Reference to document TC/37/9, Comments 2 Add. (TWC, TWV, TWA)

UPOV

TWO/34/7 Add.
ORIGINAL: English
DATE: September 11, 2001

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR ORNAMENTAL PLANTS AND FOREST TREES

Thirty-Fourth Session
Nagano, Japan, September 24 to 28, 2001

COMMENTS ON:

TG/1/3 "REVISED GENERAL INTRODUCTION TO THE EXAMINATION OF DISTINCTNESS, UNIFORMITY AND STABILITY AND THE DEVELOPMENT OF HARMONIZED DESCRIPTIONS OF NEW VARIETIES OF PLANTS"

Document prepared by the Office of the Union

1. Circular U3100 explained how comments on TC/37/9(a) *(draft TG/1/3 "Revised General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants")* would be considered by all the Technical Working Parties. In particular, it noted that comments from the Technical Working Parties meeting earlier in the year would be considered by the later Technical Working Parties and that any comments would be continuously submitted to the Enlarged Editorial Committee to enable a final document to be prepared in time for submission to the Council in October 2001.

2. In accordance with this approach the comments from The Technical Working Party on Automation and Computer Programs (TWC), The Technical Working Party for Vegetables (TWV) and The Technical Working Party for Agriculture (TWA) are attached for consideration.

3. In addition, certain other comments have been received or provided by the Office and these are also presented for consideration.

a) Comments from the Technical Working Party on Automation and Computer Programs (TWC)

The TWC have proposed the following amendments to the draft TG/1/3 text presented in TC/37/9(a):

Proposed Amendments to TC/37/9(a)	***Explanation***
77. Document TGP/8, "Use of Statistical Procedures in DUS Testing" ~~"Good Statistical Practices for DUS Testing,"~~ provides guidance on good statistical practices for DUS assessment. Keys for the choice of methods in relation to the data structure are given in document TGP/8, "Use of Statistical Procedures in DUS Testing" ~~TGP/9, "Examining Distinctness~~." [also amend table and associated documents]	*The TWC propose to broaden the scope of TGP/8 to explain how statistical procedures can be applied to DUS Testing (e.g. the use of scale levels according to the type of characteristics), rather than just presenting the procedures.*
4.4.1 Qualitative Characteristics 38. Qualitative characteristics are those that are expressed in discontinuous states (e.g. sex of plant: dioecious female (1), dioecious male (2), monoecious unisexual (3), monoecious hermaphrodite (4)). These states are self-explanatory and independently meaningful. All states are necessary to describe the full range of the characteristic, and every form of expression can be described by a single state. The order of states is not important ~~states do not necessarily have any logical order~~. As a rule the characteristics are not influenced by environment.	*The TWC proposal for improved wording.*
4.4.2 Quantitative Characteristics 39. "Quantitative characteristics" are those that can show the full range of variation from one extreme to the other and whose expression can be recorded on a one-dimensional, continuous or discrete, linear scale. ~~whose expression can be recorded on a one-dimensional, linear scale and which show continuous variation from one extreme to the other.~~ The range of expression is divided into a number of states of expression for the purpose of description (e.g. length of stem: very short (1), short (3), medium (5), long (7), very long (9)). The division seeks to provide, as far as is practical, an even distribution across the scale. The Test Guidelines do not specify the difference needed for distinctness. The states of expression should, however, be meaningful for DUS assessment.	*The TWC observed that quantitative characteristics can be recorded on a discrete scale (e.g. 1,2,3…. days to ear emergence) and not just a continuous scale. It is therefore considered better to avoid the use of the phrase "continuous variation". It was also noted that the full range of variation is not always seen and it should be clear that it is more accurate to state that it can show the full range of variation.*

Proposed Amendments to TC/37/9(a)	*Explanation*
4.5.2 Bulk Samples 42. If it is necessary to examine characteristics in the form of bulk samples specific guidance will be considered in document TGP/8 "Use of Statistical Procedures in DUS Testing". ~~TGP/10, "Examining Uniformity."~~	*The TWC noted that it is also important to consider the assessment of distinctness where characteristics are examined in bulk samples and therefore propose to deal with bulk samples in TGP/8 "Use of Statistical Procedures in DUS Testing".*

b) Comments from the Technical Working Party for Vegetables (TWV)

The TWV proposed the following amendments to the draft TG/1/3 text presented in TC/37/9(a):

Proposed Amendments to TC/37/9(a)	*Explanation*
1. …….. The examination, or "DUS Test," is based mainly on growing tests, carried out by the authority competent for granting plant breeders' rights or by separate institutions, such as public research institutes, acting on behalf of that authority or in some cases on the basis of growing tests carried out by the breeder or applicant. 3.2 Cooperation with Breeders and Applicants 28. In most countries, variety testing is administered by an official authority, although the breeders or applicants participate in the growing tests to varying degrees.	*Should also refer to applicant.*
27. The ultimate form of international cooperation is a "centralized" testing system where the entire examination is carried out by one authority on behalf of other Contracting Parties, regardless of the variety concerned or the applicant. This could, for example, be for a specific region ~~for example,~~ or, in the case of ~~glasshouse tested~~ plants tested in a controlled environment greenhouse, for most if not all Contracting Parties.	*It is important to specify that the environment is controlled.*
31. Document TGP/6, "Arrangements for DUS Testing", ~~"DUS testing by the Applicant/Breeder,"~~ also gives useful information on the different possibilities of applicant involvement in the growing tests.	*Editorial* *(France to propose improved translation for French version)*
4.8 Functional Categorization of Characteristics ~~Standard~~ Test Guidelines Characteristic	*All of the categories of characteristics are standard UPOV characteristics* ***(check throughout document and TGP/7)***

Proposed Amendments to TC/37/9(a)	*Explanation*
6.3.3 Assessment of Uniformity in Hybrid Varieties 6.3.3.1 General 103. The assessment of uniformity in hybrid varieties depends on the type of hybrid, i.e. whether it is a single-cross hybrid or another type, and whether it is a hybrid resulting from inbred parent lines, vegetatively propagated lines or from cross-pollinated parents.	*For completeness*

c) Comments from the Technical Working Party for Agricultural Crops (TWA)

Proposed Amendments to TC/37/9(a)	*Explanation*
Replace "applicant" and "breeder or applicant" with "breeder" as defined in the 1991 Act of the Convention.	*The term "breeder" as defined in the 1991 Act includes any authorized applicant.*
3.1 Cooperation Between Testing Authorities 27. The ultimate form of international cooperation is a "centralized" testing system where the entire examination is carried out by one authority on behalf of other Contracting Parties, regardless of the variety concerned or the breeder ~~applicant~~. This could, for example, be for a specific region ~~for example~~, or, in the case of ~~glasshouse tested~~ plants tested in a controlled environment (e.g. greenhouse or laboratory), for most if not all Contracting Parties.	*Clarifies that the critical aspect is the controlled environment.*
4.2 Selection of Characteristics 35. For inclusion in the Test Guidelines, further criteria are set out in Chapter 4.8, "Functional Categorization of Characteristics" and in document TGP/7, "Development of Test Guidelines." ~~However, t~~ The characteristics included in the individual Test Guidelines are not necessarily exhaustive and may be expanded with additional characteristics if that proves to be useful and the characteristics meet the conditions set out above.	*Editorial*

Proposed Amendments to TC/37/9(a)	***Explanation***
4.6.3 Combined Characteristics 45. A combined characteristic is a simple combination of a small number of characteristics. Provided that the combination is biologically meaningful, characteristics that are assessed separately may subsequently be combined, for example the ratio of length to width, to produce such a combined characteristic. Combined characteristics must be examined for distinctness, uniformity and stability to the same extent as other characteristics. In some cases these combined characteristics are examined by means of ~~sophisticated~~ techniques such as Image Analysis. In these cases the methods for appropriate examination of DUS are specified in document TGP/12, "Special Characteristics."	Unnecessary
5.3 Clearly Distinguishing a New Variety 5.3.1 Comparing Varieties 56. It is necessary to examine distinctness in relation to all varieties of common knowledge. However, a systematic individual comparison may not be required in relation to those varieties of common knowledge that are within a group known to have specific expressions of characteristics and reliably ensuring that such varieties will be distinct from the candidate variety. In addition, certain procedures (e.g. publication of variety descriptions or bilateral cooperation) may be developed to allow such an approach in some circumstances where there cannot be absolute certainty that all the varieties within such a group will be distinct from the candidate variety, but only where those supplementary procedures provide an effective examination of distinctness overall. Such procedures may also be developed to address varieties of common knowledge for which living plant material is known to exist (see chapter 5.2.2) but where, for practical reasons, material is not readily accessible for examination. Any such procedures will be set out in document TGP/9, "Examining Distinctness."	*To indicate another example of where individual comparisons are not conducted by a testing authority.* Editorial

Proposed Amendments to TC/37/9(a)	***Explanation***
5.3.3 The Criteria for Distinctness using Characteristics 63. The UPOV Convention does not elaborate the term "clearly distinguishable~~.~~." ~~h~~ However, in order to provide some guidance on the interpretation of the term, the following basis has been developed for the use of characteristics to clearly distinguish varieties. A variety may be considered to be clearly distinguishable if the difference in characteristics is: • consistent, • clear. 5.3.3.1 Consistent Differences 64. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic on at least two independent occasions. This can be achieved in both annual and perennial varieties by observations made on plantings in two different seasons, or in the case of other perennial varieties by observations made in two different seasons after a single planting. Guidance on the possible use of other approaches, such as two different environments ~~locations~~ in the same year, is explored in document TGP/9, "Examining Distinctness." 65. However, in some circumstances the influence of the environment is not such that a second growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. If the growing conditions ~~environment~~ of the crop ~~is~~ are controlled ~~consistent~~, for example in a greenhouse with ~~controlled~~ regulated temperature and light, it may not be necessary to observe two growing cycles to be confident that any differences observed could be considered to be sufficiently consistent in that environment, although this will also be dependent on the features of propagation ~~allowing confidence in the consistency of the observation~~. 66. The individual Test Guidelines specify whether several independent growing cycles are required to show sufficient consistency ~~(e.g. several years or in certain cases several independent locations or different independent environments)~~, or whether for certain species the growing test could be made in one growing cycle.	*Editorial* *Absolute consistency is not practically achievable.* *Locations in very close proximity could have the same environment.* *Improved wording.* *Duplication of paragraph 64.*
77. Document TGP/8, "Use of Statistical Procedures in DUS Testing" ~~"Good Statistical Practices for DUS Testing,"~~ provides guidance on good statistical practices for DUS assessment and includes keys~~. Keys~~ for the choice of methods in relation to the data structure. ~~are given in document TGP/8, "Use of Statistical Procedures in DUS Testing" TGP/9, "Examining Distinctness."~~	*Editorial (see also TWC comments)*

Proposed Amendments to TC/37/9(a)	***Explanation***
83. A simple statistical basis ~~criterion~~ for establishing distinctness is that of ~~consistent~~ differences of the same sign ~~where differences~~ between varieties in pair-wise comparisons ~~are of the same sign~~ (e.g. variety A is consistently and sufficiently greater than B), provided that they can be expected to recur in subsequent trials. The number of comparisons must be sufficient to ensure that the varieties are clearly distinguishable.	
5.5.3.1 Self-Pollinated and Vegetatively Propagated Varieties 87. UPOV has endorsed several statistical methods for the handling of measured quantitative characteristics. One method, established for ~~vegetatively propagated and~~ self-pollinated and vegetatively propagated varieties, ~~species~~ is that varieties can be considered clearly distinguishable if the difference between two varieties equals or exceeds the Least Significant Difference (LSD) at a specified probability level with the same sign over an appropriate period, even if they are described by the same state of expression. This is a relatively simple method but is considered appropriate for ~~vegetatively propagated and~~ self-pollinated and vegetatively propagated varieties, ~~species~~ because the level of variation within such varieties is relatively low, ~~i.e. they are quite uniform~~. Further details are provided in document TGP/9, "Examining Distinctness."	*(see also comments d) Other)* *Technical correction*
6.3 Particular Features of Propagation 92. The UPOV Convention links the uniformity requirement for a variety to the particular features of its propagation. This means that the absolute level of uniformity required for vegetatively propagated varieties, truly self-pollinated varieties, mainly self-pollinated varieties, inbred lines of hybrid varieties, cross-pollinated varieties, mainly cross-pollinated varieties, synthetic varieties and hybrid varieties will, in general, be different.	*In some cases the level of uniformity will be the same for the types given.*
6.3.1.3.2 Mainly Self-Pollinated Varieties and Inbred Lines of Hybrid Varieties 98. For the purpose of DUS testing, mainly self-pollinated varieties are those that are not fully self-pollinated but are treated as self-pollinated for testing. For these, as well for as inbred lines of hybrid varieties, a higher tolerance of off-types ~~is~~ can be accepted, compared to truly self-pollinated and vegetatively propagated varieties. This is explained further in document TGP/10, "Examining Uniformity".	*A higher tolerance is not always accepted, for example, in the case of some truly self-pollinated inbred lines.*
7.3 Method of Examination of Stability	*Editorial*

d) Other comments

Proposed Amendments to TC/37/9(a)	*Explanation*
2.4 Characteristics as the Basis for Examination of DUS 16. 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 ~~fulfilment~~ fulfillment of the DUS criteria required for protection. All Acts of the UPOV Convention have established that a variety is defined by the expression of its characteristics and that those characteristics are therefore the basis on which a variety can be examined for DUS.	*Editorial*
5.3.2 Clearly Distinguishing Varieties ~~by Their~~ Using Characteristics	*Editorial*
2. The purpose of this document (the "General Introduction") and the associated "TGP" series of documents is to set out the principles which are used in the examination of DUS.	*Editorial – to introduce the use of the phrase "General Introduction"*
8. In addition, the absence of Test Guidelines for the species or variety grouping concerned will obviously lead the DUS examiner to resort to this General Introduction, and there is a specific chapter (Chapter 9, "Conduct of DUS Testing in the Absence of Test Guidelines") in this document for such an eventuality.	*Editorial*
35. For inclusion in the Test Guidelines, further criteria are set out in Chapter 4.8~~7~~, "Functional Categorization of Characteristics" and in document TGP/7, "Development of Test Guidelines."	*Editorial*
4.8 Functional Categorization of Characteristics 49. Criteria: Asterisked Characteristic 1. Must be a characteristic included in the Test Guidelines 2~~1~~. Should always be examined for DUS and included in the variety description by all Contracting Parties except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate. 3~~2~~. Accepted as useful for function 1. 4~~3~~. Particular care should be taken before selection of disease resistance characteristics.	*Clarifies that asterisked characteristics must satisfy the standard criteria and are always included in the Test Guidelines*

Proposed Amendments to TC/37/9(a)	***Explanation***
5.2.3 Common Knowledge 54. Specific aspects which should be considered to establish common knowledge include, among others: (a) commercialization of propagating or harvested material of the variety or publishing a detailed description; (b) the filing of an application for the grant of a breeder's right or for the entering of a variety in an official register of varieties, in any country, ~~which~~ is deemed to render that variety a matter of common knowledge from the date of the application, provided that the application leads to the grant of a breeder's right or to the entering of the variety in the official register of varieties, as the case may be; (c) existence of living plant material in publicly accessible plant collections.	*Editorial*
5.3.3.2.1 Qualitative Characteristics 68. In qualitative characteristics the difference between two varieties may be considered clear if ~~the~~ one or more characteristics ~~show~~ have expressions that fall into two different states in the Test Guidelines. Varieties should not be considered distinct for a qualitative characteristic if they have the same state of expression. 73. As explained in Chapter 5.3.3.2.1, "Qualitative Characteristics," for such characteristics the difference between two varieties may be considered clear if ~~the~~ one or more characteristics ~~show~~ have expressions that fall into two different states in the Test Guidelines.	*Editorial*

Proposed Amendments to TC/37/9(a)	***Explanation***
5.5.3.1 Self-Pollinated and Vegetatively Propagated Varieties 87. UPOV has endorsed several statistical methods for the handling of measured quantitative characteristics. One method, established for ~~vegetatively propagated and~~ self-pollinated and vegetatively propagated varieties, ~~species~~ is that varieties can be considered clearly distinguishable if the difference between two varieties exceeds the Least Significant Difference (LSD) at a specified probability level with the same sign over an appropriate period, even if they are described by the same state of expression. This is a relatively simple method but is considered appropriate for ~~vegetatively propagated and~~ self-pollinated and vegetatively propagated varieties, ~~species~~ because the level of variation within varieties is relatively low, i.e. they are quite uniform. Further details are provided in document TGP/9, "Examining Distinctness." 88. …. Its main use is for measurement in cross-pollinated and synthetic varieties, but if desired it can also be used for measurement in ~~vegetatively propagated or self-fertilized~~ self-pollinated and vegetatively propagated varieties. Where COYD analysis cannot be used because the statistical criteria are not fulfilled, non-parametric procedures can be considered. For more details on the handling of measured quantitative characteristics see document TGP/9, "Examining Distinctness."	*Rephrased for accuracy (varieties : species) and editorial reasons (order of self-pollinated and veg. prop.)*
5.6 General Guidelines for Determining Distinctness 89. Individual Contracting Parties may develop their own systematic way of determining distinctness, based on the principles laid down in this document. However, because the same general guidance on determining distinctness is applicable across many Test Guidelines ~~do not provide specific practical guidance on examining distinctness, general guidance on the practical application of the UPOV principles will be~~ this is developed in a separate document TGP/9, "Examining Distinctness" and not reproduced in the individual Test Guidelines.	*To provide a clearer and more constructive explanation*
6.3.1.3 Statistical Basis for Setting Numbers of Off-Types 96. …. Based on statistical calculations for population standards and acceptance probabilities, the recommended population standard and acceptance probability ~~used is~~ are stated in the individual Test Guidelines. The Test Guidelines also recommend ~~state~~ the maximum number of off-types tolerated for a given sample size. More detailed information can be found in document TGP/10, "Examining Uniformity."	*Rephrased for accuracy*

Proposed Amendments to TC/37/9(a)	***Explanation***
6.3.2 Cross-Pollinated Varieties 99. Cross-pollinated varieties, including mainly cross-pollinated and synthetic varieties, generally exhibit wider variations within the variety than vegetatively propagated or self-pollinated varieties and inbred lines of hybrid varieties, and it is more difficult to determine off-types. Therefore, ~~R~~relative tolerance limits, for the range of variation, are set by comparison with comparable varieties or types already known.	*Editorial*
7.3 Examination of Stability 7.3.1 General 111. It is not usually possible to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, in general, when a variety ~~a submitted sample~~ has been shown to be uniform ~~the material~~ it can also be considered to be stable.	*Rephrased for accuracy*
6.3.3.4 Multiple-Cross Hybrid Varieties 107. For other than single-cross hybrids (e.g. three-way crosses or double crosses), a segregation of certain characteristics is acceptable if it is compatible with the method of propagation of the variety. i.e. ~~(a)~~ ~~If~~ the heredity of a clear-cut segregating characteristic is known, it is required to behave in the predicted manner. ~~(b)~~ If the heredity of the characteristic is not known, it is treated in the same way as other cross-pollinated varieties, i.e. the tolerance is set by existing comparable varieties (see Chapter 6.3.2~~5~~). 108. ~~(c)~~ For setting a tolerance for the occurrence of inbred parent plants, the same considerations apply as for a single-cross hybrid variety (see Chapter 6.3.3.2).	*Editorial*
Renumber paragraphs to introduce paragraphs 25, 48 and 61	*Editorial*

[End of document]