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TG/COSMOS(proj.4)
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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

**COSMOS**

UPOV Code: COSMO

*Cosmos* Cav.

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by experts from Japan*

*to be considered by the*

*Technical Working Party for Ornamental Plants and Forest Trees*
*at its forty-fifth session, to be held in Jeju, Republic of Korea, from August 6 to 10, 2012*

Alternative Names:*

| *Botanical name* | *English* | *French* | *German* | *Spanish* |
|---|---|---|---|---|
| *Cosmos* Cav. | Cosmos | Cosmos | Kosmee, Schmuckkörbchen | Cosmos |

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

## ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Cosmos* Cav..

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seeds or young plants.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

seed-propagated varieties: sufficient seeds to produce 50 plants;
vegetatively propagated varieties: 10 young plants.

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

*3.1 Number of Growing Cycles*

The minimum duration of tests should normally be a single growing cycle.

*3.2 Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

*3.3 Conditions for Conducting the Examination*

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8 1(a), (b), (c).

*3.4 Test Design*

3.4.1 Each test should be designed to result in a total of at least 50 plants for seed-propagated varieties or 10 plants for vegetatively propagated varieties.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

*3.5 Additional Tests*

Additional tests, for examining relevant characteristics, may be established.

## 4. Assessment of Distinctness, Uniformity and Stability

### *4.1 Distinctness*

#### 4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

#### 4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

#### 4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

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

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants for seed propagated varieties or 9 plants or parts taken from each of 9 plants for vegetatively propagated varieties and any other observations made on all plants in the test, disregarding any off-type plants.

#### 4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.”

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

*4.2 Uniformity*

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 The assessment of uniformity for seed-propagated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 10 plants, 1 off-type is allowed.

*4.3 Stability*

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

## 5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Flower head: disc type (characteristic 13)
(b) Flower head: paracorolla (characteristic 14)
(c) Ray floret: type (characteristic 20)
(d) Ray floret: main color of inner side (characteristic 28) with the following color groups:
    Gr. 1: white
    Gr. 2: yellow
    Gr. 3: orange
    Gr. 4: pink
    Gr. 5: red
    Gr. 6: purple red
    Gr. 7: brown red
(e) Ray floret: distribution of secondary color of inner side (characteristic 30)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

## 6. Introduction to the Table of Characteristics

### *6.1 Categories of Characteristics*

#### 6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

#### 6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and 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.

### *6.2 States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

| State | Note |
|---|---|
| small | 3 |
| medium | 5 |
| large | 7 |

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

| State | Note |
|---|---|
| very small | 1 |
| very small to small | 2 |
| small | 3 |
| small to medium | 4 |
| medium | 5 |
| medium to large | 6 |
| large | 7 |
| large to very large | 8 |
| very large | 9 |

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

### *6.3 Types of Expression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

### *6.4 Example Varieties*

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

*6.5 Legend*

| | | |
|---|---|---|
| (*) | Asterisked characteristic | – see Chapter 6.1.2 |
| QL | Qualitative characteristic | – see Chapter 6.3 |
| QN | Quantitative characteristic | – see Chapter 6.3 |
| PQ | Pseudo-qualitative characteristic | – see Chapter 6.3 |
| MG, MS, VG, VS | | – see Chapter 4.1.5 |
| (a)-(c) | See Explanations on the Table of Characteristics in Chapter 8.1 | |
| (+) | See Explanations on the Table of Characteristics in Chapter 8.2. | |

## 7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **1.**<br>**(*)** | **VG/<br>MS** | **Plant: height** | | | | | |
| **QN** | | short | | | | Sunny Yellow | 3 |
| | | medium | | | | Sunset | 5 |
| | | tall | | | | Sensation Radiance | 7 |
| **2.** | **VG** | **Plant: growth habit** | | | | | |
| **(+)** | | | | | | | |
| **PQ** | | erect | | | | | 1 |
| | | semi-erect | | | | | 2 |
| | | spreading | | | | | 3 |
| **3.** | **VG/<br>MS** | **Stem: number of primary branches** | | | | | |
| **QN** | | absent or very few | | | | | 1 |
| | | few | | | | Sunset | 3 |
| | | medium | | | | Sensation Radiance | 5 |
| | | many | | | | | 7 |
| **4.**<br>**(*)** | **VG** | **Stem: anthocyanin coloration** | | | | | |
| **QN** | | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | Sunset | 3 |
| | | strong | | | | | 4 |
| **5.** | **VG** | **Stem: pubescence** | | | | | |
| **QN** | | absent or sparse | | | | Sunrise | 1 |
| | | medium | | | | | 2 |
| | | dense | | | | Sunset | 3 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **6.** | **VG** | **Leaf: number of lobes** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(a)** | absent or very few | | | | | 1 |
| | | few | | | | | 2 |
| | | medium | | | | | 3 |
| | | many | | | | | 4 |
| | | very many | | | | | 5 |
| **7.**<br>**(*)**<br>**(+)** | **VG/**<br>**MS** | **Leaf: length including petiole** | | | | | |
| **QN** | **(a)** | short | | | | Sunrise | 3 |
| | | medium | | | | Sensation Radiance | 5 |
| | | long | | | | | 7 |
| **8.**<br>**(*)**<br>**(+)** | **VG/**<br>**MS** | **Leaf: width** | | | | | |
| **QN** | **(a)** | narrow | | | | Sunrise | 3 |
| | | medium | | | | | 5 |
| | | broad | | | | Sensation Radiance | 7 |
| **9.** | **VG** | **Leaf: intensity of green color** | | | | | |
| **QN** | **(a)** | light | | | | | 1 |
| | | medium | | | | Sensation Radiance,<br>Sunset | 2 |
| | | dark | | | | | 3 |
| **10.**<br>**(+)** | **VG/**<br>**MS** | **Leaf: width of the terminal lobe on the terminal leaflet: only for divided leaves** | | | | | |
| **QN** | **(a)** | narrow | | | | | 3 |
| | | medium | | | | Sunrise | 5 |
| | | broad | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **11.**<br>**(+)** | **VG** | **Flower head: attitude** | | | | | |
| **QN** | | upward | | | | | 1 |
| | | outward | | | | | 2 |
| | | downward | | | | | 3 |
| **12.**<br>**(*)** | **VG** | **Flower head: number of ray florets** | | | | | |
| **QN** | | few | | | | | 3 |
| | | medium | | | | | 5 |
| | | many | | | | | 7 |
| **13.**<br>**(*)**<br>**(+)** | **VG** | **Flower head: disc type** | | | | | |
| **QL** | | daisy | | | | | 1 |
| | | anemone | | | | Bridal Bouquet COS | 2 |
| **14.**<br>**(*)**<br>**(+)** | **VG** | **Flower head: paracorolla** | | | | | |
| **QL** | | absent | | | | | 1 |
| | | present | | | | Red Illusion | 9 |
| **15**<br>**(*)**<br>**(+)** | **VG/ MS** | **Flower head: diameter** | | | | | |
| **QN** | | small | | | | Sunrise | 3 |
| | | medium | | | | | 5 |
| | | large | | | | Sensation Radiance | 7 |
| **16.**<br>**(+)** | **VG/ MS** | **Flower head: disc diameter** | | | | | |
| **QN** | | very small | | | | | 1 |
| | | small | | | | Sensation Radiance | 2 |
| | | medium | | | | | 3 |
| | | large | | | | Bridal Bouquet COS | 4 |
| | | very large | | | | | 5 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **17.<br>(*)<br>(+)** | **VG/<br>MS** | **Flower head: disc diameter relative to head diameter** | | | | | |
| **QN** | | very small | | | | | 1 |
| | | small | | | | Sensation Radiance | 2 |
| | | medium | | | | | 3 |
| | | large | | | | Bridal Bouquet COS | 4 |
| | | very large | | | | | 5 |
| **18.** | **VG/<br>MS** | **Flower head: length of peduncle** | | | | | |
| **QN** | | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |
| **19.** | **VG** | **Flower head: fragrance** | | | | | |
| **QN** | | absent or weak | | | | | 1 |
| | | medium | | | | | 2 |
| | | strong | | | | | 3 |
| **20.<br>(*)<br>(+)** | **VG** | **Ray floret: type** | | | | | |
| **PQ** | | ligulate | | | | | 1 |
| | | ligulate and tubular | | | | | 2 |
| | | tubular | | | | | 3 |
| **21.<br>(+)** | **VG** | **Ray floret: longitudinal axis** | | | | | |
| **QN** | **(b)** | incurved | | | | | 1 |
| | | straight | | | | | 2 |
| | | reflex | | | | | 3 |
| **22.<br>(+)** | **VG** | **Ray floret: degree of curvature** | | | | | |
| **QN** | **(b)** | weak | | | | | 1 |
| | | medium | | | | | 2 |
| | | strong | | | | | 3 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **23.**<br>**(+)** | **VG** | **Ray floret: curved part of axis** | | | | | |
| **QN** | **(b)** | tip | | | | | 1 |
| | | distal quarter | | | | | 2 |
| | | distal half | | | | | 3 |
| | | distal three quarter | | | | | 4 |
| | | base | | | | | 5 |
| **24.**<br>**(*)**<br>**(+)** | **VG/**<br>**MS** | **Ray floret: length** | | | | | |
| **QN** | **(b)** | short | | | | Sunset | 3 |
| | | medium | | | | Sensation Radiance | 5 |
| | | long | | | | | 7 |
| **25.**<br>**(*)**<br>**(+)** | **VG/**<br>**MS** | **Ray floret: width** | | | | | |
| **QN** | **(b)** | narrow | | | | Sunset | 3 |
| | | medium | | | | Sensation Radiance | 5 |
| | | broad | | | | | 7 |
| **26.**<br>**(*)** | **VG/**<br>**MS** | **Ray floret: ratio length/ width** | | | | | |
| **QN** | **(b)** | low | | | | | 3 |
| | | medium | | | | Sensation Radiance | 5 |
| | | high | | | | Happy Ring | 7 |
| **27.**<br>**(*)**<br>**(+)** | **VG** | **Ray floret: incisions of apex** | | | | | |
| **QN** | **(b)** | absent or very shallow | | | | | 1 |
| | | shallow | | | | | 3 |
| | | medium | | | | Sensation Radiance, Sunset | 5 |
| | | deep | | | | | 7 |
| **28.**<br>**(*)** | **VG** | **Ray floret: main color of inner side** | | | | | |
| **PQ** | **(b)**<br>**(c)** | RHS Colour Chart (indicate reference number) | | | | | |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **29.**<br>**(*)** | **VG** | **Ray floret: secondary color of inner side** | | | | | |
| **PQ** | **(b)**<br>**(c)** | RHS Colour Chart<br>(indicate reference number) | | | | | |
| **30.**<br>**(*)**<br>**(+)** | **VG** | **Ray floret: distribution of secondary color of inner side** | | | | | |
| **PQ** | **(b)** | basal zone | | | | | 1 |
| | **(c)** | basal quarter | | | | | 2 |
| | | basal half | | | | | 3 |
| | | distal half | | | | | 4 |
| | | distal quarter | | | | | 5 |
| | | tip | | | | | 6 |
| | | band | | | | | 7 |
| | | marginal zone | | | | | 8 |
| | | central zone | | | | | 9 |
| | | throughout | | | | | 10 |
| **31.**<br>**(+)** | **VG** | **Ray floret: pattern of secondary color of inner side** | | | | | |
| **PQ** | **(b)** | solid or nearly solid | | | | | 1 |
| | **(c)** | flushed | | | | | 2 |
| | | stripes | | | | | 3 |
| **32.** | **VG** | **Ray floret: tertiary color of inner side** | | | | | |
| **PQ** | **(b)**<br>**(c)** | RHS Colour Chart<br>(indicate reference number) | | | | | |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **33.**<br>**(+)** | **VG** | **Ray floret: distribution of tertiary color of inner side** | | | | | |
| **PQ** | **(b)** | basal zone | | | | | 1 |
| | **(c)** | basal quarter | | | | | 2 |
| | | basal half | | | | | 3 |
| | | distal half | | | | | 4 |
| | | distal quarter | | | | | 5 |
| | | tip | | | | | 6 |
| | | band | | | | | 7 |
| | | marginal zone | | | | | 8 |
| | | central zone | | | | | 9 |
| | | throughout | | | | | 10 |
| **34.**<br>**(+)** | **VG** | **Ray floret: pattern of tertiary color of inner side** | | | | | |
| **PQ** | **(b)** | solid or nearly solid | | | | | 1 |
| | **(c)** | flushed | | | | | 2 |
| | | stripes | | | | | 3 |
| **35**<br>**(*)** | **VG** | **Ray floret: main color of outer side** | | | | | |
| **PQ** | **(b)**<br>**(c)** | RHS Colour Chart<br>(indicate reference number) | | | | | |
| **36**<br>**(*)**<br>**(+)** | **VG** | **Disc: main color** | | | | | |
| **PQ** | | RHS Colour Chart<br>(indicate reference number) | | | | | |

8. Explanations on the Table of Characteristics

*8.1 Explanations covering several characteristics*

Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

Unless otherwise indicated, all observations should be made at the time of full flowering.

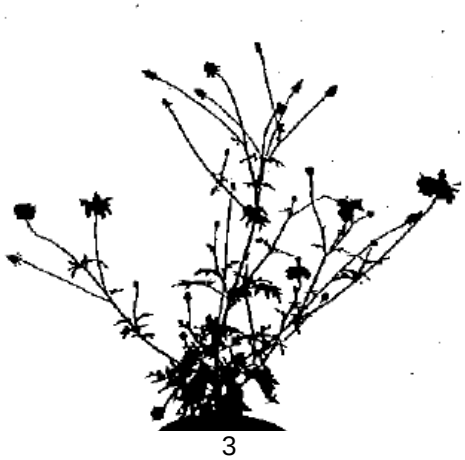
(a) Leaf characteristics should be observed on the leaves from the middle third of the stem.
(b) Ray floret should be observed on the outermost row of ray florets.
(c) The main color is the color with the largest total surface area, the secondary color (if present) is the color with the second largest total surface area, the tertiary color (if present) is the color with the third largest total surface area. If the area of the colors is nearly half and half, the darker color is the main color.

*8.2 Explanations for individual characteristics*

Ad. 2: Plant: growth habit

1
erect

2
semi-erect



3
spreading

Ad. 6: Leaf: number of lobes

1
absent or very few

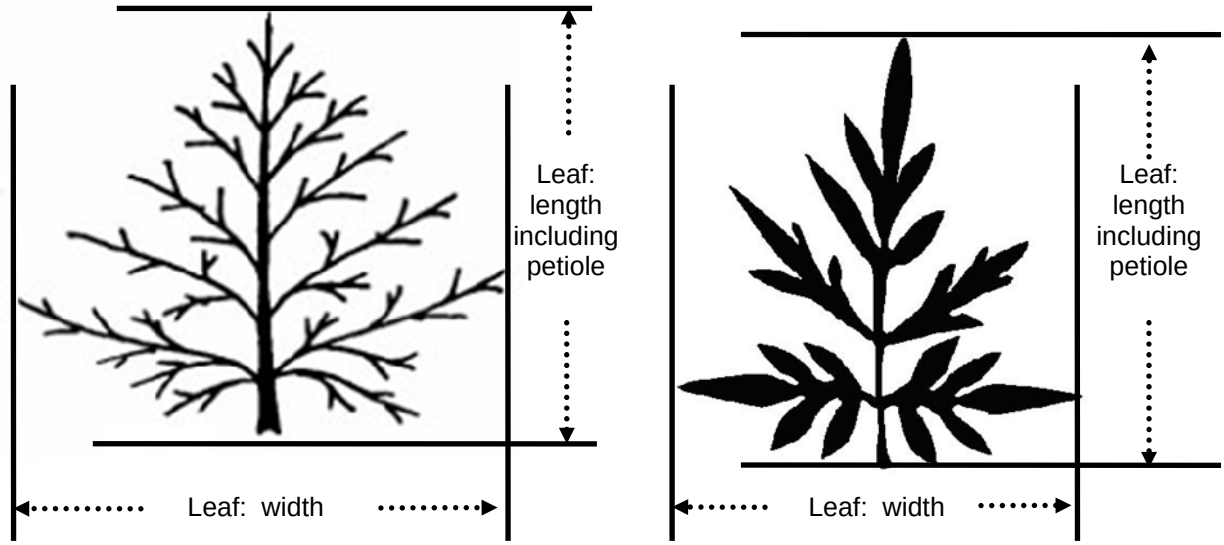
2
few

3
medium

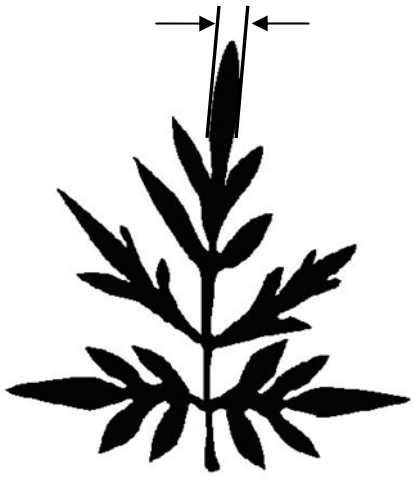
4
many

5
very many

Ad. 7: Leaf: length including petiole
Ad. 8: Leaf: width




Ad. 10: Leaf: width of the terminal lobe on the terminal leaflet: only for divided leaves



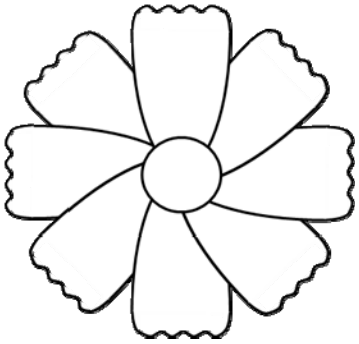
Ad. 11: Flower head: attitude

1
upward

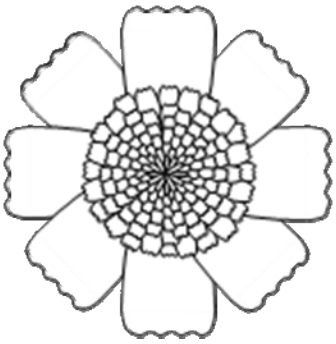
2
outward

3
downward

Ad. 13: Flower head: disc type

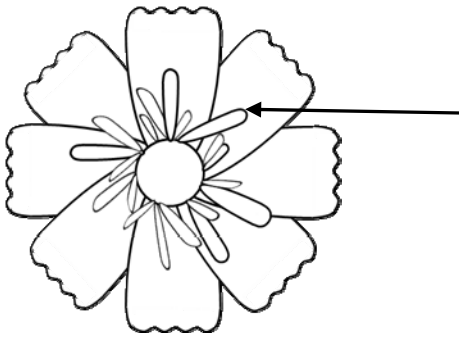


1
daisy



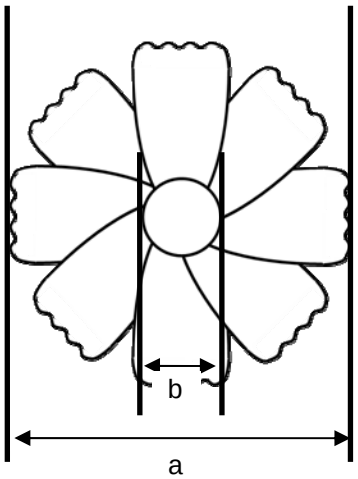
2
anemone

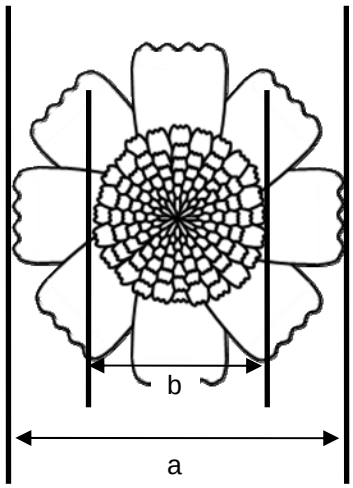
Ad. 14: Flower head: paracorolla




Ad. 15: Flower head: diameter
Ad. 16: Flower head: disc diameter
Ad. 17: Flower head: disc diameter relative to head diameter

a: head diameter
b: disc diameter

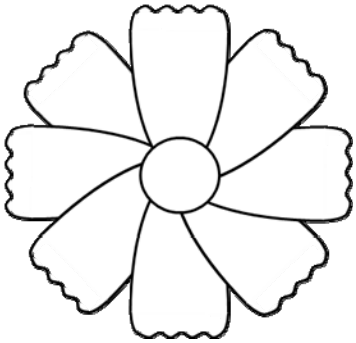


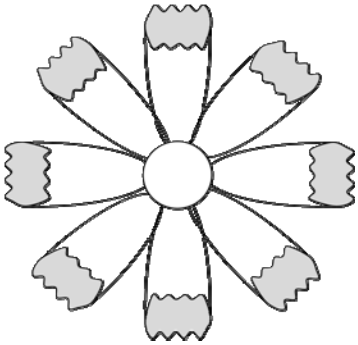
Ad. 16: Flower head: disc diameter

In varieties with paracorolla, the disc diameter should be observed excluding the paracorolla.

Ad. 20: Ray floret: type



1
ligulate



3
tubular

Ad. 21: Ray floret: longitudinal axis

1
incurved

2
straight

3
reflex

Ad. 22: Ray floret: degree of curvature

1
weak

2
medium

3
strong

Ad. 23: Ray floret: curved part of axis

1
tip

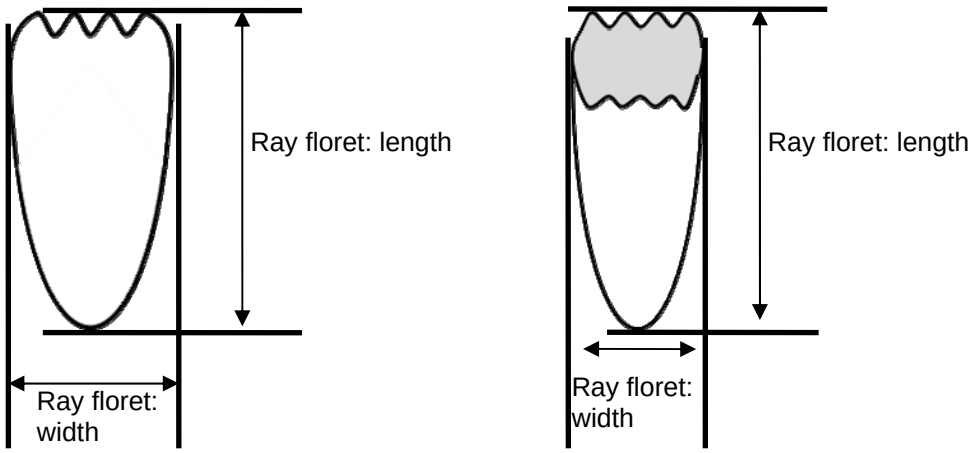
2
distal quarter

3
distal half

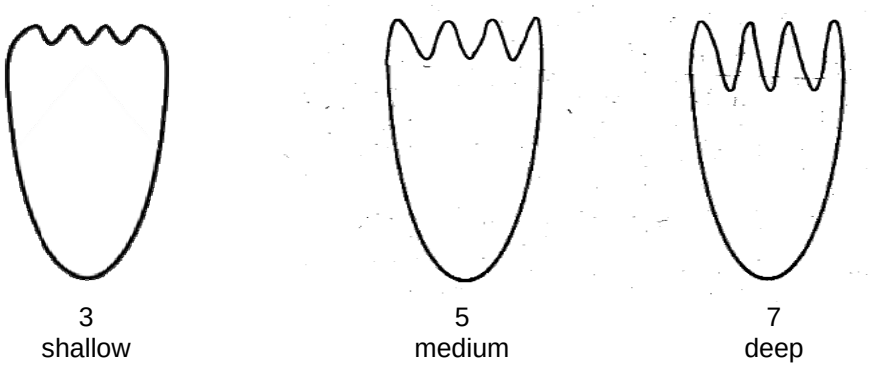
4
distal three quarter

5
base

Ad. 24: Ray floret: length
Ad. 25: Ray floret: width




Ad. 27: Ray floret: incisions of apex



3
shallow

5
medium

7
deep

Ad. 30: Ray floret: distribution of secondary color of inner side
Ad. 33: Ray floret: distribution of tertiary color of inner side

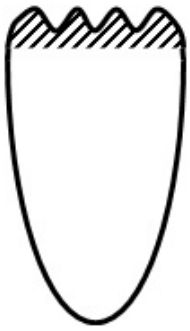
1
basal zone

2
basal quarter

3
basal half

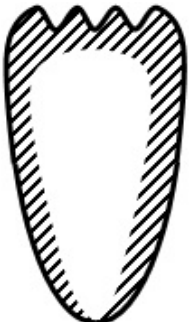
4
distal half

5
distal quarter



6
tip

7
band

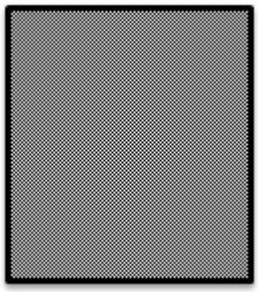


8
marginal zone

9
central zone

10
throughout

Ad. 31: Ray floret: pattern of secondary color of inner side
Ad. 34: Ray floret: pattern of tertiary color of inner side



1
solid or nearly solid

2
flushed

3
stripes

Ad. 36: Disc: main color

The color of disc should be observed at just before anther dehiscence in daisy type, at full flower in anemone type.

## 9. Literature

Tsukamoto, Y., 1994: The Grand Dictionary of Horticulture Volume 1. The Shogakukan Ltd., Tokyo, JP, pp. 860 to 862.

L. H. Bailey Hortorium, Cornell University, 1976: Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. The staff of the L. H. Bailey Hortorium, Cornell University. Macmillan Publishing Co., New York, US, p.321.

10. Technical Questionnaire

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

| | Application date:<br>(not to be filled in by the applicant) |
|---|---|

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

| | |
|---|---|
| 1.1 Genus | *Cosmos* Cav. |
| 1.2 Species(please complete) | |
| 1.2.1 Botanical name | |
| 1.2.2 Common name | |

2. Applicant

| | |
|---|---|
| Name | |
| Address | |
| Telephone No. | |
| Fax No. | |
| E-mail address | |
| Breeder (if different from applicant) | |

3. Proposed denomination and breeder's reference

| | |
|---|---|
| Proposed denomination<br>(if available) | |
| Breeder's reference | |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..) x (……..……..)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..) x (……..……..)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination

(i) population [ ]

(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]
(please provide details)

4.2.2 Vegetatively propagated varieties

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.3 Other [ ]
(please provide details)

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.1 (13)** | **Flower head: disc type** | | |
| | daisy | | 1[ ] |
| | anemone | Bridal Bouquet COS | 2[ ] |
| **5.2 (14)** | **Flower head: paracorolla** | | |
| | absent | | 1[ ] |
| | present | Red Illusion | 9[ ] |
| **5.3 (20)** | **Ray floret: type** | | |
| | ligulate | | 1[ ] |
| | ligulate and tubular | | 2[ ] |
| | tubular | | 3[ ] |
| **5.4(i) (28)** | **Ray floret: main color of inner side** | | |
| | RHS Colour Chart (indicate reference number) | | |
| **5.4(ii) (28)** | **Ray floret: main color of inner side** | | |
| | white | | 1[ ] |
| | yellow | | 2[ ] |
| | orange | | 3[ ] |
| | pink | | 4[ ] |
| | red | | 5[ ] |
| | red purple | | 6[ ] |
| | brown red | | 7[ ] |
| | other color(indicate) | | 8[ ] |
| **5.5(i) (29)** | **Ray floret: secondary color of inner side** | | |
| | RHS Colour Chart (indicate reference number) | | |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.5(ii) (29)** | **Ray floret: secondary color of inner side** | | |
| | white | | |
| | yellow | | |
| | orange | | |
| | pink | | |
| | red | | |
| | red purple | | |
| | brown red | | |
| | other color(indicate) | | |
| **5.6 (30)** | **Ray floret: distribution of secondary color of inner side** | | |
| | basal zone | | 1[ ] |
| | basal quarter | | 2[ ] |
| | basal half | | 3[ ] |
| | distal half | | 4[ ] |
| | distal quarter | | 5[ ] |
| | tip | | 6[ ] |
| | band | | 7[ ] |
| | marginal zone | | 8[ ] |
| | central zone | | 9[ ] |
| | throughout | | 10[ ] |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

6. Similar varieties and differences from these varieties

*Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.*

| Denomination(s) of variety(ies) similar to your candidate variety | Characteristic(s) in which your candidate variety differs from the similar variety(ies) | Describe the expression of the characteristic(s) for the **similar** variety(ies) | Describe the expression of the characteristic(s) for **your** candidate variety |
|---|---|---|---|
| *Example* | *Plant: growth habit* | *erect* | *semi-erect* |
| | | | |
| | | | |
| | | | |

Comments:

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color image of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|

9. Information on plant material to be examined or submitted for examination.

9.1 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.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

| | | | |
|---|---|---|---|
| (a) | Microorganisms (e.g. virus, bacteria, phytoplasma) | Yes [ ] | No [ ] |
| (b) | Chemical treatment (e.g. growth retardant, pesticide) | Yes [ ] | No [ ] |
| (c) | Tissue culture | Yes [ ] | No [ ] |
| (d) | Other factors | Yes [ ] | No [ ] |

Please provide details for where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[Annex I follows]

ANNEX I

COMMENTS TO DOCUMENT TG/COSMOS(PROJ.4) BY LEADING EXPERT

(1) Flower head: number of ray florets(char.12)
If it isn't provided by MX more than two example varieties for different states,we suggest to return to chracteristics of draft(proj.2)[Flower head :type] with three note( 1 single,2 semi-double,3 double).

(2) Flower head: paracorolla(char.14)
Though it seems like same character,,its term is Paracorolla[char.9] in Osteospermum and Collar segments[char.23] in Dahlia.
we want to confirm which term should it be used.

(3) Flower head: length of Peduncle(char.18)
If it isn't provided by MX more than two example varieties for different states, we want to suggest to delete this characteristics.

(4) Flower head: fragrance(char.19)
If it isn't provided by MX more than two example varieties for different states, we want to suggest to delete this characteristics.

[Annex II follows]

ANNEX II

COMMENTS TO DOCUMENT TG/COSMOS(PROJ.4) BY SUBGROUP

UK comments on TG/Cosmos(proj.4)

Preamble

| | | **comments as of 9th May 2012** | answer for comments |
|---|---|---|---|
| 3.1 | | Nothing under this heading – should read: 'The minimum duration of tests should normally be a single growing cycle' | Corrected as it is pointed out. |
| 5.3 b | Flower head: collerette segments | Needs to match character 14, whichever is decided as correct. | Match the term decided in character 14.<br>Correct as paracorolla in draft. |

Characteristics

| Char no | Char name | **comments as of 9th May 2012** | answer for comments |
|---|---|---|---|
| 3 | Stem: number of primary branches | If it is difficult to illustrate each state with a diagram, then maybe it would be good just to have one diagram showing what should be recorded. We feel this character is not particularly clear and some guidance is needed to ensure harmonization in what is recorded. | We think it is clear.Because it can count like reference diagram of last page. |
| 4 | Stem: intensity of anthocyanin colouration | Suggest removing the words 'intensity of' from the title of the character. | Corrected as it is pointed out. |
| 14 | Flower head: paracorolla | We have not seen a variety like this and so cannot comment on whether paracorolla or collerette segments is the correct term. | This character refer to the following photograph.<br>In draft,indicated as Paracorolla from technical book of Japan and same character of Osteospermum[char.9].<br>But this is Collar segments[char.23] in Dahlia TG of related genus to Cosmos.<br>Therefore we want to confirm about correct term. |

| | | | |
|---|---|---|---|
| | | |  |
| 18 | Flower head: length of peduncle | This is an important character, as we do not have enough information to give example varieties we hope Mexico can. | As comment in TGdraft. |
| 26 | Ray floret: ratio length/width | Suggest keeping the 1-9 scale and not reducing to 1-5.<br><br>Is ‘compressed’ really the correct term for this, it implies the ray florets are wider than they are long – do these exist. We suggest wording as ‘low’ and ‘high’.<br><br>If these are the correct terms cannot have ‘compressed’ and ‘elongated’ for 1 and 5. Should be for example ‘strongly compressed’ and ‘strongly elongated’. | As it is pointed out,keep the 1-9 scale, correct to 3:low,5:medium,7:high for each states.<br>And set Sensation Radiance for state 5、Happy Ring for state7 as example variety. |
| 33 | Ray floret: distribution of tertiary colour of inner side | State 10 should read ‘throughout’ and not ‘throught’ | Corrected as it is pointed out. |

Explanations on the table of characteristics

| | | **comments as of 9th May 2012** | answer for comments |
|---|---|---|---|
| 8.1(a) | | Same comment as last year – this seems over complicated and detailed. What happens if that leaf gets broken off, we suggest using 'leaves from the mid third of the stem'. | Corrected as it is pointed out. |
| Ad.16 | | Refers to collerette segments – need the same wording as in character 14. | Match the term decided in character 14.<br>Correct as paracorolla in draft. |
| Ad.23 | | Diagram for state 5 needs improving, this shows straight florets with an upright attitude and not curved florets. (maybe state 5 should be 'almost entire axis' instead of 'entire axis') | Improved diagram and word[base]for state 5. |

Technical Questionnaire

| | | **comments as of 9th May 2012** | answer for comments |
|---|---|---|---|
| 5.2 | Flower head: collarette segments | Needs to match character 14, whichever is decided as correct. | Match the term decided in character 14.<br>Correct as paracorolla in draft. |

[End of annex II and of document]