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## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

### TECHNICAL WORKING PARTY FOR VEGETABLES

#### Fiftieth Session

Brno, Czech Republic, June 27 to July 1, 2016

#### ADDENDUM TO TGP DOCUMENTS

*Document prepared by the Office of the Union*

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1. The purpose of this document is to report the comments on TGP documents made by the Technical Working Party on Automation and Computer Programs (TWC), at its thirty-fourth session, held in Shanghai, China, from June 7 to 10, 2016 and the Technical Working Party for Ornamental Plants and Forest Trees (TWO) at its forty-ninth session in Gimcheon City, Republic of Korea, from June 13 to 17, 2016.

2. The structure of this document is as follows:

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3. The TWC and the TWO considered the TGP documents below on the basis of documents TWC/34/3 and TWO/49/3 (see documents TWC/34/32 "Report", paragraph 15 and TWO/49/25 "Report", paragraph 13).

Program for the development of TGP documents

4. The TWC and the TWO noted the program for the development of TGP documents, as set out in Annex III to documents TWC/34/3 and TWO/49/3 (see documents TWC/34/32 "Report", paragraph 21 and TWO/49/25 "Report", paragraph 17).

5. The TWC agreed to request the expert from China to prepare a proposal for reorganizing document TGP/8 to facilitate searches and use by DUS examiners to be reported at the thirty-fifth session of the TWC for consideration (see document TWC/34/32 "Report", paragraph 22).

TGP/7: Development of Test Guidelines

*Revision of document TGP/7: Drafter's Kit for Test Guidelines*

6. The TWC and the TWO considered documents TWC/34/9 and TWO/49/9 and received a presentation from the Office of the Union on the web-based application for drafting of Test Guidelines (web-based TG Template).

7. The TWC noted the issues addressed in response to the comments by Leading and Interested Experts that participated in the testing of the prototype of the web-based TG Template, as set out in document TWC/34/9 and TWO/49/9, paragraphs 21 and 22. The TWC noted that further comments by users of the web-based TG Template could be sent to the Office of the Union.

8. The TWC noted that the system specifications of the web-based TG Template allowed the future development of a web-service application to allow data extraction from the web-based TG Template to other databases, which could offer possibilities to support the development of authorities' own test guidelines. The TWC noted that such a functionality could be developed in the future if data mapping of their own databases was done by the authorities (see document TWC/34/32 "Report", paragraphs 23 to 29).

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

*Revision of document TGP/8: Part II: Section 9: the Combined-Over-Years Uniformity Criterion (COYU)*

9. The TWC and the TWO considered documents TWC/34/10 and TWO/49/10.

10. The TWC and the TWO noted that the TC, at its fifty-second session, had agreed to request members of the Union to provide larger data sets to the United Kingdom for developing probability levels for the new method that would match results obtained using the previous probability levels, as set out in documents TWC/34/10 and TWO/49/10, paragraph 20.

11. The TWC and the TWO noted that the Office of the Union had issued UPOV Circular E-16/098 to invite UPOV members' experts to provide to the United Kingdom, by May 27, 2016, data sets including at least 100 candidate varieties, with a possibility that data for those 100 varieties could be derived from several years.

12. The TWC noted the report by an expert of the United Kingdom that a data set on red fescue had been submitted by Slovakia and that Denmark had agreed to submit a data set on spring and winter canola later in 2016.

13. The TWC welcomed the offers from China and France to submit data sets on maize and fescue, respectively. The TWC noted the invitation for submission of other data sets with 100 candidates from as many crops as possible for developing probability levels for the new method. The TWC agreed to invite the expert from the United Kingdom to report on progress during the thirty-fifth session of the TWC (see document TWC/34/32 "Report", paragraphs 30 to 34).

14. The TWO noted that COYU was not commonly used for DUS examination of ornamental plants (see document TWO/49/25 "Report", paragraphs 25 to 29).

*Revision of document TGP/8: Part II: New Section: Examining DUS in Bulk Samples*

15. The TWC and the TWO considered documents TWC/34/11 and TWO/49/11.

16. The TWC noted that guidance for examining DUS in bulk samples would be developed on the basis of the criteria set out in document TWC/34/11, paragraph 22, and agreed with the proposal by the expert from the Netherlands to use the approach "Control of the characteristic before it is accepted in the relevant guideline".

17. The TWC also agreed that approaches "subplots" and "plant number" would be acceptable on the basis of examples and discussions in the relevant Technical Working Parties, as proposed in the Annex to document TWC/34/11.

18. The TWC agreed that DNA analysis could be used to assess characteristics on the basis of the existence of a reliable link between the marker and the characteristic and there was no need to develop guidance in this regard under a general guidance for characteristics observed on the basis of bulk samples (see document TWC/34/32 "Report", paragraphs 35 to 38).

19. The TWO noted the proposed guidance for examining DUS in bulk samples as presented in the Annex to document TWO/49/11, for inclusion in a future revision of document TGP/8.

20. The TWO considered the proposed approach to assess uniformity of individual plants for different varieties to validate the characteristic before being used in DUS examination and agreed that for vegetatively propagated ornamental plants the number of applications per crop would not be sufficient to provide over years data from many varieties.

21. The TWO noted the reports from members on experiences with assessing chemical component characteristics and agreed on the technical difficulty and cost implications to obtain a sufficient quantity of certain chemical components to assess uniformity on individual plants.

22. The TWO agreed that characteristics assessed on the basis of bulk samples could provide complementary information for the analysis of distinctness in direct comparison of pairs of varieties for certain crops and agreed that the future guidance should set parameters for selecting among the approaches listed in the Annex to document TWO/49/11 (see document TWO/49/25 "Report", paragraphs 31 to 34).

*Revision of document TGP/8: Part II: New Section: Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions*

23. The TWC and the TWO considered documents TWC/34/12, TWC/34/12 Add and TWO/49/12.

24. The TWC agreed to request the expert from France to continue developing the study on the comparison of methods used for producing variety descriptions to provide further information to explain the results obtained in the practical exercise.

25. The TWC agreed to invite the experts from France, Germany, Italy and Japan to provide a short description of their methods to transform measurements into notes and to provide examples where the methods would not be appropriate using a similar structure to the information submitted by the United Kingdom, as presented in document TWC/34/12 Add.. The TWC agreed that the description of the methods and example situations where they could or should not be used could form the basis for future guidance.

26. The TWC received an oral presentation by an expert from the United Kingdom and noted that the method used for peas used a combination of delineating example varieties and crop expert judgement. The TWC noted the explanation that example varieties were not used when the range of values was not continuous, to avoid distortion in the division of the scale of notes into equally spaced states ("notes stretching").

27. The TWC noted that in China some quantitative characteristics without normal distribution were transformed (e.g. log) before dividing the range of expression into equally spaced states for the conversion of observations into notes (see document TWC/34/32 "Report", paragraphs 39 to 43).

28. The TWO noted that the expert from the United Kingdom in the practical exercise to determine the aspects in common and divergence among methods had provided information to the TWC on the reasons and situations in which example varieties, crop expert judgement and equal-spaced states would/would not be appropriate for transforming observations into notes (see document TWO/49/25 "Report", paragraphs 35 to 37).

TGP/10: Examining Uniformity

*Revision of document TGP/10: New Section: Assessing uniformity by off-types on basis of more than one growing cycle or on the basis of sub-samples*

29. The TWC and the TWO considered documents TWC/34/13, TWC/34/27 and TWO/49/13.
30. The TWC noted that the TWA had agreed to request a video link with experts from the TWC to discuss the new proposed “Approach 3: Combining the results of two growing cycles” at its forty-fifth session, to be held in 2016.
31. The TWC considered the draft guidance as presented in document TWC/34/13, Annexes I and II, for inclusion in a future revision of document TGP/10, and agreed that cost of trials, consistency of results, time required for decisions and technical aspects of each approach could influence the selection of the most suitable approach for each situation..
32. The TWC agreed that the future guidance should provide parameters for decisions on the most suitable approach based on experience from members and agreed to invite examples of different types of crops and the criteria for selecting the approach used for the assessment of off-types. The TWC welcomed the offers from Germany, the Netherlands and the United Kingdom to provide examples to be presented at its thirty-fifth session.
33. The TWC noted the importance of identifying whether differences in number of off-types between cycles was due to biological reasons or sampling variation and agreed that the relevant part of approach 2 and 3 of the draft guidance should be amended to read as follows, respectively:
- “Care is needed when considering results that are very different in each of the growing cycles, such as when a type of off-type is observed at a high level in one growing cycle and is absent in another growing cycle. A statistical test for consistency should be applied when appropriate.”
- “Care is needed when considering results that are very different in each of the growing cycles, such as when a type of off-type is observed at a high level in one growing cycle and is absent in another growing cycle. A statistical test for consistency ~~is possible~~ should be applied when appropriate.”
34. The TWC considered document TWC/34/27 “Practical experience of assessing uniformity by off-types on oilseed rape and cauliflower” and received a presentation by an expert from France, a copy of which is reproduced in the Annex to document TWC/34/27.
35. The TWC noted the simulation of decisions using approaches 1 and 3 on different crops and agreed on the usefulness of the worked examples. The TWC noted that cases of diverging results between 2 growing cycles are not common as most varieties would either meet or fail to meet requirements in both cycles.
36. The TWC noted the explanation of the notion of “independent growing cycle” by an expert from France and the preference for a third growing cycle to increase reliability of observations (see document TWC/34/32 “Report”, paragraphs 44 to 51).
37. The TWO considered the draft guidance as presented in Annex I of document TWO/49/13 and agreed that the term “clear” should be clarified in the sentence: “Furthermore, on the basis of a clear lack of uniformity, a variety may be rejected after a single growing cycle”. The TWO agreed to propose that the sentence in approaches 1 and 2 should read as follows:
- “Furthermore, if a variety exceeds in the first growing cycle the allowed number of off-types in two growing cycles, the variety may be rejected after a single growing cycle.”
38. The TWO agreed that it should be clarified in the draft guidance whether there was an assumption of assessing two growing cycles using plant material from a single submission by the breeder (e.g. seeds from the same seed lot) (see document TWO/49/25 “Report”, paragraphs 38 to 41).