

**Administrative and Legal Committee****CAJ/76/5****Seventy-Sixth Session  
Geneva, October 30, 2019****Original:** English  
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**TGP DOCUMENTS***Document prepared by the Office of the Union**Disclaimer: this document does not represent UPOV policies or guidance***EXECUTIVE SUMMARY**

1. The purpose of this document is to report on developments concerning TGP documents and to provide information to assist the CAJ in its consideration of the following documents as the basis for their adoption by the Council, at its fifty-third ordinary session, to be held in Geneva on November 1, 2019:

- TGP/7/7 Draft 1 “Development of Test Guidelines”;
- TGP/8/4 Draft 1 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”
- TGP/10/2 Draft 1 “Examining Uniformity”
- TGP/14/4 Draft 1 “Glossary of Terms Used in UPOV Documents”
- TGP/15/2 Draft 2 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)”
- TGP/0/11 Draft 1 “List of TGP documents and latest issue dates”

2. Taking into account the conclusions of the Technical Committee at its fifty-fifth session<sup>1</sup>, the CAJ is invited to:

(a) consider the revision of document TGP/7 “Development of Test Guidelines” (document TGP/7/7), on the basis of document TGP/7/7 Draft 1;

(b) consider the revision of 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;

(c) consider the revision of document TGP/10 “Examining Uniformity” (document TGP/10/1,) on the basis of document TGP/10/2 Draft 1;

(d) consider the revision of document TGP/14 “Glossary of Terms Used in UPOV Documents” (document TGP/14/3), on the basis of document TGP/14/4 Draft 1;

(e) consider the revision of 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;

(f) note that, in conjunction with the adoption of the revised TGP documents at the fifty-third ordinary session of the Council, the Council will 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; and

(g) consider the program for the development of TGP documents, as set out in paragraphs 38 and 39 of this document.

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<sup>1</sup> To be held in Geneva on October 28 and 29, 2019.

3. The structure of this document is as follows:

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4. The following abbreviations are used in this document:

BMT:	Working Group on Biochemical and Molecular Techniques and DNA-Profiling in Particular
CAJ:	Administrative and Legal Committee
TC:	Technical Committee
TC-EDC:	Enlarged Editorial Committee
TWPs:	Technical Working Parties

## BACKGROUND

5. The TC, at its fifty-fourth session<sup>2</sup>, and the CAJ, at its seventy-fifth session<sup>3</sup>, approved the program for the development of TGP documents, as set out in the Annex to documents [TC/54/5 Rev.](#) “TGP Documents” and [CAJ/75/13](#) “Report on developments in the Technical Committee”, respectively, subject to the conclusions at their sessions<sup>4</sup>.

6. The approved TGP documents are published on the UPOV website at [http://www.upov.int/upov\\_collection/en/](http://www.upov.int/upov_collection/en/).

7. Comments by the TC, at its fifty-fifth session<sup>1</sup>, relevant for the consideration of TGP documents by the CAJ, will be reported to the CAJ, at its seventy-sixth session<sup>5</sup>, in document CAJ/76/8 “Report on developments in the Technical Committee”, which will become available in the evening of October 29, 2019.

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<sup>2</sup> Held in Geneva on October 28 and 29, 2018.

<sup>3</sup> Held in Geneva on October 30, 2018.

<sup>4</sup> See document [TC/54/31 Corr.](#) “Report”, paragraph 251, and document [CAJ/75/14](#) “Report”, paragraph 13.

<sup>5</sup> To be held in Geneva on October 30, 2019.

## DOCUMENTS TO BE CONSIDERED BY THE CAJ

Document TGP/7: Development of Test Guidelines (Revision) (document TGP/7/7 Draft 1)

8. The TC, at its fifty-fourth session<sup>2</sup>, agreed the proposals for guidance on “Duration of DUS tests” and “Procedure for the introduction of Test Guidelines” to be included in a revision of document TGP/7 “Development of Test Guidelines”<sup>6</sup>.

9. On the above basis, the TC agreed that a revision of document TGP/7/6 (document TGP/7/7 Draft 1) should 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<sup>5</sup>.

10. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/7/7 to the Council. Document TGP/7/7 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex I to this document (in revision mode), and the linguistic changes made by the relevant members of the Editorial Committee.

11. The TC, at its fifty-fifth session<sup>1</sup>, will consider document TGP/7/7 Draft 1. Comments made by the TC will be reported to the CAJ at its seventy-sixth session<sup>5</sup>.

*12. The CAJ is invited to consider the revision of document TGP/7 “Development of Test Guidelines” (document TGP/7/7), on the basis of document TGP/7/7 Draft 1, taking into account the conclusions of the TC at its fifty-fifth session.*

Document TGP/8: Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability (Revision) (document TGP/8/4 Draft 1)

13. The TC, at its fifty-third session<sup>7</sup>, agreed the proposal for guidance on “Examining characteristics on the basis of bulk samples” to be included in a revision of document TGP/8 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”<sup>8</sup>.

14. The TC, at its fifty-fourth session<sup>2</sup>, agreed that the guidance in document TGP/8/2: Part II: Section 8: Subsection 8.1.7 should be replaced by a cross-reference to the new guidance on “Assessing uniformity by off-types on the basis of more than one growing cycle or on the basis of sub-samples” to be included in document TGP/10 “Examining Uniformity”<sup>9</sup>.

15. On the above basis, the TC agreed that a revision of document TGP/8/3 (document TGP/8/4 Draft 1) should 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<sup>5</sup>.

16. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/8/4 to the Council. Document TGP/8/4 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex II to this document (in revision mode), and the linguistic changes made by the relevant members of the Editorial Committee.

17. The TC, at its fifty-fifth session<sup>1</sup>, will consider document TGP/8/4 Draft 1. Comments made by the TC will be reported to the CAJ at its seventy-sixth session<sup>5</sup>.

*18. The CAJ is invited to consider the revision of 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, taking into account the conclusions of the TC at its fifty-fifth session.*

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<sup>6</sup> See document [TC/54/31 Corr.](#) “Report”, paragraphs 210 to 212 and 217 to 220.

<sup>7</sup> Held in Geneva from April 3 to 5, 2017.

<sup>8</sup> See document [TC/53/31](#) “Report”, paragraphs 113 to 116.

<sup>9</sup> See document [TC/54/31 Corr.](#) “Report”, paragraphs 231 and 232.

Document TGP/10: Examining uniformity (Revision) (document TGP/10/2 Draft 1)

19. The TC, at its fifty-fourth session<sup>2</sup>, agreed that the draft guidance on “Assessing uniformity by off-types on the basis of more than one growing cycle or on the basis of sub-samples” should be put forward for adoption by the Council for inclusion in a future revision of document TGP/10 “Examining Uniformity”<sup>10</sup>.

20. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/10/2 to the Council. Document TGP/10/2 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex III to this document, and the linguistic changes made by the relevant members of the Editorial Committee.

21. The TC, at its fifty-fifth session<sup>1</sup>, will consider document TGP/10/2 Draft 1. Comments made by the TC will be reported to the CAJ at its seventy-sixth session<sup>5</sup>.

*22. The CAJ is invited to consider the revision of document TGP/10 “Examining Uniformity” (document TGP/10/1,) on the basis of document TGP/10/2 Draft 1, taking into account the conclusions of the TC at its fifty-fifth session.*

Document TGP/14: Glossary of Terms Used in UPOV Documents (document TGP/14/4 Draft 1)

23. The TC, at its fifty-third session<sup>7</sup>, agreed to revise document TGP/14: Section 2: Subsection 2: “Shapes and structures” to amend the grid in Example 5, Alternative 2, as presented in Annex IV to this document<sup>11</sup>.

24. The TC, at its fifty-fourth session<sup>2</sup>, agreed the proposed revisions of document TGP/14 “Glossary of terms used in UPOV documents” to include guidance on the factors to be considered for creating color groups for grouping of varieties and organizing the growing trial<sup>12</sup>.

25. On the above basis, the TC agreed that a revision of document TGP/14/3 (document TGP/14/4 Draft 1) should 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<sup>5</sup>.

26. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/14/4 to the Council. Document TGP/14/4 Draft 1 incorporates the amendments agreed by the TC, as presented in Annex IV to this document, and the linguistic changes made by the relevant members of the Editorial Committee.

27. The TC, at its fifty-fifth session<sup>1</sup>, will consider document TGP/14/4 Draft 1. Comments made by the TC will be reported to the CAJ at its seventy-sixth session<sup>5</sup>.

*28. The CAJ is invited to consider the revision of document TGP/14 “Glossary of Terms Used in UPOV Documents” (document TGP/14/3), on the basis of document TGP/14/4 Draft 1, taking into account the conclusions of the TC at its fifty-fifth session.*

Document TGP/15 “Guidance on the use of Biochemical and Molecular Markers in the examination of Distinctness, Uniformity and Stability (DUS)” (Revision) (document TGP/15/2 Draft 2)

29. The TC, at its fifty-fourth session<sup>2</sup>, agreed that the following text from document UPOV/INF/18/1 “Possible use of Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” should be introduced in document TGP/15 “Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)” to clarify that it was the responsibility of the authority to decide on the reliability of the link between the gene and the expression of the characteristic<sup>13</sup>:

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<sup>10</sup> See document [TC/54/31 Corr.](#) “Report”, paragraphs 233 and 234.

<sup>11</sup> See document [TC/53/31](#) “Report”, paragraph 141.

<sup>12</sup> See document [TC/54/31 Corr.](#) “Report”, paragraph 244.

<sup>13</sup> See document [TC/54/31 Corr.](#) “Report”, paragraphs 272 and 273.

“3.1.4 In considering the model and example, as presented in Annex 1 of this document, the TC emphasized the importance of meeting the assumptions. In that regard, it clarified that it is a matter for the relevant authority to consider if the assumptions are met (see document TC/45/16 “Report”, paragraph 152).”

30. The TC, at its fifty-fourth session, considered the proposal by the BMT and agreed to include an explanation in document TGP/15 that it would be the responsibility of the respective TWP and the TC to assess whether the reliability of the link between the gene and the expression of the characteristic was satisfied in order to include a method in the Test Guidelines.

31. The TC, at its fifty-fourth session, further agreed with the inclusion of a new model “Genetic selection of similar varieties for the first growing cycle: example French Bean” in document TGP/15 for using biochemical and molecular markers in the examination of Distinctness, Uniformity and Stability (DUS) on the basis of document TGP/15/2 Draft 1 revised by the TC-EDC, as set out in Annex III to document [TC/54/31 Corr. “Report”](#)<sup>14</sup>.

32. On the above basis, the TC agreed that a revision of document TGP/15/1 (document TGP/15/2 Draft 2) should 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<sup>5</sup>.

33. The French, German and Spanish translations of the original English text have been checked by the relevant members of the Editorial Committee prior to submission of the draft of document TGP/15/2 to the Council. Document TGP/15/2 Draft 2 incorporates the amendments agreed by the TC, as presented in Annex V to this document, and the linguistic changes made by the relevant members of the Editorial Committee.

34. The TC, at its fifty-fifth session<sup>1</sup>, will consider document TGP/15/2 Draft 2. Comments made by the TC will be reported to the CAJ at its seventy-sixth session<sup>5</sup>.

*35. The CAJ is invited to consider the revision of 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, taking into account the conclusions of the TC at its fifty-fifth session.*

Document TGP/0: List of TGP documents and latest issue dates (Revision) (document TGP/0/11 Draft 1)

36. The CAJ is invited to note that, in conjunction with the adoption of the revised TGP documents at the fifty-third ordinary session of the Council, the Council will 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.

*37. The CAJ is invited to note that, in conjunction with the adoption of the revised TGP documents at the fifty-third ordinary session of the Council, the Council will 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.*

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<sup>14</sup> See document [TC/54/31 Corr. “Report”](#), paragraphs 290 and 291.

PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS

38. Annex VI to this document presents the program for the development of TGP documents as agreed by the TC, at its fifty-fourth session<sup>2</sup>, and the CAJ, at its seventy-fifth session<sup>3,15</sup>.

39. A report on the conclusions of the TC, at its fifty-fifth session<sup>1</sup>, will be presented in document CAJ/76/8 "Report on developments in the Technical Committee".

*40. The CAJ is invited to consider the program for the development of TGP documents, as set out in paragraphs 38 and 39 of this document, taking into account the conclusions of the TC at its fifty-fifth session.*

[Annexes follow]

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<sup>15</sup> See document [TC/54/31 Corr.](#) "Report", paragraph 251, and document [CAJ/75/14](#) "Report", paragraph 13.

REVISIONS TO DOCUMENT TGP/7 "DEVELOPMENT OF TEST GUIDELINES"  
 AGREED BY THE TECHNICAL COMMITTEE AT ITS FIFTY-FOURTH SESSION<sup>1</sup>

~~Strikethrough~~ highlighted indicates deletion from the text and  
underlining highlighted indicates insertion to the text.

Duration of DUS tests:

*Universal Standard Wording: Section 3.1: Number of Growing Cycles*

The TC agreed that the following sentence should be included as standard wording in Test Guidelines (see document TC/54/31 Corr. "Report", paragraphs 210 to 212):

"The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test."

Procedure for the adoption of Test Guidelines by correspondence

*Section 2.2 "Procedure for the Introduction of Test Guidelines"*

The TC agreed that guidance in document TGP/7 should be revised to read as follows (see document TC/54/31 Corr. "Report", paragraphs 217 to 220):

"2.2.7 ~~STEP 7~~ Consideration of Draft Test Guidelines by the TC-EDC

"2.2.7.1 The TC-EDC has been established by the Technical Committee to examine drafts of all Test Guidelines, produced by the TWPs, before these are put forward for adoption by the Technical Committee. The role of the TC-EDC is to ensure consistency of the Test Guidelines with the requirements of document TGP/7 and to check the alignment of texts across all the official UPOV languages. It does not conduct a substantive technical review of the Test Guidelines. The members of the TC-EDC are selected by the TC, both to provide broad experience of the UPOV system and also to represent the UPOV languages – English, French, German and Spanish. The Chairperson of the TC-EDC is provided by the UPOV Secretariat.

"2.2.7.2 The TC-EDC reviews the draft Test Guidelines, taking into account any specific instructions from the Technical Committee, and makes a recommendation on whether the Test Guidelines are suitable for adoption (Step 8). It may make a proposal to the Technical Committee for adoption subject to amendments of an editorial nature, which it specifies.

~~"2.2.7.3 If it considers that there are technical issues to be resolved, the TC-EDC may seek to resolve the issues with the Leading Expert, prior to consideration of the Test Guidelines by the Technical Committee. Where this is not possible, the TC-EDC may recommend that the Technical Committee:~~

- ~~(a) refer the Test Guidelines back to the TWP (Step 4) or,  
 (b) adopt the Test Guidelines subject to further information being provided by the Leading Expert with the agreement of all interested experts and the Chairperson of the TWP concerned.~~

"NEW Unless otherwise agreed by the TC, the TC-EDC meets twice each year, once in the period March/April and once in conjunction with the TC session (October/November). The TC-EDC will consider Test Guidelines submitted by the Technical Working Parties at least 14 weeks prior to the TC-EDC meeting. Test Guidelines submitted less than 14 weeks prior to the TC-EDC meeting will be considered at its subsequent meeting.

"NEW The potential outcomes for Test Guidelines considered by the TC-EDC are as follows:

- (a) no changes required to the Test Guidelines, or strictly editorial changes for which recommendations are agreed by the TC-EDC; or  
 (b) editorial clarifications required; or  
 (c) technical issues to be resolved.

<sup>1</sup> Held in Geneva on October 28 and 29, 2018.

“NEW In cases where no changes are required to the Test Guidelines, or strictly editorial changes for which recommendations are agreed by the TC-EDC, the Test Guidelines will be put forward for adoption by the Technical Committee.

“NEW The following procedure applies for Test Guidelines when editorial clarifications are required:

- request for clarifications is transmitted to the Leading Expert;
- clarifications to be provided within four weeks;
- if the clarifications are agreed by the TC-EDC, the Test Guidelines will be recommended for adoption at the TC-EDC meeting;
- the Test Guidelines are considered for adoption by the TC.

“NEW The following procedure applies for Test Guidelines with technical issues to be resolved:

- technical issues to be transmitted to the Leading Expert
- the technical issues are to be addressed at the respective Technical Working Party by means of a TWP document prepared by the Leading Expert at least four weeks before TWP session (new draft Test Guidelines should not be prepared)
- resolution of the issues to be provided to the TC-EDC at least seven weeks before the TC-EDC meeting;
- if agreed by the TC-EDC, the Test Guidelines would be recommended for adoption at the TC-EDC meeting;
- Test Guidelines are considered for adoption by the TC.

#### “2.2.8 STEP 8 Adoption of Draft Test Guidelines by the Technical Committee

“2.2.8.1 The Technical Committee will, on the basis of the recommendations of the TC-EDC, decide whether to adopt the Test Guidelines, or refer them back to the TWP concerned.

“NEW The Technical Committee may adopt Test Guidelines at its session or by correspondence. Test Guidelines may be adopted by correspondence according to the following procedure:

- The draft Test Guidelines are circulated to the TC for adoption by correspondence with the recommendations by the TC-EDC;
- The draft Test Guidelines are considered as adopted if no comments are received within six weeks;
- If any comments are received, the draft Test Guidelines are referred to the relevant TWP to address those comments.

“2.2.8.2 Where the Technical Committee adopts the Test Guidelines, the Office will make all amendments agreed by the Technical Committee, which will be recorded in a report of the relevant Technical Committee meeting. The Office will then publish the adopted Test Guidelines.

“2.2.8.3 Where the Technical Committee adopts the Test Guidelines subject to further information being provided by the Leading Expert with the agreement of all interested experts and the Chairman of the TWP concerned (see 2.2.7.3(b)), the necessary information, agreed with all interested experts, should be provided to the Office within three months of the Technical Committee meeting, or before the subsequent session of the TWP concerned, whichever is the sooner. In those cases where the necessary information is not provided within this time, the Test Guidelines concerned will not be adopted and will be re-presented at the TWP concerned (Step 4).”

[Annex II follows]

REVISIONS TO DOCUMENT TGP/8 “TRIAL DESIGN AND TECHNIQUES USED IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY”  
 AGREED BY THE TECHNICAL COMMITTEE AT ITS FIFTY-THIRD<sup>1</sup> AND FIFTY-FOURTH<sup>2</sup> SESSIONS

~~Strikethrough~~ highlighted indicates deletion from the text and  
underlining highlighted indicates insertion to the text.

## Examining DUS in Bulk Samples

### *New Section 12: Examining characteristics on the basis of bulk samples*

The TC, at its fifty-third session<sup>1</sup>, agreed a list of criteria as the basis for the development of guidance for inclusion in a future revision of document TGP/8, as follows (see document TC/53/31 “Report”, paragraphs 113 to 116):

#### **12. EXAMINING CHARACTERISTICS ON THE BASIS OF BULK SAMPLES**

The following criteria should be observed when examining characteristics on the basis of bulk samples:

- (a) “the characteristic should fulfill the requirements of a characteristic, as set out in the “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of new Varieties of Plants” (see document TG/1/3, Section 4.2.1);
- (b) “there should be knowledge of the genetic control of the characteristic;
- (c) “the suitability of the characteristic should be validated through an initial assessment of uniformity on individual plants;
- (d) “information on plant-by-plant variation and differences between growing cycles should be provided (data from routine measurement of the characteristic from different years);
- (e) “a full description of the method of assessment should be provided;
- (f) “states of expression should be based on existing variation between varieties considering environmental influence.”

### *Method for more than one single test (year)*

The TC, at its fifty-fourth session<sup>2</sup>, noted that guidance on “Examining characteristics on the basis of bulk samples” had been developed for document TGP/10 and agreed that the current guidance in document TGP/8/2: Part II: Section 8: Subsection 8.1.7 should be replaced by a cross-reference to the new guidance on “Assessing uniformity by off-types on the basis of more than one growing cycle or on the basis of sub-samples” to be included in document TGP/10 “Examining Uniformity”:

#### 8.1.7 Method for more than one single test (year)

8.1.7.1 Guidance on assessing uniformity by off-types on the basis of more than one growing cycle and on the basis of sub-samples within a single test/trial is provided in document TGP/10 “Assessing Uniformity”.

[Annex III follows]

<sup>1</sup> Held in Geneva from April 3 to 5, 2017.

<sup>2</sup> Held in Geneva on October 28 and 29, 2018.

REVISIONS TO DOCUMENT TGP/10 "EXAMINING UNIFORMITY"  
AGREED BY THE TECHNICAL COMMITTEE AT ITS FIFTY-FOURTH SESSION<sup>1</sup>

New Section 4.7: Assessing Uniformity by Off-Types on the Basis of More than One Growing Cycle

Two independent growing cycles could take place in a single location in different years, or in different locations in the same year, according to document TGP/8 Part I, Sections 1.2 and 1.3.

The following guidance is not intended to be used for the assessment of uniformity by off-types on the same plants in two growing cycles. Results from growing cycles using different lots of plant material should not be combined.

*Approach 1: Third growing cycle in the case of inconsistent results*

A variety is considered uniform if it is within the uniformity standard in both of the two growing cycles.

A variety is considered non-uniform if it fails to meet the uniformity standard in both of the two growing cycles.

If at the end of the two growing cycles the variety is within the uniformity standard in one growing cycle but is not within the uniformity standard in the other growing cycle, then uniformity is assessed in a third growing cycle. If in the third growing cycle the variety is within the uniformity standard, the variety is considered uniform. If in the third growing cycle the variety fails to meet the uniformity standard, the variety is considered non-uniform.

Care is needed when considering results that were very different in each of the growing cycles, such as when a type of off-type was observed at a high level in one growing cycle and was absent in another growing cycle. It is important to identify whether differences in number of off-types between growing cycles were due to environmental reasons or sampling variation.

Furthermore, if in the first growing cycle a variety exceeds a predefined upper limit of off-types the variety may be rejected after a single growing cycle.

*Approach 2: Combining the results of two growing cycles in the case of inconsistent results*

A variety is considered uniform if it is within the uniformity standard in both of the two growing cycles.

A variety is considered non-uniform if it fails to meet the uniformity standard in both of the two growing cycles.

If at the end of the two growing cycles the variety is within the uniformity standard in one growing cycle but is not within the uniformity standard in the other growing cycle, a variety is considered uniform if the total number of off-types at the end of the two growing cycles does not exceed the number of allowed off-types for the sample size of growing cycles 1 and 2 combined.

Care is needed when considering results that were very different in each of the growing cycles, such as when a type of off-type was observed at a high level in one growing cycle and was absent in another growing cycle. A statistical test for consistency should be applied when appropriate. It is important to identify whether differences in number of off-types between growing cycles were due to environmental reasons or sampling variation.

Furthermore, if in the first growing cycle a variety exceeds a predefined upper limit of off-types the variety may be rejected after a single growing cycle.

*Approach 3: Combining the results of two growing cycles*

A variety is considered uniform if the total number of off-types at the end of the two growing cycles does not exceed the number of allowed off-types for the combined sample.

A variety is considered non-uniform if the total number of off-types at the end of the two growing cycles exceeds the number of allowed off-types for the combined sample.

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<sup>1</sup> Held in Geneva on October 28 and 29, 2018.

A variety may be rejected after a single growing cycle, if the number of off-types exceeds the number of allowed off-types for the combined sample (over two cycles).

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. It is important to identify whether differences in number of off-types between growing cycles were due to environmental reasons or sampling variation.

*Example:*

Population Standard = 1%

Acceptance Probability  $\geq$  95%

Sample Size in each of growing cycles 1 and 2 = 50

Maximum number of Off-Types = 2

Sample Size in growing cycles 1 and 2 combined = 100

Maximum number of Off-Types = 3

		Growing cycle		Decision		
		First	Second	Approach 1	Approach 2	Approach 3
Number of Off-Types	1	1	uniform	uniform	uniform	
	2	2	uniform	uniform	non-uniform	
	0	3*	third growing cycle*	uniform*	uniform*	
	1	3*	third growing cycle*	non-uniform*	non-uniform*	
	1	4*	third growing cycle*	non-uniform*	non-uniform*	
	4**	1*	third growing cycle*	non-uniform*	non-uniform*	

\* Care is needed when considering results that were very different in each of the growing cycles, such as when a type of off-type was observed at a high level in one growing cycle and was absent in another growing cycle. A statistical test for consistency should be applied when appropriate. It is important to identify whether differences in number of off types between growing cycles were due to environmental reasons or sampling variation.

\*\* if in the first growing cycle a variety exceeds a predefined upper limit of off-types the variety may be rejected after a single growing cycle.

#### New Section 4.8: Assessing uniformity by off-types on the basis of sub-samples within a single test/trial

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

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

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

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

*Example:*

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

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

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

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

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

If the number of off-types in the sample of 100 plants exceeds 3, the variety is considered non-uniform.

[Annex IV follows]

REVISIONS TO DOCUMENT TGP/14 "GLOSSARY OF TERMS USED IN UPOV DOCUMENTS"  
 AGREED BY THE TECHNICAL COMMITTEE AT ITS FIFTY-THIRD<sup>1</sup> AND FIFTY-FOURTH<sup>2</sup> SESSIONS

(i) Illustrations for shape and ratio characteristics

The TC, at its fifty-third session, agreed to revise document TGP/14: Section 2: Subsection 2: "Shapes and structures" to amend the grid for position of broadest part and width/ratio presented in Example 5, Alternative 2, to remove the wording on "ratio" and to display "relative width" in a separate column from the scale of "broad to narrow", to read as follows (see document TC/53/31 "Report", paragraph 141) (~~highlighting and strikethrough~~ for deletions and highlighting and underline for addition):

		←      broadest part      →				
		(below middle)	at middle	(above middle)		
relative width → ←	→ narrow (high)		 6 linear			
	width (ratio-length/width)		 5 oblong	 8 oblanceolate	 9 spatulate	
	broad (low) ←	 1 triangular	 2 ovate	 4 elliptic	 7 obovate	 10 obtriangular
		 3 circular				

<sup>1</sup> Held in Geneva from April 3 to 5, 2017.

<sup>2</sup> Held in Geneva on October 28 and 29, 2018.

(ii) Factors to be considered for creating color groups

The TC, at its fifty-fourth session, considered document TC/54/22 "Color names for the RHS Colour Chart" (see document TC/54/31 Corr. "Report", paragraph 244).

The TC agreed to propose the revision of document TGP/14 to include guidance on the factors to be considered for creating color groups for grouping of varieties and organizing the growing trial, as follows:

Subsection 3: Color: New Section: 5 "Factors to be considered for creating color groups"

"When using the color of a plant part for grouping of varieties, a very clear and large difference between the colors is required. However, the color groups are also used in the Technical Questionnaire for applicants who have no RHS Colour Chart. Therefore the groups need to be small enough so that applicants are able to give an adequate state of expression for the characteristic.

"The following factors have to be considered when creating color groups for grouping:

- (a) range of variation of the color of the plant part within the species
- (b) difference between colors for varieties to be considered clearly distinguishable
- (c) possible influence of the environment on the color of the plant part.

"Depending on the species and the plant part observed the color groups for grouping can be different. Examples for color groups in grouping characteristics of different Test Guidelines are listed in the following table.

Test Guidelines	Campanula (TG/305/1)	Hosta (TG/299/1)	Cordyline (TG/317/1)	Osteospermum (TG/175/5)
Characteristic	Corolla: main color of inner side	Leaf blade: color covering the largest surface area	Leaf: secondary color	Ray floret: main color of middle part
Color groups for grouping	white pink red purple purple blue	white light yellow medium yellow dark yellow light green medium green dark green blue green	white yellow green red purple brown blackish	white yellow orange pink red purple violet

"It should be emphasized that not all groups are necessarily clearly distinct from each other when information is used that does not come from the same source (same location, same observer) and cannot always be used to exclude varieties from the trial. E.g. in Cordyline for the characteristic 'Leaf: secondary color' it might not be possible to clearly distinguish between 'brown' and 'blackish' when looking at photos on the internet or in a plant catalogue."

[Annex V follows]

REVISIONS TO DOCUMENT TGP/15 "GUIDANCE ON THE USE OF BIOCHEMICAL AND MOLECULAR MARKERS IN THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY (DUS)" AGREED BY THE TECHNICAL COMMITTEE AT ITS FIFTY-FOURTH SESSION<sup>1</sup>

Revision of model 1: new text on reliability of the link between the gene and the expression of the characteristic

Following the agreed proposals by the TC, at its fifty-fourth session, the following sentences are proposed for inclusion in document TGP/15:

"2.1.2 It is a matter for the relevant authority to consider if the assumptions are met when applying the model and example, as presented in Annex I of this document.

"2.1.3 In order to include a method based on the model in Annex I of this document in Test Guidelines the relevant Technical Working Party and the TC would need to agree that the requirement for reliability of the link between the gene and the expression of the characteristic was satisfied."

New model: "Genetic selection of similar varieties for the first growing cycle"

The TC, at its fifty-fourth session, agreed with the inclusion of a new model in document TGP/15, as follows (see document TC/54/31 Corr. "Report", paragraphs 290 and 291):

*New Section 2.3 "Genetic Selection of Similar Varieties for the First Growing Cycle"*

2.3 Genetic Selection of Similar Varieties for the First Growing Cycle (see Annex III)

2.3.1 This approach involves a step to check for genetic similarity before the first growing cycle.

2.3.2 In cases where the minimum duration of tests is normally two growing cycles, a selection of similar varieties in the variety collection for comparison with candidate varieties in the first growing cycle is made according to genetic similarity. As a next step, the information provided by the applicant in the Technical Questionnaire (TQ) is used to see if some of the genetically similar varieties do not have to be compared in a growing trial because of differences in DUS characteristics.

2.3.3 On the basis of the variety description of DUS characteristics produced in the first growing cycle, a further search is made of varieties in the variety collection to identify any similar varieties that were not compared in the first growing cycle and which should be compared with the candidate variety in the second growing cycle.

2.3.4 Annex III to this document "Genetic Selection of Similar Varieties for the First Growing Cycle" provides an example of the genetic selection of similar varieties for the first growing cycle.

*Annex III "Model: Genetic Selection of Similar Varieties for the First Growing Cycle"*

Example: French Bean (prepared by an expert from the Netherlands)

1. Introduction

1.1 This approach involves a step to check for genetic similarity before the first growing cycle.

1.2 In cases where the minimum duration of tests is normally two growing cycles, a selection of similar varieties in the variety collection for comparison with candidate varieties in the first growing cycle is made according to genetic similarity. As a next step, the information provided by the applicant in the Technical Questionnaire (TQ) is used to see if some of the genetically similar varieties do not have to be compared in a growing trial because of differences in DUS characteristics.

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<sup>1</sup> Held in Geneva on October 28 and 29, 2018.

1.3 On the basis of the variety description of DUS characteristics produced in the first growing cycle, a further search is made of varieties in the variety collection to identify any similar varieties that were not compared in the first growing cycle and which should be compared with the candidate variety in the second growing cycle.

## 2. Procedure

### *Determine genetic similarity*

2.1 The DNA-profile of the candidate variety is produced as soon as plant material is received.

2.2 The DNA-profile is compared with the profiles of all varieties in the variety collection and genetically similar varieties are identified.

### *Technical Questionnaire information*

2.3 The information provided by the applicant in the Technical Questionnaire (TQ) is then used to see if there are clear differences in DUS characteristics from some of the genetically similar varieties so that they do not need to be compared with candidate varieties in a growing trial.

### *Field trial*

#### First growing cycle:

2.4 The candidate and the genetically similar varieties selected by the procedure above are grown in the same field trial. A complete description of the DUS characteristics of the candidate variety is produced and is compared to the descriptions of all varieties in the variety collection using a database containing descriptions produced at the same location in previous years.

#### 2.5 Possible outcomes:

If the candidate variety is not distinct from the genetically similar varieties on the basis of DUS characteristics, the test will be continued for another growing cycle.

In any case, the description of the candidate variety produced in the first growing cycle is compared to the descriptions of the varieties in the variety collection using a database containing descriptions produced at the same location.

(a) If the candidate variety is found to be distinct from all varieties grown in the first growing cycle and to all other varieties in the variety collection at the end of the first growing cycle and it fulfills the uniformity and stability requirements the DUS test may be concluded after the first growing cycle.

(b) In all other cases a second growing cycle is performed.

#### Second growing cycle

2.6 In the second growing cycle, the candidate variety is grown with the all varieties in the variety collection from which it was not found to be distinct at the end of the first growing cycle.

2.7 At the end of the second growing cycle, an assessment of DUS is made. If it is not possible to reach a decision on DUS at the end of the second growing cycle, a further growing cycle may be conducted.

[Annex VI follows]

## ANNEX VI - PROGRAM FOR THE DEVELOPMENT OF TGP DOCUMENTS

	Title of document	Current approved documents	2018					2019					2020					
			TC-EDC	TWPs	TC/55	CAJ/75	C/52	TC-EDC	TWPs	TC/55	CAJ/76	C/53	TC-EDC	TWPs	TC/56	CAJ/77	C/54	
TGP/0	List of TGP Documents and Latest Issue Dates	TGP/0/9 ADOPTED						TGP/0/10 Adopt						TGP/0/11 Adopt				
TGP/1	General Introduction with Explanations	-																
TGP/2	List of Test Guidelines Adopted by UPOV	TGP/2/2 ADOPTED																
TGP/3	Varieties of Common Knowledge	C(Extr.)/19/2 Rev.																
TGP/4	Constitution and Maintenance of Variety Collections	TGP/4/1 ADOPTED																
TGP/5	Experience and Cooperation in DUS Testing	ADOPTED																
	Confidentiality of molecular information (Drafter: Office of the Union)	TGP/5 SECTION 1/2	TC-EDC/Mar18/10			CAJ/75/2		TGP/5 S.1/3 Adopt										
TGP/6	Arrangements for DUS Testing	ADOPTED																
TGP/7	Development of Test Guidelines	TGP/7/4 ADOPTED																
	Drafter's Kit for Test Guidelines (Drafter: Office of the Union)		TC-EDC/Mar18/10			CAJ/75/2		TGP/7/6 Adopt										
	Duration of tests (Drafter: Office of the Union)		TC-EDC/Mar18/12	TWP/2/9	TC/54/14							CAJ/76/5		TGP/7/7 Adopt				
	Characteristics which only apply to certain varieties (Drafter: Office of the Union)		TC-EDC/Mar18/13		TC/54/15			TC-EDC/Mar19/9	TWP/3/9	TC/55/12								
	Procedure for the adoption of Test Guidelines by correspondence (Drafter: Office of the Union)		TC-EDC/Mar18/10		TC/54/16							CAJ/76/5		TGP/7/7 Adopt				
TGP/8	Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability	TGP/8/2 ADOPTED																
	Method of Calculation of COYU (Drafter: Adrian Roberts (GB))		TC-EDC/Mar18/14	TWC/36/4	TC/54/17				TWC	TC/55/4								
	Examining DUS in Bulk Samples (Drafter: Office of the Union)											CAJ/76/5		TGP/8/4 Adopt				
	Data Processing for the Assessment of Distinctness and for Producing Variety Descriptions (Drafter: Office of the Union)		TC-EDC/Mar18/15	TWC/36/2	TC/54/18			TC-EDC/Mar19/9	TWP/3/10	TC/55/13								
	Uniformity assessment on the basis of off-types: Method for more than one single test (year) (Drafter: Office of the Union)		TC-EDC/Mar18/16	TWP/2/10	TC/54/19							CAJ/76/5		TGP/8/4 Adopt				
TGP/9	Examining Distinctness	TGP/9/2 ADOPTED																
TGP/10	Examining Uniformity	TGP/10/1 ADOPTED																
	Assessing Uniformity by Off-types on the Basis of More than One Growing Cycle or on the Basis of Sub-Samples (Drafter: Office of the Union)		TC-EDC/Mar18/17	TWC/36/7	TC/54/20							CAJ/76/5		TGP/10/2 Adopt				
TGP/11	Examining Stability	TGP/11/1 ADOPTED																
TGP/12	Guidance on Certain Physiological Characteristics	TGP/12/2 ADOPTED																
TGP/13	Guidance for New Types and Species	TGP/13/1 ADOPTED																
TGP/14	Glossary of Terms Used in UPOV Documents	TGP/14/3 ADOPTED																
	Illustrations for shape and ratio characteristics (Drafter: Office of the Union)		TC-EDC/Mar18/18	TWP/2/11	TC/54/21							CAJ/76/5		TGP/14/4 Adopt				
	UPOV color groups (Drafter: Andrea Menne (DE))		TC-EDC/Mar18/19	TWP/2/112	TC/54/22			TC-EDC/Mar19/9	TWP/3/11	TC/55/14								
TGP/15	Guidance on the Use of Biochemical and Molecular Markers in the Examination of Distinctness, Uniformity and Stability (DUS)	TGP/15/1 ADOPTED																
	Genetic selection of similar varieties for the first growing cycle (Drafter: Amanda van Dijk (NL))		TC-EDC/Mar18/10	TWV	TC/54/23							CAJ/76/5		TGP/15/2 Adopt				
	New example: Characteristic-specific marker with incomplete information on state of expression (Drafter: Amanda van Dijk (NL))				TC/54/11 Add.			TC-EDC/Mar19/9	TWP/3/12	TC/55/15								