

Technical Committee**TC/56/3****Fifty-Sixth Session
Geneva, October 26 and 27, 2020****Original:** English
Date: October 12, 2020**MATTERS ARISING FROM THE TECHNICAL WORKING PARTIES***Document prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance***EXECUTIVE SUMMARY**

1. This document summarizes matters arising from the 2020 sessions of the Technical Working Party for Vegetables (TWV)¹, Technical Working Party for Ornamental Plants and Forest Trees (TWO)², Technical Working Party for Agricultural Crops (TWA)³, Technical Working Party for Fruit Crops (TWF)⁴, Technical Working Party on Automation and Computer Programs (TWC)⁵ and the Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular (BMT)⁶ which are not expressly covered by specific agenda items.

2. Matters arising are presented in two sections. The first section, "Matters for information and for a possible decision to be taken by the Technical Committee (TC)", identifies matters raised which may require a decision to be taken by the TC. The Office of the Union (Office) has highlighted aspects where the TC may wish to take a decision by introducing a proposed decision paragraph. The second section, "Matters for information", is provided for the information of the TC but does not require decisions at this stage.

3. The TC is invited to note developments in the TWPs concerning:

- (i) New issues arising for DUS examination;
- (ii) Use of disease resistance characteristics;
- (iii) Possible developments to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes (*Plavarlis* project - UPOV codes);
- (iv) Minimum distances between vegetatively propagated ornamental varieties;
- (v) Access to plant material for the purpose of management of variety collections and DUS examination;
- (vi) DUS examination of mutant varieties of apple;
- (vii) Relevant matters for DUS examination in the fruit sector;
- (viii) Guidance for drafters of Test Guidelines;
- (ix) Experiences with new types and species;
- (x) Statistical analysis software "DUS Excel";
- (xi) Tools and methods for DUS examination;
- (xii) Phenotyping and image analysis

¹ at its fifty-fourth session, hosted by Brazil and held via electronic means, from May 11 to 15, 2020.

² at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

³ at its forty-ninth session, hosted by Canada and held via electronic means, from June 22 to 26, 2020.

⁴ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

⁵ at its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 21 to 23, 2020.

⁶ at its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 23 to 25, 2020.

4. The following abbreviations are used in this document:

CAJ:	Administrative and Legal Committee
TC:	Technical Committee
TC-EDC:	Enlarged Editorial Committee
TWA:	Technical Working Party for Agricultural Crops
TWC:	Technical Working Party on Automation and Computer Programs
TWF:	Technical Working Party for Fruit Crops
TWO:	Technical Working Party for Ornamental Plants and Forest Trees
TWPs:	Technical Working Parties
TWV:	Technical Working Party for Vegetables

5. The structure of this document is as follows:

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MATTERS FOR INFORMATION AND FOR A POSSIBLE DECISION TO BE TAKEN BY THE TECHNICAL COMMITTEE (TC)

6. There are no matters for a decision by the Technical Committee at its fifty-sixth session.

MATTERS FOR INFORMATION

New issues arising for DUS examination

7. The TWV⁷ received a presentation on "Vegetatively propagated varieties in a normally seed-propagated species: Pepper" by an expert from the Netherlands. A copy of the presentation is provided in document TWV/54/8 (see document TWV/54/9 "Report", paragraphs 74 and 75).

8. The TWV agreed to invite the expert from the Netherlands to report further developments in relation to DUS examination of vegetatively propagated pepper varieties at its fifty-fifth session, in particular on the trend for breeding activities. It further invited the experts involved in the discussion of the Test Guidelines for Pepper (TG/76) to consider this development.

9. The TWO⁸ received a presentation on "Disease resistance in ornamental crops" from Ms. Amanda van Dijk (Netherlands). A copy of the presentation is provided in document TWO/52/8 (see document TWO/52/11 "Report", paragraphs 29 and 30).

10. The TWO noted the invitation from the Netherlands for interested experts to participate in a ring test for resistance to *Puccinia horiana* in Chrysanthemum varieties. The TWO agreed to invite the Netherlands to report on developments on the ring test at its fifty-third session.

⁷ at its fifty-fourth session, hosted by Brazil and held via electronic means, from May 11 to 15, 2020.

⁸ at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

Use of disease resistance characteristics

11. The TWV⁹ received a presentation on “Data processing for disease resistance characteristics: the Pathostat application” by an expert from France. A copy of the presentation is provided in document TWV/54/6 Rev. (see document TWV/54/9 “Report”, paragraphs 76 to 83).

12. The TWV received a presentation on “Disease resistance tests on *Solanum sisymbriifolium*, *S. torvum* and *S. aethiopicum*: tomato and eggplant rootstocks - Italian laboratory experience” by an expert from Italy. A copy of the presentation is provided in document TWV/54/6 Rev..

13. The TWV agreed to propose that the expert from France be invited to present the Pathostat software to the TWC, at its thirty-eighth session.

14. The TWV noted the offer from France to provide data for interested experts to test the software. The TWV noted the expression of interest of the experts from Germany, Italy and Netherlands to test the software and agreed to invite the expert from France to report developments on testing at its next session, under the agenda item “Use of disease resistance characteristics”.

15. The TWV noted the offer from France for UPOV members to use the Pathostat software free of charge. It further invited the expert from France to consider whether to propose the inclusion of Pathostat in document UPOV/INF/16 “Exchangeable Software”, in response of Circular E-20/031, issued by the Office of the Union on April 14, 2020.

Naming of intermediate state of expression in disease resistance characteristics

16. The TWV considered the naming of the intermediate state of expression in disease resistance characteristics. The TWV noted that guidance in document TGP/12 “Guidance on certain physiological characteristics” provided an example of a quantitative disease resistance characteristic with intermediate state of expression “moderately”.

17. The TWV noted that the term “intermediate” was commonly used among experts and agreed to propose amending the example for quantitative disease resistance characteristics with “1–3” scale in document TGP/12 to replace state of expression “moderately” by “intermediate”. The TWV agreed that, in general, this should be the term used in Test Guidelines for disease resistance characteristics.

18. The TWV welcomed the offer from France and the Netherlands to present, at its fifty-fifth session, the current practice of the expression of intermediate state in disease resistance characteristics. It further noted the request made by the representative from ISF to seek alignment in the terminology used for disease resistance and invited ISF to make a presentation at its fifty-fifth session, on the view of the breeding vegetable seed industry on the terminology used for disease resistance.

Possible developments to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes (Plavarlis project - UPOV codes)

19. The TWO¹⁰ received a presentation on “Possible developments to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes” (Plavarlis project) by an expert from the European Union. A copy of the presentation is provided in document TWO/52/9 (see document TWO/52/11 “Report”, paragraphs 53 to 55).

20. The TWO agreed to invite the European Union to report developments on the project at its fifty-third session.

21. The TWO agreed to invite the Netherlands to make a presentation at its fifty-third session to explain the procedures used for grouping varieties and organizing growing trials. In particular, how were UPOV codes used for this purpose as well as any other relevant sources of information on variety groups or types.

⁹ at its fifty-fourth session, hosted by Brazil and held via electronic means, from May 11 to 15, 2020.

¹⁰ at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

22. The TWA¹¹ received a presentation on “Plavarlis project - UPOV codes” by an expert from the European Union. A copy of the presentation is provided in document TWA/49/4 (see document TWA/49/7 “Report”, paragraph 36).

23. The TWF¹² received a presentation on “Possible developments to enable UPOV Codes to provide useful information on variety groups or types for DUS testing purposes” by an expert from the European Union. A copy of the presentation is provided in document TWF/51/8 (see document TWF/51/10 “Report”, paragraph 57).

Minimum distances between vegetatively propagated ornamental varieties

24. The TWO¹³ received a presentation on minimum distances in Tulip by an expert from the Netherlands. A copy of the presentation is provided in document TWO/52/7 (see document TWO/52/11 “Report”, paragraphs 26 to 28).

25. The TWO received a presentation on “Minimum distances between vegetatively propagated ornamental varieties - The Pelargonium Case Study” by an expert from the International Community of Breeders of Asexually Reproduced Ornamental and Fruit-Tree Varieties (CIOFORA). A copy of the presentation is provided in document TWO/52/7 Add..

26. The TWO agreed to invite presentations at its fifty-third session to report on further developments on those projects.

Access to plant material for the purpose of management of variety collections and DUS examination

27. The TWF¹⁴ considered document TWF/51/6 and received a presentation on “Access to material for DUS trials – draft analysis of Key points” an expert from Italy, as set out in the Annex to document TWF/51/6 (see document TWF/51/10 “Report”, paragraphs 70 and 71).

28. The TWF welcomed the analysis and agreed to invite the experts from the European Union, Italy and New Zealand, at its fifty-second session to share their experiences on policies and/or model letters/contracts used for the submission of plant material to their Authority and/or DUS Examination Offices. This information could be used as a basis for possible future revisions of UPOV Guidance (e.g. TGP/5, Section 11 “Examples of Policies and Contracts for Material Submitted by the Breeder”) to help other UPOV members to facilitate access to plant material for the purpose of management of variety collections and DUS examination.

DUS examination of mutant varieties of apple

29. The TWF¹⁵ considered document TWF/51/7 and received a presentation on “DUS examination of mutant varieties of apple”, by an expert from the European Union. A copy of the presentation is provided in the Annex to document TWF/51/7. The TWF noted the observation by the expert from the European Union on the importance of receiving healthy plant material to avoid delay and additional costs in the DUS examination (see document TWF/51/10 “Report”, paragraphs 72 to 77).

30. The TWF recalled the importance of exchanging information among PVP Offices about applications received, especially for apple mutation groups where similar varieties might be submitted in various countries. In that respect, the TWF welcomed the work done previously by the expert from the European Union to collect information on applications under analysis and existing varieties for certain apple mutation groups among UPOV members. It further agreed that access to this information would help to enable relevant varieties of common knowledge to be taken into consideration and, if appropriate, included in the growing trial for the examination of distinctness.

31. The TWF agreed that the Excel sheet collecting administrative and technical data on the ‘Gala’ and ‘Fuji’ apple mutation group (see document TWF/49/8), should be updated and circulated amongst participants of

¹¹ at its forty-ninth session, hosted by Canada and held via electronic means, from June 22 to 26, 2020.

¹² at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

¹³ at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

¹⁴ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

¹⁵ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

the fifty-first session of the TWF and also to the participants at previous TWF sessions with practical experience on apple DUS testing.

32. The TWF agreed that the expert from the European Union should continue to coordinate the exchange of information among authorities involved in DUS testing for apple as agreed at its forty-eighth session (see document TWF/48/13 "Report", paragraphs 101 to 105), with the following additions (highlighted in grey):

- by electronic means;
- once a year;
- requesting information on 'Gala', 'Fuji' types, and to include for future survey 'Cripps Pink', 'Jonagold' and 'Elstar';
- requesting information from breeders on possible synonyms and trademarks

33. The TWF noted that a complete variety collection was important for the DUS examination, and for encouraging cooperation and use of DUS reports between PVP Offices for apple mutant varieties. Therefore the TWF further encouraged all members involved in DUS testing of apple, and breeders to contribute to this exchange of information, and to investigate with the Office of the Union on how to make this information more easily available (e.g. link on the UPOV Website) or the potential to create a database.

34. The TWF invited the expert from the European Union to report on the work done at its fifty-second session.

Relevant matters for DUS examination in the fruit sector

35. The TWF¹⁶ received a presentation on "Ring tests for Strawberry - 2016-2019" by an expert from the European Union. A copy of the presentation is provided in the Annex to document TWF/51/5 (see document TWF/51/10 "Report", paragraphs 78 to 80).

36. The TWF welcomed the work done and noted the value of such ring tests before discussion of Test Guidelines. In particular, it noted that the results could facilitate discussions on characteristics fulfilling criteria for DUS examination, the set of example varieties and on the scale of notes to be used due to the range of expression for each characteristic.

37. The TWF also agreed that a ring test was a useful tool for raising awareness amongst experts on differences in interpretation of characteristics and reasons for different methods of observation.

Guidance for drafters of Test Guidelines

38. The TWV¹⁷, TWO¹⁸, TWA¹⁹ and TWF²⁰ considered document TWP/4/8 (see documents TWV/54/9 "Report", paragraphs 110 to 113; TWO/52/11 "Report", paragraphs 92 to 95; TWA/49/7 "Report", paragraphs 91 to 94; TWF/51/10 "Report", paragraphs 81 to 84).

39. The TWV noted developments on the web-based TG template, reported in document TWP/4/8, paragraphs 15 to 23.

40. The TWV noted that the Office of the Union would issue a circular to identify requirements of UPOV members for the development of individual authorities' test guidelines using the web-based TG template.

41. The TWV noted that training on the web-based TG template via electronic means could be organized upon experts' request.

¹⁶ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

¹⁷ at its fifty-fourth session, hosted by Brazil and held via electronic means, from May 11 to 15, 2020.

¹⁸ at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

¹⁹ at its forty-ninth session, hosted by Canada and held via electronic means, from June 22 to 26, 2020.

²⁰ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

Experiences with new types and species

42. The TWV²¹, TWO²², TWA²³ noted that no new experiences with new types and species had been reported (see documents TWV/54/9 “Report”, paragraph 73; TWO/52/11 “Report”, paragraph 78; TWA/49/7 “Report”, paragraph 51).

43. The TWF²⁴ noted that no new experiences with new types and species had been reported. Nevertheless, the TWF recalled the relevance of this agenda item to allow UPOV members to report on experience with new crops at a national level, which could after be relevant for guidance at the international level. Therefore, the TWF invited all UPOV members to use this opportunity at future sessions, when relevant, in particular for possible future development of Test Guidelines (see document TWF/51/10 “Report”, paragraphs 69 and 112).

Statistical analysis software “DUS Excel”

44. The TWC²⁵ considered document TWC/38/9 (see document TWC/38/11 “Report”, paragraphs 47 to 50).

45. The TWC received a presentation on “A statistical analysis software DUSCEL 2.0” from an expert from China, a copy of which is provided in document TWC/38/9.

46. The TWC noted the developments on the software and that a user’s manual would be prepared. The TWC agreed that interested experts should contact China for a demonstration session.

47. The TWC noted the offer from China for the future inclusion of software DUSCEL 2.0 in document UPOV/INF/16 “Exchangeable software.”

Tools and methods for DUS examination

Presentation of the PATHOSTAT application

48. The TWC²⁶ considered document TWC/38/7 and received a presentation on the PATHOSTAT application from an expert from France. A copy of the presentation is provided in document TWC/38/7 along with a user manual for the application (see document TWC/38/11 “Report”, paragraphs 51 to 58).

49. The TWC noted that the application was available for download and agreed to invite participants to contact the expert from France for cooperation and using the application.

Comparison of results obtained for COYD and COYU procedures using different software

50. The TWC considered document TWC/38/8 Rev.

A common data set for comparison of software for COYD and COYU

51. The TWC considered document “A common data set for comparison of software for COYD and COYU”, a copy of which is provided in document TWC/38/8 Rev., Annexes I and III.

52. The TWC thanked the experts from the United Kingdom for providing a common data set to allow comparisons of software for both COYD and COYU, as provided in an Excel file on the TWC/38 website.

53. The TWC agree to invite participants to carry out COYD and COYU tests using the three-years data provided by the United Kingdom with probability levels of 0.01 for COYD and 0.001 for COYU (or 0.003 in case of the new version of COYU).

²¹ at its fifty-fourth session, hosted by Brazil and held via electronic means, from May 11 to 15, 2020.

²² at its fifty-second session, hosted by the Netherlands and held via electronic means, from June 8 to 12, 2020.

²³ at its forty-ninth session, hosted by Canada and held via electronic means, from June 22 to 26, 2020.

²⁴ at its fifty-first session, hosted by France and organized by electronic means, from July 6 to 10, 2020.

²⁵ at its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 21 to 23, 2020.

²⁶ at its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 21 to 23, 2020.

54. The TWC noted the expressions of interest to participate in the comparison of software by the experts from China, France, Kenya and the United Kingdom. The TWC agreed to invite the expert from France to coordinate the comparison of software and report to the TWC, at its thirty-ninth session.

Result of COYD and COYU calculated using software DUSCEL 2.0

55. The TWC received a presentation from an expert from China on the results of COYU and COYD calculated using the software DUSCEL 2.0 using the common data set provided by the experts from the United Kingdom. A copy of the presentation is provided in document TWC/38/8 Rev., Annexes II and IV.

Phenotyping and image analysis

Toward numerical practices in variety testing: A rationale to select the most promising traits

56. The TWC²⁷ considered document TWC/38/10 and received a presentation on “Toward numerical practices in variety testing: A rationale to select the most promising traits” from an expert from France (see document TWC/38/11 “Report”, paragraphs 59 and 60).

57. The TWC agreed to invite the experts from France to provide an update on developments in the project reported at the thirty-ninth session of the TWC.

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²⁷ at its thirty-eighth session, hosted by the United States of America and organized by electronic means, from September 21 to 23, 2020.