



TGP/13 Draft 3

ORIGINAL: English

DATE: May 19, 2005

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

Associated Document
to 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)

DOCUMENT TGP/13

“GUIDANCE FOR NEW TYPES AND SPECIES”

**General Guidance for Testing of New Species,
Interspecific/Intergeneric Hybrids
and New Types of Varieties**

Document prepared by experts from the Community Plant Variety Office (CPVO)

to be considered by the

*Technical Working Party for Vegetables (TWPV), at its thirty-ninth session to be held in
Nitra, Slovakia, from June 6 to 10, 2005*

*Technical Working Party on Automation and Computer Programs (TWPAC),
at its twenty-third session to be held in Ottawa, from June 13 to 16, 2005*

*Technical Working Party for Fruit Crops (TWPFC), at its thirty-sixth session to be held in
Kofu, Japan, from September 5 to 9, 2005*

*Technical Working Party for Ornamental Plants and Forest Trees (TWPOT),
at its thirty-eighth session to be held in Seoul, from September 12 to 16, 2005*

*Technical Working Party for Agricultural Crops (TWPAC), at its thirty-fourth session to be held
in Christchurch, New Zealand, from October 31 to November 4, 2005*

1.	Introduction	3
2.	New species.....	3
2.1	Introduction to “new” species: what is considered as a new species?	3
2.2	Information provided in the technical questionnaire.....	3
2.3	Preparation of the technical examination/Test Guidelines.....	4
2.4	Testing distinctness	4
2.5	Testing uniformity.....	5
2.6	Testing stability	6
2.7	Variety description	6
3.	Interspecific/Intergeneric hybrids	7
3.1	Introduction to Interspecific/Intergeneric Hybrids.....	7
3.2	Information provided by the Technical Questionnaire	7
3.3	Preparation of the DUS examination/Test Guidelines	7
3.4	Testing distinctness	8
3.5	Testing uniformity.....	8
3.6	Variety description	8
4.	New types of varieties	8
4.1	Introduction to new types of varieties	8
4.2	Information given in the Technical Questionnaire.....	8
4.3	Preparation of the technical examination	8
4.4	Testing distinctness	8
4.5	Testing uniformity.....	8
4.6	Variety description	8

1. Introduction

1.1 The 1991 Act of the UPOV Convention requires that its provisions are, within a specified time, applied to all plant genera and species. Testing authorities, especially in relation to ornamental plants, are faced with an increasing number of applications for varieties which represent the first application for protection within a plant genus or species.

1.2 Sophisticated genetic techniques, together with new intercrossing and multiplication methods are increasingly becoming available to breeders, often transposed from more advanced breeding or multiplication systems used in other species. As a result, novel interspecific, or intergeneric, hybrids and new types of varieties are being introduced.

1.3 This document seeks to provide general guidance for the examination of DUS (the “DUS Test”) of varieties with the background described above. It considers new species, novel interspecific or intergeneric hybrids and new types of varieties, each being reviewed with respect to the points that need particular attention for organizing the DUS test and providing a variety description. The starting point in each section of this document is the information provided in the technical questionnaire, which is of particular importance given the lack of DUS testing experience for the varieties concerned.

2. New species

2.1 Introduction to “new” species: what is considered as a new species?

A new species is considered to be a species of which the authority responsible for the DUS test has no, or very little, previous experience.

2.2 Information provided in the technical questionnaire

2.2.1 The Technical Questionnaire (see TGP/7/1 Annex I: TG template) is a very valuable initial source of information and it is of great importance that it is completed accurately and in full: in completing the Technical Questionnaire, the breeder has a first, important role to play, by providing information on the origin, breeding background, maintenance and reproduction of the variety and a preliminary description of the most important characteristics. Information is often provided on the most similar varieties to the candidate variety which can be useful for confirming the descriptive information given for grouping purposes and can also be used to direct the authority towards the most appropriate varieties for inclusion in the DUS test. It is advisable to verify the information supplied by the breeder concerning the candidate variety and the most similar varieties. This can be done in a preliminary examination of DUS test material, or during the growing trial as soon as the essential descriptive characteristics of the new candidate variety have been determined.

2.2.2 For a candidate variety which is declared to have been “discovered and developed” from a wild species, details about this discovery and development should be provided.

2.2.3 The breeder should clearly specify the growing conditions of the variety.

2.3 *Preparation of the DUS examination/Test Guidelines*

2.3.1 As explained above, an authority may receive an application for a variety of a species of which they have no previous experience. In that situation, the first step should be to determine whether UPOV Test Guidelines (“Test Guidelines”) exist. The list of UPOV Test Guidelines can be found at <http://www.upov.int/en/publications/tg-rom/index.html>. If there are no Test Guidelines, a search should be made in TGP/5.10 or the “GENIE Database” to identify if other members of the Union have developed national guidelines and/or have experience of DUS testing in the species concerned. If this is unsuccessful, it will be necessary to establish an appropriate protocol for the DUS test. The use of Test Guidelines of a similar species and close cooperation with the breeder can help in the development of an appropriate protocol.

2.3.2 For the preparation of new guidelines, guidance on the key issues to be addressed is provided in document TGP/7, “Development of Test Guidelines” and it may also be helpful to discuss the guidelines with neighbouring countries or countries which have experience in DUS testing in this or similar species. It should be noted that, for the first applications of a new species, it might not be possible and necessary to develop guidelines with all details foreseen in document TGP/7/1. The DUS testing for a new species and for new variety types does not differ in principle from the testing of any variety. The difference is in the level of testing experience and the details known about that new species.

2.3.3 Before testing begins, it is important to learn as much about the new species as possible and to collect relevant information. The breeder, in addition to the information he provides in the technical questionnaire, is the first source of information. Furthermore, the breeder can be requested to submit plant material of parent varieties. Possible other sources of information include botanical literature, trade and industry publications, trade catalogues, information available on the internet, national research institutes, amateur plant collectors and botanical gardens. Knowledge of the growing conditions is important information and sometimes, taking into account particular growing conditions, it might be more efficient or even necessary to organize the testing at the premises of the breeder. Information concerning such an approach can be found in TGP/6 “Arrangements for DUS Testing”.

2.3.4 Once an authority has acquired experience in testing a particular species, it should communicate this to the UPOV Office for updating of the document ‘list of species in which practical knowledge has been acquired or for which national test guidelines have been established (document TGP/5.10).

2.4 *Testing distinctness*

2.4.1 For the purposes of distinctness, it is necessary to examine if a new candidate variety is clearly distinguishable from all other varieties whose existence is a matter of common knowledge (“varieties of common knowledge”). The selection of similar varieties for inclusion in the growing trial for comparison with a candidate variety is a first step in the DUS examination. In that context, it is important to ensure that the terms “variety” and “common knowledge” are clearly understood. These terms are clarified in document TG/1/3 (See Section 5.2 “Varieties of Common Knowledge”). Document TGP/3, “Varieties of Common Knowledge” may also be used to assist in understanding the meaning of the term common knowledge.

2.4.2 DUS testing of varieties of new species may differ from other variety testing in the determination of varieties of common knowledge as there may, or may not, be other similar varieties of common knowledge.

2.4.3 It can be useful to examine the breeding origin of the candidate variety to increase information about the new species. The breeding origin of a variety might indicate the probability of the existence of varieties of common knowledge. It would, therefore, be useful to contact the authorities in the country of breeding origin to obtain information. The following are four scenarios:

- (i) A variety obtained by clonal propagation from a seedling or mutation, originating from a population in the wild, of a species not thought to be in cultivation. It is probable that there are no varieties of common knowledge.
- (ii) A variety obtained by clonal propagation from a seedling in a population of a species which is in commercial production. Material of the species may be in commercial cultivation but possibly only exists as a heterogeneous group of seedlings. It is less probable that there are varieties of common knowledge because the species is known to exist only as a heterogeneous group of seedlings. The heterogeneous seedlings do not conform to a single description, are not uniform and cannot be considered as varieties. As a result this group of seedlings in commerce may not be relevant for the consideration of distinctness. If the seedlings have a level of uniformity in at least the main characteristics and have conformity to a single description, such that they satisfy the definition of a variety as set out in the 1991 Act of the UPOV Convention, then these seedlings should be treated as varieties of common knowledge and, therefore, as relevant for DUS testing.
- (iii) A variety obtained by clonal selection for a desired attribute or form, possibly originating from mutation, from a species in commercial production. Other clonal forms may have been selected from within the species and exist in commerce as named or un-named varieties. The candidate variety should be compared with all other varieties existing in commerce and with any other appropriate varieties.
- (iv) A variety selected within a population. Other varieties, whether named or un-named, could exist in commerce. The new variety should be compared with the other varieties, whether named or unnamed.

2.4.4 Each of the above scenarios once identified will give some information about the species and provides an indication as to whether or not varieties of common knowledge might exist. For further information on the determination of distinctness in various crop types, reference should be made to document TGP/9, “Examining Distinctness” and to individual Test Guidelines.

2.5 *Testing uniformity*

2.5.1 Article 8 of the UPOV Convention states that a “variety shall be deemed to be uniform if, subject to the variation that may be expected from the particular features of its propagation, it is sufficiently uniform in its relevant characteristics”.

2.5.2 The General Introduction (document TG/1/3: Section 6.4) states that “where all the plants of a variety are very similar, and in particular for vegetatively propagated and self-pollinated varieties, it is possible to assess uniformity by the number of obviously different plants-“off-types”-that occur. However, where the range of variation within a variety is larger, because of the features of its propagation, and in particular for cross-pollinated, including synthetic, varieties, the plants are not all very similar and it is not possible to visualize which plants should be considered as atypical or “off-types”. In this case the uniformity can be assessed by considering the overall range of variation, observed across all the individual plants, to determine whether it is similar to comparable varieties”.

2.5.3 The question of how uniformity can be assessed arises if the new variety is the first in a new species and, in particular, if there are no comparable varieties. The level of uniformity required for a candidate variety may sometimes be based upon past experience of what is known to be attainable by the breeding method used and has been shown to have been successful in the maintenance and multiplication of varieties of a similar type in other related species. Therefore, the following approaches may be of assistance:

- (a) consulting the breeder concerning the breeding method, if not fully explained in the technical questionnaire;
- (b) consideration of the levels of uniformity achieved in varieties of closely related species of the same family;
- (c) consideration of an appropriate level of uniformity for a variety of the new species on the basis of available knowledge and consideration of the breeding effort which would be required to achieve a higher level of uniformity.

2.5.4 For further information on the setting of uniformity standards in various crop types, see document TGP/10, “Examining Uniformity” and individual Test Guidelines.

2.6 *Testing stability*

See document TG/1/3 General Introduction, Chapter 7 “Examining Stability”.

2.7 *Variety description*

2.7.1 Chapter 4.3 of the General Introduction states that in order “to enable varieties to be tested and a variety description to be established, the range of expression of each characteristic in the Test Guidelines is divided into a number of states for the purpose of description, and the wording of each state is attributed a numerical note”.

2.7.2 In the case of the examination of a candidate variety of a new species, varieties of common knowledge might not exist, or might exist but cannot be obtained, and it might not be possible to develop a range of expression for each characteristic. For this reason a description might be developed according to the botanical and the chronological order of plant characteristics described in document TGP/7, “Development of Test Guidelines”, Annex 3, Guidance Note GN26. Descriptions of the wild species in botanical literature might serve as a basis to prepare such a description. Examples of relevant literature include:

The new Royal Horticultural Society dictionary of Gardening, A. Huxley, M. Griffiths, M. Levy, 1999, Macmillan Reference Ltd, London, UK, ISBN: 0-333-770188 (paperback version, 4 volumes).

Hortica, color cyclopedia of garden flora and indoor plants, Alfred Byrd Graf, 1992, Roehrs Company, Rutherford, NJ, USA, ISBN: 0-911266-25-9

Exotica, pictorial cyclopedia of exotic plants, Alfred Byrd Graf, 1982, Roehrs Company, Rutherford, NJ, USA, ISBN: 0-911-266-19-4.

Botanica, the illustrated A-Z of over 10.000 garden plants and how to cultivate them, 1999, third edition, Welcome Rain Publisher LLc, New York, USA, ISBN 1-56649-175-4.

2.7.3 Only after applications for several varieties have been made for the same species, might it become possible to develop a list of characteristics with states of expression for that species.

3. Interspecific/Intergeneric hybrids

3.1 Introduction to Interspecific/Intergeneric Hybrids

An interspecific, or intergeneric, hybrid can be considered as a special form of a new species. Although there is a large overlap with the items which are handled in the new species paragraphs of chapter 2, this section considers the specific problems related to such hybrids.

3.2 Information provided by the Technical Questionnaire

Together with the species name of the parent varieties, the variety description and the species name of the most similar varieties provide useful information.

3.3 Preparation of the DUS examination/Test Guidelines

3.3.1 The parents species may be well known but the resulting hybrid is new. An example is “plumcots” (*Prunus salicina* x *P. armeniaca*). In this case, Test Guidelines exist for both parent species and could be used separately or in combination. The first step, in determining whether existing Test Guidelines would be appropriate, is to assess the variety characteristics and determine if the variety is more like one parent than the other. If one parent has strongly influenced the variety characteristics, then the Test Guidelines for that parent might be used. If a small number of characteristics or states do not correspond to the Test Guidelines selected, then the Test Guidelines for the other parent are also available as a possible source of further appropriate characteristics to enable a full variety description. It may become necessary to prepare a new national guideline for the hybrid, and potentially new UPOV Test Guidelines if the interspecific or intergeneric hybrid varieties are to be grown in the territories of other members of the Union.

3.3.2 Some UPOV Test Guidelines are designed to cover the testing of all varieties in a genus. When Test Guidelines are prepared for a genus, they are usually most suited to a few species within the genus, where there is testing experience. However, that should not limit

their use, and genus based Test Guidelines are suitable for the testing of interspecific varieties.

3.3.3 Should no UPOV Test Guidelines exist for the parent species, it becomes necessary to prepare a new guideline and testing method for the hybrid using the principles in this document and in document TGP/7, “Development of Test Guidelines.”

3.4 *Testing distinctness*

The general principles should apply.

3.5 *Testing uniformity*

The general principles should apply.

3.6 *Variety description*

As mentioned in paragraph 3.3.1, the parent guidelines should be used if possible.

4. New types of varieties

4.1 *Introduction to new types of varieties*

Techniques such as cell selection, protoplast fusion, *in vitro* fertilisation, embryo rescue and widecrossing, together with new intercrossing and multiplication methods are continually becoming available to breeders, often transposed from more advanced breeding or multiplication systems used in other species. As a result, novel variety types such as: complex hybrid variety systems with varying levels of plant-to-plant uniformity; clonal varieties derived from within sexually reproduced and more variable populations; and species where more variable seed-propagated varieties in addition to hitherto highly uniform vegetatively propagated varieties, are increasingly being introduced. The situation exists in several crop species where it is possible to have several different variety types being produced at the one time, each requiring a different standard of uniformity.

4.2 *Information given in the Technical Questionnaire*

4.3 *Preparation of the technical examination*

4.4 *Testing distinctness*

4.5 *Testing uniformity*

4.6 *Variety description*