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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

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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/4

"CONSTITUTION AND MANAGEMENT OF VARIETY COLLECTIONS"

Document prepared by the Office of the Union

to be considered by the Technical Committee
at its forty-first session to be held in Geneva, from April 4 to 6, 2005

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1. INTRODUCTION

1.1 Article 7 of the 1991 Act of the UPOV Convention establishes that "a variety shall be deemed to be distinct if it is clearly distinguishable from any other variety whose existence is a matter of common knowledge at the time of filing the application."

1.2 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), hereinafter referred to as "the General Introduction", states, with respect to common knowledge (see document TG/1/3, section 5.2.2), that:

> "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.
>
> Common knowledge is not restricted to national or geographical borders."

Further information on varieties whose existence is a matter of common knowledge is provided in document TGP/3 "Varieties of Common Knowledge".

1.3 Although not exhaustive, and taking into account that these aspects have to be considered on a worldwide basis, it is clear that the list of varieties whose existence is a matter of common knowledge ("varieties of common knowledge") for a given species can be very large. Therefore, it may be appropriate to define a collection of varieties of common knowledge (a "variety collection") from within which:

(a) varieties which should be included in growing tests or other trials, as a part of the examination of distinctness, can be identified; and

(b) where required, the necessary material of the varieties is available for inclusion in such tests and trials.

1.4 The organizer of such a variety collection is referred to as a "variety collector" in this document.

1.5 The following sections address two main aspects of variety collections. Section 2 "Constitution of Variety Collections", considers criteria for including varieties in the variety collection, and situations where varieties of common knowledge are not included in the variety collection. Section 3 "Management of Variety Collections" provides guidance concerning the management of descriptions and plant material in the variety collections and information on cooperation in the management of variety collections.

2. CONSTITUTION OF VARIETY COLLECTIONS

2.1 Factors to be considered for inclusion of a variety in a variety collection

When establishing a variety collection, the first step is to decide on the range of the collection. Thereafter, for inclusion in the variety collection, the variety should be a variety of common knowledge, adequately described and suitable plant material of the variety should be available for inclusion in the growing tests or other trials. These aspects are explored in more detail below.

2.1.1 Range of the variety collection

2.1.1.1 A variety collection may encompass a whole species, or more than one species if there are interspecific hybrids, or may be limited to a subspecies or to types of variety or groups of varieties within a species or subspecies.

2.1.1.2 With regard to types of varieties and groups of varieties, the following criteria may be used:

(i) recognition of different types of variety within the relevant UPOV Test Guidelines (e.g. Rose (TG/11/7): dwarf rose; bed rose; shrub rose; climbing rose and ground cover rose), or by the establishment of separate Test Guidelines for different variety types within, for example, the same species (e.g. Apple: fruit types (TG/14/8); rootstocks (TG/163/2);

(ii) in the case of more than one geoclimatic zone for a given crop, the variety collection might be limited by taking into account certain physiological traits of the varieties (e.g. earliness, day length susceptibility, frost resistance, etc.) according to the climatic conditions for which it is adapted. Depending on the species, such criteria may or may not be useful. For example, in the case of field crops, the similarity of geoclimatic conditions is more relevant than for vegetable or ornamental crops grown in greenhouses, where the seed and plant product trade is on a more world-wide basis;

(iii) varieties within a particular group, identified by the use of grouping characteristics specified in the relevant Test Guidelines. With regard to groups of varieties, the General Introduction (Chapter 5.3.1.1) states the following:

> "It is necessary to examine distinctness in relation to all varieties of common knowledge. However, a systematic individual comparison may not be required with all varieties of common knowledge. For example, where a candidate variety is sufficiently different, in the expression of its characteristics, to ensure that it is distinct from a particular group (or groups) of varieties of common knowledge, it would not be necessary for a systematic individual comparison with the varieties in that group (or those groups)."

2.1.1.3 The General Introduction states that "Different groups of varieties within a species can be dealt with in separate or subdivided Test Guidelines if the categories can be reliably separated on the basis of characteristics suitable for distinctness, or where an appropriate procedure has been developed to ensure that all varieties of common knowledge will be adequately considered for distinctness". Document TGP/7/1 (Annex 3: GN 4)

clarifies that this "explanation is provided to ensure that groups or types of varieties are only created where it is possible to ensure that a variety will be clearly placed into the appropriate group [or type], or if not, that other measures are taken to ensure that all varieties of common knowledge are considered for distinctness." Thus, if the variety collection covers only a group, or type, within a species, consideration should be given to characteristics, or another basis, to ensure distinctness with regard to varieties not covered by the variety collection (see section 2.2).

2.1.1.4 In the case of hybrid varieties, it is possible to examine distinctness by examining the components and the formula of the hybrid (see document TGP/9). If it is decided to use this approach in the examination of hybrids, the variety collection should include varieties used as components (generally inbred lines) of the hybrid varieties included in the variety collection.

2.1.2 Selecting varieties of common knowledge

2.1.2.1 The following should, in particular, be taken into account with regard to selecting varieties of common knowledge for inclusion in the variety collection:

(i) the list of protected varieties and the official, or other, registers of varieties. The variety collection should include varieties in those lists and varieties previously included in those lists.

(ii) the list of varieties which are the subject of an application for protection or official registration. Article 7 of the 1991 Act of the UPOV Convention states that:

> " … In particular, the filing of an application for the granting of a breeder's right or for the entering of another variety in an official register of varieties, in any country, shall be deemed to render that other variety a matter of common knowledge from the date of the application, provided that the application leads to the granting of a breeder's right or to the entering of the said other variety in the official register of varieties, as the case may be."

Thus, varieties which are the subject of such an application should, as far as possible, be included in the variety collection. In that respect, authorities should check information on varieties for which such an application has been filed with another authority. It is of particular importance to streamline the exchange of information between authorities based on the exchange of Gazettes and by means of the UPOV-ROM Plant Variety Database.

(iii) any commercial document in which varieties are marketed as propagating or harvested material, especially when there is no official registration system.

(iv) any list including varieties which are publicly available within plant collections (genetic resources, collection of old varieties, etc.).

(v) relevant example varieties used for the examination of distinctness (for more information about example varieties see document TGP/7; GN 26).

(vi) varieties of historic importance.

2.1.2.2 As stated in section 1.2, common knowledge is not restricted to national borders. In addition to the territorial level, consideration should be given to:

(i) territories where plant material of the species is widely traded;

(ii) territories with which the member of the Union concerned has a relationship for breeding activities, seed trade or any exchange of plant products and which have similar climatic and growing conditions;

(iii) other territories relevant for the examination of distinctness.

2.1.3 Plant material / variety description

2.1.3.1 The purpose of establishing a variety collection is to be able to identify from within that collection those varieties which should be included in growing tests or other trials as a part of the examination of distinctness and, as required, for the necessary material to be included in such tests and trials. Thus, to be included in a variety collection, a variety should be adequately described and suitable plant material should be available, if required, for growing tests or other trials. The nature of variety collections may vary in the following respects:

(a) variety descriptions

In some cases, the descriptions of the varieties in the variety collection may, for example, all be produced on the basis of data produced in a single location to a single protocol based on the UPOV Test Guidelines. However, in other cases, for example, descriptions may be based on descriptions from different sources and may not be a "full" description according to the UPOV Test Guidelines. The descriptions may also be in the form of photographs, illustrations or other images. This is explored further in section 3.1.1.

(b) availability of plant material

In some cases, the variety collector may collect and maintain plant material of all the varieties in the variety collection. However, in other cases, for example, the variety collector may only obtain plant material of varieties as and when those varieties need to be included in growing tests or other trials as a part of the examination of distinctness and may not maintain any plant material collection himself. This is explained further in section 3.1.2.

2.1.3.2 There are several factors which may affect the feasibility of establishing a collection of plant material for a given species. For example:

(i) The cost and facilities needed to store, maintain and grow plant material, should be carefully assessed

(ii) Type of material to be stored: seed is, in general, easier to store for long periods than vegetatively propagated material, for which it may not be possible for the variety collector to maintain plant material.

(iii) Type of species: in annual species it is necessary either to store propagating material or to renew it every year. The whole collection need not necessarily be grown every year; instead, only those varieties which are relevant for the candidate varieties under examination may be included in the field trial. In perennial species, the collection of plant material could be in the form of whole plants in the field.

(iv) Climatic limitations: for example, for collections of perennial varieties in the form of field plants.

2.2 Varieties of common knowledge not included in the variety collection

2.2.1 As explained in section 2.1, the variety collection may not contain all varieties of common knowledge. For example, there may be situations where the authority cannot obtain plant material of a variety, even if the existence of that variety is a matter of common knowledge. To address such situations the General Introduction (Chapter 5.3.1.2) states the following:

> " … certain supplementary procedures may be developed to avoid the need for a systematic individual comparison. For example, the publication of variety descriptions, inviting comment from interested parties, or cooperation between members of the Union, in the form of an exchange of technical information, could be considered as supplementary procedures. However, such an approach would only be possible where the supplementary procedures, in conjunction with the other procedures, provide an effective examination of distinctness overall. Such procedures may also be appropriate for consideration of varieties of common knowledge, for which living plant material is known to exist (see section 5.2.2) but where, for practical reasons, material is not readily accessible for examination. Any such procedures are set out in document TGP/9, "Examining Distinctness."

2.2.2 In addition to the examples mentioned in the General Introduction, the making available of the list of varieties against which candidate varieties have been examined, and the making use of panels of experts, are other examples of supplementary procedures.

2.2.3 Article 21 of the 1991 Act of the UPOV Convention, requires the nullification of a right if it transpires that a variety did not meet the distinctness or novelty requirement. However, in order to maintain a high quality protection, such cases should remain the exceptions and establishment of variety collections and supplementary procedures, for addressing distinctness with regard to varieties of common knowledge not included in the variety collection, should be as robust as possible

3. MANAGEMENT OF VARIETY COLLECTIONS

3.1 General

A variety collection can never be established definitively**.** It must be continuously updated taking into account the evolution of lists of varieties, the development of new types of varieties and the introduction of new plant genetic material. It is necessary to establish contacts with the authorities in different territories to obtain information and to be able to obtain descriptions and plant material as required. It is also important to complete the variety collection on a case-by-case basis considering the information provided by the applicant, particularly concerning the breeding scheme of the candidate variety. Having defined the criteria to be considered when establishing a variety collection in section 2, it is important to note that, for each variety in a variety collection, there should be:

(a) a description of each variety (e.g. data, illustrations, photographs);

(b) a representative sample, or a procedure for successfully obtaining a representative sample, of plant material of each variety.

3.1.1 Variety descriptions

3.1.1.1 The following forms of variety description might be included in the variety collection:

(i) a full description produced by the member of the Union establishing the variety collection in accordance with the UPOV Test Guidelines: this is the most effective solution, but rather expensive. Where used, it provides the possibility to detect the most similar varieties on the basis of the data held in a database. However, in the case of very similar varieties, it is still necessary to have a direct side-by-side comparison of the varieties;

(ii) a full description according to the UPOV Test Guidelines, produced by another member of the Union, where the variety is registered: this might be a satisfactory basis on which to establish distinctness without making a direct comparison, if the differences are sufficiently clear. In the case of similar varieties, the environmental effect on the expression of characteristics is such that, in general, this is not a satisfactory basis. However, in some cases, where no living plant material is available and/or in the absence of expertise from panels of experts with a good knowledge of the species, this method of comparison is the only possibility;

(iii) a short description produced by another member of the Union, where the variety is registered: in general, this type of description is not very helpful, except for grouping of similar varieties in the distinctness trial where the description is based on grouping or Technical Questionnaire characteristics;

(iv) images (e.g. photographs, illustrations or digitalized images) of representative parts of the plants of each variety;

(v) relevant descriptive information from, for example, scientific publications, commercial catalogues, etc. …

3.1.1.2 With regard to descriptions based upon the relevant Test Guidelines, it is important to note that Test Guidelines may be revised (see document TGP/7), possibly leading to the introduction of some new characteristics and the deletion of some others from the table of characteristics. Furthermore, the states of expression of a characteristic may be amended. Therefore, descriptions which have been prepared using different versions of the Test Guidelines for the same species or group of species may not be fully compatible. In these cases, the descriptions should be aligned as far as possible.

3.1.2 Plant material

The establishment of a variety collection of plant material involves a number of activities, the aim of which is to have a collection which can be ready for use when examination of distinctness renders it necessary.

3.1.2.1 Sources of plant material

3.1.2.1.1 Primary sources of plant material are summarized in the following table:

Primary sources	**Varieties**			
	Protected varieties	Officially registered varieties	Varieties on the market	Varieties in publicly accessible plant collections
Variety collectors (for plant variety protection in other territories)	X	X	X	X
Authority responsible for the official register (in same or other territories)		X		
Breeder/Maintainer/Applicant	X	X	X	X
Market			X	
Plant collections				X

3.1.2.1.2 UPOV encourages cooperation between variety collectors (see section 3.2.2). Variety collectors are important sources of verified plant material (see section 3.1.2.2). However, in some circumstances there may be limitations in respect to the amount of plant material available from such sources. In these situations, small quantities of plant material can, nevertheless, enable the requesting authority to verify plant material from other sources: e.g. to verify the identity of plant material obtained on the market, before its incorporation in the variety collection. Breeders are also an important source of plant material and cooperation with breeders is encouraged (see section 3.2.3).

3.1.2.1.3 As explained in Section 2.1, it may not always be possible to obtain suitable plant material. In such a case, the variety cannot be included in the variety collection and other means of examining distinctness, as set out in Section 2.2 should be followed. However, in the case of a protected plant variety, the inability of the breeder to make plant material available may be considered in relation to Article 22(1) of the 1991 Act of the UPOV Convention which states that:

> *"(b)* Furthermore, each Contracting Party may cancel a breeder's right granted by it if, after being requested to do so and within a prescribed period,
>
> > (i) the breeder does not provide the authority with the information, documents or material deemed necessary for verifying the maintenance of the variety, … "

3.1.2.2 Verification

3.1.2.2.1 When new plant material is introduced into the collection, it should, as far as possible, be verified that it conforms to the variety. Inadequate verification of the material of the varieties in the variety collection may lead to an incorrect conclusion on distinctness of candidate varieties, with negative consequences for the plant breeder's rights granted.

3.1.2.2.2 In seed-propagated varieties, for example, the identity of new plant material can be verified by conducting side-by-side plot comparisons between the material in the collection and the new material. In vegetatively propagated species, the new material can be tested against the variety description before the removal of the old plants. In cases where the plant material is not maintained by the variety collector, or where it is not possible to make a direct comparison with existing material in the variety collection, the material should, where possible, be checked against the description produced by the variety collector or the official description of the variety. In other cases, the material should be checked against other appropriate descriptions, for example plant registers or commercial catalogues.

3.1.2.2.3 It may be appropriate for other features of the new plant material, apart from identity, to be tested, for example its phytosanitary status, or its viability and germination capacity.

3.1.2.3 Maintenance of plant material by the variety collector [1]

3.1.2.3.1 Where the plant material in the variety collection is maintained by the variety collector it should be maintained as long as possible in good conditions. The maintenance requirements depend on the type of plant material stored: seeds, whole plants, plant tissue in micro-propagation, etc. Appropriate measures should be taken to ensure that, as far as possible, the maintenance conditions do not influence the expression of the characteristics of the variety in the growing tests or other trials in such a way as to affect the assessment of distinctness. For example, in the case of plants maintained by micropropagation, it may be necessary to grow the plants for a sufficient period to ensure that the plant material of all the varieties in the growing test are at a comparable stage of development.

3.1.2.3.2 In general, seed is cleaned, and the moisture content checked. The seed is then divided into subsamples before being placed in special containers for final long-term storage

[1] When dealing with maintenance of the variety collection, we refer to the way the plant material is stored or under cultivation (fruit trees) [and not to the genetic maintenance of the plant material].

in cold chambers. In general, each subsample contains the amount of seed necessary for one plot or one trial. Wherever possible, this approach should be taken, even if it is only for a part of the variety collection.

3.1.2.3.3 In variety collections of trees and non seed-propagated perennial varieties, the plants are maintained under cultivation. Routine cultural practices, including the selection of rootstocks, should be standardized and applied to all the plant material in the collection with the aim of ensuring that distinctness is established based on differences in the genotype rather than on differences due to environmental conditions.

3.1.2.4 Maintenance of plant material by others than the variety collector

3.1.2.4.1 A variety collection may exist as a database of variety descriptions with the necessary plant material being assembled when required, thus avoiding any need for material to be maintained by the variety collector. In such cases, the practice is to request samples of plant material of the relevant varieties from the appropriate source each time it is necessary to conduct a specific examination of distinctness. In this way, varieties selected from the variety collection can be included in the growing trial to enable direct plant-to-plant comparisons. The plant material should be verified as set out above (section 3.1.2.2) and the physical status of the material should be such as to not influence the expression of the characteristics of the variety in the growing tests or other trials in such a way as to affect the assessment of distinctness. For example, the varieties may need to have been propagated in the same manner and be of similar maturity at establishment.

3.1.2.5 Updating/renewal

3.1.2.5.1 Keeping the variety collection up-to-date is necessary to maintain its usefulness, the quality of the examination, and the consequent quality of protection granted to a variety. As a result, it may be that new varieties of common knowledge need to be included in the collection. If that is the case, the authority should seek plant material of these varieties. However, the reason for the inclusion of some varieties already in the collection may be no longer valid, and elimination from the variety collection would lead to the consequent elimination of plant material.

3.1.2.5.2 With respect to the material already included in the variety collection, there are situations which require the renewal of that plant material, such as:

(i) when the plant material originally provided by the applicant was in the quantity needed for DUS examination only, and more material is needed after the examination for long-term storage in the collection;

(ii) when the plant material in the collection has been depleted or has deteriorated;

(iii) in variety collections of trees and non seed-propagated perennial varieties (see section 3.1.2.3.3), the plants may become over-mature and need to be replaced by rejuvenated ones. For each variety in the collection, a programmed plant rotation should be developed. Depending on the type of plant, a maximum plant age should be determined, which is determined by the usefulness of the plant for DUS examination. For a tree it might be 10 years, whilst for herbaceous perennial varieties it might be four years, after which the plant is removed and replaced with a new plant, propagated from variety material in the collection or from another suitable source. For some

species, replacement of the whole plant may not be necessary if an older plant can be rejuvenated by a cultural practice such as hard pruning.

3.1.2.5.3 A routine procedure for verifying plant material before its introduction in the collection, whether of new varieties of common knowledge or renewal of plant material of varieties already included in the variety collection, should be established (see section 3.1.2.2).

3.2 Cooperation in the maintenance of variety collections

3.2.1 Introduction

3.2.1.1 Article 12 of the 1991 Act of the UPOV Convention states:

> " … In the course of the examination, the authority may grow the variety or carry out other necessary tests, cause the growing of the variety or the carrying out of other necessary tests, or take into account the results of growing tests or other trials which have already been carried out. For the purposes of examination, the authority may require the breeder to furnish all the necessary information, documents or material."

3.2.1.2 Cooperation for DUS testing is encouraged. It may take different forms under the UPOV Convention (see document TG/1/3 chapter 3), and can cover different aspects related to variety collections.

3.2.2 Cooperation between authorities

3.2.2.1 For the establishment of variety collections the availability of information on varieties of common knowledge is a key requirement. Exchange of information between authorities, breeders, botanic gardens, gene banks, and any other possible source of information is very important to define the list of varieties to be included in the collection (see section 2.1 Factors to be considered when establishing variety collections).

3.2.2.2 Authorities/variety collectors are encouraged in the exchange of plant material, in order to make varieties of common knowledge available where necessary. Under agreements for cooperation in DUS testing, authorities may agree on a common list of varieties to be included in the variety collection or on ways the holding of plant material can be shared, according to the agreement between them.

3.2.2.3 In the case of maintenance of plant material collections, cooperation is also an important means of avoiding duplication of tasks and of making better use of the resources available in the territory of the authority.

3.2.2.4 Cooperation may exist between authorities in which one authority maintains the plant material for a given species or a group of varieties within a given species, and the maintainer authority provides plant material to the other(s) when required for the examination of distinctness. For territories with different geoclimatic conditions for a species, the maintenance can be made by means of cooperation with other official organizations located in the different regions. For some species, the plant material collections can be maintained by another official organization (e.g. a national research institute).

3.2.3 Cooperation with breeders

3.2.3.1 Cooperation is a means by which authorities can increase the efficiency of the establishment and maintenance of variety collections, consequently strengthening plant breeders' rights.

3.2.3.2 Breeders are particularly encouraged to cooperate in the provision of plant material, on the basis that the inclusion of varieties in the growing tests and other trials is important for the quality of the examination of distinctness and in consequence the quality of protection for a variety.

3.2.3.3 Cooperation with breeders can involve, for example, breeders or breeders' associations maintaining a collection of plant material which is made available to the testing authority as required.

3.3 Transfer of information, documents or material furnished for examination purposes

Draft recommendations concerning information, documents or material furnished for examination purposes under development in the Administrative and Legal Committee (CAJ).

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