups in document TGP/14 "Glossary of Terms used in UPOV Documents" on the basis of the color groups set out in document TWP/3/11, Annex I. The TWO agreed that the new list of UPOV Color Groups prepared on the basis of the Sixth Edition of the RHS Colour Chart should be proposed for inclusion in document TGP/14.

85. The TWO considered the proposal for the revision of document TGP/14, Section 2, Subsection 3: "Color", and Subsection 3: Annex: "Color names for the RHS Colour Chart", to reflect the introduction of the revised list of UPOV Color Groups. The TWO agreed that document TGP/14 should be revised to reflect the introduction of the new list of UPOV Color Groups on the basis of the proposal set out in document TWP/3/11, Annex II.

86. The TWO received presentations from Australia and the European Union on experiences with defining trees, shrubs and vines. The TWO proposed to invite authorities to make available the list of genera and species considered as trees and vines through UPOV PRISMA and to invite authorities to report at the next session of the TWO on information provided to UPOV PRISMA.

87. The TWO agreed that there were certain genera and species for which a decision on whether a variety should be considered as tree or vine could not be generalized. The TWO agreed to request authorities to provide information on the genera and species that they considered should be treated on a case-by-case basis.

88. The TWO agreed to submit seven draft Test Guidelines to the Technical Committee for adoption: *Alstroemeria*; *Calendula*; *Coreopsis*; *Gazania*; Kangaroo Paw (revision); *Phalaenopsis* (partial revision); and *Portulaca* (revision). At its fifty-second session, to be held in 2020, the TWO planned to discuss 11 Test Guidelines.

89. At the invitation of the Netherlands, the TWO agreed to hold its fifty-second session in Roelofarendsveen, Netherlands, from June 8 to 12, 2020.

90. The TWO 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
 - (a) Reports from members and observers (written reports to be prepared by members and observers)
 - (b) Reports on developments within UPOV (document to be prepared by the Office of the Union)
4. TGP documents (documents to be prepared by the Office of the Union)
5. Molecular techniques (document 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 (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchange and use of software and equipment (document to be prepared by the Office of the Union)
 - (d) UPOV PRISMA (document to be prepared by the Office of the Union and reports invited on providing information on trees and vines to UPOV PRISMA)
8. Minimum distances between vegetatively reproduced ornamental varieties (document to be prepared by the European Union and CIOFORA and documents invited)
9. New issues arising for DUS examination (documents invited)
10. Report on court cases dealing with technical matters (document invited)
11. Experiences with new types and species (oral reports invited)
12. Matters to be resolved concerning Test Guidelines adopted by the Technical Committee
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. Adoption of the Report on the session (if time permits)
19. Closing of the session

91. On the afternoon of Wednesday, February 20, 2019, the TWO visited the Broadfield New Zealand Gardens near Rolleston to view New Zealand native ornamental species, including *Agathis*, *Clianthus*, *Neopanax* and *Pseudopanax*. The TWO also visited the Manaaki Whenua Landcare Research, at the Canterbury Agriculture and Science Centre Lincoln (CASC) and the DUS trials for *Geranium*, *Daphne* and *Leucothoe*. The TWO visited the variety collections for *Cordyline*, *Hebe*, *Zantedeschia* and New Zealand Flax.

92. The TWO will nominate its next Chairperson at its fifty-second session, to be held in Roelofarendsveen, Netherlands, from June 8 to 12, 2020.

Technical Working Party for Vegetables (TWV)

Report by Ms. Romana Bravi (Italy), Chairperson of the TWV

Fifty-third session of the TWV

93. The Technical Working Party for Vegetables (TWV) held its fifty-third Session in Seoul, Republic of Korea, from May 20 to 24, 2019. The TWV was attended by 58 participants from 15 members of the Union and 3 observer organizations.

94. The session was opened by Ms. Romana Bravi (Italy), Chairperson of the TWV, who welcomed the participants and thanked the Republic of Korea for hosting the TWV session. The TWV was welcomed by Mr. Choi Byungkook, General Director, International Development and Cooperation Division, Ministry of Agriculture, Food and Rural Affairs (MAFRA). The TWV received a presentation on plant variety protection and seed industry in the Republic of Korea by Mr. Pang Munjin, Director, Plant Variety Protection Division, Korea Seed and Variety Service (KSVS). The TWV considered the following main topics:

Characteristics which only apply to certain varieties (TWP/3/9)

95. The TWV considered the request to provide examples of unsuitable cases to demonstrate the risks for decisions on distinctness of excluding varieties from observation on the basis of a preceding quantitative or pseudo-qualitative characteristic.

96. The TWV agreed that, when a structure was “absent or weak” on a plant part, the observation of further characteristics on that structure could be difficult. For example in the Test Guidelines for Lettuce (TG 13/11), characteristic 3: “Plant: degree of overlapping of upper part of leaves”, indicated as QN, with states (1) “absent or weak, (2) medium, (3) strong”. However, the TWV agreed that in combination with the table provided in Chapter 5.3 of the Test Guidelines it reduced the risks for decisions on distinctness, and therefore encouraged the use of such tables when needed.

97. The TWV agreed that the following pseudo-qualitative characteristic from the Test Guidelines for Leaf Chicory (TG/154/4) was a suitable example to demonstrate how the proposed approach might be used in a way that would not present risks for decisions on distinctness.

Characteristic 16: “Plant: head formation: absent (1); open (2); closed (3)”

Characteristic 17: “Only for varieties with head formation...”

TGP/15: Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS): New example: Characteristic-specific marker with incomplete information on state of expression

98. The TWV agreed with the proposal for a new example be added to document TGP/15 to illustrate a situation where the characteristic-specific marker does not provide complete information on the state of expression of a characteristic, as set out in the Annex to document TWP/3/12.

99. The TWV agreed that a new sentence should be added to TGP/15 for cases where a variety is claimed by the applicant to be resistant in the TQ but the marker test is negative, to state that a bio-assay should be conducted/performed and be conclusive.

TGP/7: Development of Test Guidelines- Procedure for partial revision of UPOV Test Guidelines

The TWV welcomed the possibility to have an accelerated procedure for partial revisions of Test Guidelines, allowing the possibility for experts to make proposals in the course of the year, respecting the deadline agreed to prepare and circulate the document on time before the session, to allow sufficient time for consideration by members of the Union.

Molecular Techniques - TWP/3/7

100. The TWV proposed that the BMT be invited to provide guidance on elements to be included in a protocol of a DNA marker assay for a specific characteristic.

Cooperation between international organizations

101. The TWV endorsed the inventory on the use of molecular marker techniques, by crop, with the following additions to reflect the current status of molecular marker techniques (i.e. already in use or in development)

- *Status (i.e. in current use or in development)*
- *Crop(s) for which the molecular marker technique is used and characteristic concerned (in the case of use) [Botanical name(s) and UPOV code(s) to be provided]*

Use of disease resistance characteristics

102. The TWV received the following presentations:

- (a) "Use of disease resistance characteristics", presented by an expert from the European Union.
- (b) "Evaluation of disease resistance in vegetable varieties according to UPOV standards. A focus on the Italian activities", presented by an expert from Italy.
- (c) "Disease resistance in DUS", presented by experts from France and the Netherlands.
- (d) "Harmonization of resistance tests to diseases for DUS testing: Harmores 3", presented by an expert from France (on behalf of the working group).
- (e) "Disease resistance in vegetables: What does the European industry do in terms of claims?", presented by an expert from the European Seed Association (ESA).
- (f) "ISF Working Group Disease resistance terminology", presented by an expert from the International Seed Federation (ISF).

103. The TWV agreed that the current guidance provided in UPOV documents in relation to the use of disease resistance characteristics in Test Guidelines and in DUS examination was clear and sufficient for the time being. The TWV noted that, in the scope of disease resistance characteristics when using QN as type of expression, more than 3 states could be used.

104. The TWV agreed that disease resistance was an important breeding goal therefore cooperation among all stakeholders would be beneficial to ensure the development of DUS examination and Test Guidelines in line with the expectation of the users of the system.

105. The TWV agreed that disease resistance characteristics were important for DUS examination and in particular for distinctness, grouping and variety descriptions. The TWV therefore agreed that it was the responsibility of each TWP to update TGs if and when relevant, and take the appropriate time to include and/or update characteristics with an approved methodology for the assessment of the characteristics (e.g. type of expression QN/QL, common agreed terminology) and for the validated disease test protocol to be followed. In order to achieve this goal the TWV agreed that all stakeholders (i.e. DUS experts, pathologists, breeders) should be consulted/involved and sufficient time should be given to ensure that all DUS examination offices agreed before adding new disease resistance characteristics or a new disease test protocol.

New issues arising for DUS examination

106. In relation the discussion which took place at the fifty-second session of the TWV on "Aberrant phenotypes in *Brassica oleracea* var. *botrytis*", it was reported by the representative of Crop Life International, after consultation with members of Crop Life International, that it was not an increasing issue and was not seen, for the time being, as a major problem in plant breeding programs globally. The TWV agreed not to continue further discussion on this item, while inviting experts from France and from observers to report on any developments in the future, if and when relevant.

107. The TWV noted the comment made by an expert from the Netherlands on the increasing use of vegetatively propagated varieties in normally seed-propagated species (e.g. pepper). The TWV invited the expert from the Netherlands and other experts to report on latest developments in relation to this trend, and in particular to explain the potential challenges in the scope of DUS examination.

Experiences with new types and species

108. The TWV received a presentation on work done to develop a national test guideline for Water Spinach (*Ipomoea aquatica*) from an expert from China. TWV agreed to invite experts from China and any other members to report on further developments on the number of applications and the breeding activities to be able to consider the development of Test Guidelines for the future, if relevant.

Cooperation in examination

109. The TWV formed discussion groups to discuss the technical concerns that prevent cooperation in DUS examination and how to overcome the technical concerns raised.

Variety denomination

110. The TWV agreed with the proposal to revise Class 205 as proposed in document TWP/3/6 "Variety Denominations" to split the current class 205 (*Cichorium* and *Lactuca*) into two new classes:

- Class: *Lactuca* – *Cichorium endivia* (Endive), *Cichorium intybus* var. *foliosum* (Salad Chicory)
- Class: *Cichorium intybus* var. *sativum* (Industrial Chicory)

Discussion and recommendations on draft Test Guidelines

111. The subgroups discussed Test Guidelines for Chick-pea, Fennel, Kale, Melon, Pepper, Squash, Swiss Chard, Turnip, Tomato and Tomato rootstock. The TWV agreed that the following draft Test Guidelines should be submitted to the TC for adoption at its fifty-fifth session: Fennel, Melon, Swiss Chard, Tomato and Tomato rootstock. The TWV agreed to discuss the following draft Test Guidelines at its fifty-fourth session: Chick-pea, Chinese Cabbage, Eggplant, Kale, Pepper, Squash (partial revision), Tomato (partial revision), Tomato rootstock (partial revision) and Turnip.

Chairperson

112. The TWV agreed to propose to the TC that it recommend to the Council to elect Ms. Marian van Leeuwen (Netherlands) as the next chairperson of the TWV.

Date and place of the next session

113. At the invitation of Brazil, the TWV agreed to hold its fifty-fourth session in Brasilia, Brazil, from May 11 to 15, 2020.

Items on the agenda for the next session

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

1. Opening of the Session
2. Adoption of the agenda
3. Short reports on developments in plant variety protection
 - (a) Reports from members and observers
 - (b) Reports on developments within UPOV (oral report by the Office of the Union)
4. Molecular Techniques
 - (a) Developments in UPOV (document to be prepared by the Office of the Union)
 - (b) Presentation on the use of molecular techniques in DUS examination (presentations invited from members of the Union)
5. TGP documents
6. Variety denominations (document to be prepared by the Office of the Union)
7. Information and databases
 - (a) UPOV information databases (document to be prepared by the Office of the Union)
 - (b) Variety description databases (document to be prepared by the Office of the Union and documents invited)
 - (c) Exchange and use of software and equipment (document to be prepared by the Office of the Union)
 - (d) UPOV PRISMA (document to be prepared by the Office of the Union)
8. Experiences with new types and species (oral reports invited)
9. New issues arising for DUS examination (presentations invited from members of the Union)
10. Use of disease resistance characteristics (presentations invited from members of the Union and observers)
11. Matters to be resolved concerning Test Guidelines put forward for adoption by the Technical Committee (if appropriate)
12. Discussions on draft Test Guidelines (Subgroups)
13. Recommendations on draft Test Guidelines
14. Guidance for drafters of Test Guidelines

15. Date and place of the next session
16. Future program
17. Report on the session (if time permits)
18. Closing of the session

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

Report by Mr. Nik Hulse (Australia), Chairperson of the BMT

Eighteenth session of the BMT

115. The BMT held its eighteenth session in Hangzhou, China, from October 16 to 18, 2019. The session was opened by Mr. Nik Hulse (Australia), Chairperson of the BMT. The BMT was welcomed by Mr. Jianmeng Li, Division Director, Seed and Innovation Division, Ministry of Agriculture and Rural Affairs (MARA), China. The BMT received a presentation by Mr. Ruixi Han, Senior Examiner, Division of DUS Tests, Development Center of Science and Technology, MARA, China, on "Using Molecular Techniques in DUS tests and PVP enforcement in China".

116. A preparatory workshop was not held prior to the BMT session. Instead, presentations on preparatory topics were made during the BMT session, preceding the introduction of the relevant items. The BMT session was attended by 65 participants from 18 members of the Union and 7 observer organizations.

117. The BMT received a report on the development of a software tool for marker selection using the "traveling salesman" algorithm. The BMT invited members to test the software and report to the BMT at its nineteenth session.

118. The BMT received the following presentations on the use of molecular techniques in variety identification:

- "Use of SSR and SNP markers in maize variety identification"
- "Applications of MNP marker in plant varieties protection"
- "Association Analysis of SSR Markers and Agronomic Traits in Soybean"

119. The BMT received the following presentations on the use of molecular techniques in relation to DUS examination:

- "Facilitating Distinctness, Uniformity and Stability Testing of Soybean Varieties: Development and Validation of Molecular Marker and Variety Sampling Methodologies"
- "Facilitating Distinctness, Uniformity and Stability Testing of Soybean Varieties: Establishing Criteria for the use of Single Nucleotide Polymorphism data"
- "Next generation variety testing for improved cropping on European farmland (InnoVar)"
- "CPVO report on IMODDUS: latest developments (INVITE) and update on R&D projects"
- "A simple SSR based identification system for sweet potato"
- "Use of molecular markers for protection and varietal identification: state of the art in Argentina"
- "What information is essential for "character-specific molecular markers" in Test Guidelines"

120. The BMT considered cooperation between international organizations and agreed that the relevant elements from the World Seed Partnership and the FAQ on the use of molecular techniques would be a useful basis for the drafting of a joint document explaining the principal features of the OECD, UPOV and ISTA systems.

121. The BMT considered the development of an inventory of molecular marker techniques by crop and agreed on the elements to be included in a survey and agreed that the survey should be structured.

122. The BMT agreed that a test survey should be considered before inviting members to respond.

123. The BMT received the following presentations in relation to cooperation with OECD and ISTA in relation to molecular techniques:

- "Horizontal methods for molecular biomarker analysis" (International Standards Organization - ISO)
- "OECD Seed Scheme: an international seed varietal certification system"
- "International Seed Testing Association"

124. The BMT received a presentation from the European Union on “access to reference material and data from EU examination offices”. The BMT then formed discussion groups to allow participants to exchange information on their work and explore areas for cooperation.

Review of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”

125. In particular, it was agreed to add text to Section B explaining the requirements for the DNA-profiling of a plant variety. These include 5 phases;

- Selection of molecular markers
- Selection of detection method
- Validation and harmonization of the detection method
- Construction of the database
- Data exchange

126. The BMT agreed that “Data Exchange” needed clarification and agreed to delete the current Section 1.

127. The BMT agreed to delete the following sections:

- Section 2.2 Criteria for specific types of molecular markers
- Section 5. Standardization of Analytical Protocols
- Sections 6.4, 6.5, 6.6, 6.7 and 6.8

128. The BMT agreed to delete the current Section 2.2 “Criteria for specific types of molecular markers” and add the following new sections:

- New Section 1.2 Molecular markers – performance considerations
- New Section 2.1 DNA profiling methods - general considerations
- New Section 3. Validation and harmonization of a marker set and detection method
- New Section 4. Construction of a Crop-specific Database
- New Section 5. Data Exchange

129. The BMT agreed to delete the glossary.

130. The BMT agreed to add a new Section C List of Acronyms with the following entries:

- BAM Binary Alignment Map
- BCF Binary Call Format
- CRAM Compressed Reference-oriented Alignment Map
- MNP Multiple Nucleotide Polymorphism
- NIL Near Isogenic Line
- RIL Recombinant Inbred Line
- SAM Sequence Alignment Map
- SNP Single Nucleotide Polymorphism
- TIFF Tagged Image File Format
- VCF Variant Call Format

131. The BMT agreed to propose to the TC that the European Union, France and the Netherlands prepare a new draft of UPOV/INF/17 for consideration of the nineteenth session of the BMT.

132. In response to the invitation by the United States of America, the BMT agreed to hold its nineteenth session in Alexandria, Virginia, jointly with the TWC, during the week of September 21, 2020.

133. The BMT agreed with the TWC that duplication of content should be avoided and that there should be a single opening and introductory parts. It was also considered allocation of time for a technical visit should then be possible.

134. During its nineteenth session, the BMT planned to discuss the following items:

1. Opening of the session
2. Adoption of the agenda
3. Reports on developments in UPOV concerning biochemical and molecular techniques (document to be prepared by the Office of the Union)
4. Short presentations on new developments in biochemical and molecular techniques by DUS experts, biochemical and molecular specialists, plant breeders and relevant international organizations (oral reports by participants)

5. Report of work on molecular techniques in relation to DUS examination (papers invited)
6. Cooperation between international organizations (document to be prepared by the Office of the Union)
7. Variety description databases including databases containing molecular data (papers invited)
8. Methods for analysis of molecular data, management of databases and exchange of data and material (papers invited)
9. The use of molecular techniques in examining essential derivation¹ (papers invited)
10. The use of molecular techniques in variety identification¹ (papers invited)
11. Confidentiality, ownership and access to molecular data¹ (papers invited)
12. Review of document UPOV/INF/17 "Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction"
13. Session to facilitate cooperation
14. Date and place of next session
15. Future program
16. Report of the session (if time permits)
17. Closing of the session

Program of work for the TWPs and BMT in 2020

135. The TC approved the program of work for the TWP and BMT sessions in 2020, as presented in the respective meeting reports and reports by the Chairpersons. The TC agreed that the programs of work should be proposed for approval by the Council, at its session to be held on November 1, 2019.

Organization of work of the TWC and BMT

136. The TC considered the outcomes of organizing the sessions of the TWC and BMT in the same week.

137. The TC noted the reports of the TWC and BMT on the duplication of content presented at both the TWC and BMT meetings and that the TWC and BMT had agreed there should be a single opening and introductory parts for both meetings at the same time. It further noted the challenge for the host of the joint sessions to hold two opening ceremonies and two receptions.

138. The TC noted the comments and proposals by the TWC and BMT on organizing the sessions in the same week and agreed to invite the UPOV Office to prepare draft terms of reference for a possible single body to encompass the work of the TWC and BMT for consideration at the TWC and BMT and reporting at the other TWPs, at their sessions in 2020. The possible terms of reference would then be considered by the TC, in conjunction with the comments of the TWC and BMT, at its fifty-sixth session.

Matters arising from the Technical Working Parties

139. The TC considered documents TC/55/3 and TC/55/3 Add.

140. The TC noted developments in the TWPs concerning:

- (i) Use of disease resistance characteristics;
- (ii) Access to plant material for the purpose of management of variety collections and DUS examination;
- (iii) DUS examination of mutant varieties of apple;
- (iv) Experiences with defining trees, shrubs and vines;
- (v) Defining "growing cycle" for ornamental species;
- (vi) Experiences with characteristics assessed on the basis of bulk samples;
- (vii) Experience with the RHS Colour Chart and possible future addition of colors;
- (viii) Experience with taxonomic databases;
- (ix) Inconsistencies between TQ information and plant material submitted for trial;
- (x) Experiences with new types and species;
- (xi) New issues arising for DUS examination;
- (xii) Matters relevant in DUS examination for the fruit sector;
- (xiii) Discussion groups to discuss "New technology used in DUS examination";
- (xiv) Assessing Uniformity by Off-Types;

¹ Breeders' Day

- (xv) Experience with using two locations by one year for DUS decisions;
- (xvi) Development and innovation of DUS test tools;
- (xvii) Web services provided by UPOV;
- (xviii) A statistical analysis software – DUS Excel; and
- (xix) Building a database with molecular marker information for the management of variety collections

TGP documents

141. The TC considered documents TC/55/4 and TC/55/4 Add.

Matters for adoption by the Council in 2019

142. The TC noted the revision of the following TGP documents, to be put forward for adoption by the Council at its fifty-third ordinary session, subject to the approval of the CAJ at its seventy-sixth session:

- Document TGP/7 “Development of Test Guidelines” (document TGP/7/7), on the basis of document TGP/7/7 Draft 1 Rev.
- Document TGP/8 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability” (document TGP/8/3), on the basis of document TGP/8/4 Draft 1.
- Document TGP/10 “Examining Uniformity” (document TGP/10/1), on the basis of document TGP/10/2 Draft 1.
- Document TGP/14 “Glossary of Terms Used in UPOV Documents” (document TGP/14/3), on the basis of document TGP/14/4 Draft 1.
- Document TGP/15 “Guidance on the use of Biochemical and Molecular Markers in the examination of Distinctness, Uniformity and Stability (DUS)” (document TGP/15/1), on the basis of document TGP/15/2 Draft 2.

143. The TC noted that, in conjunction with the adoption of the revised TGP documents, the Council would be invited to adopt a revision of document TGP/0 “List of TGP documents and latest issue dates” (document TGP/0/10), on the basis of document TGP/0/11 Draft 1.

Possible future revisions of TGP Documents

TGP/7: Development of Test Guidelines

Characteristics which only apply to certain varieties

144. The TC considered documents TC/55/12 and TC/55/12 Add.

145. The TC considered the proposal to amend the guidance in document TGP/7, Guidance Note 18 (GN 18), to allow the exclusion of a characteristic from observation on the basis of a state of expression of a preceding pseudo-qualitative or quantitative characteristic, as set out in document TC/55/12, paragraph 21.

146. The TC considered the examples of quantitative and pseudo-qualitative characteristics provided by the TWPs, at their sessions in 2019, to demonstrate how the proposed approach might be used in a way that would not present risks for decisions on distinctness; as set out in document TC/55/12, paragraph 20.

147. The TC agreed to amend the guidance in document TGP/7, Guidance Note 18 (GN 18) to read as follows

“3. Characteristics which only apply to certain varieties

“In some cases, the state of expression of a preceding characteristic determines that a subsequent characteristic is not applicable e.g. it would not be possible to describe the shape of leaf lobes for a variety which did not have leaf lobes.

"In cases where this is not obvious, or where the characteristics are separated in the Table of Characteristics, the heading of the subsequent characteristic is preceded by an underlined reference to the types of varieties to which it applies, on the basis of the preceding characteristic.

"The following examples demonstrate how the proposed approach might be used for QL, PQ and QN characteristics:

(QL) Flower: type: single (1); double (2)

(PQ) Only varieties with: Flower: type: single: Flower: shape

(PQ) Flower head: type: single (1); semi-double (2); daisy-eyed double (3); double (4)

(QN) Only varieties with: Flower head: type: daisy-eyed double or double: Flower head: height: short (3); medium (5); tall (7)

(PQ) Plant: head formation: absent (1); open (2); closed (3)

(QN) Only varieties with: Plant: head formation: open or closed: Time of head formation: very early (1); early (3); medium (5); late (7); very late (9)"

(QN) Presence of hairs: absent or very weak (1).

(PQ) Only varieties with: Presence of hairs: Other than "absent or very weak" (1): Hair: color

"The exclusion of characteristics from observation on the basis of a preceding pseudo-qualitative (PQ) or quantitative (QN) characteristic should be used with caution, taking into account the consequences for the examination of distinctness."

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

Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions

148. The TC considered documents TC/55/13 and TC/55/13 Add.

149. The TC agreed with the TWC that the title of the document should be amended to read "Data processing for the production of variety descriptions for measured quantitative characteristics".

150. The TC agreed with the TWC that the descriptions of the methods was not sufficient for application, and the situations when the methods would or would not be suitable.

151. The TC agreed with the TWC to invite to the experts from France, Germany, Italy, Japan and the United Kingdom to provide the following information as a starting point for describing the requirements of each approach, as appropriate:

- Country
- Method
- Is a full set of example varieties required? ["yes", "no" or "not applicable"]
- Is a partial set of example varieties required? ["yes", "no" or "not applicable"]
- Varieties x Years degree of freedom > 15? ["yes", "no" or "not applicable"]
- Are delineating varieties required? ["yes", "no" or "not applicable"]
- Is crop expert judgment required? ["yes", "no" or "not applicable"]
- Is the full range of expression in growing trial required? ["yes", "no" or "not applicable"]
- Can the method be used with cyclical planting? ["yes", "no" or "not applicable"]
- Is a continuous range of expression required? ["yes", "no" or "not applicable"]

152. The TC agreed with the TWC that other criteria or requirements could be added by the experts providing information, as appropriate.

153. The TC agreed with the TWC to invite the experts from France, Germany, Italy and Japan to provide the information requested by the TC to the expert from the United Kingdom.

The Combined-Over-Years Uniformity Criterion (COYU)

154. The TC considered documents TC/55/4 and TC/55/4 Add.

155. The TC noted that the TWC, at its thirty-seventh session, had considered a draft replacement section for document TGP/8 on the method of calculation of COYU, as presented in document TC/55/4 Add.. The TC

noted the invitation by the TWC for the expert from the United Kingdom to prepare a revised version of the draft guidance, to be presented to the TWC, at its thirty-eighth session.

156. The TC noted the invitation by the TWC for members who use “R” or “DUST” Software to review the new COYU package to identify possible improvement points.

TGP/14: Glossary of Terms Used in UPOV Documents

Color names for the RHS Colour Chart

157. The TC considered document TC/55/14.

158. The TC agreed to revise the list of UPOV Color Groups in document TGP/14 “Glossary of Terms used in UPOV Documents” on the basis of the color groups set out in document TC/55/14, Annex I.

159. The TC agreed to revise document TGP/14, Section 2, Subsection 3: “Color”, and Subsection 3: Annex: “Color names for the RHS Colour Chart”, to reflect the introduction of the revised list of UPOV Color Groups, as set out in document TC/55/14, Annex II.

160. The TC noted the invitation by the TWF for an expert from New Zealand to make a presentation on the use of RHS Colour Chart in DUS examination of apricot, at its fifty-first session, to be held in 2020.

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

New example: Characteristic-specific marker with incomplete information on state of expression

161. The TC considered documents TC/55/15, TC/55/15 Add. and TC/55/15 Add. 2.

162. The TC considered the proposal for a new example to be added to document TGP/15 to illustrate a situation where the characteristic-specific marker did not provide complete information on the state of expression of a characteristic, as set out in document TC/55/15, Annex, in conjunction with the comments from the TWPs and BMT.

163. The TC agreed that the following example should be included in document TGP/15, as amended by the TC-EDC:

“EXAMPLE 2: GENE SPECIFIC MARKER WITH INCOMPLETE INFORMATION ON STATE OF
EXPRESSION FOR DISEASE RESISTANCE IN TOMATO

prepared by experts from The Netherlands

“Example

“1. Resistance to Tomato mosaic virus (ToMV) Strain 0 in Tomato is conferred by the presence of allele *Tm1* from gene *Tm1* or alleles *Tm2* or *Tm2²* from gene *Tm2*.

“2. A single marker identifies the presence of resistance alleles *Tm2* and *Tm2²* and the susceptible allele *tm2*. Marker *Tm2/2²* is positioned in the protein coding sequence.

“3. A variety will be resistant to ToMV Strain 0 if resistance allele *Tm2* or resistance allele *Tm2²* is present.

“4. A variety with homozygous allele *tm2* will be susceptible to ToMV Strain 0 unless resistance is coded by resistance allele *Tm1*. In this case, resistance to ToMV Strain 0 cannot be assessed by a DNA marker test because there is no reliable marker for gene *Tm1*.

“Table 1: Schematic overview of resistance to Tomato mosaic virus and resistance alleles:

Genetic background	<i>tm2/tm2</i> and <i>tm1/tm1</i>	<i>Tm2/Tm2</i> or <i>Tm2²/Tm2²</i> or <i>Tm2²/Tm2</i> or <i>Tm2/tm2</i> or <i>Tm2²/tm2</i> and <i>Tm1/Tm1</i> or <i>Tm1/tm1</i> or <i>tm1/tm1</i>	<i>tm2/tm2</i> and <i>Tm1/Tm1</i> or <i>Tm1/tm1</i>
Marker <i>Tm2/2²</i>	susceptible allele	resistant allele	susceptible allele
Resistance to ToMV - Strain 0	absent	present	present

“5. If a variety is claimed to be resistant to ToMV Strain 0, the DNA marker test may be performed. In cases where the resistance is based on the presence of the allele *Tm2* or *Tm2²*, the DNA marker test could replace the traditional bioassay.

“6. If the DNA marker test does not confirm the resistance claim or if the variety is claimed to be susceptible, a bioassay must be performed.”

164. The TC noted that the new example “Characteristic-specific marker with incomplete information on state of expression” would become a second example of model “Characteristic-specific molecular markers” in document TGP/15.

165. The TC agreed that model “Genetic selection of similar varieties for the first growing cycle” should be presented in document TGP/15 as a second example of model “Combining phenotypic and molecular distances in the management of variety collections”. The TC agreed that the terminology on different “Models” should be reviewed in the document.

New proposals for revisions of TGP documents

TGP/7: Development of Test Guidelines

Procedure for partial revision of UPOV Test Guidelines

166. The TC considered whether to revise the procedure for partial revisions of Test Guidelines, on the basis of the information provided by the TWF.

167. The TC noted the following circumstances proposed by the TWF for allowing experts to make new proposals for partial revisions of Test Guidelines in the course of the year:

- For proposals to delete a characteristic
- For proposals to add a new state of expression and/or add a new illustration
- For proposals to add new example varieties

168. The TC noted the following circumstances proposed by the TWF when an accelerated procedure should not be applied:

- For proposals for grouping characteristics
- For proposals to add new characteristics

169. The TC recalled that if an accelerated procedure were to be accepted, proposals for partial revisions of Test Guidelines would need to be published at least two months before the session to allow sufficient time for consideration by members. The TC noted that additional time would also be required by the UPOV Office to prepare documents before posting online.

170. The TC recalled that partial revisions of Test Guidelines could be proposed at the TWP or at the TC sessions, providing at least two opportunities per year for proposing partial revisions.

171. The TC noted that frequent updates of Test Guidelines could be detrimental for international harmonization and requested the TWF to reconsider whether a new procedure was necessary. The TC agreed

that, in case the TWF established that an accelerated procedure would be justified, it should only be used in exceptional cases.

Presentation of full scale of notes for quantitative characteristics in Test Guidelines

172. The TC agreed with the proposal to revise document TGP/7 to present all states of expression for quantitative characteristics in Test Guidelines.

Links to relevant TGP documents guidance in Test Guidelines

173. The TC noted the proposal by the TWC, at its thirty-seventh session, to indicate relevant guidance in TGP documents that could have links displayed in Test Guidelines, and agreed to invite the TWPs, at their sessions in 2020, to propose links that might be indicated.

174. The TC agreed that relevant UPOV guidance identified by the TWPs should be reported to the TC, at its fifty-sixth session, for possible inclusion in the Template for Test Guidelines in a future revision of document TGP/7.

TGP/12: Guidance on Certain Physiological Characteristics

175. The TC noted that the TWV, at its fifty-third session, had agreed that the current guidance provided in UPOV documents in relation to the use of disease resistance characteristics was clear and sufficient for the time being, as set out in document TC/55/4, paragraph 65. The TC agreed that no further action would be required at this stage.

Program for the development of TGP documents

176. The TC agreed the program for the development of TGP documents, as set out in Annex IV to document TC/55/4, subject to its conclusions at this session.

177. The TC agreed to extend the coverage of document “TGP Documents” to cover all relevant information materials, to be presented in future sessions of the Technical Committee.

Molecular techniques

178. The TC considered documents TC/55/7, TC/55/7 Add., TC/55/7 Add. 2.

Review of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular Marker Selection and Database Construction (‘BMT Guidelines’)”

179. The TC noted that the BMT, at its eighteenth session, had considered document UPOV/INF/17/2 Draft 2 “Guidelines for DNA-Profiling: Molecular marker selection and database construction (‘BMT Guidelines’)”, as set out in document TC/55/7, paragraph 7.

180. The TC noted that the proposal by the TWV to develop guidance on elements, to be included in a protocol of DNA marker assay for a specific characteristic in document UPOV/INF/17, had been reported to the BMT, at its eighteenth session, as set out in document TC/55/7, paragraph 9.

181. The TC agreed with the proposal by the BMT, at its eighteenth session, for the European Union, France and the Netherlands to prepare a new draft of document UPOV/INF/17 “Guidelines for DNA-Profiling: Molecular marker selection and database construction (‘BMT Guidelines’)” (document UPOV/INF/17/2 Draft 3) for consideration at the nineteenth session of the BMT.

Cooperation between international organizations

Joint document explaining the principal features of the systems of OECD, UPOV and ISTA

182. The TC agreed with the BMT, at its eighteenth session, that relevant elements from the World Seed Partnership and the FAQ on the use of molecular techniques in the examination of DUS, would be a suitable basis for the Office of the Union to develop a draft of a joint document explaining the principal features of the systems of OECD, UPOV and ISTA, in consultation with OECD.

Inventory on the use of molecular marker techniques, by crop

183. The TC considered the possible development of 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 document UPOV/INF/16 "Exchangeable Software".

184. The TC agreed the following elements for the inventory:

- Country or Intergovernmental Organization using molecular marker technique
- Whether the Authority uses molecular marker techniques
- Source [name of the Authority] and Contact details [email address]
- Type of molecular marker technique [AFLP, Capillary electrophoresis fragment analysis, MNP, RAPD-STs, SSR, SNPs, Taqman, Whole genome sequencing, other technique (please specify)] [more than one answer allowed]
- Source of the molecular marker and contact details [email address]
- Availability of the marker [publicly available or a proprietary marker]
- Status (i.e. in current use or under development)
- Crop(s) for which the molecular marker technique is used and characteristic concerned [botanical name(s) and UPOV code(s) to be provided]
- Purpose of the use of the molecular technique [UPOV model "Characteristic-Specific Molecular Markers", UPOV model "Combining Phenotypic and Molecular Distances in the Management of Variety Collections", Purity, Identity, Verification of conformity of plant material to a protected variety for the exercise of breeders' rights, Verification of hybridity]
- Whether the molecular marker technique was used as part of Seed Certification in the last two years [National certification, OECD certification] [relevant for OECD seed schemes]
- Number of times the Authority used the molecular marker technique in the last 2 years [routine, occasional] [e.g. 1 to 5, 6 to 20, 21 to 100, more than 100]
- Whether the molecular marker technique is covered by [UPOV Test Guideline(s), UPOV TGP document(s), other UPOV document(s)] (please specify)
- Whether the molecular technique is validated/recognized/authorized [yes to specify a particular organization or authority]
- [relevant for OECD seed schemes]
- Whether the Authority created databases with information obtained from use of the molecular marker technique

185. The TC agreed that the question "whether the molecular technique is validated" should be amended to read "Whether the molecular technique is validated/recognized/authorized".

186. The TC agreed that a circular should be issued to request members of the Union to complete a survey as a basis to develop an inventory on the use of molecular marker techniques, by crop, in coordination with the OECD.

187. The TC agreed with the BMT that the survey should have structured answers to allow the comparison of results, as much as possible.

188. The TC agreed that the Office of the Union should conduct a test survey with experts from the United Kingdom.

Lists of possible joint initiatives with OECD and ISTA in relation to molecular techniques

189. The TC considered possible joint initiatives with OECD and ISTA in relation to molecular techniques and agreed with the proposal made by the BMT, at its eighteenth session, for joint workshops to be repeated in future.

190. The TC agreed with the BMT to propose a joint initiative that each organization inform the others about use of molecular markers in their work.

191. The TC noted there were no definitions on biochemical and molecular techniques in UPOV. The TC agreed that information from the survey on the techniques could help to clarify techniques that were considered to be biochemical or molecular.

Session to facilitate cooperation in relation to the use of molecular techniques

192. The TC noted that, at their sessions in 2019, the TWPs and the BMT had formed discussion groups to allow participants to exchange information on their work on biochemical and molecular techniques and explore areas for cooperation. The TC noted the outcomes of discussions at the TWPs, as set out in document TC/55/7, paragraphs 32 to 35, which had been reported to the BMT, at its eighteenth session.

Developments at Technical Working Parties and the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular in 2019

193. The TC noted that the BMT, at its eighteenth session, had been invited to develop proposals on next steps to explore areas for cooperation in the use of molecular techniques, as set out in document TC/55/7, paragraph 38.

194. The TC noted the following outcomes from discussions at the BMT on issues concerning cooperation between partners and service providers, including confidentiality, access to data and material:

- DNA-fingerprint data should be treated as confidential;
- Variety identification data using a small number of SNP markers could be made publicly available;
- Consent by the breeder should be required before sharing of DNA-based information;
- Breeders should be informed about the publication of variety identification by SNPs;
- Parental line information should be treated as confidential;
- Invitation for breeders, observer organizations and other participants to make presentations on ownership matters during the breeders' day at the nineteenth session of the BMT;
- Proposal to develop an agreement template with breeders for the use of molecular data. The template should include a requirement for a description of the intended use of the data;
- Noted that New Zealand had published a position on access and use of plant material including molecular data. For example, molecular data would only be provided with permission of breeder.

195. The TC agreed with the BMT that breeders, observer organizations and other participants be invited to make presentations on ownership matters during the breeders' day at the nineteenth session of the BMT.

196. The TC recalled that document TGP/5 Section 1 "Model administrative agreement for international cooperation in the testing of varieties" provided guidance on confidentiality of molecular information.

International cooperation in examination

197. The TC considered documents TC/55/10 and TC/55/10 Add.

Identification of contact persons for international cooperation in DUS examination

198. The TC noted the list of persons to be contacted for matters concerning international cooperation in DUS examination, provided in document TC/55/10, Annex, which would be made available on the UPOV website following the introduction of the new website design.

199. The TC noted that UPOV members would be invited to update information on a person(s) to be contacted for matters concerning international cooperation in DUS examination every year when invited to provide information for document TC/[xx]/4 "List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability".

Information on possibilities for international cooperation

200. The TC noted that the topic of international cooperation in DUS examination and explanation on existing possibilities for cooperation between UPOV members had been presented to the TWPs, at their sessions in 2019.

Technical concerns that prevent cooperation

201. The TC noted that the TWPs, at their sessions in 2019, had formed discussion groups to discuss the technical concerns that prevent cooperation in DUS examination and to propose how to overcome the technical concerns raised.

202. The TC considered the outcomes of discussions held at the TWO, TWV, TWF, TWA and TWC, at their sessions in 2019, as set out in document TC/55/10, paragraphs 19 to 26, and the proposals to address the concerns raised, as set out in paragraphs 27 and 28.

203. The TC agreed to invite the UPOV Office to develop a coherent plan, based on the following proposals, to address the concerns raised by the TWPs and to propose how to assess the impact of the plan:

- GENIE Database: practical experience and cooperation in examination;
- Publication of contact persons for DUS cooperation on UPOV website (see paragraphs 6 to 11)
- PLUTO Database: create search function to find DUS test reports
- Multilingual online tool for requesting DUS test reports
- TWP sessions: invite presentations on DUS testing procedures
- Amend document TGP/5 Section 6 to report the varieties considered in the examination (not only similar varieties);
- Amend document TGP/5 Section 6 to provide data from field observations along with DUS test report for each variety
- Translate the Model Agreement for Cooperation in Testing Varieties into other relevant languages (doc. TGP/5 Sec.1)
- Develop common database with morphological and molecular information for selected crops/species
- Publishing quality assurance procedures for variety testing
- Survey and review of UPOV members use of UPOV Test Guidelines

204. The TC agreed to report to the CAJ the related policy or legal issues presented in document TC/55/10, paragraphs 27 and 28.

205. The TC noted that TWP sessions could provide an opportunity for experts to enhance collaboration and exchange of information and agreed that TWP sessions should be used to develop cooperation among members to a greater extent.

UPOV information databases

206. The TC considered documents TC/55/5 and TC/55/5 Add.

Amendments to the "Guide to the UPOV Code System"

207. The TC considered the proposed amendments to the "Guide to the UPOV Code System" to reflect the creation of exceptions for the UPOV Codes for popcorn, sweet corn and *Brassica oleracea*, as set out in document TC/55/5, Annex I.

208. The TC recalled that the main purpose of the UPOV Code System was to overcome the problem of synonyms for plant taxa and should be based on taxonomic criteria, also bearing in mind that the UPOV Code System was used by other international organizations, such as ISTA.

209. The TC agreed that the exceptions proposed to the "Guide to the UPOV Code System" diverged from the Germplasm Resources Information Network (GRIN). The TC agreed that UPOV Codes should continue following GRIN taxonomy as far as possible.

210. The TC agreed to postpone the amendment to the "Guide to the UPOV Code System" and to explore alternative solutions to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes. The TC agreed to invite the Office of the Union to prepare a document with proposals, for consideration at its fifty-sixth session.

UPOV code amendments

Proposals for UPOV code amendments

211. The TC agree to amend the following UPOV Codes, as set out in documents TC/55/5, paragraphs 18 to 62 and TC/55/5 Add., paragraphs 4, 8 and 12:

- ASCOC, ASNEO, NEOFI and NEOFI_FAL
- BERBE_REP
- CITRU_LIT
- CRTNT and CRTNT_CAL
- ECSSED and ECSSED_EMO
- ECHIN_CHA
- EPICH_FES
- EUTRE
- EUTRE_JAP
- ISOPL, DGISO, ISOPL_CAN and DGISO_PCA
- HAWOR_FAS, HAWOR_LIM, HAWOR_LFA and HAWOR_MAR
- HAWOT_FAS
- HAWOT_LIM
- HAWOT_LFA
- HELLE_FNI
- HOMLC and HOMLC_PLA
- LAVN_XAL
- LOBIV and LOBIV_SIL
- MAHON, MAHON_ACA, MAHON_AQU, MAHON_BEA, MAHON_JAP, MAHON_LOM, MAHON_PUM and MAHON_REP
- MUEHL_PLA
- NEOTY_LOL
- SENEK_BIC, SENEK_CIN, SENEK_CHE, SENEK_CON, SENEK_CRU, SENEK_FIC, SENEK_HER, SENEK_JAC, SENEK_LAX and SENEK_TAL
- VANDA_FAL
- WASAB and WASAB_JAP

Implementation of UPOV code amendments

212. The TC noted that members of the Union and contributors of data to the PLUTO database would be informed of the changes and the date of the changes to UPOV Codes by means of a circular in advance of the amendments, as set out in document TC/55/5, paragraph 64.

213. The TC noted that contributors to the PLUTO database would be requested to use the amended UPOV codes when submitting their plant variety data to the Office of the Union, as set out in document TC/55/5, paragraph 64.

Pluto database

Program for improvements to the PLUTO database

214. The TC agreed with the proposal to revise Section 3.1.3 of the “Program for improvements to the PLUTO database” to reflect the change of the acceptable character set to ISO/IEC Standard 8859 1: 1998, as follows:

“3.1.3 Subject to Section 3.1.4, the character set for data shall be the Extended ASCII [American Standard Code for Information Interchange] representation, as defined in ISO [International Standards Organization]/IEC [International Electrotechnical Commission] Standard 8859 1: 1998.”

215. The TC noted that the CAJ, at its seventy-sixth session, would consider the proposed revision of the Section 3.1.3 of the “Program for improvements to the PLUTO database”, in conjunction with the comments by the TC, at its fifty-fifth session.

Request from the ISTA Nomenclature Committee

216. The TC noted that the Office of the Union had received a request from the International Seed Testing Association (ISTA) Nomenclature Committee to provide UPOV Codes for all botanical names listed in the ISTA stabilized list of botanical names of crops, as set out in document TC/55/5 Add., paragraph 2. On October 3, 2019, the Office of the Union provided the ISTA Nomenclature Committee with a list of UPOV Codes covering all botanical names in the ISTA stabilized list.

Exchange and use of software and equipment

217. The TC considered document TC/55/6.

Document UPOV/INF/16 “Exchangeable Software”

218. The TC noted that the Council, at its fifty-second ordinary session, held in Geneva, on November 2, 2018, had adopted document UPOV/INF/16/8 “Exchangeable Software”.

219. The TC noted that no new information had been received from members of the Union in response to Circular E-19/045 inviting them to provide or update information regarding the use of the software included in document UPOV/INF/16/8.

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

220. The TC considered document UPOV/INF/22/6 Draft 1 and agreed to propose the revision of document UPOV/INF/22 on that basis.

221. The TC noted that the proposals of the TC, at its fifty-fifth session, concerning the revision of document UPOV/INF/22 would be reported to the CAJ at its seventy-sixth session, to be held in Geneva on October 30, 2019, and if agreed by the CAJ, a draft of document UPOV/INF/22/6 would be presented for adoption by the Council at its fifty-third ordinary session, to be held on November 1, 2019.

Availability of documents UPOV/INF/16 “Exchangeable Software” and UPOV/INF/22 “Software and Equipment Used by Members of the Union” in a searchable form

222. The TC noted that the information in documents UPOV/INF/16 and UPOV/INF/22 would be made available in a searchable format on the UPOV following the introduction of the new website design.

Preparatory workshops

223. The TC considered document TC/55/9.

224. The TC noted the report of the preparatory workshop held by the TWO in 2019.

225. The TC noted that the elements to be discussed during the preparatory workshops for the TWA, TWC, TWF, TWV and BMT had been presented as an introduction to the respective agenda items during the normal program for the sessions.

226. The TC recalled that preparatory workshops were an opportunity for training local participants and agreed that TWP hosts should have the possibility to decide whether or not to organize a preparatory workshop prior to the TWP session.

227. The TC agreed that TWPs should be invited to discuss the possible organization of preparatory workshops when considering date and place of their future sessions.

228. The TC agreed that the UPOV Office should explore the possibility of recording a “webinar” to make part of the content of the preparatory workshop available online for distance learning.

229. The TC agreed the following content as an introduction to the respective agenda items during the normal program for the sessions of the TWA, TWF, TWO and TWV in 2020:

1. Introduction to UPOV and the role of UPOV Technical Working Parties (TWPs)
2. Overview of the General Introduction (document TG/1/3 and TGP documents)
 - Characteristics as the Basis for DUS Examination and Selection of Characteristics.
3. Guidance on drafting Test Guidelines (document TGP/7)
 - (a) Subject of the Test Guidelines, Material Required and Method of Examination;
 - (b) Method of Observation (MS, MG, VS, VG);
 - (c) Types of Expression (QL, PQ, QN), notes and distinctness;
 - (d) Shape and Color Characteristics;

- (e) Example Varieties;
- (f) The process for developing UPOV Test Guidelines, including: Web-based TG Template; Additional Standard Wording; and Guidance Notes;
- 4. Procedure for the adoption of Test Guidelines by correspondence;
- 5. Role of the leading expert drafting Test Guidelines and how to participate as an interested expert
- 6. Possibilities for international cooperation in DUS examination
- 7. Agenda for the TWP Session
- 8. Feedback from participants

230. The TC agreed the following content as an introduction to the respective agenda items during the normal program for the 2020 sessions of the TWC and BMT:

- 1. Introduction to UPOV and the role of the TWPs and BMT;
- 2. Overview of the General Introduction (document TG/1/3 and TGP documents)
- 3. Overview of DUS trials and Test Guidelines;
- 4. UPOV online resources
 - (a) UPOV member laws: UPOV Lex, GENIE database
 - (b) PBR Applications: UPOV PRISMA PBR Application Tool
 - (c) DUS Examination: GENIE database, Web-based Test Guidelines Template, UPOV Code
 - (d) Variety denomination/novelty: PLUTO database
- 5. Situation in UPOV Concerning the Possible Use of Molecular Techniques in DUS Examination
- 6. The Concept of Essentially Derived Varieties
- 7. The Role of UPOV in Variety Identification
- 8. Agenda for the TWC and BMT

Matters concerning variety descriptions

231. The TC considered document TC/55/11.

232. The TC agreed to propose the revision to document TGP/5, Section 6 “UPOV Report on Technical Examination and UPOV Variety Description”, on the basis of the proposal set out in document TC/55/11, Annex.

Increasing participation of new members of the Union in the work of the TC and TWPs

233. The TC considered document TC/55/24.

Invitation letters

234. The TC agreed that TWP invitations letters should be sent earlier than the current three months and agreed that the “Guidance note for hosts of TWPs” should indicate six months in advance of the sessions.

235. The TC agreed to invite the UPOV Office to draft a short description on the importance of the work of the TWPs to accompany the invitation letters to the TWP sessions.

Organization of a seminar in Geneva

236. The TC considered the organization of a seminar to communicate the importance of the technical work conducted in UPOV and agreed that further consideration would be needed on the aim and target audience before pursuing the idea further.

Participation at the TC and TWP meetings by electronic means

237. The TC noted that the invitations to the 2019 sessions of the TWPs invited recipients to indicate particular topics in which they would wish to participate by electronic means.

Variety denominations

238. The TC considered documents TC/55/8 and TC/55/8 Add.

239. The TC noted the comments by the TWP's and agreed with the proposals to revise the list of classes in document UPOV/INF/12/5, as follows:

- (a) Proposal to split the current class 205 (*Cichorium* and *Lactuca*) into two new classes:
 - Class: *Lactuca* – *Cichorium endivia* (Endive), *Cichorium intybus* var. *foliosum* (Salad Chicory)
 - Class: *Cichorium intybus* var. *sativum* (Industrial Chicory)
- (b) Proposal for genus *Epichloe* (formerly *Neotyphodium*) to be added to Class 203 (*Agrostis*, *Dactylis*, *Festuca*, *Festulolium*, *Lolium*, *Phalaris*, *Phleum* and *Poa*)

Test Guidelines

240. The TC considered document TC/55/2.

Test Guidelines adopted by correspondence

241. The TC noted that 1 revised Test Guidelines and 6 partially revised Test Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability, as listed in the table below, had been adopted by correspondence on the basis of the amendments specified in Annex II to this document and the linguistic changes recommended by the TC-EDC:

**	TWP	Document No. No. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name
<u>REVISIONS OF ADOPTED TEST GUIDELINES / RÉVISIONS DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / REVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES DE DIRECTRICES DE EXAMEN ADOPTADAS</u>							
AU	TWF	TG/137/5	Blueberry	Myrtille	Heidelbeere	Arándano americano	<i>Vaccinium angustifolium</i> x <i>V. myrsinites</i> x <i>V. corymbosum</i> ; <i>V. angustifolium</i> Aiton; Hybrids between <i>V. corymbosum</i> and <i>V. angustifolium</i> ; <i>V. corymbosum</i> x <i>V. angustifolium</i> x <i>V. virgatum</i> ; <i>V. corymbosum</i> L.; <i>V. formosum</i> Andrews; <i>V. myrtilloides</i> Michx.; <i>V. myrtillus</i> L.; <i>V. simulatum</i> Small; <i>V. virgatum</i> Aiton
<u>PARTIAL REVISIONS OF ADOPTED TEST GUIDELINES / RÉVISIONS PARTIELLES DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / TEILREVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES PARCIALES DE DIRECTRICES DE EXAMEN ADOPTADAS</u>							
FR	TWV	TG/7/10 Rev. 2	Pea	Pois	Erbse	Guisante, Arveja	<i>Pisum sativum</i> L., <i>Pisum arvense</i> L.
NL	TWV	TG/13/11 Rev.	Lettuce	Laitue	Salat	Lechuga	<i>Lactuca sativa</i> L.
NL	TWV	TG/55/7 Rev. 6	Spinach	Épinard	Spinat	Espinaca	<i>Spinacia oleracea</i> L.
ES	TWF	TG/56/4 Corr. Rev.	Almond	Amandier	Mandel	Almendro	<i>Prunus dulcis</i> (Mill.) D.A.Webb, <i>Prunus amygdalus</i> (L.)
NZ	TWF	TG/98/7 Rev.	Actinidia, Kiwifruit	Actinidia	Actinidia	Actinidia	<i>Actinidia</i> Lindl.
BR	TWF	TG/314/1 Rev.	Coconut	Cocotier	Kokosnuß	Cocotero	<i>Cocos nucifera</i> L.

Test Guidelines for adoption

242. According to the procedures established in document TGP/7, the TC adopted 3 new Test Guidelines, 5 revised Test Guidelines and 7 partially revised Test Guidelines for the Conduct of Tests for Distinctness, Uniformity and Stability, 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. The TC 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 Nom botanique Botanischer Name Nombre botánico
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NEW TEST GUIDELINES / NOUVEAUX PRINCIPES DIRECTEURS D'EXAMEN / NEUE PRÜFUNGSRICHTLINIEN / NUEVAS DIRECTRICES DE EXAMEN							
JP	TWO	TG/CALEN(proj.4)	Calendula	Calendula	Ringelblume	Caléndul	<i>Calendula</i> L.
ZA	TWO	TG/GAZAN(proj.4)	Gazania	Gazania	Gazania	Gazania	<i>Gazania</i> Gaertn.
ES	TWF	TG/JUGLA(proj.6)	Black Walnut	Noyer noir	Schwarznuß	Nogal negro	<i>Juglans hindsii</i> (Jeps.) R. E. Sm.; <i>J. hindsii</i> × <i>J. regia</i> ; <i>J. major</i> (Torr.) A. Heller; <i>J. major</i> × <i>J. regia</i> ; <i>J. nigra</i> L.; <i>J. nigra</i> × <i>J. regia</i> L.

REVISIONS OF TEST GUIDELINES / RÉVISIONS DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / REVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES DE DIRECTRICES DE EXAMEN ADOPTADAS							
NL	TWO	TG/29/8(proj.4)	Alstroemeria	Alstroemère	Inkalilie	Alstroemeria	<i>Alstroemeria</i> L.
FR	TWV	TG/106/5(proj.4)	Leaf beet, Swiss chard	Poirée, Bette à cardes	Mangold	Acelga	<i>Beta vulgaris</i> L. ssp. <i>vulgaris</i> var. <i>flavescens</i> DC.
AU	TWF	TG/111/4(proj.5), TC/55/18	Macadamia	Macadamia	Macadamia	Macadamia	<i>Macadamia integrifolia</i> Maiden et Betche; <i>Macadamia tetraphylla</i> L. Johns.
AU	TWO	TG/175/4(proj.3)	Kangaroo Paw	Anigozanthos	Känguruhblume	Anigozanthos	<i>Anigozanthos Labill.</i> , <i>Macropidia fuliginosa</i> (Hook.) Druce
NL	TWV	TG/183/4(proj.3)	Fennel	Fenouil	Fenchel	Hinojo	<i>Foeniculum vulgare</i> Mill.

PARTIAL REVISIONS OF TEST GUIDELINES / RÉVISIONS PARTIELLES DE PRINCIPES DIRECTEURS D'EXAMEN ADOPTÉS / TEILREVISIONEN ANGENOMMENER PRÜFUNGSRICHTLINIEN / REVISIONES PARCIALES DE DIRECTRICES DE EXAMEN ADOPTADAS

NL	TWV	TG/44/11 Rev. 3 (proj.2)	Tomato	Tomato	Tomato	Tomato	<i>Solanum lycopersicum</i> L.
FR	TWF	TG/104/5 Rev. 2 (proj.2)	Melon	Melon	Melone	Melón	<i>Cucumis melo</i> L.
NL	TWV	TG/142/5 Rev. (proj.1), TC/55/17	Watermelon	Pastèque	Wassermelone	Sandía	<i>Citrullus lanatus</i> (Thunb.) Matsum. et Nakai
ES	TWF	TG/202/1 Rev. 2 (proj.2)	Oranges	Oranger	Orangen	Naranjo	<i>Citrus aurantium</i> L., <i>Citrus sinensis</i> (L.) Osbeck
ES	TWF	TG/204/1 Rev. 2 (proj.2)	Grapefruit and Pummelo	Pomelo et Pamplemoussier	Grapefruit und Pampelmuse	Pomelo y Pummelo	<i>Citrus</i> × <i>paradisi</i> Macfad.
NL	TWO	TG/213/2 Rev. (proj.3)	Phalaenopsis	Phalaenopsis	Phalaenopsis	Phalaenopsis	<i>Phalaenopsis</i> Blume

**	TWP	Document No. No. du document Dokument-Nr. No del documento	English	Français	Deutsch	Español	Botanical name Nom botanique Botanischer Name Nombre botánico
NL	TWV	TG/294/1 Corr. Rev. 3 (proj.1)	Tomato Rootstocks	Porte-greffe de tomate	Tomatenunterlagen	Portainjertos de tomate	<i>Solanum lycopersicum</i> L. x <i>S. cheesmaniae</i> (L. Ridley) Fosberg, <i>S. lycopersicum</i> L. x <i>S. peruvianum</i> (L.) Mill., <i>S.</i> <i>pimpinellifolium</i> L. x <i>S. habrochaites</i> <i>S. Knapp & D.M.</i> Spooner, <i>Solanum</i> <i>habrochaites</i> <i>S.</i> <i>Knapp & D.M.</i> Spooner, <i>S.</i> <i>lycopersicum</i> L. var. <i>lycopersicum</i> x <i>S. habrochaites</i> <i>S.</i> <i>Knapp & D.M.</i> Spooner

243. The TC-EDC agreed that the draft Test Guidelines for Coreopsis (document TG/COREO(proj.3)) should be referred back to the TWO to clarify technical issues, as indicated in Annex II to this report.

244. The TC-EDC agreed there were editorial clarifications required on the draft Test Guidelines for Portulaca (document TG/242/4(proj.2)) and agreed to reconsider the draft Test Guidelines at its meeting to be held in March 2020.

Corrections to Test Guidelines

245. The TC noted the following corrections to the adopted Test Guidelines for Lobelia, Cucumber and Urochloa:

- Test Guidelines for Lobelia (document TG/293/1 Corr.)
Deletion of notes “1” and “2” from the explanation Ad. 27 “Lower lip: white zone on upper side”.
- Test Guidelines for Cucumber (documents TG/61/7 Rev. 2 Corr. 2 (EN, DE) and TG/61/7 Rev. 2 Corr. 3 (FR, ES))
Correction of the type of expression of Characteristic 47 “Resistance to Downy mildew (*Pseudoperonospora cubensis*) (Pcu)” to be indicated as QL instead of QN.
- Test Guidelines for Urochloa (document TG/322/1 Corr.)
Correction of the numbers of characteristics in the explanation Ad. 14, 16, 17 (“Inflorescence: length of rachis”, “Inflorescence: length of basal racemes”, “Inflorescence: length of peduncle”) to refer to the correct plant parts.

Draft Test Guidelines discussed by the TWPs in 2019

246. The TC noted the draft Test Guidelines discussed by the TWF, at its session in 2018, and the TWPs, at their sessions in 2019, as listed in document TC/55/2, Annex III.

Draft Test Guidelines to be discussed by the TWPs in 2020

247. The TC agreed the program for the development of new Test Guidelines and for the revision of adopted Test Guidelines, as presented in document TC/55/2, Annex IV, with the following amendments:

Partial revision of the Test Guidelines for Chrysanthemum

248. The TC agreed to request a partial revision of the Test Guidelines for “Chrysanthemum” (document TG/26/5 Corr. 2) to expand the coverage to all varieties of *Chrysanthemum* L..

Partial revision of the Test Guidelines for Calibrachoa

249. The TC noted the proposal by Japan and agreed to request the partial revision of the Test Guidelines for “Calibrachoa” (document TG/207/2), characteristics 16 to 20 and 28 and 29, for removing the restriction of observation for certain types of varieties only.

Status of existing Test Guidelines or draft Test Guidelines

250. The TC noted the status of the existing Test Guidelines or draft Test Guidelines, as listed in document TC/55/2, Annex V.

Superseded Test Guidelines

251. The TC noted the list of superseded Test Guidelines, as presented in document TC/55/2, Annex VI.

252. The TC noted that the superseded versions of Test Guidelines are available on the Test Guidelines page of the UPOV website.

Additional characteristics

253. The TC noted the following additional characteristics and states of expression notified to the Office of the Union since the fifty-fourth session of the TC (see document TC/55/2, Annexes VII and VIII):

Agricultural crops

Additional characteristics

- *Dactylis glomerata* L.: See Annex VII (in English only)
 - “Plant: natural height in autumn (without vernalization)”
- *Lolium multiflorum* L.: See Annex VII (in English only)
 - “Plant: length in autumn of year of sowing”
 - “Leaf: length (at vegetative stage)”

Ornamental plants

New state of expression

- *Lavandula* L.: See Annex VIII
 - Spike: shape: “conical and cylindrical (50%-50%)”

254. The TC noted that the additional characteristics or states of expression notified would be presented to the TWA or TWO, as appropriate, at their sessions in 2020, for consideration on whether these should be posted on the TG Drafters’ webpage of the UPOV website and/or whether to initiate a revision of partial revision of the Test Guidelines concerned.

Matters for information

255. The TC noted that, along with the decision by the Council to organize only one annual session of the UPOV bodies meeting in Geneva, a set of measures had been adopted to make the sessions as efficient as possible, including the separation of documents into two types: documents containing matters on which a decision by the body concerned is needed (‘decision documents’); and documents for information only.

256. The TC noted that documents for information only were posted on a separate section of the website of the body concerned (‘information section’) and not considered individually.

257. The TC noted that the following documents were posted as documents for information on the TC/55 webpage:

- (a) List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability (document TC/55/INF/4)
- (b) UPOV information databases (document TC/55/INF/2)
- (c) Variety description databases (document TC/55/INF/3)
- (d) UPOV PRISMA (document TC/55/INF/5)

- (e) Molecular techniques (document TC/55/INF/6)
- (f) Variety denominations (document TC/55/INF/7)
- (g) Differences in notes for the assessment of distinctness (document TC/55/INF/9)

Program for the fifty-sixth session

1. Opening of the session
2. Adoption of the agenda
3. Report on developments in UPOV
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. Possible merger of BMT and TWC
9. Strategy for cooperation in examination
10. Increasing participation of new members of the Union in work of the TC and the TWPs
11. Information and databases
 - (a) UPOV information databases
 - (b) UPOV PRISMA
 - (c) Exchange and use of software and equipment
 - (d) Variety description databases
12. Preparatory work
13. Variety denominations
14. Discussion on: minimum distances between varieties
15. Exchange and use of software and equipment
16. List of genera and species for which authorities have practical experience in the examination of distinctness, uniformity and stability
17. Test Guidelines
18. Program for the fifty-seventh session
19. Adoption of the report (if time permits)
20. Closing of the session

Chairperson and Vice-chairperson

258. The TC noted that the term of chairmanship of Mr. Kees van Ettehoven (Netherlands) would end with the closing of the forthcoming ordinary session of the Council. It proposed to the Council that it elect Mr. Nik Hulse (Australia) as new Chairperson and Ms. Beate Ruecker (Germany) as new Vice-Chairperson of the TC for the forthcoming three-year term.

UPOV Medal

259. At the close of the session, Mr. Kees van Ettehoven (Netherlands) was awarded a UPOV Silver Medal by the Vice Secretary-General on completing his term as Chairman of the TC, from 2017 to 2019. In awarding the medal, the Vice Secretary-General, recalled that Mr. van Ettehoven had previously held the following positions in UPOV: Chairman of the Working Group on Biochemical and Molecular Techniques, and DNA-Profiling in Particular (BMT) from 2015 to 2017; Vice-Chairman of the Technical Committee (TC) from 2014 to 2016; and Chairman of the Technical Working Party for Vegetables (TWV) from 2003 to 2005. Mr. van Ettehoven had also acted as a speaker and trainer in several UPOV capacity-building activities in different regions, and was well-known and highly respected throughout the world.

260. With regard to the achievements of the TC under Mr. van Ettehoven's chairmanship, the Vice Secretary General highlighted: the adoption of 65 new or revised Test Guidelines; the initiative to combine the BMT and TWC meetings in the same week & location; the reorganization of the TC sessions to be held in conjunction with the Council and shortened to 2 days; the introduction of the procedure for adoption of Test Guidelines by correspondence; the review of the Preparatory Workshops; cooperation with ISTA and

OECD on the use of DNA-based information for their respective purposes; the initiative to explore ways to enhance international cooperation in DUS examination; and the revision of the following documents: TGP/5 "Experience and Cooperation in DUS Testing", TGP/7 "Development of Test Guidelines", TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability", TGP/10 "Examining Uniformity"; TGP/14 "Glossary of Terms Used in UPOV Documents"; and TGP/15 "Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)".

261. The TC adopted this report at the close of its session on October 29, 2019.

[Annex I follows]

ANNEXE I / ANNEX I / ANLAGE I / ANEXO I

LISTE DES PARTICIPANTS / LIST OF PARTICIPANTS /
TEILNEHMERLISTE / LISTA DE PARTICIPANTES

(dans l'ordre alphabétique des noms français des membres /
in the alphabetical order of the French names of the Members /
in alphabetischer Reihenfolge der französischen Namen der Mitglieder /
por orden alfabético de los nombres en francés de los miembros)

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[L'annexe II suit /
Annex II follows /
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ANNEX II

AMENDMENTS TO THE DRAFT TEST GUIDELINES

Test Guidelines adopted by correspondence*Partial revisions***TC-EDC/Mar19/2 Partial Revision of the Test Guidelines for Almond**

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/2 and made the recommendations presented in the table below.

The TC-EDC agreed that, subject to agreement by the Leading Expert on the recommendations provided, the partial revision of the Test Guidelines for Almond be circulated to the TC for adoption by correspondence.

9.	to review according to editorial standard
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TC-EDC/Mar19/3 Partial Revision of the Test Guidelines for Coconut

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/3 and agreed that the partial revision of the Test Guidelines for Coconut be circulated to the TC for adoption by correspondence.

TC-EDC/Mar19/4 Partial Revision of the Test Guidelines for Actinidia

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/4 and made the recommendations presented in the table below.

The TC-EDC agreed that, subject to agreement by the Leading Expert on the recommendations provided, the partial revision of the Test Guidelines for Actinidia be circulated to the TC for adoption by correspondence.

New Char. 29	to delete "(2)" (see example varieties agreed by TWF, characteristic not only applicable to Group B characteristics)
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TC-EDC/Mar19/5 Partial Revision of the Test Guidelines for Lettuce

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/5 and made the recommendations presented in the table below.

The TC-EDC agreed that, subject to agreement by the Leading Expert on the recommendations provided, the partial revision of the Test Guidelines for Lettuce be circulated to the TC for adoption by correspondence.

Ad. 38 to 52, 8.2	to read "susceptible variety, for example Green Towers. For higher isolates..."
Ad. 38 to 52, 10.2	to read $3 \times 10^4 - 1 \times 10^5$
Ad. 38 to 52, for reference	last sentence to read "Pictures for the observation scale are also provided."

TC-EDC/Mar19/6 Partial Revision of the Test Guidelines for Pea

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/6 and agreed that the partial revision of the Test Guidelines for Pea be circulated to the TC for adoption by correspondence.

TC-EDC/Mar19/7 Partial Revision of the Test Guidelines for Spinach

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TC-EDC/Mar19/7 and made the recommendations presented in the table below.

The TC-EDC agreed that, subject to agreement by the Leading Expert on the recommendations provided, the partial revision of the Test Guidelines for Spinach should be circulated to the TC for adoption by correspondence.

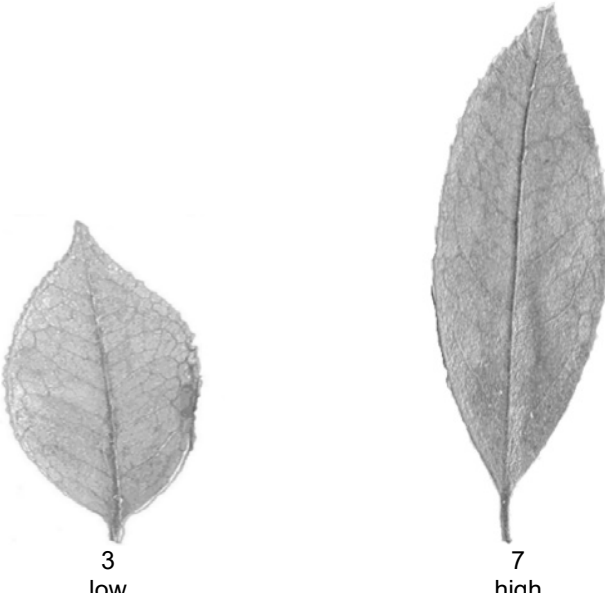
Ad. 18, Evaluation of infection	to read "Some varieties may have a slightly lower level of resistance, showing for example a slight tip sporulation. In the table this is/ these varieties are indicated by (R)."
Ad. 18	- sentence above table to read "Differentials and isolates are available..." - legend in table with differential varieties and NILs to read "Differentials" only - after the table to indicate: "Courtesy of ISF, table available at..."

Revisions

Blueberry	TG/137/5(proj.5)	Mr. Nik Hulse (AU)	TWF	*
	No. of chars.: 38 No. of (*) chars.: 17	(Interested experts: BR, CA, CZ, DE, IT, JP, KR, MX, NZ, PL, PT, QZ, RO, ZA, CIOPORA)		

The TC-EDC, at its meeting held in Geneva, on March 26, 2019, considered document TG/137/5(proj.5) and made the recommendations presented in the table below.

The TC-EDC agreed that, subject to agreement by the Leading Expert on the recommendations provided, the Test Guidelines for Blueberry be circulated to the TC for adoption by correspondence.

1.	- to delete "and their hybrids" - to add GN3 from TGP/7: "Guidance on the use of Test Guidelines for interspecific hybrids that are not explicitly covered by Test Guidelines is provided in document TGP/13 'Guidance for New Types and Species'".
Char. 1	to add a new state 1 "very weak"
Char. 3	to add (*) (grouping characteristic)
Char. 4	to delete states 2 and 4
Char. 7	- to be indicated as MG/VG (as per TWF report) - to add the following illustration of low and high ratios
	

Char. 16	to add (c)
Char. 17	to add state 5 “very strong” without example variety
Char. 20	to add (*) (grouping characteristic)
Char. 23	to be indicated as QN
Char. 24	to be deleted (no difference to Char. 23)
Char. 25	to read “Fruit: attitude of sepals”
Char. 30	to add new state 1 “very soft”
Char. 33	to add (*) (grouping characteristic)
Char. 36	to delete underlined wording “Only varieties...”
8.1 (a) - (f)	to read “Observations should be made...”
8.1 (c)	to read “...at the beginning of flowering”
8.1 (e), (f)	to be moved to Chapter 8.2
Ad. 13	- to delete indication “a” for shoot - to delete “b” (only keep lines and arrow)
Ad. 18	- to delete dotted line from photo - to delete drawing - “a” to read “ridging”
Ad. 29	to delete “on fruit color”
Ad. 32	“... by tasting.”
9.	country code of last reference to read GB

Test Guidelines adopted at the fifty-fifth session of the Technical Committee

Partial Revisions

TC/55/16 Partial Revision of the Test Guidelines for Melon

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/16 and made the recommendations presented in the table below:

Char. 75	to correct Spanish translation of “strain” to “cepa”
Ad. 75	to delete non-compulsory elements for which no information is provided (e.g. 2., 8.4)
Ad. 75, 13.	to read “To check the pathogen identity, Virgos is resistant to MNSV: 0 and susceptible to the new MNSV strain.”

TC/55/18 Matters to be resolved concerning Test Guidelines put forward for adoption by the Technical Committee: Macadamia

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/18 and made the recommendations presented in the table below:

Example varieties	to create a new Chapter 8.3 “Example varieties and synonyms” with the table	
	Example variety	Synonym
	Keauhou	HAES 246
	Ikaika	HAES 333
	Keaau	HAES 660

TC/55/19 Partial Revision of the Test Guidelines for Oranges (*Citrus L.* – Group 2)

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/19 and made the recommendations presented in the table below:

Char. 56	deletion of “on oil glands” also to be reflected in Chars. 58 and 59 (same as in Char. 57) (Annex “Overall Table of Characteristics” would also need amending)
Ad. 26	to move last sentence to “Literature” (reference to Brewbaker publication)

TC/55/20	Partial Revision of the Test Guidelines for Pummelo (Grapefruit and) (<i>Citrus L.</i> – Group 4)
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The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/20 and made the recommendations presented in the table below:

Ad. 30	to move last sentence to “Literature” (reference to Brewbaker publication)
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TC/55/21	Partial Revision of the Test Guidelines for Phalaenopsis
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The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/21 and made the recommendations presented in the table below:

Char. NEW 1	to read “Lip: fusion of lateral lobes with apical lobe”
Ad. NEW 2	to delete wording in brackets below states of expressions

TC/55/22	Partial Revision of the Test Guidelines for Tomato
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The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/22 and made the recommendations presented in the table below:

Char. 48/ Ad. 48	to replace French translation of “Race” with “Race” (instead of “Pathotype”)
Char. 48, 6.	to read “use differential varieties (see ISF website)”

TC/55/23	Partial Revision of the Test Guidelines for Tomato Rootstocks
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The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TC/55/23 and made the recommendations presented in the table below:

Char. 24/ Ad. 24	to replace French translation of “Race” with “Race” (instead of “Pathotype”)
Char. 24, 6.	to read “use differential varieties (see ISF website)”

New Test Guidelines

Calendula (<i>Calendula L.</i>)	TG/CALEN(proj.4)	Mr. Koji Nakanishi (JP)	TWO	*
	No. of chars.: 36 No. of (*) chars.: 22	(Interested experts: DE, GB, KR, MX, QZ, ZA)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/CALEN(proj.4) and made the recommendations presented in the table below:

Char. 11	appears twice, to delete once
Ad. 6	to move indication of “B” (should not cover the leaf)

Coreopsis (<i>Coreopsis</i> L.)	TG/COREO(proj.3)	Mr. Peter Baker (GB)	TWO	*
	No. of chars.: 44 No. of (*) chars.: 34	(Interested experts: AU, CA, DE, FR, JP, KR, MX, NZ, QZ)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/COREO(proj.3) and made the recommendations presented in the table below.

The TC-EDC agreed that the draft Test Guidelines for Coreopsis should be referred back to the TWO to clarify the technical issues indicated below by “#”.

#Chars. 1, 8, 17, 20, 24, 27, 39, 40, 41, 42	to add example varieties (see document TGP/7 (GN 28))
#Chars. 6 to 11 and 15 to 17	According to Ad. 5, all varieties may have both types of leaves. Clarification necessary whether all characteristics should be described for varieties with note 1, 2 and 3 in char. 5
Chars. 12 to 14	to be moved after char. 17
Char. 30	“throughout” should be note 15
Char. 32	to be moved before char. 30
8.1 (d)	first 8.1(d) to be relabeled “(b)” (type-o)
8.1 (e)	to be replaced by the standard wording (see document TGP/14)
Ad. 5	to read “Some varieties have both types of leaves. The predominant leaf type should be assessed. The state ...”
Ad. 19	to be deleted (see VG)
Ad. 29	Drawings to be improved. Main color should appear solid to prevent confusion with drawings for char. 30 and 32.
#Ad. 30	- to add explanation clarifying how secondary color can occupy more than 50% of surface (to check whether to read “If the secondary color is not solid, it may be distributed on more than half of the ray floret and the total area is still less than the main color.”) - Drawings to be improved. Secondary color should <u>not</u> appear solid for state 6 to 11 and 14 to prevent confusion with drawings for char. 30.
#Ad. 33	- to check whether to read “If the tertiary color is not solid, it may be distributed in up to half of the ray floret and the total area is still less than the secondary color.” - Drawings to be improved. Secondary color should <u>not</u> appear solid for state 4 to 8 to prevent confusion with drawings for char. 30 and 32.

Gazania (<i>Gazania</i> Gaertn.)	TG/GAZAN(proj.4)	Mr. Adriaan de Villiers (ZA)	TWO	*
	No. of chars.: 35 No. of (*) chars.: 20	(Interested experts: AU, DE, GB, JP, KR, MX, NZ, QZ, CIOPORA)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/GAZAN(proj.4) and made the recommendations presented in the table below:

5.3(e)	to read “Ray floret: color with the largest area of upper side, with the following groups:”
Char. 7	- to add explanation to read “Observations should exclude variegation.” - to delete (b)
Char. 8	- to read “Leaf: color of variegation” - to delete (b)
Char. 10	to delete states 2 and 4
Char. 24	state 19 to read “lateral zone throughout”
Chars. 26, 28 and 30	state 20 to read “lateral zone throughout”
Chars. 26, 28 and 30	state 1 should be moved to the end of scale to have better harmonization with char. 24
Char. 35	- to delete (b) and to replace with explanation covering individual characteristics to read “The main color is the color with the largest surface area.”

8.1 (b)	to be deleted
8.1 (d)	indication to read "Base" (not "At base").
8.1 (e)	to read "For multicolored varieties, up to four colors should be recorded; if there are more, the color[s] with the smallest area[s] should be discounted. The basal spot eye-marking should also be excluded. "Color one", "color two" etc. are to be recorded according to the number on the RHS chart, i.e. color one is the one with the lowest number, color two with the second lowest and so on. If two colors have the same number, for example Green 137A and Green 137D, 137A is regarded as the lower numbered color. Under this system, the order is independent of the area, so the color covering the greatest area may be classified as color three or four."
Ad. 4	first sentence to read "A plant can have both lobed and unlobed leaves."
Ad. 14	to delete "petaloid" in state 2 (see char. 34)
Ads. 24, 26	to adopt size of image for state 20 in the German and Spanish versions
Ad. 33	to delete "petaloid" (see char. 34)
TQ, 5.5	to read "Ray floret: color with the largest area of upper side"

Black Walnut	TG/JUGLA(proj.6)	Ms. Nuria Urquía Fernández (ES)	TWF	
	No. of chars.: 14 No. of (*) chars.: 20	(Interested experts: CN, KR, QZ, ZA)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/JUGLA(proj.6) and made the recommendations presented in the table below:

4.2	to re-introduce the following paragraph from proj.4 (mistakenly deleted in proj.5): "For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no off-types are allowed."
1.	to replace "x" by multiplication symbol for hybrids
2.2	to read "... grafts or budsticks"
2.3	to read "5 budsticks, sufficient to propagate 10 trees"
3.1.2, 5.3, Char. 16	to separate "budburst" in two words (throughout the document)
Char. 7	- to delete "in group of" from all states - to read "Female inflorescence: predominant number of flowers" and to be moved before char. 6
Char. 10	to read "Female flower: type of stigma"
Char. 11	to read: "Plant: fully developed catkins"
Char. 12	to read "Only varieties with: Plant: fully developed catkins: present: Catkin: shape"
Char. 13	to read "Nut: shape"
8.1	to delete mentions to plant parts in (a) to (d) ("Observations should be made...")
8.1 (c)	to read "Observations should be made at full flowering of male and female flowers, respectively."
8.1 (d)	to read "Observations should be made facing the suture on physiologically ripe nuts without pericarp."
Ad. 3	to read "less than 9; between 9 and 13; between 14 and 17; between 18 and 21; 22 or more"
Ad. 6	to read "Conspicuousness is absent when..."
Ad. 11	to read: "... the pollen sacs are full.
Ads. 14, 15	to delete sentence
Ad. 16	to delete "more than"
Ad. 20	to delete "over"

Revisions

Alstroemeria (<i>Alstroemeria</i> L.)	TG/29/8(proj.4)	Mr. Henk de Greef (NL)	TWO	*
	No. of chars.: 43 No. of (*) chars.: 35	(Interested experts: AU, CA, KR, JP, MX, NZ, QZ, ZA)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/29/8(proj.4) and made the recommendations presented in the table below:

Char. 8	to be moved after characteristic 9
Char. 10	to read "Umbel: length of rays"
Char. 16	to read "Flower: ratio length/width in frontal view"
Char. 17	to read "Flower: length in side view"
Char. 21	- to read "Outer tepal: green area of outer side" - to add state 5 "very large"
Chars. 29 to 38	to delete "inner side" and add this information in a new explanation in Chapter 8.1
Char. 41	to read "Filament: number of spots"
Char. 41	to delete (*)
8.1 (a)	to read "Observations should be made on the first fully developed stem when 50% of the flowers are open."
8.1 (b)	to read "Observations should be made on leaves taken from the middle third of the stem."
8.1 (c)	to read "Observations should be made when the first anther of the individual flower is open."
Ad. 2	"Thickness should be assessed at the middle third of the stem."
Ad. 8	- text to read "The upper side of the leaf should be observed. The greyish colored stripe of the midrib is not regarded as variegation." - indication "a" in upper photograph to read "upper side" - to delete second photo for state 1 indicating the greyish colored stripe
Ad. 9	to replace current photo of state 9 with photo with indication of greyish colored stripe as in Ad. 8
Ad. 10	to add "Observations should be made from the point of insertion to the base of the top flower bud."
Ads. 14, 15	to have only one illustration indicating both, length and width
Ad. 18	to invert illustrations of state 2 and 4
Ad. 34	to read "The longest stripes should be observed, excluding the stripe on the central vein."
Ad. 35	- to read "The widest stripes should be observed, excluding the stripe on the central vein." - all tepals in all photos to have the same size
Ad. 41	to move current illustration of state 4 to state 5 and delete empty columns for states 2 and 4
Ad. 42	to delete photo of state 1, delete indication of states 1 and 9 and add indication of spots to photo of state 9

Leaf Beet, Swiss Chard (<i>Beta vulgaris</i> L. ssp. <i>vulgaris</i> var. <i>flavescens</i> DC.)	TG/106/5(proj.4)	Ms. Chrystelle Jouy (FR)	TWV	*
	No. of chars.: 18 No. of (*) chars.: 11	(Interested experts: CZ, DE, ES, GB, JP, KR, NL, QZ, CLI, ESA, ISF)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/106/5(proj.4) and made the recommendations presented in the table below:

Cover page	"Other associated documents" to read "TG/60 Beetroot"
2.2	to read "...in the form of seeds or seed clusters"
2.3	to read 100g of seeds or 6,000 seed clusters
4.2.4	to be deleted
Char. 8	to read " <u>Only varieties with Leaf blade: color: green:</u> Leaf blade: intensity of purple over color"
Char. 10	to read "Leaf blade: recurving of the margin"
Char. 15	to read "Petiole: curvature in cross section"
Ad. 1	To read "Observations be made after the appearance of the second true leaf."

Ad. 8	to replace current wording with “The purple over color develops as a flush over time.”
TQ 4.1.1	to delete “(please state known parent variety(ies))” from “partially known cross”

Kangaroo Paw (<i>Anigozanthos</i> Labill.; <i>Macropidia fuliginosa</i> (Hook.) Druce)	TG/175/4(proj.3)	Mr. Nik Hulse (AU)	TWO	*
	No. of chars.: 24 No. of (*) chars.: 11	(Interested experts: DE, GB, JP, KR, NZ, QZ)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/175/4(proj.3) and made the recommendations presented in the table below:

8.1 (a)	to read “Observations should be made on a fully expanded leaf from the middle third of the rosette.”
Ad. 12	to read “The distance from the base of the perianth tube to the base of the uppermost perianth lobe should be observed.”
Ad. 19	to read “The longest lobe should be observed.”
Ad. 24	to read “The time of beginning of flowering is reached when 4 out of 10 plants have at least one open flower.”

Fennel (<i>Foeniculum vulgare</i> Mill.)	TG/183/4(proj.3)	Ms. Marian van Leeuwen (NL)	TWW	*
	No. of chars.: 26 No. of (*) chars.: 10	(Interested experts: CZ, DE, FR, IT, QZ, CLI, ESA, ISF)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/183/4(proj.3) and made the recommendations presented in the table below:

3.1.2	to be deleted (only appropriate for perennials)
Table of chars.	relevant characteristics to read “ <u>Only varieties with grumolo formation: absent:</u> ” or “ <u>Only varieties with grumolo formation: present:</u> ”
Char. 3	to delete (+)
Char. 6	to read “ <u>Only varieties with foliage color: green: ...</u> ”
Char. 16	state 3 to read “narrow elliptic”
Char. 19	to read “... Sheath: overlapping”
Char. 20	to add explanation to read “Observations should be made in a special bolting trial in which a flowering stem is formed. Plants should be exposed to cold temperature in order to start bolting. An additional test in early sowing conditions may be established.”
Char. 22	to add explanation to read “Time of beginning of flowering is reached when the primary umbel starts flowering on 50 % of the plants.”
Ad. 3	to be deleted (see (a))
Ad. 10	to be deleted

Portulaca (<i>Portulaca grandiflora</i> Hook.; <i>Portulaca oleracea</i> L.; <i>Portulaca umbraticola</i> Kunth)	TG/242/4(proj.2)	Ms. Andrea Menne (DE)	TWO	
	No. of chars.: 25 No. of (*) chars.: 14	(Interested experts: JP, MX, NL, QZ)		

The TC-EDC, at its meeting held in Geneva, in October 2019, considered document TG/242/4(proj.2) and made the recommendations presented in the table below.

The TC-EDC agreed there were editorial clarifications required EDC (indicated below by “#”) on the draft Test Guidelines for Portulaca (document TG/242/4(proj.2)) and agreed to reconsider the draft Test Guidelines at its meeting to be held in March 2020.

Char. 12	to delete (b)
#Chars. 9, 14, 23	to add example varieties for Characteristics 9, 14 and 23) (see document TGP/7 (GN 28)) (for Characteristics 9 and 14 the ones illustrating the states in Ad. 9 and 14 could be used)
Char. 24	“Only varieties with ...” can be deleted (it’s obvious that non existing things cannot be described).
8.1 (a)	to read “Observations should be made on the upper side of fully developed leaves from the middle part of a plant.”
8.1 (b)	to read “Observations should be made on the inner side of a fully open flower.”
8.1 (c)	to read “Observations should be made on the inner side. Unless otherwise indicated observations on the petal of double flowers should be made on the outermost whorl of petals.”
Ad. 19	“In varieties with ...”
TQ	to add 1.4.1 and 1.4.2 with empty boxes (e.g. to indicate interspecific hybrids)

[End of Annex II and of document]