

Technical Committee

TC/59/3

Fifty-Ninth Session
Geneva, October 23 and 24, 2023**Original:** English
Date: September 6, 2023**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 compiles matters not expressly covered by specific agenda items arising from the 2023 sessions of the Technical Working Party for Vegetables (TWV)¹, Technical Working Party for Agricultural Crops (TWA)², Technical Working Party for Ornamental Plants and Forest Trees (TWO)³, and Technical Working Party for Fruit Crops (TWF)⁴.

2. This document is 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 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

(a) consider the proposal to support the exchange of information on mutant varieties of apple, as set out in paragraphs 6 to 10 of this document; and

(b) note developments in the TWPs concerning:

- (i) Assessing distinctness in disease resistance characteristics;
- (ii) New technologies in DUS examination;
- (iii) Image analysis of vegetable crops;
- (iv) DUSCEL statistical analysis software; and
- (v) Experiences with new types and species.
- (vi) Ornamental varieties of agricultural, fruit or vegetable crops

4. The following abbreviations are used in this document:

TC:	Technical Committee
TWA:	Technical Working Party for Agricultural Crops
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

¹ at its fifty-seventh session, held in Antalya, Türkiye, from Mai 1 to 5, 2023.

² at its fifty-second session, held via electronic means, from May 22 to 26, 2023.

³ at its fifty-fifth session, held via electronic means, from June 12 to 16, 2023.

⁴ at its fifty-fourth session, held at Nimes, France, from July 3 to 7, 2023

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)

Information on mutant varieties of apple useful for DUS examination

6. The TWF⁵ considered document TWF/54/6, presented by an expert from the European Union (see document TWF/54/13 “Report”, paragraphs 21 to 25).

7. TWF noted the past exchange of information on applications and registered varieties in some apple mutation groups through a spreadsheet disseminated by email to TWF experts.

8. The TWF agreed to invite authorities to provide the following information whenever an application for a mutant variety of apple was filed, including parent variety or variety group:

- Country
- Breeder’s reference
- Denomination
- Parent Variety or group
- Type of procedure: PBR/other
- Variety status: application / registered / rejected / Terminated
- Application date (if any)
- Granting date (if any)
- Title holder’s name
- Commercial synonyms

9. The TWF agreed that any information provided on parentage or variety groups should be treated as privileged information and not be made available outside the participating PVP offices. The TWF acknowledged that not all authorities would be in a position to submit information due to restrictions on disclosing information on parentage or variety group before the information was publicly available.

10. The TWF considered options for hosting the information on mutant varieties of apple and agreed that a restricted area on the UPOV website would be preferred. The TWF agreed to invite the Office of the Union to explore possibilities to make an editable version of the spreadsheet available on the UPOV website for contributing data (e.g. “SharePoint”). The TWF agreed that the restricted area on the website should also enable uploading technical questionnaires or variety descriptions.

⁵ at its fifty-fourth session, held at Nimes, France, from July 3 to 7, 2023

11. *The TC is invited to consider the proposal to support the exchange of information on mutant varieties of apple, as set out in paragraphs 6 to 10 of this document.*

MATTERS FOR INFORMATION

Assessing distinctness in disease resistance characteristics

Distinctness on the basis of a one note difference for disease

12. The TWV considered document TWV/57/10 (see document TWV/57/26 “Report”, paragraphs 17 to 28).

13. The TWV considered the criteria for disease resistance characteristics in UPOV Test Guidelines, as set out in document TWV/57/10, paragraph 11.

14. The TWV agreed that the standard scales of notes for quantitative (QN) characteristics should be used where appropriate for disease resistance characteristics, such as the condensed scale (Notes 1-3) in the following example: “Resistance to disease ‘x’” with states of expression “absent or low”, note 1; “medium”, note 2; and “high”, note 3.

15. The TWV considered the assessment of distinctness on the basis of a one note difference for disease resistance characteristics using a condensed quantitative scale of three notes (Notes 1-3). The TWV recalled that, on a side-by-side comparison, “a difference between two varieties is acceptable as soon as it can be assessed visually and could be measured, although such measurement might be impractical or require unreasonable effort”, as set out in document TG/1/3 “General Introduction”, section 5.5.2.2.2.

16. The TWV recalled that, for side-by-side visual comparisons, “when the comparison was performed at the level of measured values (MG, mean of MS) a difference smaller than two notes might represent a clear difference”, as set out in document TGP/9 “Examining Distinctness”, Section 5.2.3.2.3.3.

17. The TWV noted that statistical methods were used for the assessment of distinctness for disease resistance characteristics and recalled that “[...] two varieties which are found to be significantly different for one or more quantitative characteristics may be considered to be distinct” (see document TGP/9 “Examining Distinctness”, Section 5.2.4.5.3).

Quantitative disease resistance characteristic with only two states of expression

18. The TWV agreed there were certain quantitative (QN) disease resistance characteristics where it was not possible to describe different levels of resistance according to QN states of expression because of the influence of testing conditions and the lack of information on genetic background.

19. The TWV agreed to invite the experts from France and the Netherlands, with the support of the European Union, Japan and the breeders’ organizations, to draft a proposal for a special type of quantitative disease resistance characteristic with only two states of expression. The TWV agreed that the proposal with an explanation on the criteria for using this type of characteristic should be presented at the fifty-eighth session of the TWV.

New technologies in DUS examination

20. The TWA received a presentation on “Drone Imaging in Winter Wheat DUS Trials” by an expert from Denmark. A copy of the presentation is presented in Annex I to document TWA/52/7. The TWA noted the work reported and agreed to invite the expert from Denmark to report developments at its fifty-third session (see document TWA/52/11 “Report”, paragraphs 22 to 26).

21. The TWA received a presentation on “UAV-Based Field Phenotyping in the United Kingdom Agricultural DUS testing” by an expert from the United Kingdom. A copy of the presentation is presented in Annex II to document TWA/52/7. The TWA noted the work reported and agreed to invite the expert from the United Kingdom to report developments at its fifty-third session.

22. The TWA received a presentation on “Image Analysis for Maize Ear and Grain” by an expert from China. A copy of the presentation is presented in the Annex document TWA/52/7 Add. The TWA noted the work reported and agreed to invite the expert from China to report developments at its fifty-third session.

23. The TWA agreed that it was important to receive reports on the use of new technologies in DUS examination for agricultural crops to increase awareness on developments and consider the limitations and challenges associated with new technologies.

24. The TWA agreed to propose the future organization of a webinar for TWPs on image analysis in DUS examination.

Image analysis of vegetable crops

25. The TWV received a presentation on “Image analysis for tomato fruit” by an expert from China. A copy of the presentation is presented in document TWV/57/24 (see document TWV/57/26 “Report”, paragraphs 29 and 30).

26. The TWV recalled that document TGP/8, Section 11 “Examining characteristics using image analysis” provided that “characteristics which may be examined by image analysis should also be able to be examined by visual observation and/or manual measurement, as appropriate.” The TWV agreed that image analysis was useful for automating the assessment of measured characteristics and to support the analysis of large numbers of varieties.

DUSCEL statistical analysis software

27. The TWA received a presentation on “Development of Statistical Analysis Software: DUSCEL4.5” by an expert from China. A copy of the presentation is provided in document TWA/52/5 (see document TWA/52/11 “Report”, paragraphs 20 and 21).

28. The TWA noted the further development on the software, including the calibration work for image analysis of color characteristics.

Experiences with new types and species

Hemp/Cannabis

29. The TWA received a presentation “TG Hemp/Cannabis” by an expert from the Netherlands. A copy of the presentation is presented in the Annex to document TWA/52/9 (see document TWA/52/11 “Report”, paragraph 40).

Vegetatively propagated varieties

30. The TWF received a presentation on the “US Plant Variety Protection Office” by an expert from the United States of America. A copy of the presentation is provided in document TWF/54/5 (see document TWF/54/13 “Report”, paragraph 38).

Lotus (Nelumbo)

31. The TWO received a report on Lotus (*Nelumbo* Adans.) from an expert from China. A copy of the presentation would be provided in document TWO/55/3 (see document TWO/55/11 “Report”, paragraph 42).

Ornamental varieties of agricultural, fruit or vegetable crops

32. The TWO at its fifty-fifth session⁶, received a presentation on “Examinations for ornamental varieties of agricultural, fruit or vegetable crops – a United Kingdom perspective” by an expert from the United Kingdom. A copy of the presentation is provided in document TWO/55/5 (see document TWO/55/11 “Report”, paragraphs 14 to 20).

33. The TWO received a presentation on “Ornamental varieties of agricultural, fruits or vegetable crops” by an expert from France. A copy of the presentation is provided in document TWO/55/5 Add.

⁶ held via electronic means, from June 12 to 16, 2023.

34. The TWO agreed to recommend that drafters of Test Guidelines avoid explicitly excluding ornamental varieties from the coverage of Test Guidelines. The TWO agreed that situations where ornamental varieties of other crop sectors existed should be addressed with the inclusion of the standard wording on “coverage of types of varieties in Test Guidelines”, as follows (see document TGP/7 “Development of Test Guidelines, ASW 0):

“In the case of ornamental varieties, in particular, it may be necessary to use additional characteristics or additional states of expression to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability.”

35. The TWO recalled that such wording should not lead to any particular conclusions as to whether other types of varieties should or should not be covered by the development of separate Test Guidelines, since that would need to be considered on a case-by-case basis.

36. The TWO agreed that Test Guidelines developed for other crop sectors provided a suitable starting point for the testing of ornamental varieties, followed by an assessment on the need for additional characteristics or states of expression.

37. The TWO considered the example of DUS testing of ornamental Sweet Potato varieties presented in document TWO/55/5. The TWO noted that the root characteristics provided in the Test Guidelines could not be observed due to poor root development of the ornamental varieties examined. The TWO agreed that using Test Guidelines developed for other crop sectors to examine ornamental varieties could lead to similar situations where certain characteristics could not be observed.

38. The TWO agreed to consider at every session the list of Test Guidelines under development at other TWPs in case of interest for examination of ornamental varieties, and if applicable, provide interested experts.

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