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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

**CAMPANULA**

UPOV Code: CAMPA

*Campanula* L.

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by an expert from the United Kingdom*

*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* |
|---|---|---|---|---|
| *Campanula* L. | Campanula, Bell flower | Campanule | Glockenblume | Campánula |

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 *Campanula* L.

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 young plants.

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

10 young plants.

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 Observation of color by eye

Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color chart and version used should be specified in the variety description.

*3.4 Test Design*

3.4.1 Each test should be designed to result in a total of at least 10 plants.

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 9 plants or parts taken from each of 9 plants 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 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-types 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 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) Plant: growth habit (characteristic 1)
(b) Plant: height (characteristic 2)
(c) Flower: attitude (characteristic 22)
(d) Corolla: number of whorls (characteristic 28)
(e) Corolla: main color of outer side (characteristic 31)
  Gr. 1: white
  Gr. 2: pink
  Gr. 3: red purple
  Gr. 4: purple
  Gr. 5: blue
(f) Corolla: main color of inner side (characteristic 35)
  Gr. 1: white
  Gr. 2: pink
  Gr. 3: red purple
  Gr. 4: purple
  Gr. 5: blue

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)-{d} | 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>**(*)**<br>**(+)** | **VG** | **Plant: growth habit** | | | | | |
| **QN** | **(a)** | upright | | | | La Bello | 1 |
| | | semi-upright | | | | Bowl of Cherries | 2 |
| | | spreading | | | | PKMP05 | 3 |
| | | semi-trailing | | | | Camgood | 4 |
| | | trailing | | | | | 5 |
| **2.**<br>**(*)**<br>**(+)** | **VG/**<br>**MS** | **Plant: height** | | | | | |
| **QN** | **(a)** | extremely short | | | | | 1 |
| | | very short | | | | | 3 |
| | | short | | | | | 5 |
| | | medium | | | | | 7 |
| | | tall | | | | | 9 |
| | | very tall | | | | | 11 |
| | | extremely tall | | | | | 13 |
| **3.**<br>**(+)** | **VG/**<br>**MS** | **Plant: width** | | | | | |
| **QN** | **(a)** | very narrow | | | | | 1 |
| | | narrow | | | | | 3 |
| | | medium | | | | | 5 |
| | | broad | | | | | 7 |
| | | very broad | | | | | 9 |
| **4.**<br>**(+)** | **VG** | **Plant: density** | | | | | |
| **QN** | **(a)** | very sparse | | | | | 1 |
| | | sparse | | | | | 3 |
| | | medium | | | | | 5 |
| | | dense | | | | | 7 |
| | | very dense | | | | | 9 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **5.** | **VG** | **Stem: color** | | | | | |
| **(+)** | | | | | | | |
| **PQ** | | yellow green | | | | | 1 |
| | | light green | | | | | 2 |
| | | medium green | | | | | 3 |
| | | dark green | | | | | 4 |
| | | grey green | | | | | 5 |
| | | green tinged with red purple | | | | | 6 |
| | | red purple | | | | Joan Elliot | 7 |
| **6.** **(*)** | **VG/ MS** | **Leaf: petiole** | | | | | |
| **QN** | **(b)** | absent or very short | | | | | 1 |
| | | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |
| | | very long | | | | | 9 |
| **7.** **(*)** | **VG/ MS** | **Leaf blade: length** | | | | | |
| **QN** | **(b)** | very short | | | | | 1 |
| | | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |
| | | very long | | | | | 9 |
| **8.** **(*)** | **VG/ MS** | **Leaf blade: width** | | | | | |
| **QN** | **(b)** | very narrow | | | | | 1 |
| | | narrow | | | | | 3 |
| | | medium | | | | | 5 |
| | | broad | | | | | 7 |
| | | very broad | | | | | 9 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **9.**<br>**(*)**<br>**(+)** | **VG/<br>MS** | **Leaf blade: length/width ratio** | | | | | |
| **QN** | **(b)** | low | | | | Caroline | 3 |
| | | medium | | | | | 5 |
| | | high | | | | | 7 |
| **10.**<br>**(+)** | **VG** | **Leaf blade: position of broadest part** | | | | | |
| **QN** | **(b)** | strongly towards base | | | | | 1 |
| | | moderately towards base | | | | | 2 |
| | | at middle | | | | | 3 |
| | | moderately towards apex | | | | | 4 |
| **11.**<br>**(+)** | **VG** | **Leaf blade: shape of apex** | | | | | |
| **PQ** | **(b)** | acuminate | | | | | 1 |
| | | acute | | | | | 2 |
| | | obtuse | | | | | 3 |
| **12.**<br>**(+)** | **VG** | **Leaf blade: shape of base** | | | | | |
| **PQ** | **(b)** | linear | | | | | 1 |
| | | acute | | | | | 2 |
| | | obtuse | | | | | 3 |
| | | rounded | | | | | 4 |
| | | truncate | | | | | 5 |
| | | cordate | | | | | 6 |
| **13.** | **VG** | **Leaf blade: profile in cross section** | | | | | |
| **QN** | **(b)** | concave | | | | | 1 |
| | | flat | | | | | 2 |
| | | convex | | | | | 3 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **14.<br>(*)** | **VG** | **Leaf blade: main color of upper side** | | | | | |
| **PQ** | **(b)** | yellow green | | | | | 1 |
| | **(d)** | light green | | | | | 2 |
| | | medium green | | | | | 3 |
| | | dark green | | | | | 4 |
| | | grey green | | | | | 5 |
| | | green tinged with red or purple | | | | | 6 |
| **15.<br>(*)** | **VG** | **Leaf blade: variegation** | | | | | |
| **QL** | **(b)** | absent | | | | | 1 |
| | | present | | | | | 9 |
| **16.** | **VG** | **Leaf blade: rugosity of surface** | | | | | |
| **QN** | **(b)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | | 3 |
| | | strong | | | | | 4 |
| | | very strong | | | | | 5 |
| **17.** | **VG** | **Leaf blade: glossiness of upper side** | | | | | |
| **QN** | **(b)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | | 3 |
| | | strong | | | | | 4 |
| **18.<br>(*)** | **VG** | **Leaf blade: pubescence of upper side** | | | | | |
| **QN** | **(b)** | absent or very sparse | | | | | 1 |
| | | sparse | | | | | 2 |
| | | medium | | | | | 3 |
| | | dense | | | | | 4 |
| | | very dense | | | | | 5 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **19.**<br>**(+)** | **VG** | **Leaf blade: indentations of margin** | | | | | |
| **QN** | **(b)** | absent or very few | | | | | 1 |
| | | few | | | | | 2 |
| | | medium | | | | | 3 |
| | | many | | | | | 4 |
| | | very many | | | | | 5 |
| **20.**<br>**(+)** | **VG** | **Leaf blade: depth of indentations of margin** | | | | | |
| **QN** | **(b)** | very shallow | | | | | 1 |
| | | shallow | | | | | 2 |
| | | medium | | | | | 3 |
| | | deep | | | | | 4 |
| | | very deep | | | | | 5 |
| **21.**<br>**(+)** | **VG** | **Leaf blade: undulation of margin** | | | | | |
| **QN** | **(b)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | | 3 |
| | | strong | | | | | 4 |
| | | very strong | | | | | 5 |
| **22.**<br>**(*)**<br>**(+)** | **VG** | **Flower: attitude** | | | | | |
| **QN** | **(c)** | upwards | | | | Samantha | 1 |
| | | slightly outwards | | | | PKMM01 | 2 |
| | | strongly outwards | | | | Blue Eyed Blonde | 3 |
| | | slightly downwards | | | | Bowl of Cherries | 4 |
| | | strongly downwards | | | | Purple Sensation | 5 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **23.**<br>**(*)**<br>**(+)** | **VG** | **Flower: type** | | | | | |
| **PQ** | **(c)** | tubular | | | | Sarastro | 1 |
| | | campanulate | | | | Elizabeth Oliver | 2 |
| | | rotate | | | | Samantha | 3 |
| | | with strap-shaped lobes | | | | Pink Octopus | 4 |
| **24.**<br>**(*)**<br>**(+)** | **VG** | **Flower: profile in longitudinal section** | | | | | |
| **PQ** | **(c)** | converging | | | | Pink Chimes | 1 |
| | | parallel | | | | Sarastro | 2 |
| | | slightly diverging | | | | Kent Belle | 3 |
| | | moderately diverging | | | | Harjen | 4 |
| | | strongly diverging | | | | | 5 |
| | | horizontal | | | | | 6 |
| | | reflexing | | | | | 7 |
| **25.**<br>**(*)**<br>**(+)** | **VG** | **Calyx: petaloid lobes** | | | | | |
| **QL** | **(c)** | absent | | | | Kent Belle | 1 |
| | | present | | | | Pantaloons | 9 |
| **26.**<br>**(+)** | **VG** | **<u>Only varieties with petaloid calyx lobes</u>:**<br>**Calyx lobe: color** | | | | | |
| **PQ** | **(c)** | RHS Colour Chart<br>(indicate reference number) | | | | | |
| **27.**<br>**(+)** | **VG** | **Calyx: position of lobes** | | | | | |
| **QN** | **(c)** | adpressed to corolla | | | | | 1 |
| | | moderately spreading | | | | | 3 |
| | | horizontal | | | | | 5 |
| | | moderately reflexed | | | | | 7 |
| | | strongly reflexed | | | | | 9 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **28.<br>(*)<br>(+)** | **VG** | **Corolla: number of whorls** | | | | | |
| **QN** | **(c)** | very few | | | | PKMH01 | 1 |
| | | few | | | | Havidb701 | 2 |
| | | medium | | | | Snowball | 3 |
| | | many | | | | La Bello | 4 |
| | | very many | | | | | 5 |
| **29.<br>(*)<br>(+)** | **VG/<br>MS** | **Corolla: length** | | | | | |
| **QN** | **(c)** | very short | | | | | 1 |
| | | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |
| | | very long | | | | | 9 |
| **30.<br>(*)<br>(+)** | **VG/<br>MS** | **Corolla: diameter** | | | | | |
| **QN** | **(c)** | very small | | | | | 1 |
| | | small | | | | | 3 |
| | | medium | | | | | 5 |
| | | large | | | | | 7 |
| | | very large | | | | | 9 |
| **31.<br>(*)** | **VG** | **Corolla: main color of outer side** | | | | | |
| **PQ** | **(c)**<br>**(d)** | RHS Colour Chart (indicate reference number) | | | | | |
| **32.<br>(*)** | **VG** | **Corolla: secondary color of outer side** | | | | | |
| **PQ** | **(c)**<br>**(d)** | RHS Colour Chart (indicate reference number) | | | | | |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **33.**<br>**(+)** | **VG** | **Corolla: distribution of secondary color of outer side** | | | | | |
| **PQ** | **(c)** | none | | | | | 1 |
| | **(d)** | distal quarter | | | | | 2 |
| | | basal three quarters | | | | | 3 |
| | | basal half | | | | | 4 |
| | | basal quarter | | | | | 5 |
| | | at base | | | | | 6 |
| | | marginal zone | | | | | 7 |
| | | midrib | | | | | 8 |
| | | midrib and marginal zone | | | | | 9 |
| | | throughout | | | | | 10 |
| **34.**<br>**(+)** | **VG** | **Corolla: pattern of secondary color of outer side** | | | | | |
| **PQ** | **(c)** | solid or nearly solid | | | | | 1 |
| | **(d)** | flushed | | | | | 2 |
| | | along veins | | | | | 3 |
| | | dotted | | | | | 4 |
| | | spotted | | | | | 5 |
| **35.**<br>**(*)** | **VG** | **Corolla: main color of inner side** | | | | | |
| **PQ** | **(c)**<br>**(d)** | RHS Colour Chart<br>(indicate reference number) | | | | | |
| **36.**<br>**(*)** | **VG** | **Corolla: secondary color of inner side** | | | | | |
| **PQ** | **(c)**<br>**(d)** | RHS Colour Chart<br>(indicate reference number) | | | | | |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **37.**<br>**(+)** | **VG** | **Corolla: distribution of secondary color of inner side** | | | | | |
| **PQ** | **(c)** | none | | | | | 1 |
| | **(d)** | distal quarter | | | | | 2 |
| | | basal three quarters | | | | | 3 |
| | | basal half | | | | | 4 |
| | | basal quarter | | | | | 5 |
| | | at base | | | | | 6 |
| | | marginal zone | | | | | 7 |
| | | midrib | | | | | 8 |
| | | longitudinal zone (lobe sinus to base) | | | | | 9 |
| | | throughout | | | | | 10 |
| **38.**<br>**(+)** | **VG** | **Corolla: pattern of secondary color of inner side** | | | | | |
| **PQ** | **(c)** | solid or nearly solid | | | | | 1 |
| | **(d)** | flushed | | | | | 2 |
| | | along veins | | | | | 3 |
| | | dotted | | | | | 4 |
| | | spotted | | | | | 5 |
| **39.**<br>**(+)** | **VG/<br>MS** | **Corolla: length of fused part** | | | | | |
| **QN** | **(c)** | absent or extremely short | | | | Pink Octopus | 1 |
| | | very short | | | | | 3 |
| | | short | | | | | 5 |
| | | medium | | | | | 7 |
| | | long | | | | Cherry Bells | 9 |
| | | very long | | | | | 11 |
| | | extremely long | | | | Sarastro | 13 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **40.<br>(*)<br>(+)** | **VG** | **Corolla: length of fused part compared to total corolla length** | | | | | |
| **QN** | **(c)** | absent or very short | | | | | 1 |
| | | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |
| | | very long | | | | | 9 |
| **41.<br>(+)** | **VG/<br>MS** | **Corolla: diameter of fused part** | | | | | |
| **QN** | **(c)** | very small | | | | | 1 |
| | | small | | | | | 3 |
| | | medium | | | | | 5 |
| | | large | | | | | 7 |
| | | very large | | | | | 9 |
| **42.<br>(*)<br>(+)** | **VG** | **Corolla lobe: shape** | | | | | |
| **PQ** | **(c)** | triangular | | | | | 1 |
| | | ovate | | | | | 2 |
| | | elliptic | | | | | 3 |
| | | oblong | | | | | 4 |
| **43.<br>(*)** | **VG/<br>MS** | **Corolla lobe: length** | | | | | |
| **QN** | **(c)** | very short | | | | | 1 |
| | | short | | | | | 3 |
| | | medium | | | | Kent Belle | 5 |
| | | long | | | | | 7 |
| | | very long | | | | | 9 |
| | | extremely long | | | | Pink Octopus | 11 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **44.**<br>**(+)** | **VG/ MS** | **Corolla lobe: width** | | | | | |
| **QN** | **(c)** | very narrow | | | | | 1 |
| | | narrow | | | | | 3 |
| | | medium | | | | | 5 |
| | | broad | | | | | 7 |
| | | very broad | | | | | 9 |
| **45.**<br>**(*)**<br>**(+)** | **VG** | **Corolla lobe: reflexing** | | | | | |
| **QN** | **(c)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| | | very strong | | | | | 9 |
| **46.** | **VG** | **Corolla lobe: twisting** | | | | | |
| **QN** | **(c)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | | 3 |
| | | strong | | | | | 4 |
| **47.**<br>**(+)** | **VG** | **Corolla lobe: profile in cross section** | | | | | |
| **QN** | **(c)** | strongly concave | | | | | 1 |
| | | moderately concave | | | | | 2 |
| | | weakly concave | | | | | 3 |
| | | flat | | | | | 4 |
| | | weakly convex | | | | | 5 |
| | | moderately convex | | | | | 6 |

| | | English | français | deutsch | español | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---|---|---|---|---|---|---|---|
| **48.**<br>**(+)** | **VG** | **Corolla lobe: shape of apex** | | | | | |
| **PQ** | **(c)** | acuminate | | | | | 1 |
| | | acute | | | | | 2 |
| | | obtuse | | | | | 3 |
| | | rounded | | | | | 4 |
| | | truncate | | | | | 5 |
| **49.** | **VG** | **Pollen: conspicuousness** | | | | | |
| **QN** | **(c)** | absent or very weak | | | | | 1 |
| | | weak | | | | | 2 |
| | | medium | | | | | 3 |
| | | strong | | | | | 4 |
| **50.** | **VG** | **Pollen: color** | | | | | |
| **PQ** | **(c)** | whitish | | | | | 1 |
| | | yellow | | | | | 2 |
| | | purplish | | | | | 3 |
| | | bluish | | | | | 4 |

## 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:

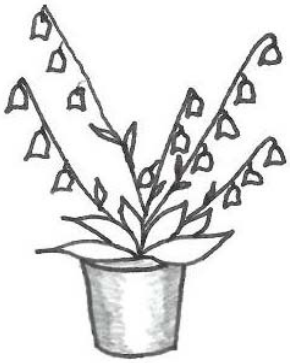
(a) Observation should be made on plants at the time of full flowering.
(b) Observations on the leaf should be made on fully expanded leaves from the middle third of a flowering stem, excluding the inflorescence. Observations are not made on the basal leaves of the plant.
(c) Observations on the calyx and corolla should be made on new fully open flowers.
(d) 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.

### *8.2 Explanations for individual characteristics*

Ad. 1: Plant: growth habit

The plants should be grown in containers to observe the plant growth habit.

1
upright



2
semi-upright

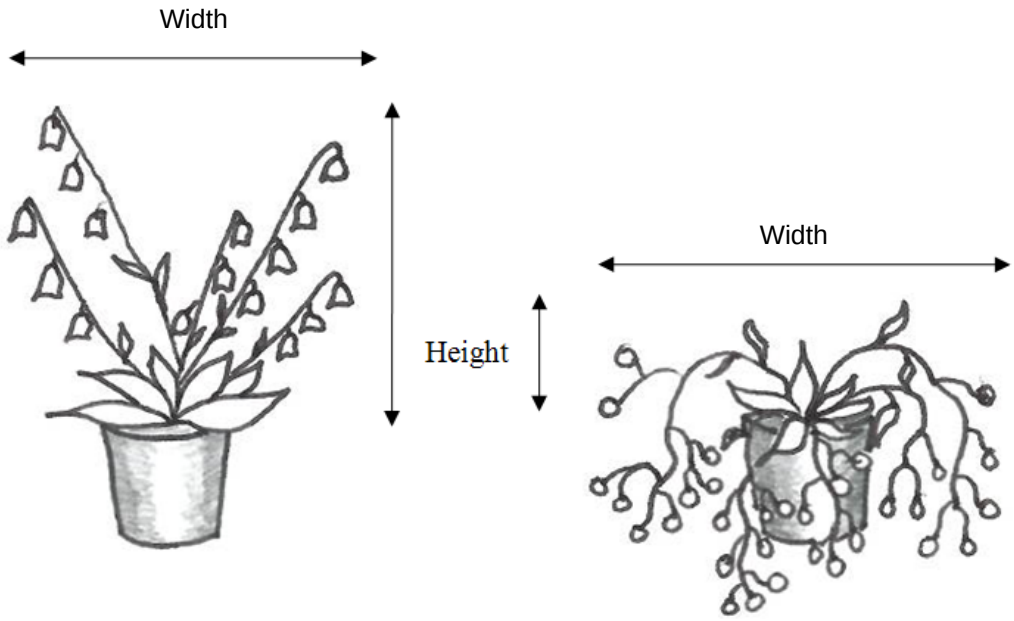
3
spreading

4
semi-trailing

5
trailing

Ad. 2: Plant: height
Ad. 3: Plant: width

The natural height of the plant should be assessed from the surface of the growing medium.
The natural width of the plants should be observed.



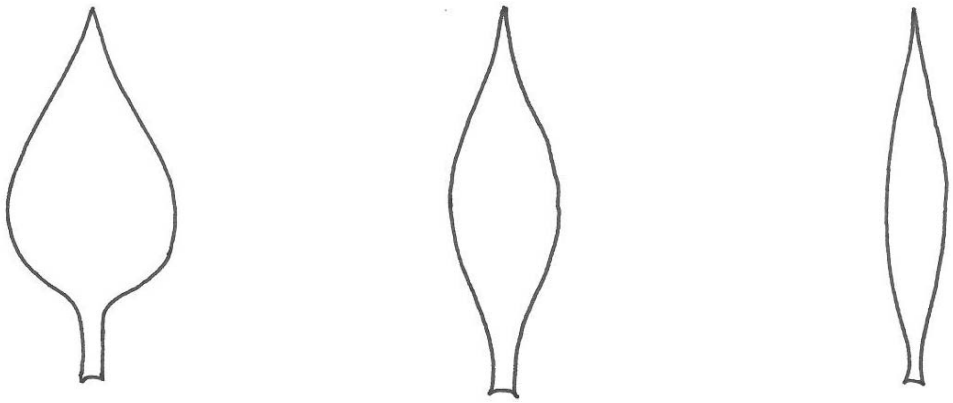

Ad. 4: Plant: density

This is an overall assessment of the density of the whole plant, including flowers and leaves.

Ad. 5: Stem: color

To be observed in the mid third of the flowering stem, excluding the flowering part.

Ad. 9: Leaf blade: length/width ratio



3
low

5
medium

7
high

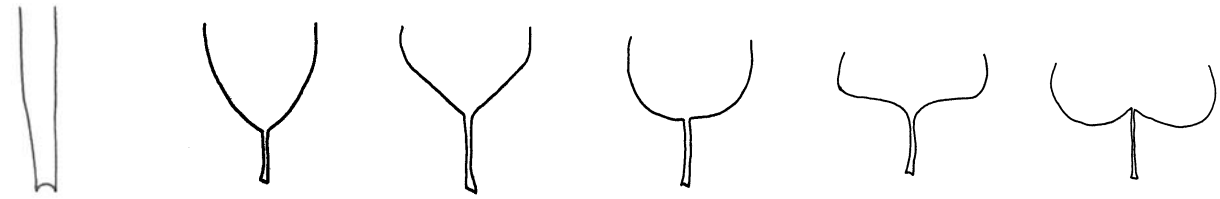
Ad. 10: Leaf blade: position of broadest part

1 strongly towards base | 2 moderately towards base | 3 at middle | 4 moderately towards apex

Ad. 11: Leaf blade: shape of apex

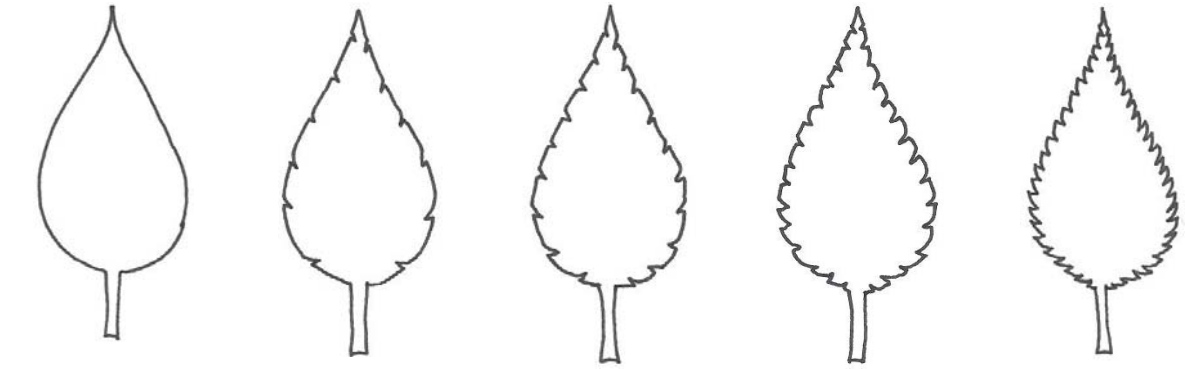
1 acuminate | 2 acute | 3 obtuse

Ad. 12: Leaf blade: shape of base



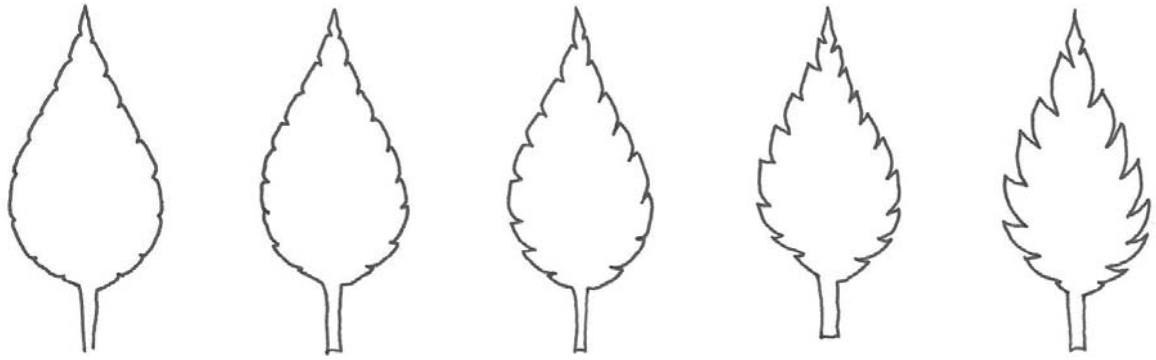
1 linear | 2 acute | 3 obtuse | 4 rounded | 5 truncate | 6 cordate

Ad. 19: Leaf blade: indentations of margin



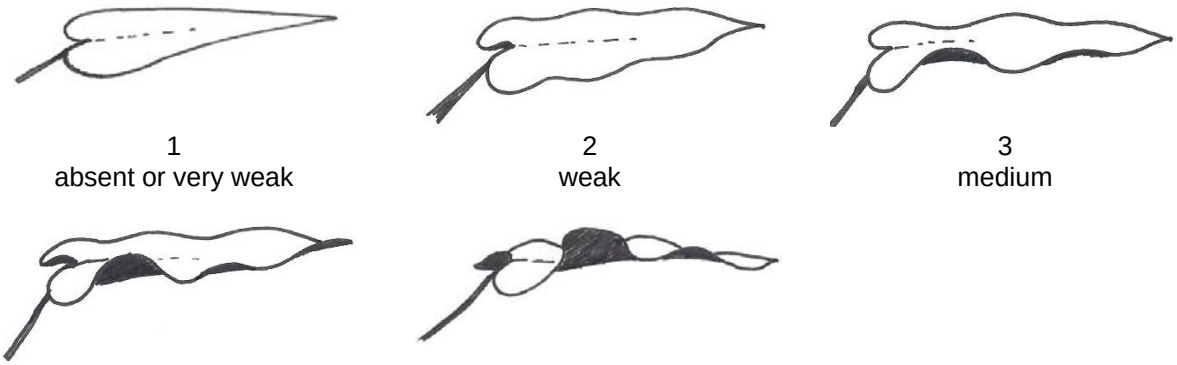
1 absent or very few | 2 few | 3 medium | 4 many | 5 very many

Ad. 20: Leaf blade: depth of indentations of margin



1 very shallow | 2 shallow | 3 medium | 4 deep | 5 very deep

Ad. 21: Leaf blade: undulation of margin



1 absent or very weak | 2 weak | 3 medium

4 strong | 5 very strong

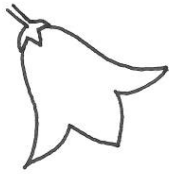
Ad. 22: Flower: attitude

The natural attitude of the corolla should be observed irrespective of the angle of the pedicel.

1 upwards | 2 slightly outwards | 3 strongly outwards | 4 slightly downwards | 5 strongly downwards

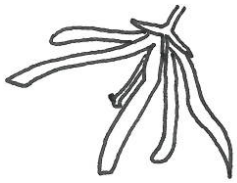
Ad. 23: Flower: type

1
tubular



2
campanulate

3
rotate



4
with strap-shaped lobes

Ad. 24: Flower: profile in longitudinal section

1
converging

2
parallel

3
slightly diverging

4
moderately diverging

5
strongly diverging

6
horizontal

7
reflexing

Ad. 25: Calyx: petaloid lobes

1
absent

9
present

Ad. 26: Only varieties with petaloid calyx lobes: calyx lobe: color

To be observed on the outer surface of the petaloid lobe

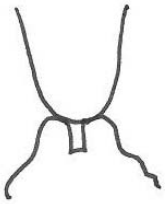
Ad. 27: Calyx: position of lobes

The observation is on the lobe of the calyx and excludes any appendage that might be present between the lobes.

1
adpressed to corolla

3
moderately spreading

5
horizontal



7
moderately reflexed

9
strongly reflexed

Ad. 28: Corolla: number of whorls

This does not include the petaloid calyx where present.

1
very few

2
few

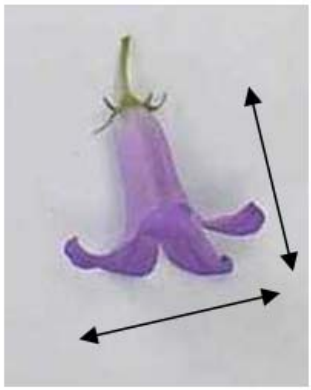
3
medium

4
many

5
very many

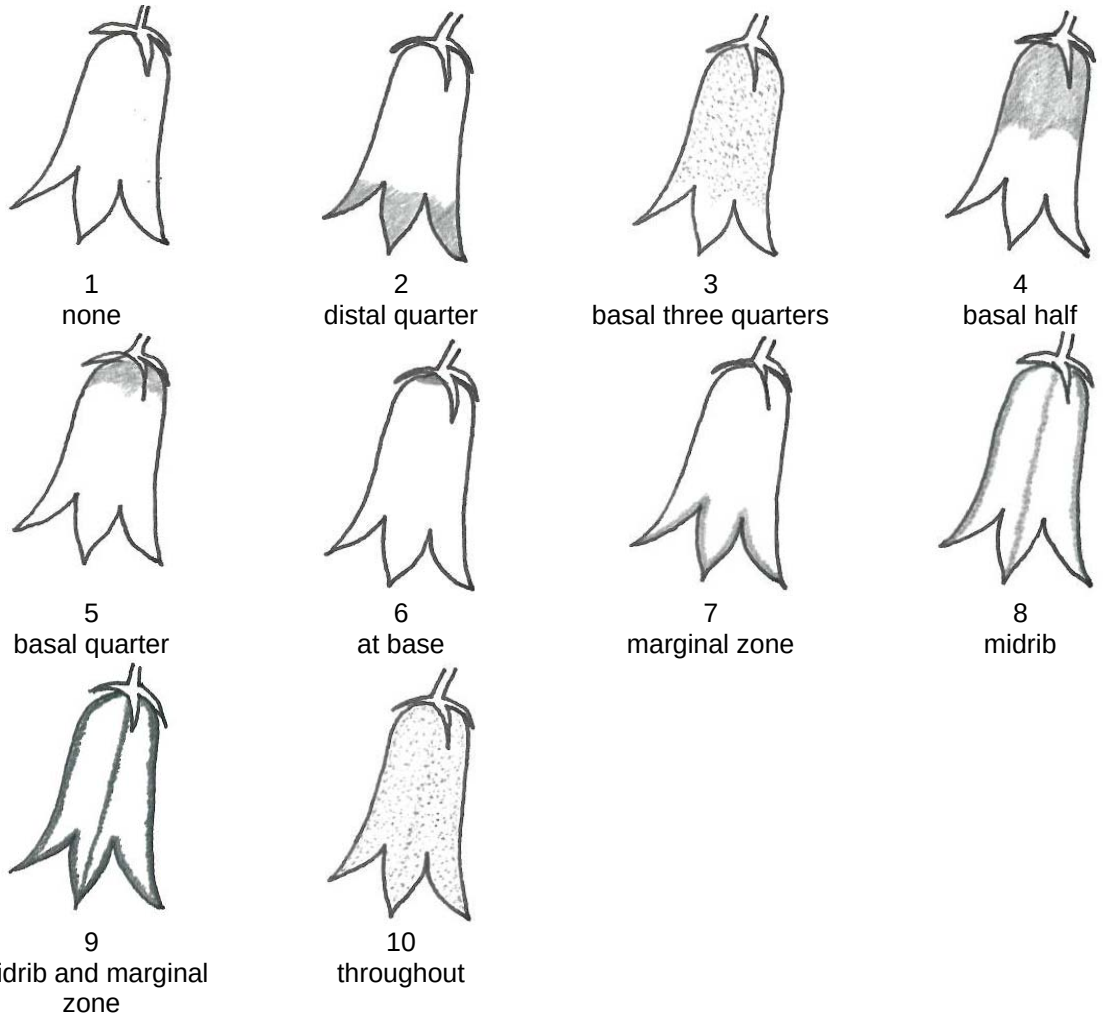
Ad. 29: Corolla: length
Ad. 30: Corolla: diameter

Assess the natural diameter and the natural length of the corolla.




Diameter

Ad. 33: Corolla: distribution of secondary color of outer side



1
none

2
distal quarter

3
basal three quarters

4
basal half

5
basal quarter

6
at base

7
marginal zone

8
midrib

9
midrib and marginal zone

10
throughout

Ad. 34: Corolla: pattern of secondary color of outer side

1
solid or nearly solid

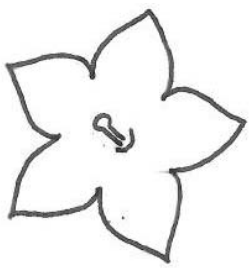
2
flushed

3
along veins

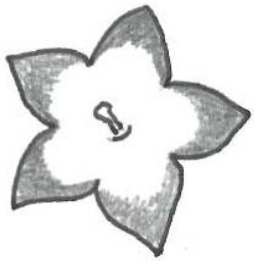
4
dotted

5
spotted

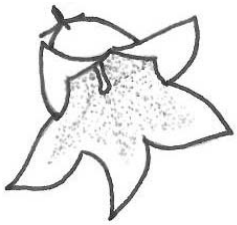
Ad. 37: Corolla: distribution of secondary color of inner side



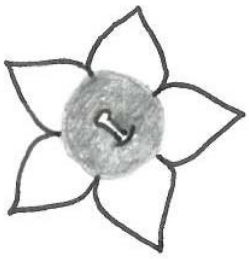
1
none



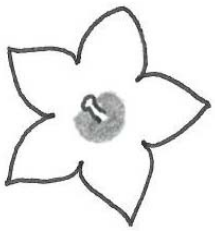
2
distal quarter



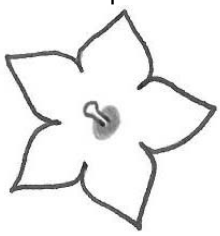
3
basal three quarters



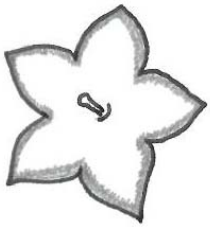
4
basal half



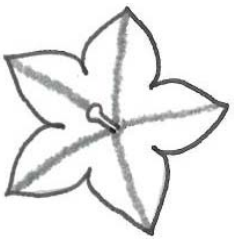
5
basal quarter



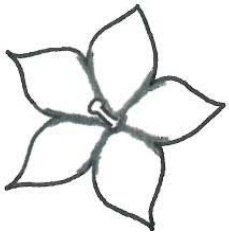
6
at base



7
marginal zone



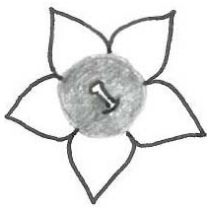
8
midrib



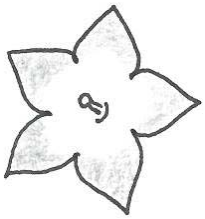
9
longitudinal zone (lobe sinus to base)

10
throughout

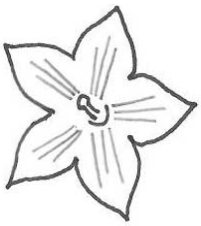
Ad. 38: Corolla: pattern of secondary color of inner side



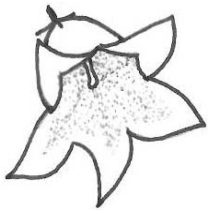
1
solid or nearly solid



2
flushed



3
along veins



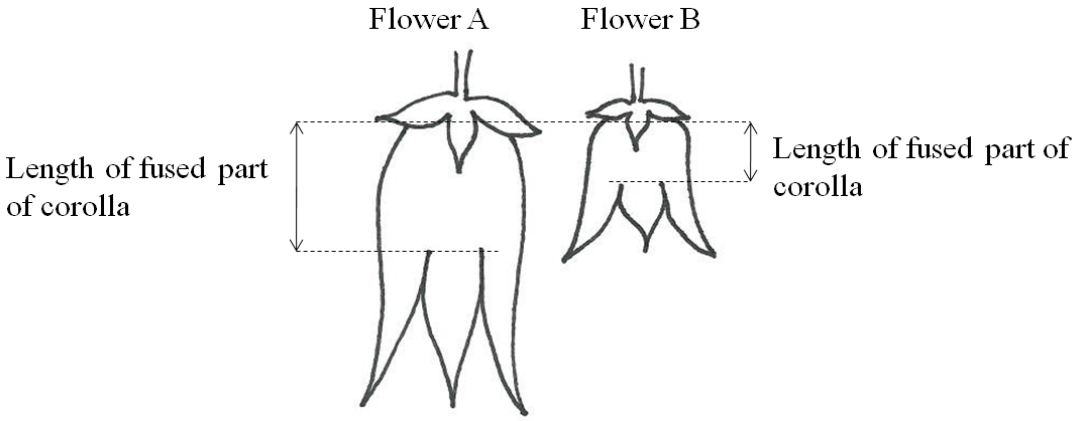
4
dotted

5
spotted

Ad. 39: Corolla: length of fused part
Ad. 40: Corolla: length fused part compared to total corolla length

The length of the fused part of the corolla can be expressed in absolute terms in characteristic 38, or as a proportion of the total length of the corolla in characteristic 39. The expression of the two characteristics is independent as shown in the two examples below.

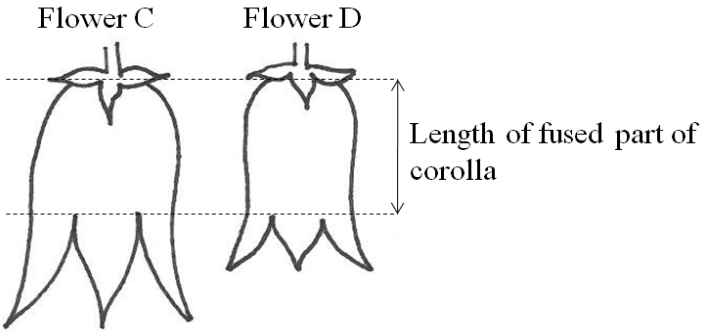
Example 1




Characteristic 38 – the note observed for the absolute length of the fused part of the corolla for flower A would be different from flower B as A is twice the length of the B.

Characteristics 39 – the note observed would be the same for flower A and flower B as the proportion of the corolla made up of the fused part is 'medium' for both.

Example 2




Characteristic 38 – the note observed for the absolute length of flower C would be the same as flower D.
Characteristic 39 – the note observed for flower C would be 5 (medium) and for flower D it would be 7 (long), this is because the proportion of the corolla made up of the fused part is different.

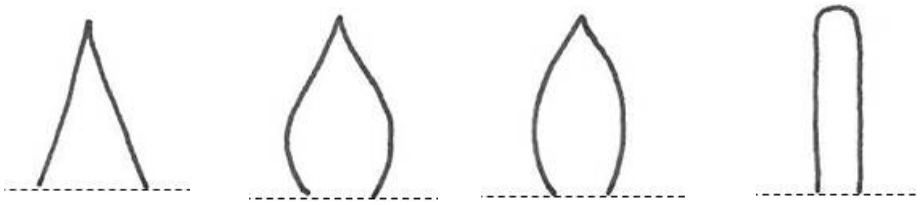
Ad. 40: Corolla: length of fused part compared to total corolla length

| 1 | 3 | 5 | 7 | 9 |
|---|---|---|---|---|
| absent or very short | short | medium | long | very long |

Ad. 41: Corolla: diameter of fused part

The distance across the corolla at the base of the lobes.

Ad. 42: Corolla lobe: shape



| 1 | 2 | 3 | 4 |
|---|---|---|---|
| triangular | ovate | elliptic | oblong |

Ad. 44: Corolla lobe: width

To be observed at the widest point.

Ad. 45: Corolla lobe: reflexing

| 1 | 3 | 5 | 7 | 9 |
|---|---|---|---|---|
| absent or very weak | weak | medium | strong | very strong |

Ad. 47: Corolla lobe: profile in cross section

To be observed at widest point of the lobe.

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| strongly concave | moderately concave | weakly concave | flat | weakly convex | moderately convex |

Ad. 48: Corolla lobe: shape of apex

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| acuminate | acute | obtuse | rounded | truncate |

## 9. Literature

Brickell, C.,(ed.)., 1996: The Royal Horticultural Society A-Z Encyclopedia of Garden Plants. Dorling Kindersley Ltd.. London, GB

Huxley, A., (ed.), Griffiths, M., (ed.), Levy, M., (ed.), 1999: The Royal Horticultural Society Dictionary of Gardening. McMillan Reference Ltd.. London, GB

Lewis, P., Lynch, M., 1989: Campanulas. Christopher Helm Ltd. Bromley, Kent, GB

Nicholls, G., 2006: Dwarf Campanulas and Associated Genera. Timber Press Inc. Oregon, US

## 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 | Botanical name | *Campanula* L. |
| 1.2 | Common name | Campanula |
| 1.3 | Species<br>(please complete) | |

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 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

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 (1)** | **Plant: growth habit** | | |
| | upright | La Bello | 1[ ] |
| | semi-upright | Bowl of Cherries | 2[ ] |
| | spreading | PKMP05 | 3[ ] |
| | semi-trailing | Camgood | 4[ ] |
| | trailing | | 5[ ] |
| **5.2 (2)** | **Plant: height** | | |
| | extremely short | | 1[ ] |
| | extremely short to very short | | 2[ ] |
| | very short | | 3[ ] |
| | very short to short | | 4[ ] |
| | short | | 5[ ] |
| | short to medium | | 6[ ] |
| | medium | | 7[ ] |
| | medium to tall | | 8[ ] |
| | tall | | 9[ ] |
| | tall to very tall | | 10[ ] |
| | very tall | | 11[ ] |
| | very tall to extremely tall | | 12[ ] |
| | extremely tall | | 13[ ] |
| **5.3 (15)** | **Leaf blade: variegation** | | |
| | absent | | 1[ ] |
| | present | | 9[ ] |

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

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.4 (22)** | **Flower: attitude** | | |
| | upwards | Samantha | 1[ ] |
| | slightly outwards | PKMM01 | 2[ ] |
| | strongly outwards | Blue Eyed Blonde | 3[ ] |
| | slightly downwards | Bowl of Cherries | 4[ ] |
| | strongly downwards | Purple Sensation | 5[ ] |
| **5.5 (28)** | **Corolla: number of whorls** | | |
| | very few | PKMH01 | 1[ ] |
| | few | Havidb701 | 2[ ] |
| | medium | Snowball | 3[ ] |
| | many | La Bello | 4[ ] |
| | very many | | 5[ ] |
| **5.6(i) (31)** | **Corolla: main color of outer side** | | |
| | RHS Colour Chart (indicate reference number) | | |
| **5.6(ii) (31)** | **Corolla: main color of outer side** | | |
| | white | | 1[ ] |
| | pink | | 2[ ] |
| | red purple | | 3[ ] |
| | purple | | 4[ ] |
| | blue | | 5[ ] |
| **5.7(i) (32)** | **Corolla: secondary color of outer side** | | |
| | RHS Colour Chart (indicate reference number) | | |
| **5.7(ii) (32)** | **Corolla: secondary color of outer side** | | |
| | white | | 1[ ] |
| | pink | | 2[ ] |
| | red purple | | 3[ ] |
| | purple | | 4[ ] |
| | blue | | 5[ ] |

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|---|---|---|

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.8(i) (35)** | **Corolla: main color of inner side** | | |
| | RHS Colour Chart (indicate reference number) | | |
| **5.8(ii) (35)** | **Corolla: main of inner side** | | |
| | white | | 1[ ] |
| | pink | | 2[ ] |
| | red purple | | 3[ ] |
| | purple | | 4[ ] |
| | blue | | 5[ ] |
| **5.9(i) (36)** | **Corolla: secondary color of inner side** | | |
| | RHS Colour Chart (indicate reference number) | | |
| **5.9(ii) (36)** | **Corolla: secondary color of inner side** | | |
| | white | | 1[ ] |
| | pink | | 2[ ] |
| | red purple | | 3[ ] |
| | purple | | 4[ ] |
| | blue | | 5[ ] |

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|---|---|---|

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* | *Flower: attitude* | *upwards* | *strongly outwards* |
| | | | |
| | | | |
| | | | |

Comments:

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[#]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

Main use of the variety

| | | |
|---|---|---|
| (a) | pot plant | [ ] |
| (b) | garden plant | [ ] |
| (c) | cut flower | [ ] |
| (d) | other | [ ] |

(please provide details)

.....

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.

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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

[End of document]