E

UPOV

TC-EDC/Jan11/2
ORIGINAL: English
DATE: November 22, 2010

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

ENLARGED EDITORIAL COMMITTEE

Geneva, January 6, 2011

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-sixth session, held in Geneva from March 22 to 24, 2010 (see document TC/46/15 "Report on the Conclusions", paragraph 31), on the basis of the comments made by the Technical Working Parties (TWPs) at their sessions in 2010.

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. COVERAGE OF ORNAMENTAL VARIETIES IN TEST GUIDELINES

4. It is proposed to introduce new Additional Standard Wording (ASW) for Chapter 1 of the Test Guidelines in a 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 TGP7 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.

II. QUANTITY OF PLANT MATERIAL REQUIRED

5. It is proposed that the guidance in document TGP/7/2, 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:

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

6. It is proposed that Additional Standard Wording (ASW) 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.

7. In addition, it is proposed that the guidance in document TGP/7, GN 7 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, a summary of the following information would 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:

(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)

III. APPLICATIONS FOR VARIETIES WITH LOW GERMINATION

8. No proposals have been made to revise TGP/7 in relation to this matter, for the time-being.

IV. NUMBER OF PLANTS TO BE CONSIDERED FOR THE ASSESSMENT OF DISTINCTNESS

9. This matter is considered in document TC-EDC/Jan11/6.

V. SELECTION OF ASTERISKED CHARACTERISTICS

10. It is proposed 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, it is proposed that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics is appropriate and sufficient, and that it is only necessary to ensure that the guidance is followed in the development of Test Guidelines.

VI. INDICATION OF GROUPING CHARACTERISTICS

11. It is proposed not to revise document TGP/7 in order to include an indication of grouping characteristics in the Table of Characteristics in the (UPOV) Test Guidelines.

VII. GUIDANCE FOR METHOD OF OBSERVATION

12. It is proposed that document TGP/7/2, GN 25 “Recommendations for conducting the examination” be extended to provide guidance, by means if 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 provided in Annex VII to this document and the comments made on those examples by the Technical Working Parties.

VIII. EXAMPLE VARIETIES

13. It is proposed that the Technical Committee be invited to consider the proposal, prepared by an expert from France, presented in Annex VIII and the comments of the Technical Working Parties in relation to that proposal.

IX. PROVIDING PHOTOGRAPHS WITH THE TECHNICAL QUESTIONNAIRE

14. A proposal prepared by experts from the European Union, and the comments of the Technical Working Parties on that proposal, is presented in Annex IX to this document. On that basis a new proposal, developed by experts from the European Union, is presented in document TC-EDC/Jan11/10.

X. STANDARD REFERENCES IN THE TECHNICAL QUESTIONNAIRE

15. This matter is considered in document TC-EDC/Jan11/7.

[Annexes follow]

ANNEX I

BACKGROUND INFORMATION CONCERNING: COVERAGE OF ORNAMENTAL VARIETIES IN TEST GUIDELINES

BACKGROUND

1. Document TC/46/2 "Test Guidelines", considered by the Technical Committee (TC) at its forty-sixth session, held in Geneva from March 22 to 24, 2010, presented a proposal by the Technical Working Party for Ornamental Plants and Forest Trees (TWO) concerning the Test Guidelines for Cassava, being developed by the Technical Working Party for Agricultural Crops (TWA) and the Technical Working Party for Vegetables (TWV), and the Test Guidelines for Rosemary, being developed by the TWV. The TWO proposed that the following sentence be provided in Chapter 1 of the Test Guidelines:

> "These Test Guidelines apply to all varieties of
> [Manihot esculenta Crantz. (for Cassava)] / [Rosmarinus officinalis L. (for Rosemary)].
>
> " In the case of ornamental varieties, it may, in particular, be necessary to use additional characteristics to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability."

On that basis, the TWO agreed that it would not be necessary for the TWO to consider the draft Test Guidelines currently under development.

2. The TC agreed to that approach (see document TC/46/15 "Report on the conclusions", paragraph 101). On that basis, the wording above could be introduced as new Additional Standard Wording (ASW) for Chapter 1 of the Test Guidelines in a revision of TGP/7 "Development of Test Guidelines".

COMMENTS BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

3. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/11 (see document TWA/39/27 "Report", paragraphs 38 and 39).

4. The TWA agreed that the proposed Additional Standard Wording (ASW) in document TWA/39/11, paragraph 1 might be extended to cover other situations by amending it to read as follows:

> "In the case of [ornamental] [fruit] [industrial] [vegetable] [agricultural] [etc…] varieties, in particular, it may be necessary to use additional characteristics to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability."

5. In making the proposal for ASW, the TWA agreed 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.

6. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, considered

document TWC/28/11 and suggested that consideration might be given to whether the asterisked characteristics would necessarily be appropriate for types of varieties for which additional characteristics would be needed beyond those included in the Test Guidelines (see document TWC/28/36 “Report”, paragraph 29).

7. The TWV, at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, agreed with the TWA proposal, as set out above (see document TWV/44/34 “Report”, paragraph 34).

8. The Technical Working Party for Ornamental Plants and Forest Trees (TWO), at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, considered document TWO/43/11 and supported the Additional Standard Wording (ASW) proposed by the TWA, as follows (see document TWO/43/29 Rev. “Report”, paragraph 30) :

> “In the case of [ornamental] [fruit] [industrial] [vegetable] [agricultural] [etc…] varieties, in particular, it may be necessary to use additional characteristics to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability.”

9. The Technical Working Party for Fruit Crops (TWF), at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010 considered document TWF/41/11 and proposed that the proposed Additional Standard Wording (ASW) in document TWF/41/11, paragraph 1 might be extended to cover other situations by amending it to read as follows (see document TWF/41/30 Rev. “Report”, paragraph 28):

> “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.”

[Annex II follows]

ANNEX II

BACKGROUND INFORMATION CONCERNING: QUANTITY OF PLANT MATERIAL REQUIRED

PROPOSAL PREPARED BY AN EXPERT FROM THE NETHERLANDS

Introduction

1. At its thirty-fourth session, held in Angers, France, from September 11 to 15, 2000, the Technical Working Party for Vegetables (TWV) considered document TWV/34/11 "Survey on required amount of plant material to be submitted, plant number in the field and sample size in the existing UPOV Test Guidelines", which proposed a systematic approach for determining the required amount of plant material on the basis of a formula to produce the required number of plants in the field.

2. The report of the thirty-fourth session of the TWV (document TWV/34/15) stated as follows:

> "21. An expert from the Netherlands explained document TWV/34/11, which proposed a systematic approach for determining the required amount of plant material on the basis of a formula to produce the required number of plants in the field.
>
> "22. Several experts referred to the need to take into account additional amounts required for reference collection and post-control tests. However, the Chairman noted that the average life span for vegetable seed in storage was not very long and that the renewal of seeds was usually essential. The Working Party confirmed that the proposal and UPOV Test Guidelines were just recommendations for the required amounts at a national level. However, the systematic framework presented in the proposal could be the basis for each country to determine the required numbers in accordance with additional needs prevailing for their circumstances.
>
> "23. In general, the Working Party found the proposal very reasonable and useful. The proposal would restrict the amount of plant material to that really needed and, in addition, address the question frequently received from applicants as to why so much plant material should be submitted. The Working Party decided to follow the proposal in principle for preparation of UPOV Test Guidelines and to send the document to other Technical Working Parties for their reference.
>
> "24. The Working Party decided to specify the required seed number rather than, or in addition to the required seed weight in vegetable Test Guidelines where this was more appropriate."

3. In the TWV sessions, the quantity of plant material (number or amount in grams of seed, number of plants), the number of plants in the test and the number of plants or parts of plants to be examined continues to be a subject for discussion in the drafting or revision of Test Guidelines. The number of plants to be included seems more dependent on the usual crop management than on comparable statistical approaches. In some cases, with extra tests such as resistance tests, the number of plants required seems to have no relation to the number of plants in the test or the number of plants to be measured.

Current Guidance

4. Guidance on the quantity of plant material required and the test design is provided by document TGP/7.

Quantity of plant material required

5. Document TGP/7/2 Draft 5, Annex 3: Guidance Notes (GN) for the TG Template, states as follows:

"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 ~~should~~ often corresponds to the number of plants specified in Chapters 3.4 *[cross ref.]* "Test Design" and 4.2 "Uniformity". In that respect, it is recalled the quantity of plant material specified in Chapter 2.3 [cross ref.] 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 Section 1.1.2 (a) *[cross ref.]*). 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."

Test design

6. Document TGP/7/2 Draft 5, Annex 3: Guidance Notes (GN) for the TG Template, states as follows:

"GN 10 (TG Template: Chapter 3.4) – Test design

"Document TGP/8, Use of Statistical Procedures in DUS Testing contains guidance on experimental design."

7. Document TGP/8/1 Draft 15, Part I: 1. DUS Trial Design, states as follows:

"1.5.2 Number of Plants in the trial

"~~1.5.2.1~~ The number of plants/~~parts of plants to be examined~~ in the trial is influenced by several factors such as genetic structure of the variety, way of reproduction of the species, the agronomic features and the "feasibility" of the trial. The most significant criteria to determine the number of plants are, ~~and, in particular,~~ the variability within and between varieties, and the method of assessment of distinctness and uniformity.

"~~1.5.2.2 Where there is, in general, low variability within varieties and large variability between varieties (e.g. for many vegetatively propagated varieties of fruit and ornamental crops), characteristics can be visually observed, and it is not necessary to examine a large number of plants/parts of plants to examine DUS. For these crops, distinctness can be assessed by side-by-side visual comparison. Uniformity is assessed by off-types, on the basis of all plants in the plot.~~

"~~1.5.2.3 Where there is, in general, low variability within varieties and also low variability between varieties, and a large number of varieties, more precision is required. In this situation, such as in some self-pollinated varieties, the number of plants to be examined is, in general, larger than for vegetatively propagated varieties.~~

"~~1.5.2.4 Where statistical analysis of individual plant data is used for the assessment of distinctness and uniformity, such as for cross-pollinated varieties, the number of plants to be examined will depend on the number of records necessary for the appropriate statistical analysis. See section 1.5.3.1.3~~"

Number of Plants / Parts of Plants to be Examined

8. Document TGP/7/2 Draft 5, Annex 1: TG Template, Chapter 4.1.4, states as follows:

"4.1.4 Number of Plants / Parts of Plants to be Examined

"Unless otherwise indicated, all observations for the purposes of distinctness should be made on { x } plants or parts taken from each of { x } plants, disregarding any off-type plants.

"{ **ASW 7(b)** (Chapter 4.1.4) – Number of Plants / Parts of Plants to be Examined }"

9. Document TGP/7/2 Draft 5, Annex 2: Additional Standard Wording (ASW) for the TG Template, ASW 7(b), states as follows:

"ASW 7(b) (Chapter ~~3.5~~ 4.1.4) – Number of plants / parts of plants to be examined

"~~(a) Test Guidelines where all plants in the test are observed for all characteristics~~
The following sentence may be added where appropriate:

"In the case of observations of parts of plants, the number of parts to be taken from each of the plants should be { y }."

"~~(b) Test Guidelines where the observation of certain characteristics is made on a sample of plants in the test~~
~~Alternative 1: "Unless otherwise indicated, all observations on single plants should be made on { x } plants or parts taken from each of { x } plants and any other observations made on all plants in the test."~~

"~~Alternative 2: "Unless otherwise indicated, all observations on single plants should be made on { x } plants or parts taken from each of { x } plants and any other observations made on all plants in the test. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be { y }."~~ "

Conclusion

10. The guidance in TGP documents for determining the quantity of plant material, the number of plants in the test (including resistance tests) and the number of plants to be examined is not comprehensive and the relation between those numbers of plants is not clearly defined.

Proposal

11. It is proposed to include guidance in document TGP/7 for determining the quantity of plant material, the number of plants in the test (including resistance tests) and the number of plants to be examined. To determine those quantities and numbers, the guidance should contain the following elements, which should be related:

(a) Quantity of plant material required:

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

(b) Number of plants in the test (including resistance tests?):

(i) Number of plants/ parts of plants to be examined
(ii) Variability within the crop
(iii) Type of observations
(iv) Features of propagation (e.g. cross pollination, self pollination, vegetative propagation)
(v) Crop type (e.g. root crop, leaf crop, fruit crop, cut flower, cereal, etc.)
(vi) Median number from the tables of uniformity levels

(c) Number of plants/parts of plants to be examined:

(i) Variability within the crop
(ii) Type of observations
(iii) Features of propagation (e.g. cross pollination, self pollination, vegetative propagation)

COMMENTS BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

12. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/12 (see document TWA/39/27 "Report", paragraphs 40 to 42).

13. The TWA observed that document TGP/7 already provided guidance with respect to the quantity of plant material required in Guidance Note GN 7 and recalled that attempts in the past to develop a formula to determine the quantity of plant material had not been successful. With regard to the development of any further guidance, the TWA agreed that such guidance should be confined to "Quantity of plant material required", as considered in paragraph 11 of document TWA/39/12 (paragraph (a) above), and should not extend to the matters covered in paragraph 11 (b) and (c). It also agreed that the guidance should seek to supplement the guidance already contained in GN 7, rather than starting afresh.

14. The TWA agreed that the guidance in 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. It also agreed that guidance should be provided on whether the quantity required related to both growing cycles in the case of Test Guidelines indicating two growing cycles. In that regard, it suggested that previous wording in Test Guidelines, before the adoption of document TGP/7, might provide a useful starting point.

15. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, noted that Section 4.1.2 of document TGP/7/2 Draft 5 specified that 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, or for a standard sample (see GN 7 "Quantity of plant material required")." (see document TWC/28/36 "Report", paragraph 31).

16. The Technical Working Party for Vegetables, at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, agreed with the TWA 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, the TWV 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 by the Leading Expert:

(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)

17. The TWV also agreed with the TWA that guidance should be provided on whether the quantity required related to both growing cycles in the case of Test Guidelines indicating two growing cycles. In that regard, it agreed that previous wording in Test Guidelines, before the adoption of document TGP/7, might provide a useful starting point (see document TWV/44/34 "Report", paragraphs 35 to 37).

18. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, considered document TWO/43/12.

19. The TWO agreed with the TWA proposal 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, the TWO 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 by the Leading Expert (see document TWO/43/29 Rev. "Report", paragraphs 31 and 32):

(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)

20. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/12 (see document TWF/41/30 Rev. "Report", paragraphs 29 and 30).

21. The TWF agreed with the TWA proposal 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, the TWF 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 by the Leading Expert:

(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)

[Annex III follows]

ANNEX III

BACKGROUND INFORMATION CONCERNING: APPLICATIONS FOR VARIETIES WITH LOW GERMINATION

DOCUMENT PREPARED BY AN EXPERT FROM THE NETHERLANDS

1. Certain types of inbred lines (often parent lines) have a low germination rate. These varieties are not marketed, but have a high value for breeding purposes. Therefore, breeders may wish to obtain breeders' rights for such varieties.

2. The aim of this document is to present a proposal to define the minimum standards for candidate varieties that are not to be marketed.

UPOV Guidance

3. In relevant UPOV Test Guidelines there is a paragraph about germination requirements:

Text from UPOV Test Guidelines before the adoption of document TGP/7/1 "Development of Test Guidelines"

> "The seed should at least meet the minimum requirements for germination capacity, moisture content and purity for marketing seed in the country in which the application is made. The germination capacity should be as high as possible."

Text in UPOV Test Guidelines according to document TGP/7/1 ASW 1 – "Seed Quality Requirements" (a)

> "The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should be stated by the applicant."

4. In the "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" document TG/1/3 nothing in particular is said about this subject. The text about the material to be submitted states the following:

> "2.5.1 Representative Plant Material
>
> "The material to be submitted for the examination of DUS should be representative of the candidate variety. In the case of varieties with a particular cycle of propagation, such as hybrid and synthetic varieties, this means that the material tested should include the final stage in the cycle of propagation.
>
> "2.5.2 General Health of Submitted Material
>
> "The plant material submitted for examination should be visibly healthy, not lacking in

vigor or affected by any important pests or diseases and, in the case of seed, should have sufficient germination capacity for the conduct of a satisfactory examination.

"2.5.3 Factors That May Affect the Expression of the Characteristics of a Variety

"The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc. In some cases (e.g. disease resistance), reaction to certain factors is intentionally used (see Chapter 4, section 4.6.1) as a characteristic in the DUS examination. However, where the factor is not intended for DUS examination, it is important that its influence does not distort the DUS examination. Accordingly, depending on the circumstances, the testing authority should ensure either that:

(a) the varieties under test are all free of such factors or,

(b) that all varieties included in the DUS test, including varieties of common knowledge, are subject to the same factor and that it has an equal effect on all varieties or,

(c) in cases where a satisfactory examination could still be undertaken, the affected characteristics are excluded from the DUS examination unless the true expression of the characteristic of the plant genotype can be determined, notwithstanding the presence of the factor."

Conclusion

5. Document TG/1/3 does not specify the germination of the submitted seed. The implementation of germination standards is the responsibility of the competent authority.

Background information from Naktuinbouw

Germination standards for inbred lines

6. In general, the competent authorities specify the requirements as they apply for certification or marketing. The Community Plant Variety Office (CPVO) refers in its protocols to the EU marketing directive for seed requirements: In directive 2002/55/EC Annex II, conditions to be satisfied for seed-propagated material and minimum germination requirements are given. Compared to germination standards for professional growers, these requirements are quite low.

7. Low germination usually occurs in inbred lines, and is usually a consequence of inbreeding. Technically, it is not always possible to obtain the prescribed minimal germination percentage. If these lines will not be brought into commercialization, there is no problem for the applicant. The matter to be addressed is whether requirements for germination for such varieties should be the same as for varieties which will be marketed. Germination requirements could be lower.

8. If the germination is lower, vitality will usually be lower. This could influence the plant development such that some of the characteristics may be influenced and a proper and reliable comparison against other varieties with regard to those characteristics may not be possible. In addition, the storage of the seed will affect germination and the seed might not meet conditions for reference purposes in a reliable DUS test. On the other hand, other characteristics will not be influenced and observations could still be made on those characteristics.

9. An example in melon: inbred lines usually have a lower germination, around 20% less than hybrid standard seed. The germination of many of the seeds will be delayed, some will not emerge and many will emerge more slowly. This will affect the plant characteristics (including time of flowering), but not the leaf and fruit characteristics.

10. In view of the above, it is advisable to allow lower germination requirements only in special cases when during the trial this does not pose problems with regard to a reliable comparison and to observation of characteristics and of uniformity. In practice, this will mean that after sowing a certain percentage of viable plants must be obtained or, if the germination is slower, this should not affect important (asterisked or grouping) characteristics. Characteristics which are affected should not be described. The applicant should be made aware that he runs the risk that the application could be rejected due to the aforementioned problems.

Proposal

11. Definition of applications for varieties with low germination:

- Varieties to be marketed: to follow the marketing directive (in cases that there is a marketing directive available)

- Varieties not to be marketed as indicated by the applicant: at the moment of application, follow the guidance as described below concerning inbred lines (parent lines), but only for inbred lines with low germination

Guidance for inbred lines with low germination

12. Minimum germination standards for candidate varieties (not to be marketed):
- Number of plants must be sufficient for testing
- Vitality of the plants must be sufficient
- To be judged by inspector from the competent authority

Examples[1]

- Egg plant: 20 seeds, only 2 germinated. This is not sufficient.
- Egg plant: 100 seeds, 20 germinated, of which 16 vital. This is not sufficient.
- Egg plant: 100 seeds, 20 germinated, of which 20 vital. This is sufficient.
- Melon: germination rate from parent lines tested was between 61% and 67%. This is sufficient if at least 43 seeds are sown.

Vitality

13. If, after germination, the vitality of the remaining plants is not sufficient to judge a sufficient number of plants according the corresponding UPOV Test Guidelines, the application should be rejected.

[1] The Test Guidelines (document TG/117/4 (Egg plant), see Chapter III.3 and TG/104/5 (Melon), see Chapter 3.5) indicate that each test should be designed to result in a total of at least 20 plants.

Uniformity

14. There is a risk for varieties with a low germination that there will be an unrepresentative selection of genotype (for example if the seeds do not germinate uniformly over time): this creates a doubt concerning uniformity. It is not possible to fully exclude this type of selection, however it is possible to minimize the risk.

15. Possible approaches to minimize this risk for parent lines in the case of doubt concerning uniformity:

(a) If the germination is not uniform, the inspector must decide if the early- and late-germinated plants should be judged in the trial together or if the late-germinated plants should be observed in a separate replicate in the same field trial. The latter is advised.

(b) Comparison of the results of at least two trials.

(c) Judgment of uniformity of hybrids from the inbred/parent line, in case of doubt.

(d) Molecular techniques are not advised. It is a costly procedure and if non-uniformity is found in the genome it is not clear if this non-uniformity is linked with morphology.

(e) Biochemical techniques: see explanation for molecular techniques

(f) Other techniques or methods?

Conclusions

- Applications for varieties with a low germination rate can be examined for DUS in conformity with UPOV principles.

- In case of doubt, there may be need to be extra trials with extra costs.

COMMENTS BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

16. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/13. The representative of the European Seed Association (ESA) reported that an ESA survey had concluded that there were very few cases concerning such low germination, and explained that the matter did not justify further consideration within UPOV for the time-being. He added that the International Seed Federation (ISF) had also arrived at the same conclusion. (see document TWA/39/27 “Report”, paragraphs 43 and 44).

17. The Technical Working Party for Vegetables, at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, noted the information provided in document TWV/44/13 (reproduced in this document), but agreed that the matter did not need to be pursued further at that time (see document TWV/44/34 “Report”, paragraph 38).

18. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, considered document TWO/43/13 and noted that the Technical Working Party for Vegetables, at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, had agreed that the matter did not need to be pursued further at that time (see document TWO/43/29 Rev. “Report”, paragraph 33).

19. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, noted the report of developments in document TWF/41/13 and that the Technical Working Party for Vegetables, at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, had agreed that the matter did not need to be pursued further at that time (see document TWF/41/30 Rev. "Report", paragraph 31).

[Annex IV follows]

ANNEX IV

BACKGROUND INFORMATION CONCERNING: NUMBER OF PLANTS TO BE CONSIDERED FOR THE ASSESSMENT OF DISTINCTNESS

DOCUMENT PREPARED BY AN EXPERT FROM GERMANY

Introduction

1. The General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants (TG/1/3) explains that:

> "2.4.1 For any variety to be capable of protection it must first be clearly defined. Only after a variety has been defined can it be finally examined for fulfillment of the DUS criteria required for protection. All Acts of the UPOV Convention have established that a variety is defined by its characteristics and that those characteristics are therefore the basis on which a variety can be examined for DUS."

2. This explanation clarifies that it is essential for the definition of a variety and the assessment of DUS to ensure accuracy and consistency in the observation of characteristics. A crucial element for the definition of a variety is the observation and identification of the "typical" expression of its characteristics. The "typical" expression of a characteristic in a variety is considered to be the mean expression under the specific environmental conditions, provided that the plants are vigorous, healthy and well developed. The mean expression considers possible variation between individual plants which may be caused by environmental and genetic factors.

3. The "typical" expression of the variety is the basis for the assessment of distinctness, uniformity and stability. The comparison of varieties for the assessment of distinctness is only possible if the examiner can be sure that the observed expression of characteristics is representative for the variety. In addition, it is only possible to identify off-types if the true-types can clearly be addressed.

4. Several aspects need 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
- appropriate description of the expression of characteristics under consideration of variation within and between varieties (according to Test Guidelines)

5. The minimum number of plants per variety for the reliable observation of the "typical" expression of characteristics is of particular importance. In general, this number is lower than the total number of plants in the growing trial because the total number of plants in the growing trial is influenced by other aspects such as the sample size for uniformity assessment, possible losses, agronomic factors, boundary plants etc.. This document does not consider the

total number of plants in the growing trial but discusses only the minimum number of plants for the observation of the "typical" expression.

6. Any comparison for the assessment of distinctness needs to be based on representative data of all varieties – candidate variety and similar varieties. If two similar varieties are compared in a growing trial for the assessment of distinctness, the "typical" expression of characteristics needs to be observed for both varieties under the specific environmental conditions. The precision and reliability of the comparison depends on the precision of both values to be compared.

7. The number of plants/parts of plants to be examined for the assessment of distinctness as indicated in the Test Guidelines according to document TGP/7/2 Draft 5, Annex I, Section 4.1.4 should give guidance on the minimum number of plants to be considered for the observation of the "typical" expression of a variety. Consequently, this minimum number applies to the candidate variety and to the similar variety.

8. Improved guidance will be provided in future in the Test Guidelines because, following the adoption of document TGP/7/2, the indication of the number of plants will be specified in relation to the:

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

9. Because this specification was not made in previously adopted Test Guidelines, the following examples reflect the experience in Germany.

Example: Barley

10. The Test Guidelines for Barley (document TG/3/11) are applied at the national level as follows:

(a) Number of plants in the trial

- 2,000 plants divided between two replicates (drill-plots, normal sowing density as used in practice)
- 1 plot with single spaced plants (low density: 4.2 m^2, 6 rows, 29 cm between rows, 5 cm between plants) – plots used for the observation of all characteristics where plants or parts of plants have to be removed from the plot.

11. In principle, all characteristics could be observed on drill-plots with normal sowing density, but for technical reasons it is better to remove plants or parts of plants from a plot with lower sowing density to be sure that individual plants are observed. Otherwise, all characteristics could be observed on plots with low sowing density, but that would require more space in the field.

(b) Number of plants/parts of plants to be examined for the assessment of distinctness

Characteristics to be observed on drill-plots (VG, MG):	1,000 plants (1 replicate)
Characteristics to be observed on plots with single spaced plants (VG, MS):	20 plants/parts of plants

12. The method of observation and the plot type are defined for each characteristic in the national guidelines.

c) Number of plants/parts of plants for the assessment of uniformity

Characteristics to be observed on drill-plots:	2,000 plants
Characteristics to be observed on single spaced plants:	100 plants/parts of plants

13. The same plot design is used for all varieties in the trial. For the assessment of distinctness, the same sample size is observed for candidate and similar varieties, i.e. the "typical" expression of the varieties is assessed with the same precision. Under consideration of the variation within and between varieties, experience has shown that the observation of 20 plants or parts of plants provides a reliable assessment of the mean expression of the variety. The 20 plants need to be representative for the variety, i.e. off-type plants are excluded when the sample is taken.

14. Several characteristics are observed on a sample size of approximately 1,000 plants for the assessment of distinctness. This sample size is chosen for technical reasons because there are approximately 1,000 plants in a plot and the observations are made on the plot as a whole. The plot size is sufficient to disregard any possible boundary and neighbouring effects and to disregard off-types. In any case, the number of plants provides a reliable, precise mean value of the variety. A slightly lower number of plants would not decrease the precision.

15. In barley and many other field crops, the same trial design is used for the candidate and similar varieties. In addition, the total number of plants per variety in the trial is much higher than the minimum number of plants which would be necessary for a sufficiently precise assessment of the mean expression of a variety. The minimum number of plants for the assessment of distinctness is a more critical aspect in the case of species with a low total number of plants per variety in the trial, for example in many fruit crops, roses and other trees or shrubs.

Example: Grapevine

16. The Test Guidelines for Grapevine (document TG/50/9) are applied for fruit varieties in grapevine at the national level as follows:

(a) Number of plants in the trial:

8 plants for candidate varieties
4 plants for varieties in the variety collection

(b) Number of plants/parts of plants to be examined for the assessment of distinctness:

4 plants

c) Number of plants/parts of plants for the assessment of uniformity:

8 plants (only applicable for candidate varieties)

17. Under consideration of the variation within and between varieties, experience has shown that the observation of 4 plants or parts of plants provides a reliable assessment of the mean expression of the variety. In grapevine, a sample with less than 4 plants carries the risk that the mean expression of a variety cannot be observed with sufficient precision and comparisons could be biased by environmental effects. The plants need to be representative for the variety, i.e. off-type plants are excluded when the characteristic is observed for the assessment of distinctness. In practice, characteristics assessed by a single observation/measurement on a group of plants (VG, MG) will be observed on all plants in the trial, i.e. in the case of candidate varieties of grapevine, on 8 plants. Nevertheless, it is important to indicate the minimum number of plants for the assessment of distinctness. The total number of plants for candidate varieties needs to take into account the assessment of distinctness, uniformity and stability. For similar varieties it is only necessary to consider the requirements of distinctness and stability. This might allow fewer plants of similar varieties, to be grown, which is important in order to save space and cost.

18. A similar approach is applied in other species like garden rose, where 6 plants are grown for the candidates and 3 plants are considered for similar varieties, or apple, where 5 plants are grown for the candidates and 3 plants are considered for similar varieties. In both species the minimum number of plants for the assessment of distinctness is 3.

19. The appropriate sample size for the assessment of distinctness should be defined on a crop-by-crop basis under consideration of the minimum number for the determination of the "typical" expression of a variety. 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. 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 the 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 needs 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 2010

20. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/14 (see document TWA/39/27 "Report", paragraphs 45 to 47).

21. The TWA noted that the revision of document TGP/7 had indicated the need for clarification on the number of plants to be considered for distinctness. In particular, it had highlighted that the number of plants to be considered for distinctness should:

(i) allow for off-type plants, within the accepted number, to be disregarded; and

(ii) relate to both the number of plants of the candidate variety(ies) and of varieties of common knowledge to be compared with the candidate(s) in the growing trial.

22. It was agreed that document TWA/39/14 provided a useful explanation of the issues to be considered by the Technical Working Parties when developing Test Guidelines according to document TGP/7/2. It further agreed that Mrs. Beate Rücker (Germany), as the author of

document TWA/39/14, should be invited to draft suitable guidance for inclusion in a future revision of document TGP/7 on the basis of comments received from the TWPs.

23. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, proposed that consideration be given to developing guidance on:

(a) how to select the 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 and uniformity;

(c) the number of plants required for varieties of common knowledge (reference varieties) to be compared with the candidate varieties; and

(d) whether, for Test Guidelines with a small number of plants in the DUS trial (e.g. Grapevine), all the plants of the candidate variety might be examined, disregarding any off-type plants, irrespective of the minimum number to be examined. Thus, in the case of grapevine, all 8 plants of candidate varieties might be examined (or 7 if one plant was an off-type) (see document TWC/28/36 "Report", paragraphs 33 and 34).

24. The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, agreed that document TWV/44/14 provided a useful explanation of the issues to be considered by the Technical Working Parties when developing Test Guidelines according to document TGP/7/2. It further agreed with the TWA proposal that Mrs. Beate Rücker (Germany), as the author of that document, should be invited to draft suitable guidance for inclusion in a future revision of document TGP/7 on the basis of comments received from the TWPs. The TWV also agreed with the TWC proposal that consideration be given to developing guidance on the matters set out in paragraph 23 of document TWV/44/14 (see document TWV/44/34 "Report", paragraphs 39 to 41).

25. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010 considered document TWO/43/14 (see document TWO/43/29 Rev. "Report", paragraphs 34 to 36).

26. The TWO noted that the revision of document TGP/7 had indicated the need for clarification on the number of plants to be considered for distinctness. In that regard, the TWO agreed that the number of plants to be considered for distinctness should allow for off-type plants, within the accepted number, to be disregarded. However, it agreed that the wording of Chapter 4.1.4 should be amended to read "Unless otherwise indicated, all observations for the purposes of distinctness should be made on at least { x } plants or parts taken from each of { x } plants, disregarding any off-type plants.".

27. With regard to document TWO/43/14, the TWO agreed that Chapter 4.1.4 of the Test Guidelines related to the number of plants of candidate varieties and did not refer to reference varieties. It agreed that the number of plants of reference varieties was a separate matter.

28. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/14 (see document TWF/41/30 Rev. "Report", paragraphs 32 to 36).

29. The TWF noted that the number of plants to be examined for distinctness would be different for different characteristics. For example, it recalled that characteristics such as time of flowering would need to be observed on all plants in the test (disregarding off-types), or at least on more plants than would need to be observed for certain characteristics observed on parts of plants. In that regard, it noted that, for each characteristic, the number of plants to be observed for distinctness was linked to the number of plants to be observed for uniformity and, indirectly, stability. Therefore, it concluded that it would be more appropriate to revert to the structure in document TGP/7/1 which, in Chapter 3.5 "Number of Plants / Parts of Plants to be Examined", indicates the number of plants to be observed and not just the number of plants to be observed for distinctness. In particular, it agreed that it would be inappropriate to introduce Chapter 4.1.4 "Number of Plants / Parts of Plants to be Examined" [observations for the purposes of distinctness] in Test Guidelines and recommended that the Technical Committee replace that chapter in all Test Guidelines put forward for adoption and amend document TGP/7/2 at the earliest opportunity.

30. However, the TWF agreed that the Additional Standard Wording (ASW 7) provided for Chapter 3.5 "Number of Plants / Parts of Plants to be Examined" in document TGP/7/1, needed to be amended in order to allow for off-type plants, within the number allowed, to be disregarded from the test.

31. The TWF agreed that it would be useful to develop guidance in document TGP/7, to be incorporated in all Test Guidelines, for the minimum number of plants required for a DUS test to be conducted. It agreed that such guidance might be in the form of a minimum number of plants in each of the Test Guidelines, or if that was not achievable, general guidance might be developed to explain that a DUS trial containing a number of plants below the number specified in Chapter 3.4 "Test Design" of the Test Guidelines might not necessarily invalidate the trial.

32. The TWF agreed with the TWO that the number of plants specified to be examined for distinctness in the Test Guidelines referred to the number of plants of candidate varieties and did not refer to reference varieties. It agreed that the number of plants of reference varieties was a separate matter.

[Annex V follows]

ANNEX V

BACKGROUND INFORMATION CONCERNING: SELECTION OF ASTERISKED CHARACTERISTICS

BACKGROUND

1. The Enlarged Editorial Committee (TC-EDC), at its meeting on January 7, 2010, proposed the deletion of paragraph (c) in the following text of document TGP/7/1 "Development of Test Guidelines" GN 12 "Selecting a characteristic for inclusion in the Table of Characteristics":

> "2. To be included in the Table of Characteristics, the characteristic must satisfy the criteria for a Standard Test Guidelines Characteristic, namely:
>
> "(a) it must satisfy the criteria for use of any characteristic for DUS as set out in the General Introduction (Chapter 4.2) which are that it:
>
> "(i) results from a given genotype or combination of genotypes;
>
> "(ii) is sufficiently consistent and repeatable in a particular environment;
>
> "(iii) exhibits sufficient variation between varieties to be able to establish distinctness;
>
> "(iv) is capable of precise definition and recognition;
>
> "(v) allows uniformity requirements to be fulfilled;
>
> "(vi) allows stability requirements to be fulfilled, meaning that it produces consistent and repeatable results after repeated propagation or, where appropriate, at the end of each cycle of propagation;
>
> "(b) it must have been used to develop a variety description by at least one member of the Union and
>
> "(c) where there is a long list of such characteristics and, where considered appropriate, there may be an indication of the extent of use of each characteristic."

2. The proposal for deletion of subparagraph (c) by the TC-EDC was made in conjunction with a proposal to develop further guidance on the selection of asterisked characteristics in a future revision of TGP/7 (document TGP/7/3). In particular, the TC-EDC noted that asterisked characteristics were very important for international harmonization of variety descriptions.

3. At its forty-sixth session, held in Geneva from March 22 to 24, 2010, the Technical Committee agreed with the proposal to delete GN 12(c) in document TGP/7/2 and agreed that further guidance on the selection of asterisked characteristics should be considered in a future revision of TGP/7 (document TGP/7/3) (see document TC/46/15 "Report on the conclusions", paragraph 31).

4. To assist the Technical Working Parties in their development of further guidance on the selection of asterisked characteristics, the following information has been reproduced from document TGP/7/2 Draft 5:

"GN 13 Characteristics with specific functions

"1. Asterisked characteristics (TG Template: Chapter 7: column 1, header row 2)

"1.1 The General Introduction (Chapter 4.8: Table: Functional Categories of Characteristics) states that asterisked characteristics are "characteristics that are important for the international harmonization of variety descriptions." The criteria for selecting a characteristic as an asterisked characteristic are that:

"(a) it must be a characteristic included in the Test Guidelines;

"(b) it should always be examined for DUS and included in the variety description by all members of the Union except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate;

"(c) it must be useful for the international harmonization of variety descriptions;

"(d) particular care should be taken before selection of disease resistance characteristics.

"1.2 It should be clarified that criterion (b) is worded to ensure that members of the Union which are not able to examine the characteristic do not use this as a reason to object to the characteristic being agreed as an asterisked characteristic. Thus, any characteristic which satisfies the criteria and, in particular, is useful for the international harmonization of variety descriptions should be selected as an asterisked characteristic, even if it cannot be examined for all varieties or by all members of the Union. The upper limit on the number of asterisked characteristics should, therefore, be determined by the number which are required to provide useful internationally harmonized variety descriptions."

[…]

"*4. Relationship between Asterisked, Grouping and TQ characteristics*

The relationship between grouping, asterisked and TQ characteristics can be summarized as follows:

"(a) Grouping characteristics selected from the Table of Characteristics should, in general, receive an asterisk in the Table of Characteristics and be included in the Technical Questionnaire.

"(b) TQ characteristics selected from the Table of Characteristics should, in general, receive an asterisk in the Table of Characteristics and be used as

grouping characteristics. TQ characteristics are not restricted to those characteristics used as grouping characteristics;

"(c) Asterisked characteristics are not restricted to those characteristics selected as grouping or TQ characteristics."

COMMENTS BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

5. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/15 (see document TWA/39/27 "Report", paragraphs 48 to 50). The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, considered document TWV/44/15 (see document TWV/44/34 "Report", paragraphs 42 and 43)

6. The TWA and TWV agreed that the final sentence of 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."

7. The TWA and TWV concluded that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics was appropriate and sufficient, and that it was only necessary to ensure that the guidance was followed in the development of Test Guidelines.

8. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010 considered document TWO/43/15.

9. The TWO agreed that the final sentence of 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.". The TWO also agreed that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics was appropriate and sufficient, and that it was only necessary to ensure that the guidance was followed in the development of Test Guidelines (see document TWO/43/29 Rev. "Report", paragraphs 37 and 38).

10. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/15.

11. The TWF agreed that the final sentence of 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.". The TWF also agreed that the guidance provided in document TGP/7, GN 13, on the selection of asterisked characteristics was appropriate and sufficient, and that it was only necessary to ensure that the guidance was followed in the development of Test Guidelines (see document TWF/41/30 Rev. "Report", paragraphs 37 and 38).

[Annex VI follows]

ANNEX VI

BACKGROUND INFORMATION CONCERNING:
INDICATION OF GROUPING CHARACTERISTICS

BACKGROUND

1. The Technical Working Party for Fruit Crops (TWF), at its fortieth session, held in Angers, France, from September 21 to 25, 2009, proposed to consider including an indication of grouping characteristics in the Table of Characteristics, whilst avoiding any confusion with the use of the letter "G" as used in document TGP/5: Section 6 "UPOV Report on Technical Examination and UPOV Variety Description", Annex, Item 14.

2. At its forty-sixth session, held in Geneva from March 22 to 24, 2010, the Technical Committee agreed that an indication of grouping characteristics in the Table of Characteristics should be considered in a future revision of TGP/7 (document TGP/7/3) (see document TC/46/15 "Report on the conclusions", paragraph 31).

3. To assist the Technical Working Parties in their consideration of an indication of grouping characteristics in the Table of Characteristics, the following extract has been reproduced from document TGP/5: Section 6 "UPOV Report on Technical Examination and UPOV Variety Description", Annex "UPOV Variety Description", Item 14:

"ANNEX

"UPOV VARIETY DESCRIPTION

[…]

"14. Group: (if characteristics of number 15 are used for grouping, they are marked with a G in that number)

UPOV No.	Reporting Authority No.	Characteristics	States of Expression	Note	Remarks

---

"Reference number of Reporting Authority .....

"15. Characteristics Included in the UPOV Test Guidelines or Reporting Authority's Test Guidelines

UPOV No.	Reporting Authority No.	Characteristics	States of Expression	Note	Remarks

[…]

"18. Explanatory Notes to the Annex: UPOV VARIETY DESCRIPTION

[…]

"(b) Ad Number 14 (Annex: UPOV Variety Description)

"Only information on the group to which the variety belonged should be given or information on groupings other than by characteristics listed in Number 15. Grouping by characteristics mentioned in Number 15 should be indicated simply by marking the respective characteristic in Number 15 with the letter "G" before the number of the characteristic."

COMMENTS BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

4. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/16 (see document TWA/39/27 "Report", paragraphs 51 and 52).

5. The TWA agreed that it would not be appropriate to include an indication of grouping characteristics in the Table of Characteristics in the (UPOV) Test Guidelines. It was observed that Items 14 and 15 in document TGP/5: Section 6 "UPOV Report on Technical Examination and UPOV Variety Description", Annex "UPOV Variety Description" might be improved, but the TWA concluded that the improvement of those items was not a priority.

6. The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, agreed that it would not be appropriate to include an indication of grouping characteristics in the Table of Characteristics in the (UPOV) Test Guidelines (see document TWV/44/34 "Report", paragraphs 44 and 45).

7. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, considered document TWO/43/16 and agreed that it would not be appropriate to include an indication of grouping characteristics in the Table of Characteristics in the (UPOV) Test Guidelines (see document TWO/43/29 Rev. "Report", paragraph 39).

8. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/16 and agreed that it would not be appropriate to include an indication of grouping characteristics in the Table of Characteristics in the (UPOV) Test Guidelines (see document TWF/41/30 Rev. "Report", paragraph 39).

[Annex VII follows]

ANNEX VII

BACKGROUND INFORMATION CONCERNING:
GUIDANCE FOR METHOD OF OBSERVATION

BACKGROUND

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).

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 judgement. 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.

2. 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)

3. 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.

4. 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)

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

6. 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

7. 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 2010

8. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/17 (see document TWA/39/27 "Report", paragraphs 53 and 54). The TWA concluded that the important difference between Scenario A and B in Example 1 (above) was that, in Scenario B, the assessment was made by reference to example varieties, instead of recording the date and suggested that the document be modified to clarify that. The relevant paragraphs of this document have been modified in that regard, compared to document TWA/39/17.

9. The TWA also agreed that the guidance on this matter should be consistent with the recommendations provided in document TGP/8, in particular in section “Data to be recorded”, to be developed for a future revision of TGP/8 - PART I.

10. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, noted the explanation set out above (see document TWC/28/36 “Report”, paragraph 37). The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, noted the comments made by the TWA (see document TWV/44/34 “Report”, paragraph 46).

11. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010, noted the explanations provided in document TWO/43/17 (see document TWO/43/29 Rev. “Report”, paragraph 40).

12. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, noted the explanations provided in document TWF/41/17. The TWF observed that, for characteristics indicating a “number” to be observed, the method of observation to be indicated would depend on the type of record: if the record was a number obtained by counting, the characteristic should be indicated as “M”, but if the record was a note corresponding to, e.g. few, medium, many etc. (such as for number of lenticels), the characteristic should be indicated as “V” (see document TWF/41/30 Rev. “Report”, paragraph 40).

[Annex VIII follows]

ANNEX VIII

BACKGROUND INFORMATION CONCERNING: EXAMPLE VARIETIES

PROPOSAL PREPARED BY AN EXPERT FROM FRANCE

Background

1. 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).

2. 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.

3. 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).

Discussion

4. 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").

5. 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.

6. 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

7. The conditions can be listed as follows:

(a) Example varieties must 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 of 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

8. 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.

9. 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.

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.

10. 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

11. 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.

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

Firstly: check if example varieties are useful or not for each characteristic.

13. 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.

14. 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.

15. 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.

16. 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

17. 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.

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

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

20. 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.

21. 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 2010

Technical Working Party for Agricultural Crops (TWA)

22. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/18 (see document TWA/39/27 “Report”, paragraphs 55 to 60).

23. The TWA agreed that the matters raised in document TWA/39/18 were of particular importance and that measures to improve the situation should be considered.

24. The TWA agreed that the development of regional sets of example varieties would be an appropriate way to provide members of the Union with useful example varieties. In cases where it was agreed that regional sets of example varieties would be appropriate, it was agreed that the Test Guidelines might be adopted without example varieties, on the basis that regional sets of example varieties would be added at a later stage. The TWA noted that it

would be necessary for the relevant members of the Union to share their data and to conduct ring tests in order to develop regional sets of example varieties.

25. It was agreed that the sharing of respective lists of example varieties by members of the Union with other members of the Union would, in itself, provide a valuable source of information and would also provide a valuable step towards harmonization of example varieties by indicating the extent to which example varieties were relevant for different members of the Union.

26. The TWA noted that, as explained in document TGP/7/2 Draft 5, Section 4.1.7, the inclusion of example varieties in individual authorities' test guidelines was an important means of ensuring that variety descriptions produced in the territory concerned were harmonized as far as possible and agreed that further guidance on that aspect might be useful. It was noted that the use of "calibration books", containing, for example, example varieties, illustrations and explanations of characteristics, as reported by the expert from the Netherlands, were a very useful means of increasing the harmonization of descriptions produced by DUS experts and by breeders.

27. An expert from the Republic of Korea proposed that the leading experts should provide the measured values for the notes of quantitative characteristics corresponding to the example varieties in their growing conditions, for publication on the UPOV website, in order to help experts from other UPOV members.

Technical Working Party on Automation and Computer Programs (TWC)

28. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, considered document TWC/28/18 and proposed to amend the wording as follows:

> "7. The conditions can be listed as follows:
>
> "(a) Example varieties must be well-known across the member States, […];
>
> […]
>
> "(d) Considering a set of example varieties for a characteristic, the rank of each example variety […]."

29. The TWC noted that a set of example varieties for North East Asia had been published on the UPOV website as an Annex to the Test Guidelines for Rice (see document TWC/28/36 "Report", paragraphs 38 and 39).

Technical Working Party for Vegetables (TWV)

30. The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, considered document TWV/44/18.

31. The TWV agreed that consideration of the suitability of the a regional set of example varieties would need to be considered on a crop-by-crop basis and noted that it might be worthwhile to consider such an approach for some vegetable crops. The TWV agreed with the TWA that the sharing of respective lists of example varieties by members of the Union

with other members of the Union would, in itself, provide a valuable source of information and would also provide a valuable step towards harmonization of example varieties by indicating the extent to which example varieties were relevant for different members of the Union. However, it noted that further consideration would need to be given on how to facilitate such an exchange within UPOV. The TWV also agreed with the value of "calibration books", but noted that observers still needed to compare their observations in order to harmonize descriptions. It also noted the value of digital pictures.

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

32. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010 considered document TWO/43/18.

33. The TWO noted that, for Test Guidelines for ornamental varieties, example varieties tended to be developed by the Leading Expert as representative of their own circumstances without particular emphasis on their suitability for all UPOV members. With regard to the development of regional sets of example varieties, the TWO noted that the relevant variety collections for ornamental varieties would not be determined by agro-climatic factors to the same extent as for agricultural crops and, therefore, the benefits of developing regional sets of example varieties would not be as significant. The TWO noted that the example varieties in the Test Guidelines were often no longer available on the market and that the Test Guidelines would need to be revised on a regular basis in order to ensure that the example varieties were readily available. Therefore, the TWO agreed that alternatives to example varieties, such as photographs, illustrations and calibration books should be used as far as possible. With regard to the sharing of calibration books and data on varieties, the TWO agreed that the information in the GENIE database on members of the Union with practical DUS experience for specific plant genera and species provided the best mechanism for DUS experts to obtain relevant information and guidance. The TWO also recalled the importance of cooperation in DUS examination and exchange of DUS reports in minimizing the need for members of the Union to conduct DUS testing for a wide range of genera and species (see document TWO/43/29 Rev. "Report", paragraphs 41 and 42).

Technical Working Party for Fruit Crops (TWF)

34. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/18 (see document TWF/41/30 Rev. "Report", paragraphs 41 to 44).

35. The TWF noted that the example varieties in the Test Guidelines were often no longer available on the market and that the Test Guidelines would need to be revised on a regular basis in order to ensure that the example varieties were readily available. Therefore, the TWF agreed that alternatives to example varieties, such as photographs, illustrations and calibration books should be used as far as possible. The TWF agreed that the information in the GENIE database on members of the Union with practical DUS experience for specific plant genera and species provided the best mechanism for DUS experts to obtain relevant information and guidance. The TWF also discussed the potential benefits of leading experts providing the measured values for the notes of quantitative characteristics in Chapter 8 of the Test Guidelines.

36. As a potential means of maximizing the information provided by example varieties, the TWF agreed that consideration should be given to indicating the state of expression of

example varieties for all characteristics in the Test Guidelines, in a similar way to the information provided for the Regional Set of Example Varieties (North East Asia) in the Annex to the Test Guidelines for Rice (document TG/16/8).

37. With regard to the need to assist applicants in providing accurate information in the Technical Questionnaire, the TWF noted the importance of ensuring that the example varieties were readily available to applicants, but also noted that it would be important that the same measures to minimize reliance on example varieties for authorities be reflected in the Technical Questionnaire. In particular, it agreed that photographs, illustrations and explanations provided in Chapter 8 of the Test Guidelines should be made available in the Technical Questionnaire and suggested that document TGP/7 and Test Guidelines should follow that approach. It also agreed that particular consideration should be given to the suitability of characteristics for inclusion in the Technical Questionnaire and to the possibility for characteristics to be presented in a different way in the Technical Questionnaire to the characteristics in the Table of Characateristics, in a similar approach to the option for color groups in the Technical Questionnaire, as an alternative to the RHS Colour Chart. The expert from the European Union reported that the CPVO had already started to provide the explanations in its Technical Questionnaires for electronic applications. He also reported that the Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, had agreed that the illustrations for shapes in the form of a grid (see TGP/14/1 Draft 9: Section 2: Botanical Terms: Subsection 2: Shapes and Structures: I. SHAPE page 19, Section 2.1.3 and page 28), should be provided in the Technical Questionnaire for the Test Guidelines for Tomato.

[Annex IX follows]

ANNEX IX

BACKGROUND INFORMATION CONCERNING: PROVIDING PHOTOGRAPHS WITH THE TECHNICAL QUESTIONNAIRE

PROPOSAL PREPARED BY EXPERTS FROM THE EUROPEAN UNION

Background

1. At its thirty-ninth session, held in Lisbon, Portugal, from June 2 to 6, 2008, the Technical Working Party for Fruit Crops (TWF) made the following proposal concerning ASW 16 (TG Template: Chapter 10: TQ 7.3) – "Where a photograph of the variety is to be provided": the TWF proposed to add text indicating that guidance would be provided by the authority to enhance the usefulness of the photograph (e.g. to include a metric scale in the picture, to define what parts of the plant should be included; light conditions, background color, etc). The TWF agreed that the European Union, in collaboration with Australia, would prepare a draft text. At its forty-first session, held in Wageningen, Netherlands, from June 9 to 13, 2008 the Technical Working Party for Ornamental Plants and Forest Trees (TWO) agreed that the European Union, in collaboration with Australia and Canada, should prepare such a draft text.

2. At its forty-second session, held in Angers, France, from September 14 to 18, 2009, the TWO considered document TWO/42/16 "Guidance for Applicants on Providing Suitable Photographs of the Candidate Variety as an Accompaniment to the Technical Questionnaire", prepared by an expert from the European Union. The TWO agreed that the document provided a good basis to develop Additional Standard Wording (ASW) for inclusion in a future revision of document TGP/7, but agreed that the text was too prescriptive and would need to be edited to be more suitable for applicants completing the Technical Questionnaire. In addition, it was agreed that it would be useful to explain that the photograph(s), if provided in an appropriate format, "may help the examination authority to conduct its examination of distinctness in a more efficient way" (quote from the TG/Template, Technical Questionnaire: Section 6). The TWF, at its fortieth session, agreed with the proposals of the TWO and also agreed that the text should be of a suitable length for applicants, although it should be explained that it would be possible for authorities to make the full explanation available by means of a link, rather than including all the text in the Technical Questionnaire. The TWO agreed that the European Union, in collaboration with experts from Australia, Canada, Germany, New Zealand and the United Kingdom, should prepare draft text of an ASW for consideration by the Technical Working Parties at their sessions in 2010.

3. At its thirty-ninth session, held in Osijek, Croatia, from May 24 to 28, 2010, the Technical Working Party for Agricultural Crops (TWA) considered document TWA/39/19 (see document TWA/39/27 "Report", paragraphs 61 and 62).

4. With regard to the proposed new text for ASW 16 in document TWA/39/19, paragraph 5, the TWA agreed that the wording should indicate that a photograph "would" help the examination authority to conduct its examination of distinctness in a more efficient way and "would" be used by the examination authority.

5. The following proposal has been amended in response to the comments made by the TWA at its thirty-ninth session and comments received from ornamental and fruit experts from Germany, New Zealand and the United Kingdom.

Proposal

Additional Standard Wording (ASW)

P-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"

P-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 weblink 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), must accompany the Technical Questionnaire. A photograph provided 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. 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 place the variety optimally within the DUS trial. For greater details, please consult the following weblink: www.[…….]."

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

Introduction

P-3 The submission of photographs of a candidate variety together with the technical questionnaire is an obligation by many PBR authorities in order to have a complete PBR application. 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 breeder 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.

P-4 The taking of photographs of candidate varieties is influenced by various factors, including light conditions, the background, the quality and resolution of the camera or the screen on which the photos are viewed. It is certainly not possible to standardize all conditions when photos are taken in the premises of breeders but this paper 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 an imprecise picture, will be reliably represented in photographs provided by applicants. It should be noted that whilst a photograph may broadly depict color, reference to the relevant RHS Colour Chart in the text provides greater precision.

Criteria for taking photographs

(i) Photographs must be in color and submitted either in print form of at least 10cm x 15 cm, or as an electronic photo in jpeg format (minimum 960x1280 pixels). However, 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 breeder 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;

(ii) 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 Test Guidelines for the species in question;

(iii) The plants of the candidate variety appearing in the photographs should have been grown under standard growing conditions for the crop in question, which may be indicated in the TQ (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 flowers in certain ornamental species). 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;

(iv) The photographs should show the plant parts that 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, length of awns, etc.), it is recommended to remove those plant parts from the plant and take a well-focused close-up photograph of them.

(v) If the applicant wishes to illustrate differences between the candidate variety and the variety thought to be the most similar by the applicant, as nominated by them under Section 6 of the TQ, it may be useful to provide photographs of the candidate variety alongside the nominated 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. 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.

(vi) 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. A metric scale in centimeters – and millimeters where a close-up photograph has been taken – should ideally appear along the horizontal and vertical margins of the photograph. If, in ornamental species, the photograph illustrates the color of the flower of the candidate variety, it is useful to display the relevant sheet of the RHS Colour Chart with the corresponding color alongside.

(vii) 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 not reflect light. 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 needs to be taken outdoors, 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 BY THE TECHNICAL WORKING PARTIES AT THEIR SESSIONS IN 2010

6. The Technical Working Party on Automation and Computer Programs (TWC), at its twenty-eighth session, held in Angers, France, from June 29 to July 2, 2010, considered document TWC/28/19 and made the following comments (see document TWC/28/36 "Report", paragraph 40):

paragraph P-4	- to revise the first sentence to refer only to aspects affecting the image captured by the photograph and to introduce a separate sentence to address aspects affecting the reproduction of the image (e.g. resolution of the screen on which the image is viewed) - to replace "an imprecise picture" with "such factors"
(vi)	to modify the final sentence to apply to situations other than flower color in ornamental plants and to consider adding the possibility of using a standard color check chart , instead of the RHS Colour Chart
(vii)	- to replace "and not reflect light" to "should not have a shiny surface", for example - to add an explanation that there should be uniform light distribution over the object to be photographed, and to give examples of how that might be achieved, e.g. by a light tent

7. The Technical Working Party for Vegetables (TWV), at its forty-fourth session, held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010, considered document TWV/44/19 (see document TWV/44/34 "Report", paragraphs 49 to 51).

8. The TWV agreed that the sentence in paragraph (v) “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.” should be reviewed, because it was not necessarily the case that examination offices specified that the candidate variety must always be on the left side.

9. The TWV noted the concerns of ISF concerning a requirement for photographs to be required for vegetable crops, especially as a failure to provide such a photograph could result in a rejection of an application. In particular, it noted the emphasis by ISF on the need to clarify that photographs should only be requested if they would supplement the information provided in the Technical Questionnaire. In that regard, ISF considered that a photograph should be attached to the variety description by the authority if an applicant was required to provide a photograph with the Technical Questionnaire.

10. The TWO, at its forty-third session, held in Cuernavaca, Morelos State, Mexico, from September 20 to 24, 2010 considered document TWO/43/19.

11. The TWO agreed that the document should be structured into sections with titles concerning the various aspects (e.g. format, background etc.) and illustrative examples should be provided. It agreed that more emphasis should be placed on the importance of providing information on shapes and color patterns and less emphasis on color. It was further agreed that it should be emphasized that it was not a requirement to provide photographs of the candidate variety alongside the nominated similar variety and agreed that the requirement that the “candidate variety must always be on the left side of the photograph taken alongside the similar variety” (see paragraph (v)) should be deleted. With regard to the proposal of the Technical Working Party on Automation and Computer Programs (TWC) to consider adding the possibility of using a standard color check chart, instead of the RHS Colour Chart (see paragraph (vi)), the TWO clarified that the use of such a standard color check chart would not be instead of the RHS Colour Chart. The TWO also agreed that the document should refer to the applicant rather than the breeder (see document TWO/43/29 Rev. “Report”, paragraphs 43 and 44).

12. The TWF at its forty-first session, held in Cuernavaca, Morelos State, Mexico, from September 27 to October 1, 2010, considered document TWF/41/19 (see document TWF/41/30 Rev. “Report”, paragraphs 45 to 48).

13. The TWF agreed that the document should be structured into sections with titles concerning the various aspects (e.g. format, background etc.) and illustrative examples should be provided. It was also agreed that it should be emphasized that it was not a requirement to provide photographs of the candidate variety alongside the nominated similar variety and agreed that the requirement that the “candidate variety must always be on the left side of the photograph taken alongside the similar variety” (see paragraph (v)) should be deleted. With regard to the proposal of the Technical Working Party on Automation and Computer Programs (TWC) to consider adding the possibility of using a standard color check chart, instead of the RHS Colour Chart (see paragraph (vi)), the TWF noted that the use of such a standard color check chart would not be instead of the RHS Colour Chart. The TWF also agreed that the document should refer to the applicant rather than the breeder.

14. With regard to the proposed new text for ASW 16, as set out in document TWF/41/19, the TWF agreed that it should be amended to read:

"A representative color photograph (image) of the variety, displaying its main distinguishing feature(s), must 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. 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."

15. The TWF agreed that further consideration would need to be given to the Additional Standard Wording (ASW) in document TGP/7, and in the Test Guidelines, in order to enable the requirements of individual authorities to be provided.

[End of Annexes and of document]