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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

ENLARGED EDITORIAL COMMITTEE

Geneva, January 11 and 12, 2012

REVISION OF TGP/7 "DEVELOPMENT OF TEST GUIDELINES"

Document prepared by the Office of the Union

1. The purpose of this document is to set out proposals for the revision of document TGP/7 "Development of Test Guidelines" (document TGP/7/3) concerning the items agreed by the Technical Committee (TC) at its forty-seventh session, held in Geneva from April 4 to 6, 2011 (see document TC/47/26 "Report on the Conclusions", paragraphs 53 to 70), on the basis of the comments made by the Technical Working Parties (TWPs) at their sessions in 2011.

2. 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

3. The structure of this document is as follows:

I. REVISIONS ON WHICH THE TECHNICAL COMMITTEE HAS REACHED A CONCLUSION

Coverage of Ornamental Varieties in Test Guidelines
Applications for Varieties with Low Germination
Selection of Asterisked Characteristics
Indication of Grouping Characteristics
Standard References in the Technical Questionnaire

II. REVISIONS TO BE CONSIDERED BY THE TECHNICAL COMMITTEE

Quantity of Plant Material Required
Guidance on Number of Plants to be Examined (for Distinctness)
Guidance for Method of Observation
Example Varieties
. Providing Photographs with the Technical Questionnaire
Procedure for the development of Test Guidelines

Annex I: *"Number of Plants to be Considered for the Assessment of Distinctness"*
Annex II: *"Guidance for method of observation"*
Annex III: *"Example varieties"*
Annex IV: *"Providing photographs with the Technical Questionnaire"*

I REVISIONS ON WHICH THE TECHNICAL COMMITTEE HAS REACHED A CONCLUSION

Coverage of Ornamental Varieties in Test Guidelines

4. The TC, at its forty-seventh session, held in Geneva from April 4 to 6, 2011, agreed to the addition of new Additional Standard Wording (ASW) for Chapter 1 of the Test Guidelines in a future revision of TGP/7 "Development of Test Guidelines", as follows:

> "In the case of [ornamental] [fruit] [industrial] [vegetable] [agricultural] [etc.] 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."

with an explanation in document TGP/7 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 (see document TC/47/26 "Report on the Conclusions", paragraph 54).

Applications for Varieties with Low Germination

5. The TC agreed that, for the time being, no revisions should be considered for document TGP/7 in relation to applications for varieties with low germination (see document TC/47/26 "Report on the Conclusions", paragraph 58).

Selection of Asterisked Characteristics

6. The TC agreed that the final sentence of document TGP/7/2, GN 13.1 "Asterisked characteristics", Section 1.2, should be amended to read "The number of asterisked characteristics should, therefore, be determined by the characteristics which are required to achieve useful internationally harmonized variety descriptions.". On the basis of that change, the TC agreed that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics was appropriate and sufficient and that it would only be necessary to ensure that the guidance was followed in the development of Test Guidelines (see document TC/47/26 "Report on the Conclusions", paragraph 59).

Indication of Grouping Characteristics

7. The TC agreed that it would not be appropriate to revise document TGP/7 in order to include an indication of grouping characteristics in the Table of Characteristics in the UPOV Test Guidelines (see document TC/47/26 "Report on the Conclusions", paragraph 60).

Standard References in the Technical Questionnaire

8. The TC agreed to delay consideration of the approach for providing standard references for the UPOV Technical Questionnaire and for the characteristics in the Test Guidelines with a view to a future revision of document TGP/7, pending the outcome of work on the Linear

Blank Form for PBR Applications (see document TC/47/26 "Report on the Conclusions", paragraph 68).

II. REVISIONS TO BE CONSIDERED BY THE TECHNICAL COMMITTEE

Quantity of Plant Material Required

[Extract from document TGP/7/2, Annex 3: Guidance Notes (GN) for the TG Template]

1. "GN 7 (TG Template: Chapter 2.3) – Quantity of plant material required

"The drafter of the Test Guidelines should consider the following factors when determining the quantity of material required:

"(a) Anticipated level of plant establishment, from submitted plant material, for field trials or other growing tests;

"(b) Quantity of submitted plant material to be used for non-growing tests (e.g. erucic acid test for Rape seed);

"(c) Quantity of submitted plant material to be used for quality checks on the submitted plant material (e.g. germination tests for seed);

"(d) Quantity of submitted plant material to be used for reference samples;

"(e) Rate of deterioration during storage.

"In general, in the case of *plants* required only for a single growing trial (e.g. no plants required for special tests or variety collections), the number of plants requested in Chapter 2.3 often corresponds to the number of plants specified in Chapters 3.4 "Test Design" and 4.2 "Uniformity". In that respect, it is recalled the quantity of plant material specified in Chapter 2.3 of the Test Guidelines is the minimum quantity that an authority might request of the applicant. Therefore, each authority may decide to request a larger quantity of plant material, for example to allow for potential losses during establishment (see GN 7 (a)). In relation to the number of plants specified in Chapter 2.3, the number of plants/parts of plant to be examined (Chapter 4.1.4), should at least allow for the possibility of off-type plants within the tolerated number to be excluded from observations."

9. The Technical Committee (TC) at its forty-seventh session, held in Geneva from April 4 to 6, 2011, agreed that the guidance in document TGP/7, GN 7 "Quantity of plant material required" should be extended to encourage Leading Experts to consider the quantity of plant material required in relation to the following factors (see document TC/47/26 "Report on the Conclusions", paragraph 55):

(i) Number of plants/ parts of plants to be examined
(ii) Number of growing cycles
(iii) Variability within the crop
(iv) Additional tests (e.g. resistance tests, bolting trials)
(v) Features of propagation (e.g. cross-pollination, self-pollination, vegetative propagation)
(vi) Crop type (e.g. root crop, leaf crop, fruit crop, cut flower, cereal, etc.)

(vii) Storage in variety collection
(viii) Exchange between testing authorities
(ix) Seed quality (germination) requirements
(x) Cultivation system (outdoor/glasshouse)
(xi) Sowing system
(xii) Predominant method of observation (e.g. MS, VG)

10. The TC agreed that Additional Standard Wording (ASW) should be developed in order to provide guidance in the Test Guidelines on whether the quantity of plant material required in Chapter 2 of the Test Guidelines relates to both growing cycles in the case of Test Guidelines indicating two growing cycles (see document TC/47/26 "Report on the Conclusions", paragraph 56).

11. The TC agreed that the guidance in document TGP/7, GN 7 should be extended to encourage Leading Experts to consider the quantity of plant material required for similar crops in order to seek consistency as far as that was appropriate. In that regard, it agreed that a summary of the following information should be prepared by the Office of the Union for all adopted Test Guidelines and made available to Leading Experts on the TG Drafters' webpage in order that information on Test Guidelines for similar crops could be presented to the Subgroup of Interested Experts by the Leading Expert (see document TC/47/26 "Report on the Conclusions", paragraph 57):

(a) Chapter 2.3 Minimum quantity of plant material to be supplied by the applicant

(b) Chapter 3.1 Number of growing cycles

(c) Chapter 3.4.1 Each test should be designed to result in a total of at least X plants

(d) Chapter 4.1.4 Number of plants / parts of plants to be examined for distinctness

(e) Chapter 4.2 Number of plants to be examined for uniformity

(f) Number of plants for special tests (e.g. disease resistance)

Comments by the Technical Working Parties at their Sessions in 2011

12. The Technical Working Party for Agricultural Crops (TWA) at its fortieth session, held in Brasília, Brazil, from May 16 to 20, 2011, considered and noted the information provided in document TWA/40/19.

13. The Technical Working Party on Automation and Computer Programs (TWC) at its twenty- ninth session, held in Geneva, Switzerland, from June 7 to June 10, 2011, considered and noted the information provided in document TWC/29/17.

14. The Technical Working Party for Vegetables (TWV) at its forty-fifth session, held in Monterey, California, United States of America, from July 25 to 29, 2011, noted the information provided in document TWV/45/17. It welcomed the summary of information to be prepared by the Office of the Union for all adopted Test Guidelines and made available to Leading Experts on the TG Drafters' webpage in order that information on Test Guidelines for similar crops could be presented to the Subgroup of Interested Experts by the Leading

Expert. The TWV noted that the summary of information would also include information on distinctness and uniformity requirements.

15. The Technical Working Party for Ornamental Plants and Forest Trees (TWO) at its forty-fourth session, held in Fukuyama City, Hiroshima Prefecture, Japan, from November 7 to 11, 2011, noted the information provided in document TWO/44/17.

16. The Technical Working Party for Fruit Crops (TWF) at its forty-second session held in Hiroshima, Japan, from November 14 to 18, 2011, noted the information provided in document TWF/42/17.

Guidance on Number of Plants to be Examined (for Distinctness)

17. The TC, at its forty-seventh session, agreed that Mrs. Beate Rücker (Germany) should be invited to draft suitable guidance on the number of plants to be examined for distinctness for inclusion in a future revision of document TGP/7 with regard to the following (see document TC/47/26 "Report on the Conclusions", paragraph 66):

(a) the selection of plants to be examined for distinctness from within the trial;

(b) the minimum number of plants of candidate varieties required to be able complete the trial, i.e. the minimum number of plants required to examine distinctness, uniformity and stability; and

(c) the number of plants required for varieties of common knowledge to be compared with candidate varieties for the purpose of distinctness.

18. Annex I to this document contains the draft guidance on the number of plants to be considered for the assessment of distinctness, prepared by Mrs. Beate Rücker (Germany), and comments from the Technical Working Parties at their sessions in 2011.

Guidance for Method of Observation

19. The TC agreed that document TGP/7/2, GN 25 "Recommendations for conducting the examination" should be extended to provide guidance, by means of illustrative examples, on the appropriate type of observation for characteristics such as dates (e.g. time of flowering) and counts (e.g. number of leaf lobes), on the basis of the examples as provided in Annex II to this document and the comments made on those examples by the TWPs in 2010 (see document TC/47/26 "Report on the Conclusions", paragraph 61).

20. Annex II to this document contains the draft guidance for method of observation and comments from the Technical Working Parties at their sessions in 2011.

Example Varieties

21. Document TGP/7/2 Draft 2, considered by the Technical Committee (TC) at its forty-fifth session, held in Geneva from March 30 to April 1, 2009, indicated that experts from France would develop a document, based on GN 28 "Example varieties", for discussion at the TWP sessions in 2009. However, the Technical Working Party for Vegetables (TWV), held from April 20 to 24, 2009, was less than three weeks after the forty-fifth session of the TC, which meant that it was not feasible to prepare a document for consideration by the TWV in 2009. The TWV noted that it would not be able to review any proposed amendments to GN 28 before the TC considered the approval of document TGP/7/2 in 2010. The TWV noted the importance of example varieties in Test Guidelines for vegetable crops and generally supported the text in GN 28. Therefore, to avoid a delay in the adoption of document TGP/7/2, it proposed that document TGP/7/2 should be adopted in 2010 without amendments to GN 28 and that any proposed amendments should be considered in a future revision of document TGP/7, if appropriate. The Technical Working Party for Agricultural Crops (TWA), at its thirty-eighth session, held in Seoul, Republic of Korea, from August 31 to September 4, 2009, agreed with that proposal and also agreed to add an agenda item to discuss example varieties at its thirty-ninth session (see document TWA/38/17 "Report", paragraph 36).

22. The Technical Working Party for Ornamental Plants and Forest Trees (TWO) and Technical Working Party for Fruit Crops (TWF), at their sessions in 2009, agreed that experts with suggestions concerning the document to be developed on example varieties should send those to Mr. Joël Guiard (France), or to the Office of the Union, which would forward the suggestions to Mr. Guiard. The expert from New Zealand explained that he would raise the matter of example varieties that were a matter of common knowledge, but did not have a denomination.

23. At its forty-sixth session, held in Geneva from March 22 to 24, 2010, the TC agreed that consideration be given to example varieties in a future revision of TGP/7 (document TGP/7/3) (see document TC/46/15 "Report on the Conclusions", paragraph 31).

24. The TC at its forty-seventh session, held in Geneva from April 4 to 6, 2011, considered the proposal, prepared by an expert from France, as presented in the Annex to this document and the comments of the TWPs in relation to that proposal. The TC agreed that the subject of example varieties would be considered as a possible matter for discussion on the Monday session of the TC, in 2012, "dedicated to a discussion on experiences of members of the Union in measures to improve the efficiency and effectiveness of DUS testing. (see document TC/47/26 "Report on the Conclusions", paragraphs 62 and 111)

25. Annex III to this document contains a proposal prepared by an expert from France concerning example varieties and comments from the Technical Working Parties at their sessions in 2011.

Providing Photographs with the Technical Questionnaire

26.. The Technical Committee (TC), at its forty-seventh session, held in Geneva from April 4 to 6, 2011, agreed that further consideration should be given to the nature of the guidance of the document in order to avoid setting requirements that were not realistic for

breeders. It was also agreed that the relationship between the characteristics in the Technical Questionnaire and the photographs should be clarified and that paragraphs 8, 11 and 12, as set out in this document, should be reviewed (see document TC/47/26 "Report on the Conclusions", paragraphs 69 and 70).

27. Annex IV to this document contains guidance for applicants on providing suitable photographs of the candidate variety as accompaniment to the Technical Questionnaire and comments from the Technical Working Parties at their sessions in 2011.

Procedure for the Development of Test Guidelines

28. The TWV, at its forty-fifth session, held in Monterey, United States of America, from July 25 to 29, 2011, noted that document TGP/7 states as follows:

> "2.2.3.2 In cases where more than one TWP has proposed the development of Test Guidelines with the same coverage, the Technical Committee will decide which TWP should be responsible for the drafting of the Test Guidelines. This will be decided on the basis of the level of expertise in the TWPs concerned. In such cases, the Technical Committee will request the approval of all other interested TWPs before a draft is submitted for adoption."

29. The TWV agreed that consideration should be given, where possible, to allocate Test Guidelines to only one TWP on the basis that all TWPs would be informed on the development of all Test Guidelines and interested experts could participate in the relevant TWP. (See document TWV45/26, "Report", paragraph 22.)

30. The TWO and the TWF noted that document TGP/7 states as follows:

> "2.2.3.2 In cases where more than one TWP has proposed the development of Test Guidelines with the same coverage, the Technical Committee will decide which TWP should be responsible for the drafting of the Test Guidelines. This will be decided on the basis of the level of expertise in the TWPs concerned. In such cases, the Technical Committee will request the approval of all other interested TWPs before a draft is submitted for adoption."

31.. The TWO and the TWF agreed with the proposal made by the TWV that consideration should be given, where possible, to allocate Test Guidelines to only one TWP on the basis that all TWPs would be informed on the development of all Test Guidelines and interested experts could participate in the relevant TWP (see document TWO44/25/ "Report", paragraphs 19 and 20 and document TWF/42/26"Revised Report" paragraphs 22 and 23).

[Annexes follow]

ANNEX I

NUMBER OF PLANTS TO BE CONSIDERED FOR THE ASSESSMENT OF DISTINCTNESS

Document prepared by an expert from Germany

1. The TC, at its forty-seventh session, agreed that suitable guidance should be drafted for inclusion in a future revision of document TGP/7 with regard to the following:

(a) the selection of plants to be examined for distinctness from within the trial;
(b) the minimum number of plants of candidate varieties required to be able to complete the trial, i.e. the minimum number of plants required to examine distinctness, uniformity and stability; and
(c) the number of plants required for varieties of common knowledge to be compared with candidate varieties for the purpose of distinctness.

Draft for a guidance note to be included in TGP/7 TG Template, Section 4.1.4

General considerations

It is essential for the definition of a variety and the assessment of distinctness, uniformity and stability to identify and to observe the *typical* expression of characteristics in a variety. Several aspects have to be taken into account in order to observe the *typical* expression of characteristics of varieties, e.g.:

- plant material which is representative for the variety
- performance of tests under appropriate environmental conditions
- suitable growing conditions, including sufficient plot size to prevent observations to be biased by boundary or neighbourhood effects
- observed plants to be vigorous, healthy and well developed
- appropriate description of the expression of characteristics under consideration of variation within and between varieties (according to Test Guidelines)

Provided that these conditions are met, the *typical* expression is considered to be the mean expression under the specific environmental conditions. It incorporates possible variation between individual plants which may be caused by environmental and genetic factors.

The number of plants is specified in the Test Guidelines in relation to

(a) the number of plants in the trial (Annex 1, Section 3.4)
(b) the number of plants/parts of plants to be examined for the assessment of distinctness (Annex 1, Section 4.1.4)
(c) the number of plants/parts of plants for the assessment of uniformity (Annex 1, Section 4.2)

The number of plants in the trial is determined by (I.) the necessary plot size in order to ensure a typical expression of the characteristics in the varieties, (II.) the number of plants to be observed for the definition of the typical expression taking into account variation between

plants (within the limits of a uniform variety) and (III.) the number of plants to be observed for the assessment of uniformity under consideration of the genetic structure of the variety.

The number of plants in the trial has to take into account all requirements for the assessment of D, U and S. But, if uniformity has not to be observed for similar varieties of common knowledge (reference varieties), it can be considered to include in the trial a lower number of plants for the reference varieties.

It is essential for the selection of plants to be examined for distinctness that condition (I.) is fulfilled in the trial and the expression of characteristics in the varieties is *typical* under the given environmental conditions. In case of observations on the plot as a whole, the selection of plants for the assessment of distinctness is not critical, provided that off-type plants are excluded. In case of observations of individual plants for the assessment of distinctness the test guidelines should specify the minimum number of plants to be observed. This number has to be appropriate to observe the *typical* expression of the variety under consideration of possible variation between plants.

Any comparison for the assessment of distinctness has to be based on representative data of all varieties – candidate variety and reference varieties. If two varieties are very similar it is of particular importance to observe both varieties with the same high precision. The above mentioned conditions (I.) and (II.) are the same. This implies that in case of observations of individual plants for the assessment of distinctness the minimum number of plants specified in the test guidelines applies to candidate varieties and reference varieties as well.

As explained before, the total number of plants in the growing trial must also take into account the conditions for the assessment of uniformity. In many species the sample size for uniformity will be higher than defined by condition (II.). Depending on the species, the total number of plants in the trial will be defined by condition (I.) or (III.).

In relation to the assessment of stability, the same principles as for distinctness should be applied.

<u>Species with a very low number of plants in the trial (e.g. fruit trees)</u>
The appropriate sample size for the assessment of distinctness should be defined on a crop by crop basis. Even if the variation within varieties is very low and the characteristics are very stable, a number of less than 3 plants could be critical for a comparison of two very similar varieties. If there are only one or two trees, it might not be possible to evaluate differences between the two individuals and to identify any unexpected developments in one or both plants. In case of two plants it is impossible to declare one plant as an off-type if there is no additional information about this characteristic of the variety. The minimum number has to be defined according to the characteristics with the highest probability for variation between plants, which is relevant for quantitative and pseudo-qualitative characteristics, in particular.

Comments by the Technical Working Parties at their Sessions in 2011

Technical Working Party for Agricultural Crops (TWA)

2. At its fortieth session, held in Brasilia, Brazil, from May 16 to 20, 2011, the TWA considered the proposal in Annex I to this document, prepared by an expert from Germany. The TWA discussed whether the document should refer only to the assessment of distinctness or whether it should be elaborated further in order to cover also uniformity and stability. The expert from the Netherlands proposed to prepare a general document based on general considerations and to consider separately the following points:

(a) the number of plants in the trial (Annex 1, Section 3.4)
(b) the number of plants/parts of plants to be examined for the assessment of distinctness (Annex 1, Section 4.1.4)
(c) the number of plants/parts of plants for the assessment of uniformity (Annex 1, Section 4.2)

3. The TWA agreed to suggest to the TC that it consider the proposal as a possible matter for discussion on the Monday session of the TC, in 2012. (See document TWA/40/23 "Report, paragraphs 11 to 13.)

Technical Working Party on Automation and Computer Programs (TWC)

4. The TWC, at its twenty-ninth session, held in Geneva, Switzerland, from June 7 to 10, 2011, considered the proposal in Annex I to document TWC/29/11, prepared by an expert from Germany. The TWC proposed that experts from Germany and Poland establish a sub-group for further development on guidance on the number of plants to be examined (for distinctness).

5. The TWC agreed to suggest to the TC that it consider the proposal as a possible matter for discussion on the Monday session of the TC, in 2013. (See document TWC/29/31 "Report", paragraphs 10 and 11.)

Technical Working Party for Vegetables (TWV)

6. The TWV, at its forty-fifth session, held in Monterey, United States of America, from July 25 to 29, 2011, considered the proposal in Annex I to document TWV/45/11, prepared by an expert from Germany. It noted that the new wording proposed by the Technical Committee for Chapter 4.1.4 of Test Guidelines in document TGP/7 referred to a specified ({x}) number of plants to be examined for distinctness. In particular, it did not indicate that the number should be considered as a minimum number. In that regard, the TWV noted that it was clearly the intention for some Test Guidelines (e.g. cross-pollinated grasses) for the number of plants to represent a specific number, because of the possibility of different decisions on distinctness if a different number was used. However, in other Test Guidelines (e.g. for vegetatively propagated fruit, ornamental plants and vegetables), the number could be considered to be a minimum number without having any effect on decisions for distinctness if a larger number of plants were examined. It agreed that this issue should be considered by the Technical Committee. (See document TWV/45/26 "Report", paragraph 14.)

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

7. The TWO at held its forty-fourth session in Fukuyama City, Hiroshima Prefecture, Japan, from November 7 to 11, 2011, considered the proposal in Annex I to this document, prepared by an expert from Germany, and the comments of the Technical Working Parties at their sessions in 2011, as set out in document TWO/44/11, paragraphs 15 to 25. The TWO agreed that the following aspects should be considered in relation to guidance on the number of plants to be examined for distinctness:

(a) for some Test Guidelines (e.g. cross-pollinated grasses), the number of plants are intended to represent a specific number, because of the possibility of different decisions on distinctness if a different number is used. However, in other Test Guidelines (e.g. for vegetatively propagated fruit, ornamental plants and vegetables), the number could be considered to be a minimum number without having any effect on decisions for distinctness if a larger number of plants were examined. The guidance in TGP/7 and the explanations in the Test Guidelines should provide an explanation of this aspect;

(b) guidance for the number of plants to be examined for distinctness of candidate varieties and the number of plants of varieties of common knowledge to be included in the DUS trial should be developed. In that regard it was noted that it might be appropriate to accept a lower number of plants of a variety of common knowledge in order to determine the typical expression, given the greater knowledge and experience that would be available;

(c) to develop guidance on the number of plants required to establish a variety description.

8. The TWO agreed that Ms. Andrea Menne (Germany) should be invited to participate in the development of guidance in order to ensure that the perspective of ornamental plants and forest trees would be explained. (See document TWO/44/25 “Report”, paragraph 9 to 11.)

The Technical Working Party for Fruit Crops (TWF)

9. The TWF, at its forty-second session held in Hiroshima, Japan, from November 14 to 18, 2011, considered the proposal in Annex I to this document, prepared by an expert from Germany, and the comments of the Technical Working Parties at their sessions in 2011, as set out in document TWF/42/11, paragraphs 15 to 25, and presented comments of the TWO. The TWF agreed that the following aspects should be considered in relation to guidance on the number of plants to be examined for distinctness:

(a) for some Test Guidelines (e.g. cross-pollinated grasses), the number of plants are intended to represent a specific number, because of the possibility of different decisions on distinctness if a different number is used. However, in other Test Guidelines (e.g. for vegetatively propagated fruit, ornamental plants and vegetables), the number could be considered to be a minimum number without having any effect on decisions for distinctness if a larger number of plants were examined. The guidance in TGP/7 and the explanations in the Test Guidelines should provide an explanation of this aspect;

(b) guidance for the number of plants to be examined for distinctness of candidate varieties and the number of plants of varieties of common knowledge to be included in the DUS trial should be developed. In that regard it was noted that it might be appropriate to accept a lower number of plants of a variety of common knowledge in order to determine the typical expression, given the greater knowledge and experience that would be available;

(c) to develop guidance on the number of plants required to establish a variety description and to consider whether to provide an extra guidance note to be included in TGP/7 concerning the number of plants and parts of plants;

(d) to note the comments of the TWV, as set in paragraph 25 of the document TWF/42/11, and to develop these issues as separate paragraphs.

10. The TWF agreed that Mr. Erik Schulte (Germany) be invited to participate in the development of guidance on the number of plants to be examined in order to ensure that the perspective of fruit crops would be taken into consideration. (See document TWF/42/26 “Report”, paragraphs 12 and 13.)

[Annex II follows]

ANNEX II

GUIDANCE FOR METHOD OF OBSERVATION

1. The Technical Committee (TC), at its forty-sixth session, held in Geneva from March 22 to 24, 2010 agreed that, in a future revision of TGP/7 (document TGP/7/3), consideration should be given to providing guidance on the indication of observation by Measurement (M) for characteristics such as dates (e.g. time of flowering) and counts (e.g. number of leaf lobes).

2. Document TGP/9 "Examining Distinctness" explains the following with regard to method of observation:

> **"4.2 Method of observation (visual or measurement)**
>
> "The expression of characteristics can be observed visually (V) or by measurement (M).
>
> "4.2.1 Visual observation (V)
>
> "4.2.1.1 "Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts).
>
> […]
>
> 4.2.2 Measurement (M)
>
> Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

3. The following examples are intended to illustrate the ways of considering the method of observation for characteristics such as time of flowering and counts.

Example 1: Time of Flowering

	Time of flowering	
QN	early	3
	medium	5
	late	7

Scenario A (Explanation: the time of flowering is when 50% of plants have emitted the stigma in the main panicle)

4. The DUS trial is visited on various dates to assess whether each variety has reached the time of flowering. The assessment of whether 50% of plants have emitted the stigma in the main panicle is made by counting the number of plants that have emitted their stigmas to determine the percentage, or by an overall assessment of the percentage.

5. In this case, the method of observation would be measurement (M), because the determination of the state of expression will be according to the date (= measurement on a time scale) at which a variety was found to have reached the time of flowering. A date is recorded for each variety, which is transformed into notes after assessment of all varieties.

Scenario B (Explanation: the time of flowering is assessed on a single visit)

6. The DUS trial is visited on one or more occasions to assess the time of flowering by reference to example varieties.

7. In this scenario, the time of flowering is a visual (V) observation because an overall visual observation is made as to the time of flowering for a particular variety by reference to the state of flowering of example varieties, without reference to a date of visit. A note is recorded for each variety in relation to the variation between varieties (e.g. early, medium, late).

Example 2: Number of Leaf Lobes

Leaf blade: number of lobes	
none	1
three	2
five	3
seven	4

8. The number of lobes is observed by an overall observation, i.e. it is not necessary to "consciously" count the number of lobes, because the numbers are very small. However, because the characteristic relates to a number, it should be indicated as a measurement (M).

Comments by the Technical Working Parties at their Sessions in 2011

9. The TWA, the TWC, the TWV, the TWO and the TWF considered the background information concerning "Guidance for method of observation (see Annex II) and noted the comments by the TWPs at their sessions in 2010. (See documents TWA/40/23 "Report", paragraph 14, TWC/29/31, "Report", paragraph 12, TWV/45/26 "Report", paragraph 15, TWO/44/26 "Report", paragraph 15, TWF/42/26 "Revised Report", paragraph 14.)

10. The TWC agreed that any records of observation by notes correspond to a visual (V) observation. (See document TWC/29/31 "Report", paragraph 13.)

11. The TWF welcomed the observation by the Technical Working Party on Automation and Computer Programs (TWC), at its twenty-ninth session, held from June 7 to 10, 2011, that any records of observation by notes correspond to a visual (V) observation (see

document TWF/42/11, paragraph 24). The TWF agreed that this guidance should be included in TGP/7. (See document TWF/42/26 “Revised Report”, paragraph 15.)

[Annex III follows]

ANNEX III

EXAMPLE VARIETIES

PROPOSAL PREPARED BY AN EXPERT FROM FRANCE

Discussion

1. UPOV Test Guidelines are essential tools to achieve harmonization of variety descriptions throughout UPOV members and to take good decisions on Distinctness, Uniformity and Stability ("DUS").

2. Harmonization is based on different elements:

- Test design (plant material, number of plants, lay out …)
- List of characteristics with states of expression, notes, example varieties …
- Explanations of how observations should be made
- Decision rules on Distinctness, Uniformity and Stability.

3. Since the first Test Guidelines, example varieties for all or some of the states of expression of each characteristic in a Test Guidelines have been considered as an important element for the harmonization of variety descriptions. An example variety for at least some notes in a scale is essential to define more precisely the state of expression related to the corresponding note and, in principle, offers the possibility to compare descriptions established in different environments.

Conditions to be fulfilled to have an efficient set of example varieties across UPOV members

4. The conditions can be listed as follows:

(a) Example varieties must be well-known across the member States, freely accessible and with plant material available on request by the examination offices;

(b) As far as possible, for a given characteristic the set of example varieties must cover the full range of variation known in the species;

(c) The expression of a given characteristic must not change too much in relation to the environment; and

(d) Considering a set of example varieties for a characteristic, the rank of each example variety must not change compared to the others across different environments. In other words, the interaction between example varieties and the environment must not be significant.

Current situation in the Test Guidelines

5. When UPOV comprised only a few member States, only a small number of countries had a specific interest in the new or revised Test Guidelines for a particular crop or species. The preparation of the draft Test Guidelines included a significant amount of time to define the set of example varieties, including exchange of data, comparison of descriptions on a

common set of potential example varieties and ring-tests to determine the best varieties with a broad consensus. That was already difficult and was not always achievable.

6. With the expansion of UPOV membership to cover all continents, this kind of approach became increasingly difficult for the following reasons:

(a) The range of variation of a characteristic in a species can be completely different depending on the agro-climatic areas and the breeding programs in the world: frequently only a part of this variability can be grown in certain parts of the world, due to physiological traits. As an example, soybean varieties grown in the Southern hemisphere cover a wide range of earliness and only the earliest ones can be grown in the Northern hemisphere;

(b) The interaction between variety and environment can be very important and leads to very different descriptions of varieties between different locations. As an example, the characteristic "Seasonal type" in wheat observed under cold or warm climates will not produce the same description and the expression of many other characteristics included in the Test Guidelines will be modified. The varieties do not reach a correct development; and

(c) The availability of plant material is increasingly difficult and sometimes impossible to obtain for phytosanitary reasons or due to the variety turnover.

7. This situation leads to more and more difficulties to determine a common set of example varieties for all characteristics in new or revised Test Guidelines.

8. We can observe that for many UPOV members, specific sets of example varieties are used (see the UPOV Seminar on DUS Testing, held in Geneva, from March 18 to 20, 2010, *http://www.upov.int/en/documents/dus_seminar/dus_seminar_index.html*) and in some parts of the world, efforts have been made to develop regional sets of example varieties (Rice in Asian countries (see TG/16, Annex "Example Varieties: North East Asia"), Maize in European countries).

PROPOSAL TO IMPROVE THE SITUATION

9. Based on current experience, we observe that generally the sets of example varieties in new or revised Test Guidelines are only partially complete or, when required for asterisk characteristics, only based on proposals made by the Leading Expert. Except for a few characteristics, no systematic efforts are made to check if they are adequate in other UPOV members. Therefore, the question of example varieties might be tackled by another approach.

10. The following points will consider the different steps which must be considered and the solutions which can be adopted:

<u>Firstly: check if example varieties are useful or not for each characteristic.</u>

11. Two elements must be considered to evaluate the necessity to establish a set of example varieties:

(a) The type of expression (QL, QN, PQ) of the characteristic as defined in the General Introduction to the Examination of DUS and Development of harmonized Descriptions of new Varieties of Plants (see document TG/1/3, Chapter 4.4 “Types of Expression of Characteristics”);

(b) The susceptibility of characteristic’s expression to environmental effect.

12. In case of qualitative (QL) characteristics and, to a certain extent Pseudo-qualitative (PQ) characteristics, descriptions can be made without any reference to a set of example varieties even if they are not so difficult to obtain. Illustrations, drawings, international references (e.g. color chart) or explanations are generally sufficient to guide the observer. This solution could avoid the need for a list of example varieties, which are not always available for all interested UPOV members, and would save time when developing Test Guidelines.

13. Chapter 8 of the Test Guidelines (Explanations on the Table of Characteristics”) and document TGP/14 “Glossary of Terms Used in UPOV Documents” are useful tools to develop descriptions for these types of characteristics. The development of digital pictures is also available to provide illustrations of levels of expression without indication of the variety name.

14. Recommendations could be made to the drafters of Test Guidelines (Leading Experts) to use these tools as much as possible, including the possibility to refer to a specific paragraph of document TGP/14.

Secondly: refer to regional sets of example varieties

15. For Quantitative (QN) characteristics and some PQ characteristics, we must admit that it is not possible to develop a universal set of example varieties for a characteristic in the Test Guidelines that is applicable for all UPOV members.

16. It must be emphasized that a variety description for quantitative characteristics greatly depends on the location and the time when it is established.

17. A stable set of example varieties for a country or region is a good tool to control the interaction between variety and environment but, at the worldwide level, it is not possible to establish a universal set of example varieties that would be useful and applicable for all interested UPOV members.

18. The UPOV Test Guidelines do not promote real harmonization for quantitative characteristics if sets of example varieties are only used in a few countries.

19. It would be better to promote the development of regional sets of example varieties as already done for certain crops. UPOV could further develop the system of registering these sets with the indication of their origin and the agro-climatic area covered.

20. With such a system, any UPOV member willing to develop a DUS test on a species, or to get more information on a variety description, could refer to the most appropriate set of example varieties according to its own agro-climatic conditions. If no set was available, it could develop its own set according to rules which could be established by UPOV in document TGP/7 “Development of Test Guidelines”.

Comments by the Technical Working Parties at their Sessions in 2011

Technical Working Party for Agricultural Crops (TWA)

21. At its fortieth session, held in Brasilia, Brazil, from May 16 to 20, 2011, the TWA considered document TWA/40/18 and noted the comments from the TWPs in 2010. The TWA agreed that, for the time being, it was not necessary to redraft the proposal prepared by an expert from France concerning example varieties (see Annex to document TWA/40/18) and that it would be discussed on the Monday session of the TC in 2012. The TWA recommended that the TC should consider the possibility for national authorities to exchange example varieties. The expert from the Republic of Korea noted that it might be useful to have contact details of the relevant experts (see document TWA/40/23 "Report", paragraph 18).

Technical Working Party on Automation and Computer Programs (TWC)

22. The TWC considered document TWC/29/18 and noted the comments from the TWPs in 2010 and the Technical Working Party for Agricultural Crops (TWA), at its fortieth session, held in Brasilia, Brazil, from May 16 to 20, 2011. The TWC agreed with the comments made at that session of the TWA (see document TWC29/31 "Report", paragraph 17).

Technical Working Party for Vegetables (TWV)

23. At its forty-fifth session, held in Monterey, United States of America, from July 25 to 29, 2011, the TWV considered document TWV/45/18.

24. The TWV noted that TGP/7 "Development of Test Guidelines", Guidance Note GN 28 states as follows:

> *"1. Purpose of example varieties*
>
> "The General Introduction (Chapter 4.3) states that "example varieties are provided in the Test Guidelines to clarify the states of expression of a characteristic." This clarification of the states of expression is required with respect to two aspects:
>
> (a) to illustrate the characteristic and/or
>
> (b) to provide the basis for ascribing the appropriate state of expression to each variety and, thereby, to develop internationally harmonized variety descriptions."

25. The TWV agreed that example varieties in the UPOV Test Guidelines could not be expected to provide internationally harmonized variety descriptions. It proposed that GN 28 be revised to explain that example varieties would be useful for: (a) members of the Union to be able to establish a range of expression for characteristics for crops and species in which they did not have experience; and (b) inclusion in the Technical Questionnaire as a basis for guidance for applicants. The TWV further agreed that it would discuss the role of example

varieties in the Monday morning session of the Technical Committee in 2012. (See document TWV/45/26 “Report”, paragraph 19 to 21.)

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

26. The TWO at its forty-fourth session held in Fukuyama City, Hiroshima Prefecture, Japan, from November 7 to 11, 2011, did not agree with the general view expressed by the TWV at its forty-fifth session, that example varieties in the UPOV Test Guidelines could not be expected to provide internationally harmonized variety descriptions. The TWO noted that example varieties could provide the basis for useful international harmonization of variety descriptions for ornamental varieties, as indicated in the model study for Petunia (document TWO/37/8) where it had been seen that there was a high level of consistency for the states of expression across varieties. (See document TWO/44/25 “Report”, paragraph 18.)

The Technical Working Party for Fruit Crops (TWF)

27. The TWF at its forty-second session in Hiroshima, Japan, from November 14 to 18, 2011 considered the document TWF/42/18 and agreed to add a new paragraph after paragraph 13:

> “Test Guideline drafters should take steps to ensure that example varieties proposed by other members of the subgroup are compatible with those provided by the leading expert for that characteristic. This is of particular importance for quantitative characteristics (QN). The best approach would be for a subgroup member to propose a full set of varieties for that characteristic.”

28. The TWF expressed the need to develop guidelines for leading experts on how to accept the example varieties proposed by the other experts, following the principles of regional sets of example varieties, as set out in document TWF/42/18.

29. The TWF supported the revision and review of example varieties and agreed to only include varieties which are readily available.

30. The TWF also agreed with the proposal that this issue be discussed on the Monday session of the TC meeting in 2012. (See document TWF/42/26 “Report”, paragraphs 18 to 21).

[Annex IV follows]

ANNEX IV

PROVIDING PHOTOGRAPHS WITH THE TECHNICAL QUESTIONNAIRE

PROPOSAL PREPARED BY EXPERTS FROM THE EUROPEAN UNION

	Comments from the Technical Working Parties in 2011	
General	The TWA agreed that the examples for guidance on photographs for specific crops could be provided in a new annex to document TGP/7. The experts from Japan informed the TWA that such guidance was available and could be provided to be incorporated in that annex. The expert from the Republic of Korea commented that, when taking pictures of a candidate variety, similar varieties may be included.	TWA
	The TWF considered document TWF/42/12 and noted the comments of the Technical Working Parties.	TWF

Additional Standard Wording (ASW)

1. Currently, TGP/7 (TG Template: Chapter 10: TQ 7.3) ASW 16 "Where a photograph of the variety is to be provided" states the following:

> "A representative color photograph of the variety should accompany the Technical Questionnaire"

2. That text could be expanded in the Technical Questionnaire (TQ) in order to briefly explain to applicants the purpose of the color photograph. A web link could also be created via the new text in the TQ in order to provide greater details on the best manner in which to take photographs, based on documents TWO/42/16 and TWF/40/14. The proposed new text for ASW 16 could read as follows:

> "A representative color photograph (image) of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. [A photograph provided according to the specified requirements (see …. [authority reference to be added]) will help the examination authority to prepare its examination of distinctness in a more efficient way, by giving a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire. The information provided by the photograph may be used in the selection of the most appropriate varieties of common knowledge to be grown alongside the candidate variety in the trial, as well as to group the variety optimally within the DUS trial. -][#]"

[#] Authorities may include this section, duly completed, if appropriate

	Comments from the Technical Working Parties in 2011	
	The TWA considered document TWA/40/12 and proposed that the text should read as follows: (a) ASW 16 to read as follows: "A representative color photograph (image) of the variety displaying its main distinguishing feature(s),should* accompany the Technical Questionnaire. [A photograph provided according to the specified requirements (see …. [authority reference to be added]) will help the examination authority to prepare its examination of distinctness in a more efficient way, by giving a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire. The information provided by the photograph may be used in the selection of the most ~~appropriate~~similar varieties of common knowledge to be grown alongside the candidate variety in the trial, as well as to group the variety optimally within the DUS trial. ~~For greater details, please consult the following weblink: www.[…….].~~]	TWA TWO

Guidance for applicants on providing suitable photographs of the candidate variety as accompaniment to the Technical Questionnaire

Introduction

31. The taking of photographs of candidate varieties is influenced by factors, such as light conditions~~,~~ and the background. The perception of the photograph can also be affected by the quality of the camera, as well as the resolution of the screen on which the image is viewed, or the quality of the paper and ink for developed photographs. It is certainly not possible to standardize all conditions when photos are taken in the premises of applicant but this document aims to provide guidance in order to provide meaningful and coherent information on the candidate variety, while decreasing the influence of the origin of the photograph (location, equipment, etc). By decreasing the influence of these external factors on the taking of photographs, it will help to ensure that "color", the most significant trait liable to be affected by such factors, will be reliably represented in photographs provided by applicants.

* Strikethrough (deletions)/Underlining (additions) (highlighted in grey) indicate amendments proposed by the TWA at its fortieth meeting held in Brasilia from May 16 to 20, 2011.

	Comments from the Technical Working Parties in 2011	
	The TWC considered document TGP/7 "Development of Test Guidelines" (document TWC/29/12) and proposed the text should read as follows: *"Introduction* The taking of photographs of candidate varieties is influenced by factors, such as light conditions, quality and setting of camera and the background. The perception of the photograph can also be affected by the quality, settings and resolution of the screen and printout or developed photographs. It is certainly […]"	TWC

Criteria for taking photographs

Format
Photographs must be in color and submitted either in print form of at least 10 cm x 15 cm, or as an electronic photo in jpeg format (minimum 960x1280 pixels). It should be noted that different makes/models of computer screens can influence the expression of the color and the advantage of a printout is that the applicant can make a comment, e.g. actual color darker, and the examination office would see exactly the same printout. The photograph must be well focused and aim to have the plants or plant parts occupy as much of the frame of the photograph as possible.

	Comments from the Technical Working Parties in 2011	
Format	The TWC agreed to add the advantages of having an image in electronic format in paragraph 5, e.g. additional information in the image on the camera type and settings, and possibilities for digital storage, display and analysis.	TWC
	to amend "examination office" to read "examination authority"	TWO

Best time for taking photographs

Photographs must illustrate plants of the candidate variety at the stage when the distinctive features of the variety are most apparent. Often this is when the plants are fully developed and at the stage when they are of commercial value (e.g. flowering for many ornamentals, fruiting for many fruit species), which usually corresponds to the main set of characteristics in the corresponding UPOV guideline for the species in question.

Optimal photographic environment

Photographs should be taken under adequate light conditions and with an appropriate background. It is preferable to have photographs taken indoors, since one can ensure homogenous photographic conditions irrespective of the type of photographs and number of candidate varieties supplied by the same applicant. The background of the photograph should be neutral (e.g. off-white in case of dark colors or grey in case of light colors) and should not have a shiny surface. If the photograph is taken indoors, then this should preferably be done in the same room and under artificial light conditions which will ensure identical and ample luminosity on repeated occasions over time. If a photograph has to be taken outdoors, then this should not be in direct sunlight but in a shaded area with as much indirect natural light as possible or on a cloudy day.

	Comments from the Technical Working Parties in 2011	
	title of paragraph 7 of document TWA/40/12 to be amended as follows: *"~~Optimal~~ photographic environment"*	TWA TWO
	The TWV considered document TWV/45/12. It agreed that the status of the photographs was indicated by the proposed new text for ASW 16 (see document TWV/45/12, paragraph 3) as follows: "…A photograph provided according to the specified requirements (see …. [authority reference to be added]) in an appropriate format will help the examination authority to prepare its examination of distinctness in a more efficient way, by giving a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire…"	TWV

Precisions on growing conditions

The plants of the candidate variety appearing in the photographs should have been grown under standard growing conditions for the crop in question, as may have been indicated in the Technical Questionnaire (e.g. indoor, outdoor, season of the year). If this is not the case, then any possible alteration in the expression of the characteristic(s) appearing in the photographs must be specified (e.g. seasonal conditions may influence the color and pattern of fruit and flowers, such as over coloring in apple according to outdoor light intensity and night temperatures, delphinium grown either outdoors or indoors). Furthermore, the photographs must not illustrate the original bred or discovered plant, or in the case of a new mutation or sport the plant part from which the variety originated. Instead, the photograph supplied must be based upon plants or trees propagated from the original plant or plant part.

	Comments from the Technical Working Parties in 2011	
	to delete the last two sentences of paragraph 8 of document TWA/40/12: *"Precisions on growing conditions* "8. The plants of the candidate variety appearing in the photographs should have been grown under standard growing conditions for the crop in question, as may have been indicated in the Technical Questionnaire (e.g. indoor, outdoor, season of the year). If this is not the case, then any possible alteration in the expression of the characteristic(s) appearing in the photographs must be specified (e.g. seasonal conditions may influence the color and pattern of fruit and flowers ~~of flowers in certain ornamental species~~, such as over coloring in apple according to outdoor light intensity and night temperatures, delphinium grown either outdoors or indoors). ~~Furthermore, the photographs must not illustrate the original bred or discovered plant, or in the case of a new mutation or sport the plant part from which the variety originated. Instead, the photograph supplied must be based upon plants or trees propagated from the original plant or plant part.~~"	TWA
	To replace the first two sentences with a request for the applicant to provide information on the date and location of the photograph. To delete the last two sentences.	TWO

Plant organs to be displayed

The photographs should show the plant parts which are a distinguishing feature of the candidate variety, as well as those of the whole plant and the most important commercial organs (flower, fruit, etc.). If the distinctive features of the candidate variety are very specific (e.g. seed size, shape of leaf/flower/fruit, length of awns, color pattern of flower/fruit, etc.) it is recommended to remove these plant parts from the plant and take a well-focused close-up photograph of them.

Similar varieties

Although not a requirement, the applicant may wish to illustrate differences between the candidate variety and the variety thought to be the most similar as nominated by him/her under point 6 of the Technical Questionnaire, by providing photographs of the candidate variety alongside the aforesaid similar variety. In such photographs, the distinguishing plant parts of the candidate variety should be photographed alongside the same plant parts of the nominated similar variety.

Where there is more than one similar variety named by the applicant, a separate photograph of the relevant plant parts of the candidate variety and each of those of the similar varieties could be provided.

	Comments from the Technical Working Parties in 2011	
	to modify the second sentence of paragraph 10 of document TWA/40/12 to read "nominated similar variety(ies)": "*Similar varieties* 93. ~~If t~~Although not a requirement, the applicant may wish~~wishes~~ to illustrate differences between the candidate variety and the variety thought to be the most similar ~~by the applicant~~ as nominated by him/her under point 6 of the Technical Questionnaire, ~~it may be useful to~~ by providinge photographs of the candidate variety alongside the aforesaid similar variety. In such photographs, the distinguishing plant parts of the candidate variety should be photographed alongside the same plant parts of the nominated similar variety(ies). ~~In order to have consistency in the display of such photographs for the use of the examination office, the candidate variety must always be on the left side of the photograph taken alongside the similar variety; special care must also be taken that both the candidate variety and the similar variety are correctly labeled.~~ Where there is more than one similar variety named by the applicant, a separate photograph of the relevant plant parts of the candidate variety and each of those of the similar varieties could be provided."	TWA

Labeling

To avoid any possible mix-up of photographs with other candidate varieties in the DUS trial, the candidate variety (and where relevant the similar variety) appearing in a photograph must be clearly labeled with the breeder's reference and/or (proposed) variety denomination; trade names may be used only in addition to the breeder's reference and/or (proposed) variety denomination.

	Comments from the Technical Working Parties in 2011	
	to delete the beginning of paragraph 11 of document TWA/40/12: "*Labeling* "94. ~~To avoid any possible mix-up of photographs with other candidate varieties in the DUS trial, the candidate variety (and where relevant the similar variety) appearing in~~ A photograph must be clearly labeled with the breeder's reference and/or (proposed) variety denomination; trade names may be used only in addition to the breeder's reference and/or (proposed) variety denomination."	TWA

Metric scales
A metric scale in centimeters – also millimeters where a close-up photograph has been taken – should ideally appear along the horizontal and vertical margins of the photograph.

Color characteristics
For ornamental species, it should be noted that whilst a photograph may broadly depict color, reference to the relevant RHS Colour Chart placed alongside the pertinent plant organ (e.g. flower) provides greater precision. For other crop sectors, industry-recognized color charts can also be displayed alongside the pertinent plant organ (e.g. apple fruit). Likewise, the color itself of the plant organ may not be the most representative feature of the candidate variety but rather the color pattern (e.g. pattern of over color in apple fruit, stripes/spots/netting in phalaenopsis), and this can be well illustrated in a clear photograph.

	Comments from the Technical Working Parties in 2011	
	to delete explanation that "a photograph may broadly depict color"	TWO

Guidance Note in association with Additional Standard Wording for drafters of Test Guidelines

32. It is proposed to add the following guidance in document TGP/7 in conjunction with the ASW proposed above:

"Photographs should only be requested by PBR authorities if this would serve to supplement the information in the Technical Questionnaire. The purpose of the photograph is to provide useful and discriminatory information about the candidate variety for the organization of the DUS technical examination. The photograph may be published in the PBR authority's Official Journal to inform third parties of the details of new applications. The information provided by photographs submitted by the applicant–may in particular be useful for ornamental and fruit species, but certain other agricultural and vegetable species can also benefit from having photographs in order to have an optimal DUS trial design. In essence, the photographs complement the information furnished in the technical questionnaire and provide visual information on how a variety may be distinct from similar varieties of common knowledge, thereby assisting in the determination of reference varieties to be included or excluded in the DUS trial."

[End of Annex IV and of document]