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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

HARDY GERANIUM *

UPOV Code(s): GERAN

Geranium L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from United Kingdom

to be considered by the

Technical Working Party for Ornamental Plants and Forest Trees
at its forty-ninth session, to be held in Gimcheon City, Republic of Korea,
from 2016-06-13 to 2016-06-17

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Geranium L.	Crane's Bill	Géranium	Storchschnabel	Geranio

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 *Geranium* 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 vegetatively propagated young plants.

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

10 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 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 or 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 of plants taken from each of 9 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.

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 are 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: habit (characteristic 1)
(b) Plant: height (characteristic 3)
(c) Leaf: main color (characteristic 10)
Gr. 1: yellow
Gr. 2: yellow green
Gr. 3: green
Gr. 4: green tinged brownish or purple
Gr. 5: reddish brown
Gr. 6: brownish
Gr. 7: brownish purple
Gr. 8: purple
(d) Flower: attitude (characteristic 30)
(e) Flower: type (characteristic 31)
(f) Petal: main color (characteristic 40)
Gr. 1: White
Gr. 2: light pink
Gr. 3: medium pink
Gr. 4: dark Pink
Gr. 5: red purple
Gr. 6: purple
Gr. 7: violet
Gr. 8: blue
Gr. 9: reddish brown

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

6 (a)-(f) See Explanations on the Table of Characteristics in Chapter 8.1

7 Not applicable

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**(*)**	**PQ VG**	**(+) (a)**				
		Plant: habit					
		upright					1
		semi-upright					2
		semi-spreading					3
		spreading					4
		horizontal					5
2.		**QN VG**	**(a)**				
		Plant: density					
		very sparse					1
		sparse					2
		medium					3
		dense					4
		very dense					5
3.	**(*)**	**QN MG/MS/VG**	**(a)**				
		Plant: height					
		very short				Thunder Cloud	1
		short					3
		medium				Catherine Deneuve	5
		tall					7
		very tall					9
4.		**QN MG/MS/VG**	**(+) (a)**				
		Stem: internode length					
		very short					1
		short					2
		medium					3
		long					4
		very long					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.		**PQ VG**	**(a)**				
		Stem: color					
		yellow green					1
		light green				Bremdream	2
		medium green					3
		dark green					4
		green tinged reddish or purple				Blushing Turtle	5
		orange red					6
		red				Thunder Cloud	7
		reddish brown					8
		brownish purple					9
		purple					10
6.		**QN MG/MS/VG**	**(a), (b)**				
		Petiole: length					
		very short				Blushing Turtle	1
		short					2
		medium					3
		long					4
		very long					5
7.	**(*)**	**QN MG/MS/VG**	**(+) (a), (b)**				
		Leaf: length					
		very short				Melody	1
		short				Blushing Turtle	3
		medium				Havana Blue	5
		long					7
		very long				Catherine Deneuve	9
8.	**(*)**	**QN MG/MS/VG**	**(+) (a), (b)**				
		Leaf: width					
		very narrow				Melody	1
		narrow				Blushing Turtle	3
		medium				Havana Blue	5
		broad					7
		very broad				Catherine Deneuve	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	**(*)**	**QN MG**	**(+) (a)**				
		Leaf: length/width ratio					
		very low					1
		low					2
		medium					3
		high					4
		very high					5
10.	**(*)**	**PQ VG**	**(a), (b), (c)**				
		Leaf: main color					
		RHS Colour Chart (indicate reference number)					
11.		**PQ VG**	**(+) (a), (b), (c)**				
		Leaf: distribution of secondary color					
		none					1
		on margin					2
		marginal zone					3
		central zone					4
		intermediate zone					5
		at sinus					6
		throughout					7

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12.	**(*)**	**PQ**	**VG**		**(a), (b), (c)**				
		Leaf: secondary color							
		whitish							1
		yellow							2
		yellow green							3
		light green							4
		medium green							5
		dark green							6
		grey green							7
		pink							8
		red							9
		reddish brown							10
		brownish							11
		brownish purple							12
		purple							13
13.	**(*)**	**PQ**	**VG**	**(+)**	**(a), (b), (c)**				
		Leaf: pattern of secondary color							
		solid or nearly solid							1
		flushed							2
		blotched							3
		veined							4
		irregular sectors							5
14.		**PQ**	**VG**	**(+)**	**(a), (b), (c)**				
		Leaf: distribution of tertiary color							
		none							1
		on margin							2
		marginal zone							3
		central zone							4
		intermediate zone							5
		at sinus							6
		throughout							7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15.	**PQ VG**	**(a), (b), (c)**				
	Leaf: tertiary color					
	whitish					1
	yellow					2
	yellow green					3
	light green					4
	medium green					5
	dark green					6
	pink					7
	red					8
	reddish brown					9
	brownish					10
	brownish purple					11
	purple					12
16.	**PQ VG**	**(+)** **(a), (b), (c)**				
	Leaf: pattern of tertiary color					
	solid or nearly solid					1
	flushed					2
	blotched					3
	veined					4
	irregular sectors					5
17.	**QN VG**	**(a), (b)**				
	Leaf: pubescence					
	absent or very weak					1
	weak				Thunder Cloud	2
	medium				Bremdream	3
	strong				Purple Passion	4
	very strong					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18.		**QN VG**	**(a), (b)**				
		Leaf: glossiness					
		absent or very weak				Havana Blue	1
		weak				Blushing Turtle	2
		medium				Purple Passion	3
		strong				Thunder Cloud	4
		very strong					5
19.	**(*)**	**QN VG**	**(a), (b)**				
		Leaf: rugosity					
		absent or very weak					1
		weak				Melody	2
		medium				Bremdream	3
		strong				Catherine Deneuve	4
		very strong					5
20.		**QN VG**	**(+)** **(a), (b), (d)**				
		Leaf: depth of sinus					
		absent or very shallow					1
		shallow					3
		medium					5
		deep					7
		very deep					9
21.		**QN MG/VG**	**(+)** **(a), (b), (d)**				
		Leaf: width of lobe					
		very narrow				Blushing Turtle	1
		narrow				Thunder Cloud	3
		medium				Havana Blue	5
		broad				Catherine Deneuve	7
		very broad					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22.	**PQ VG**	**(+)**	**(a), (b), (d)**			
	Leaf: margins of lobe					
	diverging					1
	parallel					2
	converging					3
	overlapping					4
23.	**PQ VG**	**(+)**	**(a), (b), (d)**			
	Leaf: shape of lobe apex					
	acute					1
	obtuse					2
	rounded					3
	truncate					4
24.	**PQ VG**	**(+)**	**(a), (b)**			
	Leaf: basal lobes					
	strongly diverging					1
	moderately diverging					2
	weakly diverging					3
	parallel					4
	overlapping					5
25.	**QN VG**	**(+)**	**(a), (b)**			
	Leaf: number of incisions of margin					
	few					3
	medium					5
	many					7
26.	**QN VG**	**(+)**	**(a), (b)**			
	Leaf: depth of incisions of margin					
	shallow					3
	medium					5
	deep					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27.	**(*)**	**QL VG**	**(+) (a)**				
		Flowering stem: branching habit					
		laterals branching both sides					1
		laterals branching one side only					2
28.		**QN MG/MS/VG**	**(a)**				
		inflorescence: peduncle length					
		short				Rise and Shine	3
		medium				Blushing Turtle	5
		long				Havana Blue	7
29.		**QN MG/MS/VG**	**(a)**				
		Flower: length of pedicel					
		short				Blushing Turtle	3
		medium				Havana Blue	5
		long				Bremdream	7
30.	**(*)**	**QN VG**	**(+) (a), (e)**				
		Flower: attitude					
		upwards					1
		slightly outwards					2
		strongly outwards					3
		slightly downwards					4
31.	**(*)**	**QL VG**	**(+) (a), (e)**				
		Flower: type					
		single					1
		double					2
32.	**(*)**	**QN MG/MS/VG**	**(a), (e)**				
		Flower: diameter					
		small				Melody	3
		medium				Havana Blue	5
		large					7

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33.	**(*)**	**QN**	**VG**	**(+)**	**(a), (e)**				
		<u>Excluding varieties with flower type double</u>: Flower: profile in cross section							
		strongly concave							1
		moderately concave							2
		weakly concave							3
		flat							4
		weakly convex							5
		moderately convex							6
		strongly convex							7
34.	**(*)**	**QN**	**VG**	**(+)**	**(a), (e)**				
		Petal: arrangement							
		moderately separate							1
		weakly separate							2
		touching							3
		weakly overlapping							4
		moderately overlapping							5
35.		**QN**	**VG**	**(+)**	**(a), (e)**				
		Petal: curvature							
		moderately incurving							1
		weakly incurving							2
		straight							3
		weakly reflexing							4
		moderately reflexing							5
36.	**(*)**	**QN**	**MG/MS/VG**		**(a), (e)**				
		Petal: length							
		short							3
		medium							5
		long							7

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37.	**(*)**	**QN**	**MG/MS/VG**		**(a), (e)**				
		Petal: width							
		narrow							3
		medium							5
		broad							7
38.	**(*)**	**QN**	**MG**	**(+)**	**(a), (e)**				
		Petal: length/width ratio							
		low							3
		medium							5
		high							7
39.	**(*)**	**PQ**	**VG**	**(+)**	**(a), (e)**				
		Petal: shape of apex							
		acute							1
		obtuse							2
		rounded							3
		truncate							4
		cordate							5
		laciniate							6
40.	**(*)**	**PQ**	**VG**		**(a), (e), (f)**				
		Petal: main color							
		RHS Colour Chart (indicate reference number)							
41.	**(*)**	**PQ**	**VG**	**(+)**	**(a), (e), (f)**				
		Petal: distribution of secondary color							
		none							1
		marginal zone							2
		distal half							3
		distal quarter							3
		basal half							5
		basal quarter							6
		at base							7
		transverse band							8
		throughout							9

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
42.	**(*)**	**PQ**	**VG**		**(a), (e), (f)**				
		Petal: secondary color							
		RHS Colour Chart (indicate reference number)							
43.		**PQ**	**VG**	**(+)**	**(a), (e), (f)**				
		Petal: pattern of secondary color							
		solid or nearly solid							1
		flushed							2
		speckled and striped							3
44.		**PQ**	**VG**	**(+)**	**(a), (e), (f)**				
		Petal: distribution of tertiary color							
		none							1
		marginal zone							2
		distal quarter							3
		basal quarter							4
		at base							5
		transverse band							6
		throughout							7
45.		**PQ**	**VG**		**(a), (e), (f)**				
		Petal: tertiary color							
		RHS Colour Chart (indicate reference number)							
46.		**PQ**	**VG**	**(+)**	**(a), (e), (f)**				
		Petal: pattern of tertiary color							
		solid or nearly solid							1
		flushed							2
		speckled and striped							3

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
47.	**(*)**	**QN**	**VG**	**(+)**	**(a), (e)**				
		Petal: conspicuousness of veins							
		very weak							1
		weak							2
		medium							3
		strong							4
		very strong							5
48.		**PQ**	**VG**	**(+)**	**(a), (e)**				
		Petal: distribution of veins							
		distal quarter							1
		distal half							2
		distals three quarters							3
		middle part							4
		basal three quarters							5
		basal half							6
		basal quarter							7
		throughout							8
49.	**(*)**	**PQ**	**VG**	**(+)**	**(a), (e)**				
		Petal: color of veins							
		RHS Colour Chart (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:

(a) Observations should be made 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. The upper side of the leaf should always be observed unless otherwise stated.

(c) The main color is the color with the largest surface area. The color with the second largest area is the secondary color. The color with the third largest area is the tertiary color. In cases where the areas of the colors are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main color.

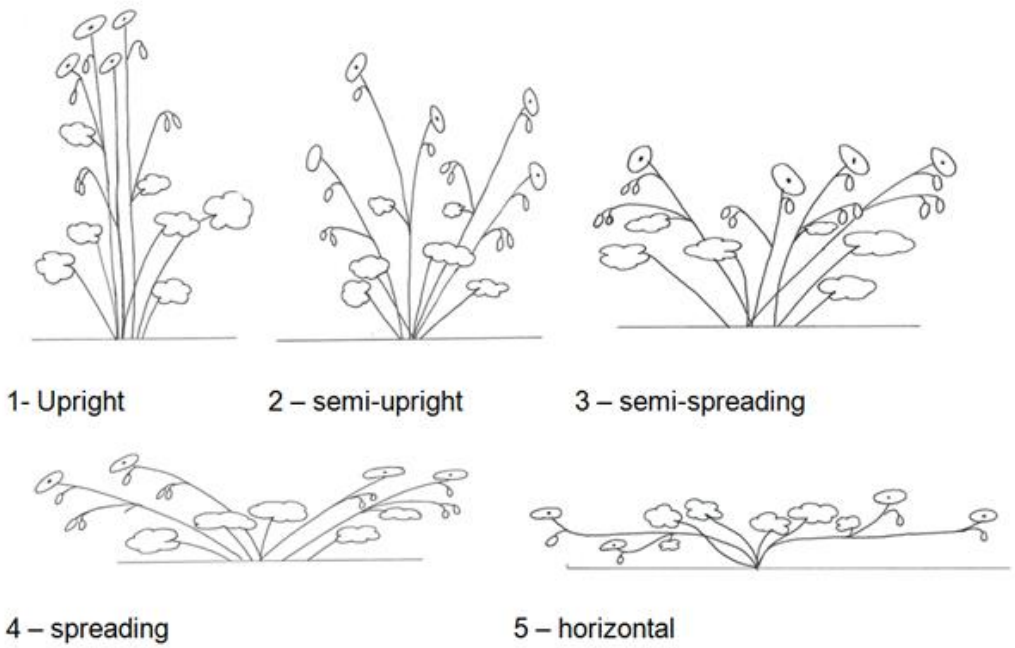
(d) Observations should be made on the terminal lobe. Where it is not possible to clearly differentiate the terminal lobe, this should be observed on the lobe that is most directly opposite the attachment point of the petiole.

(e) Observations should be made on new fully open flowers.

(f) All petals colors to be observed on the upper surface. The color of the veins are excluded from this observation. The main color is the color with the largest surface area. The color with the second largest area is the secondary color, and the color with the third largest area is the tertiary color. In cases where the areas are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main area. The guideline makes provision for three colors; if more colors are present, those with the smallest area should not be observed.

8.2 Explanations for individual characteristics

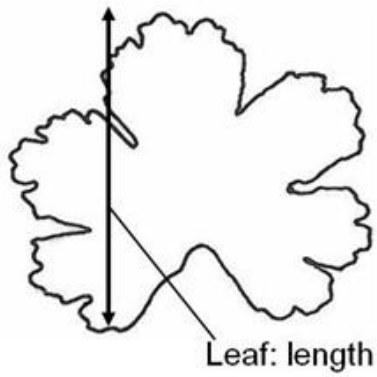
Ad. 1: Plant: habit



Ad. 4: Stem: internode length

To be observed in the mid third of the stem.

Ad. 7: Leaf: length



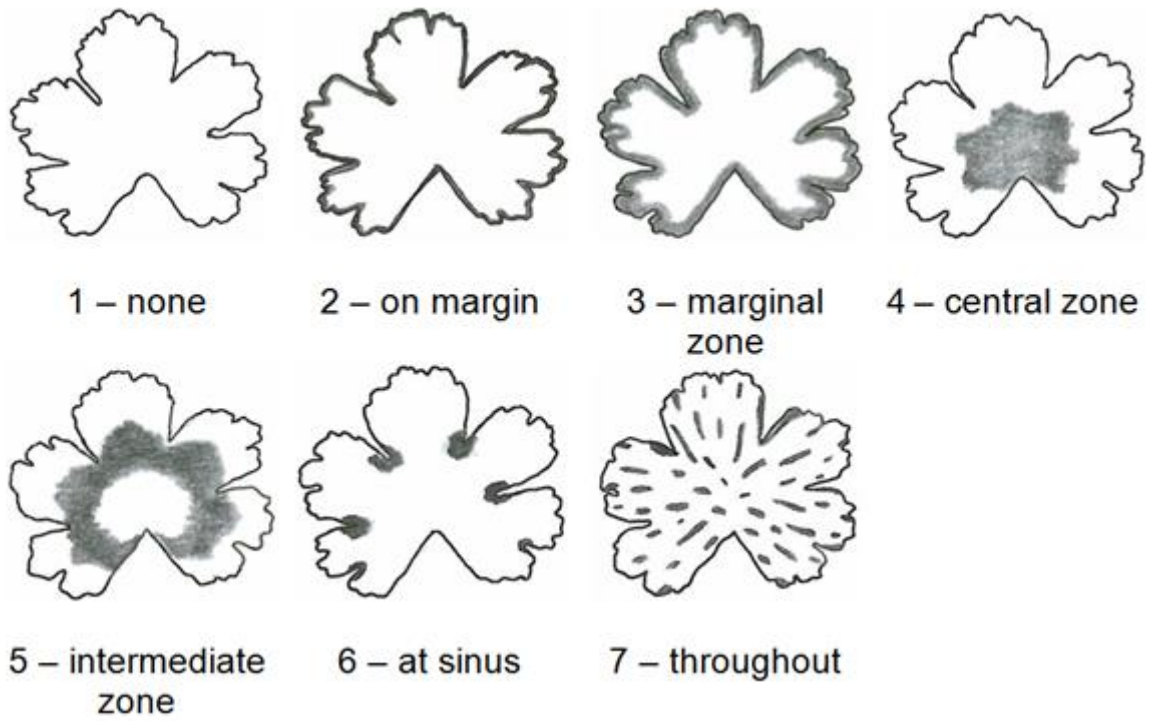
Ad. 8: Leaf: width

measure at widest point

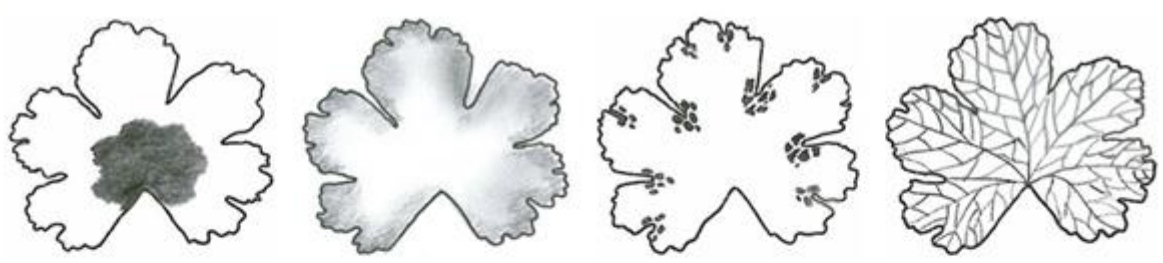
Ad. 9: Leaf: length/width ratio

Diagram to be inserted here

Ad. 11: Leaf: distribution of secondary color



Ad. 13: Leaf: pattern of secondary color



1 – solid or nearly solid

2 – flushed

3 – blotched

4 – veined

5 – irregular sectors

Ad. 14: Leaf: distribution of tertiary color

See Ad. 11 for diagrams

Ad. 16: Leaf: pattern of tertiary color

See Ad. 13 for diagrams

Ad. 20: Leaf: depth of sinus

1 – very shallow

3 – shallow

5 – medium

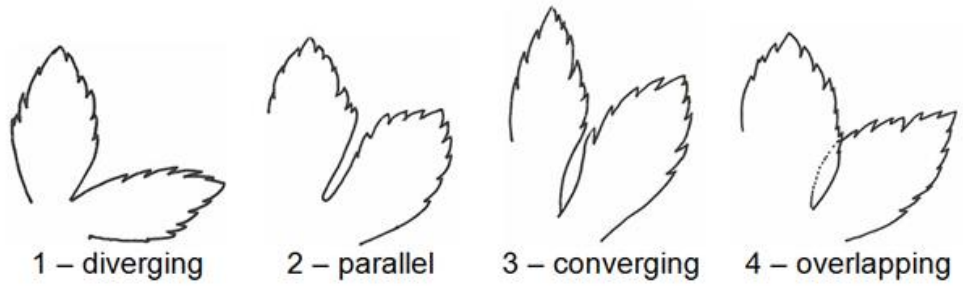
7 – deep

9 – very deep

Ad. 21: Leaf: width of lobe

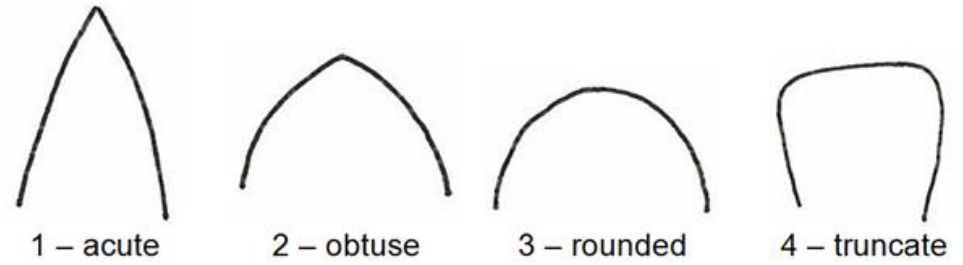
to be observed at the leaf sinus

Ad. 22: Leaf: margins of lobe

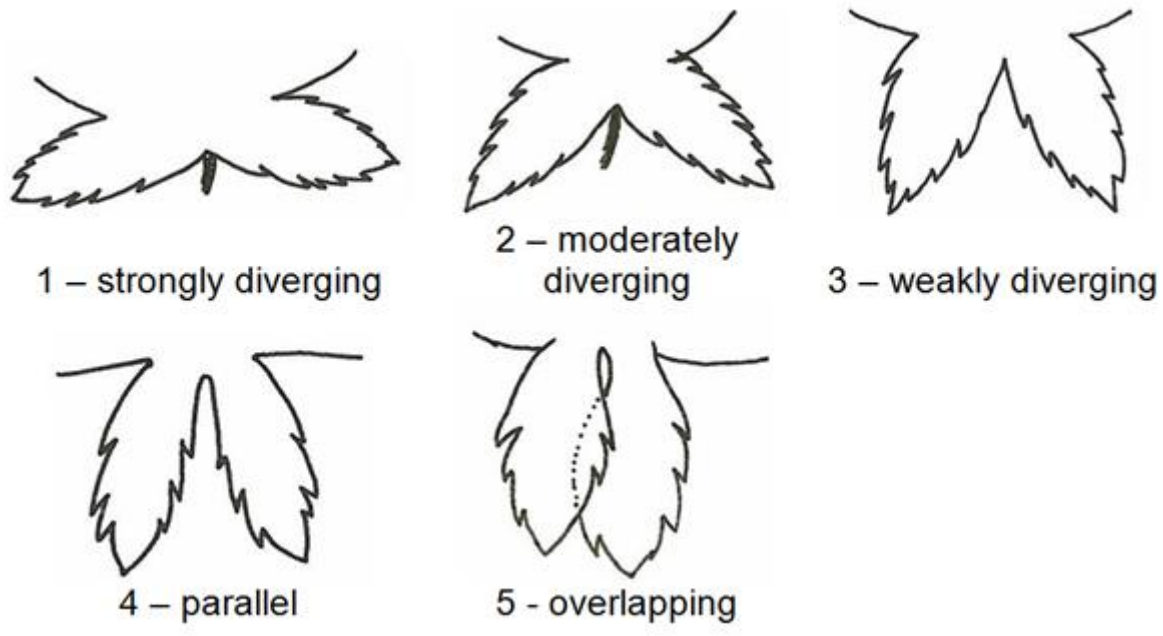


This characteristic excludes the basal lobes.

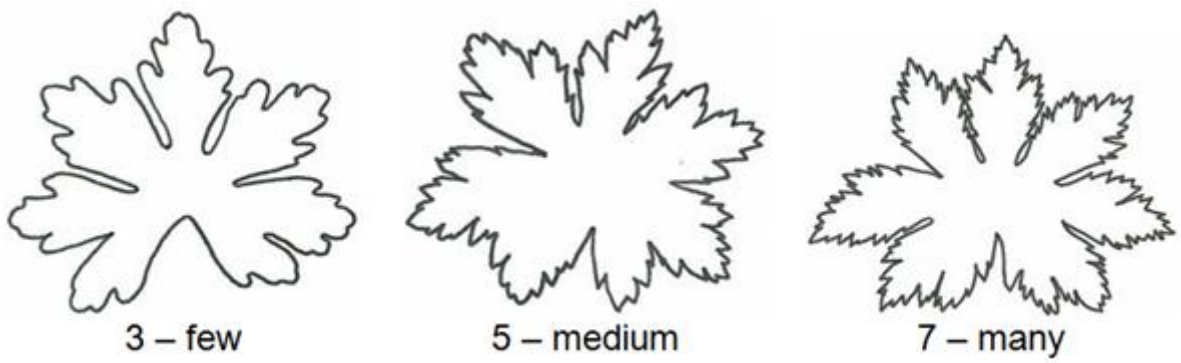
Ad. 23: Leaf: shape of lobe apex



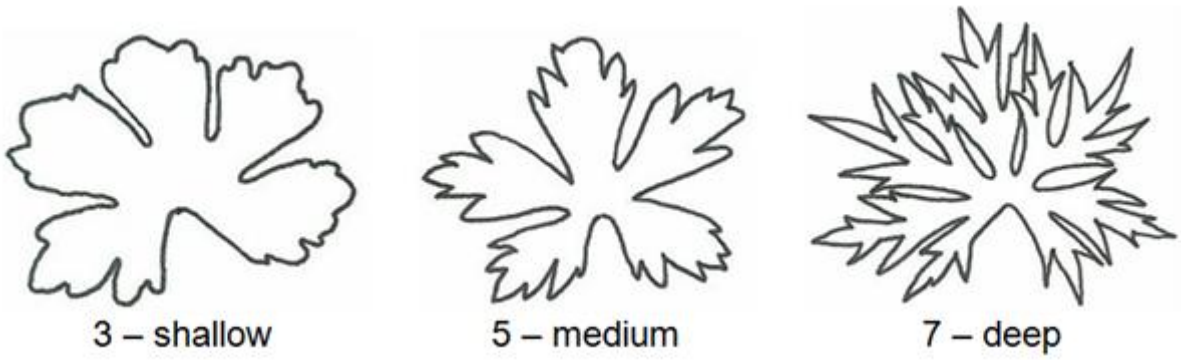
Ad. 24: Leaf: basal lobes



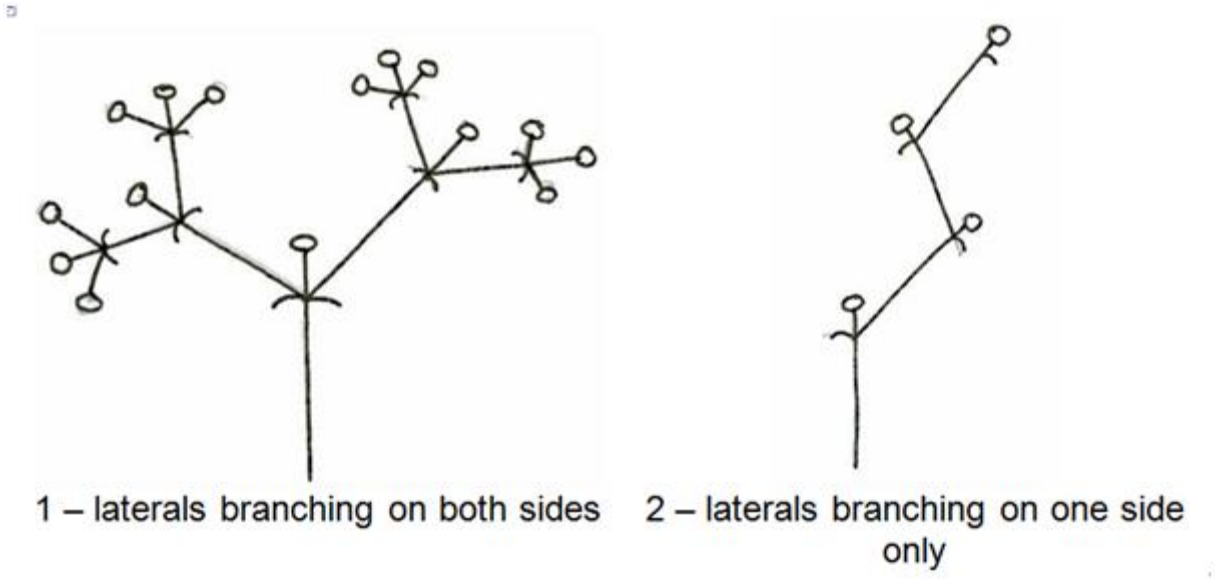
Ad. 25: Leaf: number of incisions of margin



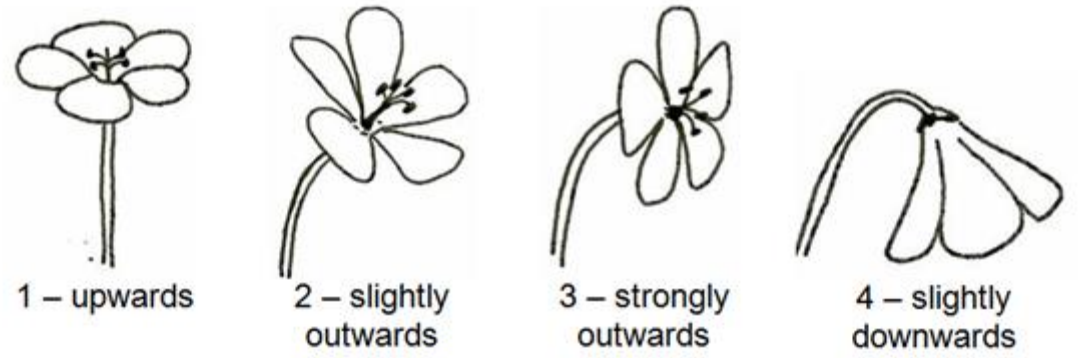
Ad. 26: Leaf: depth of incisions of margin



Ad. 27: Flowering stem: branching habit



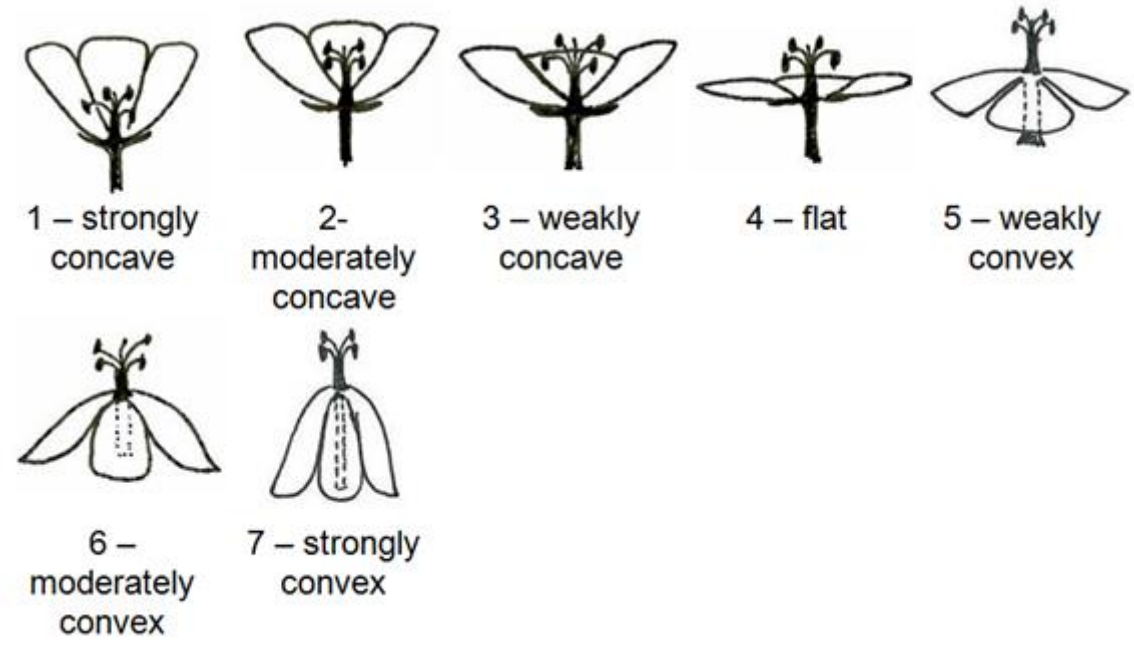
Ad. 30: Flower: attitude



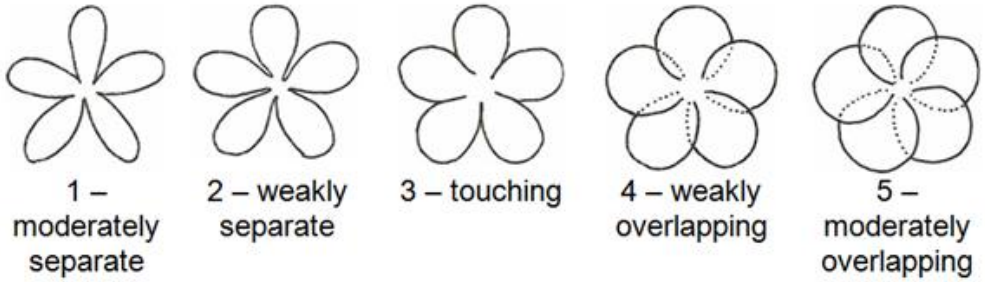
Ad. 31: Flower: type

A single flower has one whorl containing 5 petals, a double flower has more than one whorl of petals.

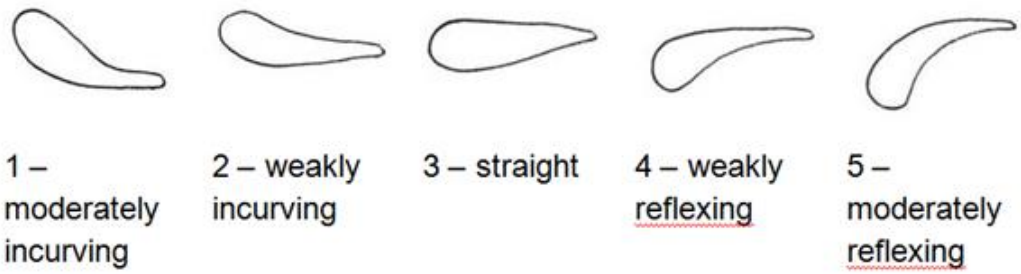
Ad. 33: Excluding varieties with flower type double: Flower: profile in cross section



Ad. 34: Petal: arrangement



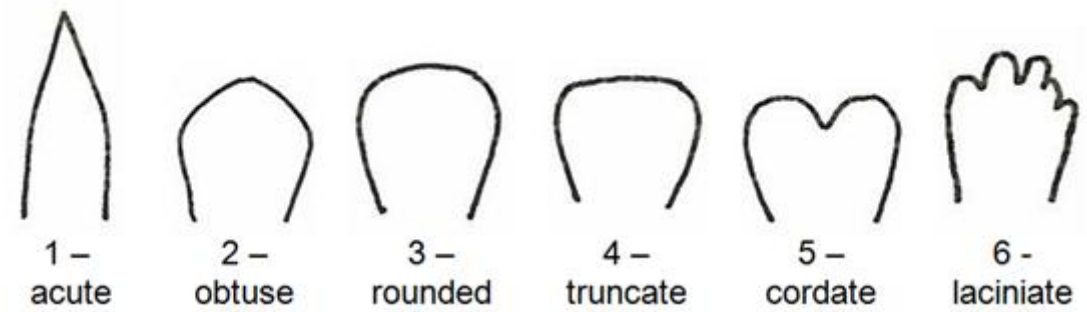
Ad. 35: Petal: curvature



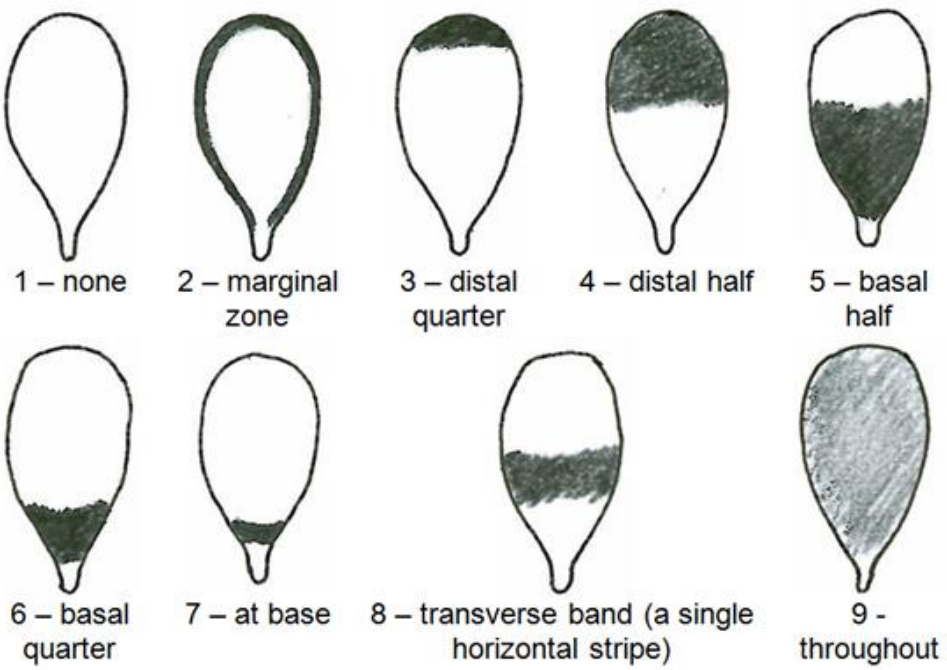
Ad. 38: Petal: length/width ratio

diagram to be inserted here

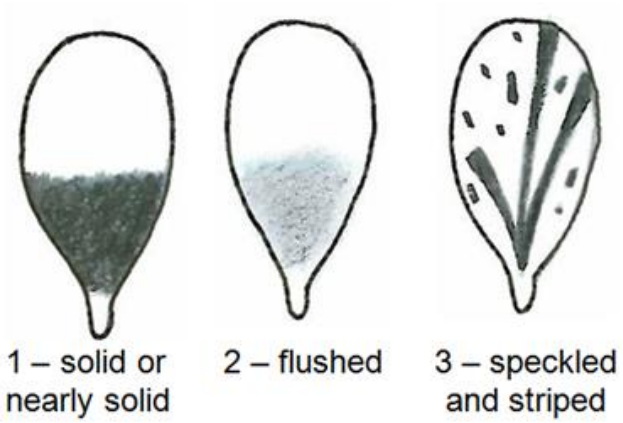
Ad. 39: Petal: shape of apex



Ad. 41: Petal: distribution of secondary color



Ad. 43: Petal: pattern of secondary color



Ad. 44: Petal: distribution of tertiary color

See Ad. 41

Ad. 46: Petal: pattern of tertiary color

See Ad. 43

Ad. 47: Petal: conspicuousness of veins

The conspicuousness is defined as the contrast between the color of the petal and the color of the veins. A greater contrast in color will give stronger conspicuousness of the veins.


1 – very weak


2 – weak


3 – medium


4 – strong


5 – very strong

Ad. 48: Petal: distribution of veins

Only observe this characteristics when characteristic 45 'Petal: conspicuousness of veins' is observed to be weak or stronger, and the distribution only applies to the conspicuosness part of the vein.


1 – distal quarter


2 – distal half


3 – distal three quarters


4 – middle part


5 – basal three quarters


6 – basal half


7 – basal quarter


8 – throughout

Ad. 49: Petal: color of veins

Only observe this characteristics when characteristic 45 'Petal: conspicuousness of veins' is observed to be weak or higher, and only to apply to the conspicuosness part of the vein.

9. Literature

Bath, T., Jones, J., 1994: The Gardener's Guide to Growing Hardy Geraniums. David and Charles. Newton Abbot, Devon, United Kingdom.

Bendtsen, B. H., 2005: Gardening with Hardy Geraniums. Timber Press. Portland, Oregon, USA.

Hibberd, D., 2003: RHS Wisley Handbook Hardy Geraniums. Octopus Publishing Group. London, United Kingdom.

Yeo, P. F., 1992: Hardy Geraniums. B. T. Batsford Ltd. London, United Kingdom.

10. Technical Questionnaire

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

	Application date: (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	*Geranium* L.
1.2	Common name	Crane's Bill
1.3	species:	

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 (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.

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 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	**Plant: habit**		
(1)			
	upright		1 [ ]
	semi-upright		2 [ ]
	semi-spreading		3 [ ]
	spreading		4 [ ]
	horizontal		5 [ ]
5.2	**Plant: height**		
(3)			
	very short	Thunder Cloud	1 [ ]
	very short to short		2 [ ]
	short		3 [ ]
	short to medium		4 [ ]
	medium	Catherine Deneuve	5 [ ]
	medium to tall		6 [ ]
	tall		7 [ ]
	tall to very tall		8 [ ]
	very tall		9 [ ]
5.3	**Leaf: main color**		
(10)			
	yellow		1 [ ]
	yellow green		2 [ ]
	green		3 [ ]
	green tinged brownish or purple		4 [ ]
	reddish brown		5 [ ]
	brownish		6 [ ]
	brownish purple		7 [ ]
	purple		8 [ ]

	Characteristics	Example Varieties	Note
5.4	**Leaf: distribution of secondary color**		
(11)			
	none		1 [ ]
	on margin		2 [ ]
	marginal zone		3 [ ]
	central zone		4 [ ]
	intermediate zone		5 [ ]
	at sinus		6 [ ]
	throughout		7 [ ]
5.5	**Leaf: secondary color**		
(12)			
	whitish		1 [ ]
	yellow		2 [ ]
	yellow green		3 [ ]
	light green		4 [ ]
	medium green		5 [ ]
	dark green		6 [ ]
	grey green		7 [ ]
	pink		8 [ ]
	red		9 [ ]
	reddish brown		10 [ ]
	brownish		11 [ ]
	brownish purple		12 [ ]
	purple		13 [ ]
5.6	**Flower: attitude**		
(30)			
	upwards		1 [ ]
	slightly outwards		2 [ ]
	strongly outwards		3 [ ]
	slightly downwards		4 [ ]
5.7	**Flower: type**		
(31)			
	single		1 [ ]
	double		2 [ ]

	Characteristics	Example Varieties	Note
5.8	**Flower: diameter**		
(32)			
	very small		1 [ ]
	very small to small		2 [ ]
	small	Melody	3 [ ]
	small to medium		4 [ ]
	medium	Havana Blue	5 [ ]
	medium to large		6 [ ]
	large		7 [ ]
	large to very large		8 [ ]
	very large		9 [ ]
5.9	**Petal: main color**		
(40)			
	RHS Colour Chart (indicate reference number)		
5.10	**Petal: secondary color**		
(42)			
	RHS Colour Chart (indicate reference number)		

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: habit*	*semi upright*	*semi spreading*

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 photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.

The key points to consider when taking a photograph of the candidate variety are:

- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)"

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (http://www.upov.int/tgp/en/).

[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

Authorities may allow certain of this information to be provided in a confidential section of 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.

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]