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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

DIANTHUS *

UPOV Code: DIANT

Dianthus L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from the Netherlands (Kingdom of the)
to be considered by the
Technical Committee at its sixty-first session,
to be held Geneva from 2025-10-20 to 2025-10-21

Disclaimer: this document does not represent UPOV policies or guidance

This document contains the following changes proposed by the Technical Working Party for Ornamental Plants and Forest Trees (TWO), at its fifty-seventh session[1], presented in grey highlight:

(a) Addition of new characteristic and explanation Ad. 20 “Leaf: undulation of margin” which are only to be examined in cut flower umbrella (*D. barbatus*) types;
(b) Addition of the following characteristics, which are only to be examined in cut flower umbrella (*D. barbatus*) types:
  (i) Addition of new characteristic 23 “Inflorescence: development of flowers” including addition to TQ 5.;
  (ii) Addition of new characteristic 24 “Only varieties with Inflorescence: development of flowers: rudimentary: Bract: intensity of anthocyanin coloration”;
  (iii) Addition of new characteristic 25 “Only varieties with Inflorescence: development of flowers: rudimentary: Bract: distribution of anthocyanin coloration”;
  (iv) Revision of grouping characteristics (section 5.3), section 6.5 “Legend”, section 8.3 “Growing types” to reflect consequential changes of the addition of the above characteristics.

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Dianthus L.	Carnation, Clove Pink, Pink, Sweet William	Oeillet	Nelke	Clavel

* 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.]

1 held in Roelofarendsveen, Netherlands (Kingdom of), from March 31 to April 3, 2025.

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.

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Dianthus* 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 rooted cuttings.

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

20 rooted cuttings.

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 In particular, it may be necessary for separate growing trials to be established for cut flower types, garden types and pot types in order to ensure the satisfactory growth of varieties of those types (see Chapter 8.3). These Test Guidelines provide information to cover such a situation.

3.3.3 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 20 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 10 plants or parts taken from each of 10 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 20 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 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:

Only for pot and garden types:
(a) Plant: height (characteristic 2)
(b) Plant: position of flowers compared to foliage (characteristic 4)

Only for cut flower ‘umbrella’ (*D. barbatus*) types:
(c) Inflorescence: development of flowers (characteristic 23)

For all types (including pot and garden types):

(d) Flower: type (characteristic 41)

(e) Petal: main color (characteristic 54), with the following groups:

Gr. 1: white or near white
Gr. 2: green
Gr. 3: yellow
Gr. 4: orange
Gr. 5: pink
Gr. 6: medium red
Gr. 7: dark red
Gr. 8: violet red
Gr. 9: purple
Gr. 10: pink purple
Gr. 11: purple violet
Gr. 12: violet
Gr. 13: brownish

(f) Petal: secondary color (characteristic 55), with the following groups:

Gr. 1: none
Gr. 2: white or near white
Gr. 3: green
Gr. 4: yellow
Gr. 5: orange
Gr. 6: pink
Gr. 7: medium red
Gr. 8: dark red
Gr. 9: violet red
Gr. 10: purple
Gr. 11: pink purple
Gr. 12: purple violet
Gr. 13: violet
Gr. 14: brownish

(g) Petal: color pattern of secondary color, if present, with the following groups (combination of Characteristics 56 to 60):

1: marginated
2: striped
3: speckled
4: flushed
5: maculated

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”.

5.5 Where separate growing trials are used for cut flower types (C), garden types (G) and pot types (P) (see Section 3.3.2), it may be necessary to include individual varieties in different growing trial(s) in order to ensure an effective examination of distinctness. In particular, it may be necessary to include a variety in both the garden type trial and the pot type trial.

Furthermore, in cut flower types (C) three sub-types can be distinguished which could be useful for grouping:

- one flower per stem (Co)
- spray (Cs)
- umbrella – *D. barbatus* (Cu)

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. The type is indicated in brackets after the name of the example variety as follows:

(C) cut flower type:
- (Co): one flower per stem
- (Cs): spray
- (Cu): umbrella (*D. barbatus*)

(G) garden type
(P) pot type

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.	
[C]	to be examined in cut flower types	
[Cs]	to be examined in cut flower ‘spray’ types	
[Cu]	to be examined in cut flower ‘umbrella’ (*D. barbatus*) types	
[G]	to be examined in garden types	
[P]	to be examined in pot types	

(C) cut flower type:
- (Co): one flower per stem
- (Cs): spray
- (Cu): umbrella (*D. barbatus*)

(G) garden type
(P) pot type

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

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*) (+)	**[C] VG/ MS**	**Plant: length of stem**	**Plante : longueur de la tige**	**Pflanze: Länge des Haupttriebes**	**Planta: longitud del tallo**		
QN		short	courte	kurz	corto	Barmalyn (Cs), Hilbrequeen (Cu)	3
		medium	moyenne	mittel	medio	Fire Queen (Cs), Hilbacer (Cs)	5
		long	longue	lang	largo	Fransesco (Co), White Giant (Co)	7
2. (*) (+)	**[G] [P] VG/ MS**	**Plant: height**	**Plante : hauteur**	**Pflanze: Höhe**	**Planta: altura**		
QN		short	basse	niedrig	baja	Hiljoli (P), Shooting Star (G)	3
		medium	moyenne	mittel	media	Houndspool Cheryl (G), WP08 IAN04 (G)	5
		tall	haute	hoch	alta	Devon Wizard (G)	7
3. (+)	**[G] [P] VG**	**Plant: density**	**Plante : densité**	**Pflanze: Dichte**	**Planta: densidad**		
QN		sparse	faible	locker	laxa	Devon Wizard (G), Fontaine Darkred (P)	1
		medium	moyenne	mittel	media	Koviol (P), Waterloo Sunset (G)	2
		dense	forte	dicht	densa	Coral Reef (G), Hiljoli (P)	3
4. (*) (+)	**[G] [P] VG**	**Plant: position of flowers compared to foliage**	**Plante : position des fleurs par rapport au feuillage**	**Pflanze: Stellung der Blüten im Vergleich zum Laub**	**Planta: posición de las flores en relación con el follaje**		
QN		same level or slightly above	au même niveau ou juste au-dessus	auf gleicher Höhe oder etwas oberhalb	al mismo nivel o ligeramente por encima	Coral Reef (G), Hiljoli (P)	1
		moderately above	légèrement au-dessus	mäßig oberhalb	moderadamente por encima	Houndspool Cheryl (G), Koviol (P)	2
		far above	nettement au-dessus	weit oberhalb	muy por encima	Waterloo Sunset (G)	3
5. (+)	**[Cs] VG**	**Plant: laterals without flower buds or flowers**	**Plante : rameaux latéraux sans boutons floraux ni fleurs**	**Pflanze: Seitentriebe ohne Blütenknospen oder Blüten**	**Planta: ramificaciones laterales sin yemas florales o flores**		
QL		absent	absents	fehlend	ausentes	Hilboska (Cs)	1
		present	présents	vorhanden	presentes	Martina (Cs)	9

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6. (*) (+)	**[Cs] VG**	**Plant: laterals with flower buds or flowers of second order**	**Plante : rameaux latéraux avec des boutons floraux ou des fleurs de deuxième ordre**	**Pflanze: Seitentriebe mit Blütenknospen oder Blüten zweiter Ordnung**	**Planta: ramificaciones laterales con yemas florales o flores de segundo orden**		
QN		absent or very few	absents ou très peu nombreux	fehlend oder sehr wenige	ausentes o muy pocas	Barnita (Cs)	1
		few	peu nombreux	wenige	pocas	KLEDM10631 (Cs)	3
		medium	assez nombreux	mittel	medio	Barocior (Cs), Weslupe (Cs)	5
		many	nombreux	viele	muchas	KLEDM10629 (Cs)	7
7. (*) (+)	**[Cs] VG**	**Plant: flower clustering on lateral branches**	**Plante : bouquets de fleurs sur les rameaux latéraux**	**Pflanze: Blütenbüschel an den Seitentrieben**	**Planta: flores agrupadas en las ramas laterales**		
QN		none	aucun	keine	ausentes	Barnita (Cs), Lekprewi (Cs)	1
		in some lateral branches	sur certains rameaux latéraux	an einigen Seitentrieben	en algunas ramas laterales	Beam Cherry (Cs), Martina (Cs)	2
		in all lateral branches	sur tous les rameaux latéraux	an allen Seitentrieben	en todas las ramas laterales	Westcherry (Cs)	3
8. (*) (+)	**[Cs] VG/ MS**	**Stem: number of internodes**	**Tige : nombre d'entre-nœuds**	**Haupttrieb: Anzahl Internodien**	**Tallo: número de entrenudos**		
QN		four	quatre	vier	cuatro	KLEDM06005 (Cs)	1
		five	cinq	fünf	cinco	Hilboska (Cs), Martina (Cs)	2
		six	six	sechs	seis	Barocior (Cs), Hilqueen (Cs)	3
		more than six	plus de six	mehr als sechs	más de seis	Hilbacer (Cs)	4
9. (*)	**VG/ MS**	**Stem: length of internode**	**Tige : longueur de l'entre-nœud**	**Haupttrieb: Internodienlänge**	**Tallo: longitud del entrenudo**		
QN	**(a)**	short	court	kurz	cortos	Devon Wizard (G)	3
		medium	moyen	mittel	medios	Komari (Co), Lonaveiro (Cs)	5
		long	long	lang	largos	KLEDS06013 (Co)	7
10. (*)	**VG/ MS**	**Stem: thickness of internode**	**Tige : épaisseur de l'entre-nœud**	**Haupttrieb: Internodiendicke**	**Tallo: grosor del entrenudo**		
QN	**(a)**	very thin	très fin	sehr dünn	muy delgados	Hiljoli (P)	1
		thin	fin	dünn	delgados	Devon Glow (G)	3
		medium	moyen	mittel	medios	Komari (Co), Lekprewi (Cs)	5
		thick	épais	dick	gruesos	Hilbrequeen (Cu), Tico Tico (Co)	7
		very thick	très épais	sehr dick	muy gruesos	Westcrystal (Cs)	9

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. (*) (+)	**VG**	**Stem: shape in cross section**	**Tige : forme en section transversale**	**Haupttrieb: Form im Querschnitt**	**Tallo: forma en sección transversal**		
PQ	**(a)**	circular	circulaire	kreisförmig	circular	Hilbreking (Cu)	1
		slightly angular	légèrement anguleuse	leicht kantig	ligeramente angular	KLEDP07089 (P)	2
		strongly angular	fortement anguleuse	stark kantig	fuertemente angular	Komari (Co), Martina (Cs), SUNRRB126 (P)	3
12. (*) (+)	**VG**	**Stem: hollowness**	**Tige : cavité**	**Haupttrieb: Hohlraum**	**Tallo: ahuecamiento**		
QL	**(a)**	absent	absente	fehlend	ausente	Komari (Co), Martina (Cs), SUNRRB126 (P)	1
		present	présente	vorhanden	presente	Hilbreking (Cu)	9
13. (*) (+)	**VG**	**Leaf: shape**	**Feuille : forme**	**Blatt: Form**	**Hoja: forma**		
PQ	**(b)**	ovate	ovale	eiförmig	oval	Tico Tico (Co)	1
		elliptic	elliptique	elliptisch	elíptica	Komari (Co), Martina (Cs)	2
		linear	linéaire	linear	lineal		3
		obovate	obovale	verkehrt eiförmig	oboval	Shooting Star (G)	4
14. (*)	**VG/ MS**	**Leaf: length**	**Feuille : longueur**	**Blatt: Länge**	**Hoja: longitud**		
QN	**(b)**	short	courte	kurz	corta	Shooting Star (G)	3
		medium	moyenne	mittel	media	Hilbrebar (Cu), Martina (Cs)	5
		long	longue	lang	larga	KLEDS06542 (Co), Komari (Co)	7
15. (*)	**VG/ MS**	**Leaf: width**	**Feuille : largeur**	**Blatt: Breite**	**Hoja: anchura**		
QN	**(b)**	narrow	étroite	schmal	estrecha	Lonaveiro (Cs), SUNRWB135 (P)	3
		medium	moyenne	mittel	media	Hyslam (Co), Komari (Co)	5
		broad	large	breit	ancha	Hilbreking (Cu)	7
16. (*) (+)	**VG**	**Leaf: curvature**	**Feuille : courbure**	**Blatt: Biegung**	**Hoja: curvatura**		
QN	**(b)**	absent or very weakly recurved	absente ou très faiblement recourbée	fehlend oder sehr leicht zurückgebogen	ausente o muy débilmente curvada	Devon Wizard (G), Komari (Co), SUNRWB135 (P)	1
		weakly recurved	faiblement recourbée	leicht zurückgebogen	débilmente curvada	Shooting Star (G)	2
		moderately recurved	moyennement recourbée	mäßig zurückgebogen	moderadamente curvada	Hilbrebar (Cu), Martina (Cs)	3
		strongly recurved	fortement recourbée	stark zurückgebogen	fuertemente curvada	Prado Pino (Co)	4
		very strongly recurved	très fortement recourbée	sehr stark zurückgebogen	muy fuertemente curvada	Raspberry Ripple (G)	5

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17. (*) (+)	**VG**	**Leaf: cross section**	**Feuille : section transversale**	**Blatt: Querschnitt**	**Hoja: sección transversal**		
QN	**(b)**	flat or very weakly concave	plate ou très faiblement concave	gerade oder sehr leicht konkav	plana o muy débilmente cóncava	Beam Cherry (Cs), KLEDP09102 (P)	1
		weakly concave	faiblement concave	leicht konkav	débilmente cóncava	Leila (Co), Martina (Cs), Tico Tico (Co)	2
		moderately concave	moyennement concave	mäßig konkav	moderadamente cóncava	Hilbreking (Cu), Lonkiro (Co), SUNRRB126 (P)	3
		strongly concave	fortement concave	stark konkav	fuertemente cóncava	Barabril (Cs), Wesroman (Cs)	4
18. (*)	**VG**	**Leaf: color**	**Feuille : couleur**	**Blatt: Farbe**	**Hoja: color**		
PQ	**(b)**	medium green	vert moyen	mittelgrün	verde medio	Leila (Co), Hilbreking (Cu), SUNRRB126 (P)	1
		dark green	vert foncé	dunkelgrün	verde oscuro	Hilmose (Co), KLET04064 (P), Starburst (G)	2
		grey green	vert-gris	graugrün	verde grisáceo	Barcoquette (Cs), Devon Winnie (G), White Liberty (Co)	3
19. (*)	**VG**	**Leaf: glaucosity**	**Feuille : glaucescence**	**Blatt: Bereifung**	**Hoja: glauescencia**		
QN	**(b)**	weak	faible	schwach	débil	Hilbreking (Cu), SUNRRB126 (P)	1
		medium	moyenne	mittel	media	Hyslam (Co), Tico Tico (Co)	2
		strong	forte	stark	fuerte	Komari (Co), Lekprewi (Cs)	3
20. (*) (+)	**[Cu] VG**	**Leaf: undulation of margin**	**Feuille : ondulation du bord**	**Blatt: Randwellung**	**Hoja: ondulación del borde**		
QN	**(b)**	absent or weak	nulle ou faible	fehlend oder gering	ausente o débil	Crazy Ball Chocolate (Cu), Fresh (Cu)	1
		medium	moyenne	mittel	media	Breagreen (Cu), Temarisou (Cu)	2
		strong	forte	stark	fuerte	Hilbregremag (Cu), MOR18C53 (Cu), Hilbrelindo (Cu)	3
21. (*) (+)	**VG**	**Leaf: spiny ciliation of margin**	**Feuille : ciliation épineuse du bord**	**Blatt: dornartige Bewimperung des Rands**	**Hoja: ciliación espinosa del borde**		
QL	**(b)**	absent	absente	fehlend	ausente	Komari (Co), Martina (Cs)	1
		present	présente	vorhanden	presente	Hilbreking (Cu), Whatfield Can Can (G)	9

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22. (+)	**[Cs] VG**	**Inflorescence: form**	**Inflorescence : forme**	**Blütenstand: Form**	**Inflorescencia: forma**		
QN		flat or slightly domed	plate ou légèrement dôme	gerade oder leicht gewölbt	plana o ligeramente abovedada		1
		moderately domed	moyennement en dôme	mäßig gewölbt	moderadamente abovedada	Martina (Cs)	2
		strongly domed	fortement en dôme	stark gewölbt	muy abovedada	Hilopta (Cs)	3
23. (*)	**[Cu] VG**	**Inflorescence: development of flowers**	**Inflorescence : développement des fleurs**	**Blütenstand: Ausbildung der Blüten**	**Inflorescencia: desarrollo de las flores**		
QL		rudimentary	rudimentaire	rudimentär	rudimentario	Punky Ball (Cu), Temarisou (Cu)	1
		fully developed	complètement développé	vollständig entwickelt	plenamente desarrollado	Hilbreking (Cu)	2
24. (*)	**[Cu] VG**	**Only varieties with Inflorescence: development of flowers: rudimentary: Bract: intensity of anthocyanin coloration**	**Seulement variétés avec Inflorescence : développement des fleurs : rudimentaire : Bractée : intensité de la pigmentation anthocyanique**	**Nur Sorten mit Blütenstand: Ausbildung der Blüten: rudimentär: Hochblatt: Intensität der Anthocyanfärbung**	**Solo variedades con Inflorescencia: desarrollo de las flores: rudimentario: Bráctea: intensidad de la pigmentación antociánica**		
QN		absent or weak	absente ou faible	fehlend oder gering	ausente o muy débil	Punky Ball (Cu), Temarisou (Cu)	1
		medium	moyenne	mittel	media	Hilbregremag (Cu)	2
		strong	forte	stark	fuerte	Crazy Ball Chocolate (Cu)	3
25. (*)	**[Cu] VG**	**Only varieties with Inflorescence: development of flowers: rudimentary: Bract: distribution of anthocyanin coloration**	**Seulement variétés avec Inflorescence : développement des fleurs : rudimentaire : Bractée : distribution de la pigmentation anthocyanique**	**Nur Sorten mit Blütenstand: Ausbildung der Blüten: rudimentär: Hochblatt: Verteilung der Anthocyanfärbung**	**Solo variedades con Inflorescencia: desarrollo de las flores: rudimentario: Bráctea: distribución de la pigmentación antociánica**		
PQ		at tip	au sommet	an der Spitze	en la punta	Hilbregremag (Cu)	1
		distal half	moitié distale	distale Hälfte	en la mitad distal		2
		throughout	partout	überall	en la todalitad	Crazy Ball Chocolate (Cu)	3
26. (*) (+)	**VG**	**Bud: shape**	**Bouton : forme**	**Knospe: Form**	**Yema: forma**		
PQ		ovate	ovale	eiförmig	oval	KLEDCS05045 (Co)	1
		circular	circulaire	kreisförmig	circular	Baryetar (Co)	2
		elliptic	elliptique	elliptisch	elíptica	Fontaine Darkred (P), Hiltespret (Cs)	3
		oblong	oblong	rechteckig	oblonga	Lonkiro (Co)	4
		obovate	obovale	verkehrt eiförmig	oboval	Komari (Co), Leila (Co), Martina (Cs)	5

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
27. (*) (+)	**VG**	**Bud: extrusion of styles**	**Bouton : extrusion des styles**	**Knospe: Hervortreten der Griffel**	**Yema: extrusión de los estilos**		
QL		absent	absente	fehlend	ausente	Komari (Co), Leila (Co), Martina (Cs)	1
		present	présente	vorhanden	presente	Hilvulca (P), KLEDS07504 (Co)	9
28. (+)	**VG**	**Epicalyx: position of outer lobes in relation to calyx**	**Calicule : position des lobes externes par rapport au calice**	**Außenkelch: Stellung der äußeren Lappen am Kelch**	**Epicáliz: posición de los lóbulos externos en relación con el cáliz**		
QN		adpressed	apprimés	anliegend	adpresa	Komari (Co), Martina (Cs), Tico Tico (Co)	1
		adpressed and free	apprimés et libres	anliegend und freistehend	adpresa y libre		2
		free	libres	freistehend	libre	Leila (Co), KLEDC05008 (Cs)	3
29. (+)	**VG**	**Epicalyx: apex of outer lobes**	**Calicule : apex des lobes externes**	**Außenkelch: Spitze der äußeren Lappen**	**Epicáliz: ápice de los lóbulos externos**		
QN		acute	aigu	spitz	agudo	Komari (Co), Martina (Cs), Tico Tico (Co)	1
		short acuminate	court acuminé	kurz zugespitzt	acuminado corto		2
		medium acuminate	moyennement acuminé	mittel zugespitzt	acuminado medio	Lonkiro (Co)	3
30. (+)	**VG/ MS**	**Epicalyx: length of tip of outer lobes**	**Calicule : longueur de l'extrémité des lobes externes**	**Außenkelch: Länge der Spitze der äußeren Lappen**	**Epicáliz: longitud del extremo de los lóbulos externos**		
QN		absent or very short	absente ou très courte	fehlend oder sehr kurz	ausente o muy corto		1
		short	courte	kurz	corto	Komari (Co), Martina (Cs), Tico Tico (Co)	2
		medium	moyenne	mittel	medio	Devon Glow (G), Leila (Co)	3
		long	longue	lang	largo	SUNRRB126 (P), Westcrystal (Cs)	4
31. (+)	**VG**	**Epicalyx: apex of inner lobes**	**Calicule : apex des lobes internes**	**Außenkelch: Spitze der inneren Lappen**	**Epicáliz: ápice de los lóbulos internos**		
QN		acute	aigu	spitz	agudo	Komari (Co), Martina (Cs), Tico Tico (Co)	1
		short acuminate	court acuminé	kurz zugespitzt	acuminado corto		2
		medium acuminate	moyennement acuminé	mittel zugespitzt	acuminado medio	Lonkiro (Co)	3

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
32. (+)	**VG/ MS**	**Epicalyx: length of tip of inner lobes**	**Calicule : longueur de l'extrémité des lobes internes**	**Außenkelch: Länge der Spitze der inneren Lappen**	**Epicáliz: longitud del extremo de los lóbulos internos**		
QN		absent or very short	absente ou très courte	fehlend oder sehr kurz	ausente o muy corto		1
		short	courte	kurz	corto	Komari (Co), Martina (Cs)	2
		medium	moyenne	mittel	medio	SUNRRB126 (P)	3
		long	longue	lang	largo	Westcrystal (Cs)	4
33. (*) (+)	**VG/ MS**	**Calyx: length**	**Calice : longueur**	**Kelch: Länge**	**Cáliz: longitud**		
QN		short	court	kurz	corto	Hilbreking (Cu), Whatfield Can Can (G)	3
		medium	moyen	mittel	medio	Komari (Co), Leila (Co), Martina (Cs)	5
		long	long	lang	largo	KLEDS10624 (Co), Princess (P)	7
34. (*) (+)	**VG/ MS**	**Calyx: width**	**Calice : largeur**	**Kelch: Breite**	**Cáliz: anchura**		
QN		narrow	étroit	schmal	estrecho	SUNRRB126 (P)	3
		medium	moyen	mittel	medio	Komari (Co)	5
		broad	large	breit	ancho	KLEDS10624 (Co)	7
35. (*) (+)	**VG**	**Calyx: shape**	**Calice : forme**	**Kelch: Form**	**Cáliz: forma**		
PQ		funnel-shaped	en entonnoir	trichterförmig	en forma de embudo	Lonkiro (Co), Tico Tico (Co)	1
		cylindrical	cylindrique	zylindrisch	cilíndrico	Hilbreking (Cu), Martina (Cs), SUNRRB126 (P)	2
		campanulate	campanulé	glockenförmig	acampanado	Gaudina (Co), Komari (Co), Leila (Co)	3
36. (*) (+)	**VG**	**Calyx: longitudinal axis of lobes**	**Calice : axe longitudinal des lobes**	**Kelch: Längsachse der Lappen**	**Cáliz: eje longitudinal de los lóbulos**		
PQ		straight	droit	gerade	recto	SUNRRB126 (P), Whatfield Can Can (G)	1
		concave	concave	konkav	cóncavo	Martina (Cs), Tico Tico (Co)	2
		angled	formant un angle	winklig	en ángulo	Hilopta (Cs)	3
		convex	convexe	konvex	convexo	Gaudina (Co), Komari (Co), Leila (Co)	4

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
37. (*)	**VG**	**Calyx: intensity of anthocyanin coloration**	**Calice : intensité de la pigmentation anthocyanique**	**Kelch: Intensität der Anthocyanfärbung**	**Cáliz: intensidad de la pigmentación antociánica**		
QN		absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil		1
		weak	faible	gering	débil	Lonaveiro (Cs)	2
		medium	moyenne	mittel	media	Shooting Star (G)	3
		strong	forte	stark	fuerte	Simba (P), SUNRE130 (P)	4
38. (*)	**VG**	**Calyx: distribution of anthocyanin coloration**	**Calice : distribution de la pigmentation anthocyanique**	**Kelch: Verteilung der Anthocyanfärbung**	**Cáliz: distribución de la pigmentación antociánica**		
PQ		margin of lobe	bord du lobe	in der Randzone des Lappens	margen del lóbulo	Lonaveiro (Cs), SUNRRB126 (P)	1
		whole lobe	lobe entier	auf dem ganzen Lappen	todo el lóbulo	Hilbrebar (Cu), Houndspool Cheryl (G)	2
		whole calyx	calice entier	auf dem ganzen Kelch	todo el cáliz	Calypso Star (G)	3
39. (+)	**VG**	**Calyx: shape of apex of lobe**	**Calice : forme de l'apex du lobe**	**Kelch: Form der Spitze des Lappens**	**Cáliz: forma del ápice de los lóbulos**		
QN		acute	aigu	spitz	agudo	Komari (Co), Lonaveiro (Cs), Lonkiro (Co), SUNRRB126 (P)	1
		acute to acuminate	aigu à acuminé	spitz bis zugespitzt	agudo a acuminado		2
		acuminate	acuminé	zugespitzt	acuminado	Barfenix (Co)	3
40. (*)	**VG**	**Calyx: length of lobe**	**Calice : longueur du lobe**	**Kelch: Länge des Lappens**	**Cáliz: longitud del lóbulo**		
QN		short	court	kurz	corto	Komari (Co), Lonkiro (Co), Tico Tico (Co)	3
		medium	moyen	mittel	medio	Leila (Co), Lonaveiro (Cs)	5
		long	long	lang	largo	Hilbreking (Cu)	7
41. (*) (+)	**VG**	**Flower: type**	**Fleur : type**	**Blüte: Typ**	**Flor: tipo**		
QL		single	simple	einfach	simple	Calypso Star (G), Hilbreking (Cu)	1
		double	double	gefüllt	doble	Sam's Pride (Cs), William Sim (Co)	2
42. (*)	**VG/ MS**	**Flower: diameter**	**Fleur : diamètre**	**Blüte: Durchmesser**	**Flor: diámetro**		
QN		small	petit	klein	pequeño	Hilbrebar (Cu), Shooting Star (G), SUNRWB135 (P)	3
		medium	moyen	mittel	medio	Devon Wizard (G)	5
		large	grand	groß	grande	Farida (Co), Komari (Co), Leila (Co)	7

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
43. (*)	**VG/ MS**	**Only varieties with flower: type: double: Flower: number of petals**	**Seulement variétés à type de fleur : double : Fleur : nombre de pétales**	**Nur Sorten mit Blüte: Typ: gefüllt: Blüte: Anzahl der Blütenblätter**	**Solo variedades con flor: tipo: doble: Flor: número de pétalos**		
QN		few	petit	wenige	bajo	Lekclaudia (Cs), SUNRRB126 (P)	3
		medium	moyen	mittel	medio	Komari (Co), Martina (Cs)	5
		many	grand	viele	alto	Hyslam (Co), Tico Tico (Co)	7
44. (*) (+)	**VG/ MS**	**Corolla: height**	**Corolle : hauteur**	**Krone: Höhe**	**Corola: altura**		
QN		short	basse	niedrig	baja	SUNRWB135 (P), Whatfield Can Can (G)	3
		medium	moyenne	mittel	media	Farida (Co)	5
		tall	haute	hoch	alta	KLEDS13A01 (Co)	7
45. (*) (+)	**VG**	**Corolla: profile of upper part in lateral view**	**Corolle : profil de la partie supérieure en vue latérale**	**Krone: Profil des oberen Teils in Seitenansicht**	**Corola: perfil de la parte superior en vista lateral**		
PQ		concave	concave	konkav	cóncava	Night Star (G)	1
		flat	droit	gerade	plana	Hilbrequeen (Cu), Shooting Star (G)	2
		flat convex	convexe aplati	flach konvex	plana convexa	Komari (Co), Lonkiro (Co), SUNRRB126 (P)	3
		convex	convexe	konvex	convexa	Leila (Co), Martina (Cs), Tico Tico (Co)	4
46. (*) (+)	**VG**	**Corolla: profile of lower part in lateral view**	**Corolle : profil de la partie inférieure en vue latérale**	**Krone: Profil des unteren Teils in Seitenansicht**	**Corola: perfil de la parte inferior en vista lateral**		
PQ		concave	concave	konkav	cóncava	Komari (Co), Martina (Cs), SUNRRB126 (P)	1
		flat	droit	gerade	plana	Hilbrequeen (Cu), Whatfield Can Can (G)	2
		flat convex	convexe aplati	flach konvex	plana convexa	Leila (Co), Night Star (G)	3
		convex	convexe	konvex	convexa	Coral Reef (G), Waterloo Sunset (G)	4

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
47. **(+)**	**VG**	**Petal: predominant shape**	**Pétale : forme prédominante**	**Blütenblatt: überwiegende Form**	**Pétalo: forma predominante**		
PQ	**(c)**	type 1	type 1	Typ 1	tipo 1	Martina (Cs), Tico Tico (Co)	1
		type 2	type 2	Typ 2	tipo 2	Baltico (Co)	2
		type 3	type 3	Typ 3	tipo 3	Hilbreking (Cu), SUNRWB135 (P)	3
		type 4	type 4	Typ 4	tipo 4	Nobroc (Co), SUNRRB126 (P)	4
		type 5	type 5	Typ 5	tipo 5	Barlgraa (Co), WP08 IAN04 (G)	5
		type 6	type 6	Typ 6	tipo 6	Gaudina (Co)	6
		type 7	type 7	Typ 7	tipo 7	Hilstertes (Cs), Minitiara Pink (Cs)	7
48. **(+)**	**VG**	**Petal: undulation**	**Pétale : ondulation**	**Blütenblatt: Randwellung**	**Pétalo: ondulación**		
QN	**(c)**	absent or weak	absente ou faible	fehlend oder gering	ausente o débil	Hilbrequeen (Cu), Hilstertes (Cs)	1
		medium	moyenne	mittel	media	Calypso Star (G), Komari (Co)	2
		strong	forte	stark	fuerte		3
49. **(*)** **(+)**	**VG**	**Petal: number of incisions of margin**	**Pétale : nombre d'incisions du bord**	**Blütenblatt: Anzahl Randeinschnitte**	**Pétalo: número de incisiones del borde**		
QN	**(c)**	absent or few	nul ou petit	fehlend oder wenige	ausentes o bajo	Barmalyn (Cs), Koyevi (Co)	1
		medium	moyen	mittel	medio	Barlitar (Co)	2
		many	grand	viele	alto	Komari (Co), Martina (Cs), Wesroman (Cs)	3
50. **(+)**	**VG**	**Petal: type of incisions of margin**	**Pétale : type d'incisions du bord**	**Blütenblatt: Typ der Randeinschnitte**	**Pétalo: tipo de incisiones del borde**		
PQ	**(c)**	sinuate	sinué	gebuchtet	sinuado	Farida (Co)	1
		crenate	crénelé	gekerbt	crenado	Hyslam (Co)	2
		spinose-dentate	dentelé- épineux	dornartig-gezähnt	espinoso-dentado	Leila (Co)	3
		dentate	dentelé	gezähnt	dentado	Hilbrebar (Cu), SUNRWB135 (P)	4
		crenate-dentate	dentelé-crénelé	gekerbt-gezähnt	crenado-dentado	Komari (Co), Martina (Cs)	5

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
51. (*) (+)	**VG**	**Petal: depth of incisions of margin**	**Pétale : profondeur des incisions du bord**	**Blütenblatt: Tiefe der Randeinschnitte**	**Pétalo: profundidad de las incisiones del borde**		
QN	**(c)**	very shallow	très faible	sehr flach	muy poco profundas	Fleurette (Cs), Leila (Co)	1
		shallow	faible	flach	poco profundas	Intermezzo (Cs)	3
		medium	moyenne	mittel	medias	Hilbrebar (Cu)	5
		deep	forte	tief	profundas	Pop Star (G)	7
		very deep	très forte	sehr tief	muy profundas	CFPC Unforgettable (P)	9
52. (*)	**VG/ MS**	**Petal: length**	**Pétale : longueur**	**Blütenblatt: Länge**	**Pétalo: longitud**		
QN	**(c)**	short	court	kurz	corto	Whatfield Can Can (G)	3
		medium	moyen	mittel	medio	Barcandela (Cs)	5
		long	long	lang	largo	Gaudina (Co), Komari (Co)	7
53. (*)	**VG/ MS**	**Petal: width**	**Pétale : largeur**	**Blütenblatt: Breite**	**Pétalo: anchura**		
QN	**(c)**	narrow	étroit	schmal	estrecho	Hilbrebar (Cu), Whatfield Can Can (G)	3
		medium	moyen	mittel	medio	Leila (Co), Lonkiro (Co), Tico Tico (Co)	5
		broad	large	breit	ancho	Bartorbel (Co), KLEDS10625 (Co)	7
54. (*)	**VG**	**Petal: main color**	**Pétale : couleur principale**	**Blütenblatt: Hauptfarbe**	**Pétalo: color principal**		
PQ	**(c) (d)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de reference)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
55. (*)	**VG**	**Petal: secondary color**	**Pétale : couleur secondaire**	**Blütenblatt: Sekundärfarbe**	**Pétalo: color secundario**		
PQ	**(c) (d)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de reference)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
56. (*) (+)	**VG**	**Petal: width of differently colored margin**	**Pétale : largeur du bord de couleur différente**	**Blütenblatt: Breite des andersfarbigen Rands**	**Pétalo: anchura del margen de color diferente**		
QN	**(c)**	absent	absent	fehlend	ausente	Fleurette (Cs), Pop Star (G)	1
		narrow	étroit	schmal	estrecho	Komari (Co), Rodin (P)	2
		medium	moyen	mittel	medio	Hilbreking (Cu)	3
		broad	large	breit	ancho	Barlaxiaga (Cs), Hilqueen (Cs)	4

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
57. (*) (+)	**VG**	**Petal: number of stripes**	**Pétale : nombre de stries**	**Blütenblatt: Anzahl Streifen**	**Pétalo: número de rayas**		
QN	**(c)**	none	nul	keine	ninguna	SUNRE130 (P)	1
		few	petit	wenige	bajo	Konali (Co), Martina (Cs)	2
		medium	moyen	mittel	medio	Barmarie (Co), Bartaina (Cs)	3
		many	grand	viele	alto	Komonte (Co), Navidad (Co)	4
58. (*) (+)	**VG**	**Petal: number of speckles**	**Pétale : nombre de tachetures**	**Blütenblatt: Anzahl Sprenkel**	**Pétalo: número de manchas**		
QN	**(c)**	none	nul	keine	ninguna	Westcrystal (Cs)	1
		few	petit	wenige	bajo	Barlitar (Co), CFPC Aztec (P)	2
		medium	moyen	mittel	medio	Devon Winnie (G), KLEN03037 (P), WS05-402 (Cu)	3
		many	grand	viele	alto	Whatfield Gem (G)	4
59. (*) (+)	**VG**	**Petal: area of flush**	**Pétale : zone de traces diffuses**	**Blütenblatt: geflammter Bereich**	**Pétalo: superficie de la pátina**		
QN	**(c)**	absent	absente	fehlend	ausente	KLEDS06013 (Co)	1
		small	petite	klein	pequeña	WP07 OPR04 (G)	2
		medium	moyenne	mittel	media	Hilnotre (Co), Sidra (Co)	3
		large	grande	groß	grande	Antigua (Co), KLEDS06513 (Co)	4
60. (*) (+)	**VG**	**Petal: size of macule**	**Pétale : taille de la macule**	**Blütenblatt: Größe des Flecks**	**Pétalo: tamaño de la mácula**		
QN	**(c)**	absent	absente	fehlend	ausente	Lonaveiro (Cs)	1
		small	petite	klein	pequeña	DICZ0003 (G), KLEDP11109 (P)	2
		medium	moyenne	mittel	media	Hilbreye (P), WP10 HEL01 (G)	3
		large	grande	groß	grande	Hilmetal (P), WP08 UNI02 (G)	4
61. (*) (+)	**VG**	**Petal: color pattern of tertiary color**	**Pétale : répartition de la couleur tertiaire**	**Blütenblatt: Muster der Tertiärfarbe**	**Pétalo: pauta de distribución del color terciario**		
PQ	**(c)**	absent	absente	fehlend	ausente		1
	(d)	marginated	au bord	gerändert	marginal	Margarita (P), SUNRWB135 (P)	2
		striped	striée	gestreift	rayado		3
		speckled	tachetée	gesprenkelt	manchado	DICZ0001 (G)	4
		flushed	traces diffuses	geflammt	difuso	Starlette (G)	5
		maculated	maculée	gefleckt	maculado	Rodin (P)	6

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
62. (*)	**VG**	**Petal: tertiary color**	**Pétale : couleur tertiaire**	**Blütenblatt: Tertiärfarbe**	**Pétalo: color terciario**		
PQ	**(c)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de reference)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
63. (*) (+)	**VG**	**Ovary: shape**	**Ovaire : forme**	**Fruchtknoten: Form**	**Ovario: forma**		
PQ		ovate	ovale	eiförmig	oval	Lekprewi (Cs)	1
		rhombic	rhombique	rautenförmig	rómbico	Martina (Cs)	2
		elliptic	elliptique	elliptisch	elíptico	Hilbreking (Cu)	3
		oblong	oblong	rechteckig	oblongo	Shooting Star (G)	4
		obovate	obovale	verkehrt eiförmig	obovado	Komari (Co), Leila (Co), SUNRWB135 (P)	5
64. (+)	**VG**	**Ovary: color of base**	**Ovaire : couleur de la base**	**Fruchtknoten: Farbe der Basis**	**Ovario: color de la base**		
PQ		whitish	blanchâtre	weißlich	blanquecino	Komari (Co), Lekprewi (Cs)	1
		yellowish	jaunâtre	gelblich	amarillento	KLEDG10119 (G), Koviol (P)	2
		green	verte	grün	verde	Leila (Co), Shooting Star (G)	3
65. (*)	**VG**	**Ovary: surface**	**Ovaire : surface**	**Fruchtknoten: Oberfläche**	**Ovario: superficie**		
QN		smooth	lisse	glatt	lisa	Leila (Co), Lekclaudia (Cs)	1
		slightly ribbed	légèrement côtelée	leicht gerippt	ligeramente acanalada	SUNRRB126 (P)	2
		strongly ribbed	fortement côtelée	stark gerippt	muy acanalada	Komari (Co), Martina (Cs)	3
66. (*)	**VG/ MG**	**Style: number**	**Style : nombre**	**Griffel: Anzahl**	**Estilo: número**		
PQ		only two	seulement deux	nur zwei	solo uno	Hilbreking (Cu), SUNRWB135 (P), Tico Tico (Co)	1
		two and three	deux et trois	zwei und drei	dos y tres	Komari (Co), Lonaveiro (Cs)	2
		only three	seulement trois	nur drei	solo tres	Barjine (Co), Wesroman (Cs)	3
		three and four	trois et quatre	drei und vier	tres y cuatro	KLEDS07504 (Co)	4
		only four	seulement quatre	nur vier	solo cuatro	Baruqedu (Co), KLEDS10624 (Co)	5
		two, three, four and five	deux, trois, quatre et cinq	zwei, drei, vier und fünf	dos, tres, cuatro y cinco	Gaudina (Co)	6

		English	Français	Deutsch	Español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
67. (*)	**VG/ MS**	**Style: length**	**Style : longueur**	**Griffel: Länge**	**Estilo: longitud**		
QN		short	court	kurz	corto	Hilbreking (Cu), Shooting Star (G)	1
		medium	moyen	mittel	medio	Lonaveiro (Cs), SUNRWB135 (P), Tico Tico (Co)	2
		long	long	lang	largo	Liberty (Co)	3
68. (*) (+)	**VG**	**Style: shoulder**	**Style : épaulement**	**Griffel: Schulter**	**Estilo: hombro**		
QL		absent	absent	fehlend	ausente	Martina (Cs), SUNRWB135 (P)	1
		present	présent	vorhanden	presente	Komari (Co), Lonaveiro (Cs), Tico Tico (Co)	9
69. (*) (+)	**VG**	**Stigma: color**	**Stigmate : couleur**	**Narbe: Farbe**	**Estigma: color**		
PQ		white	blanc	weiß	blanco	Komari (Co), Martina (Cs), Tico Tico (Co)	1
		white with red flush	blanc avec traces diffuses de rouge	weiß mit roter Flammung	blanco con pátina roja	Lonaveiro (Cs)	2
		white with purple flush	blanc avec traces diffuses de pourpre	weiß mit purpurner Flammung	blanco con pátina púrpura	Shooting Star (G)	3
		yellow	jaune	gelb	amarillo	Leila (Co)	4
		pink	rose	rosa	rosa	Barhugo (Co)	5
		red	rouge	rot	rojo	Hilbrebar (Cu), Hyslam (Co)	6
		purple	pourpre	purpurn	púrpura	Burnob (Co), SUNRRB126 (P)	7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Unless otherwise indicated below, all characteristics should be recorded at the time of full flowering.

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

(a) The main stem is the most direct line from the top-flower to the base. In cut flower varieties, the fifth internode directly below the flower should be observed. In pot and garden carnations, the third internode directly below the flower should be observed. Except for length, observations should be made half way between nodes.

(b) In cut flowers varieties, to be observed on leaves of the fifth node directly below the flower. In pot and garden carnations to be observed on leaves of the third node directly below the flower.

(c) For double flowers the observations should be made on a petal of the 3rd outer whorl.

(d) The main color is the color with the largest surface area. The secondary color is the color with the second largest area. In cases where the areas of the main and secondary color are too similar to reliable decide which color has the largest area, the darkest color is considered to be the main color. In cases where the areas of the secondary and tertiary color are approximately the same, the darkest color will be the secondary color.

8.2 Explanations for individual characteristics

Ad. 1: Plant: length of stem

Length of stem should be observed from soil level to the top of the plant, excluding the flowers.

Ad. 2: Plant: height

Plant height should be observed from soil level to the top of the plant, including the flowers.

Ad. 3: Plant: density

Plant density is a combination of the amount of branching and the number of leaves.

1
sparse

2
medium

3
dense

Ad. 4: Plant: position of flowers compared to foliage

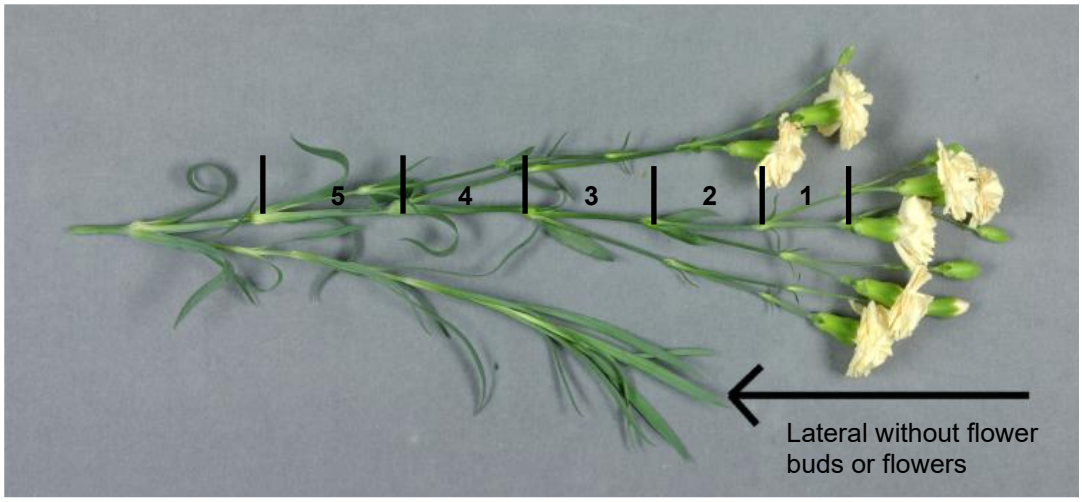
1
same level or slightly above

2
moderately above

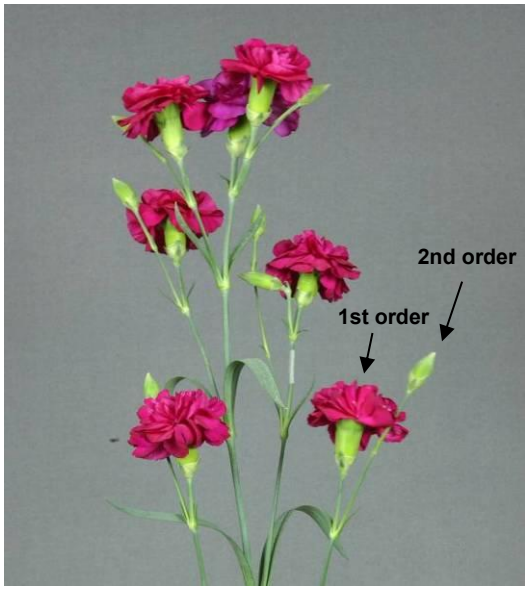
3
far above

Ad. 5: Plant: laterals without flower buds or flowers
Ad. 8: Stem: number of internodes

The number of internodes should be observed between the epicalyx and the lowest node with a lateral with flower buds or flowers.

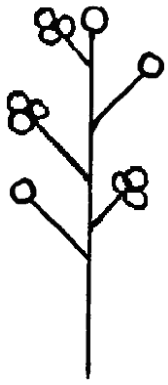


Ad. 6: Plant: laterals with flower buds or flowers of second order



Ad. 7: Plant: flower clustering on lateral branches

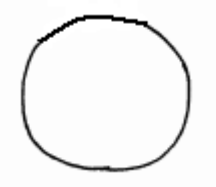
1
none



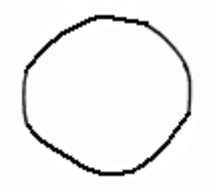
2
in some lateral branches

3
in all lateral branches

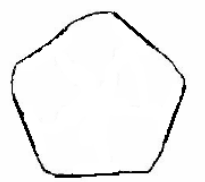
Ad. 11: Stem: shape in cross section



1
circular



2
slightly angular



3
strongly angular

Ad. 12: Stem: hollowness

1
absent

9
present

Ad. 13: Leaf: shape

broad (*low*) ← width (ratio length/width) → narrow (*high*)	← broadest part →		
	below middle	at middle	above middle
		 3 linear	
	 1 ovate	 2 elliptic	 4 obovate

Ad. 16: Leaf: curvature

1 absent or very weakly recurved | 2 weakly recurved | 3 moderately recurved | 4 strongly recurved | 5 very strongly recurved

Ad. 17: Leaf: cross section

1 flat or very weakly concave | 2 weakly concave | 3 moderately concave | 4 strongly concave

Ad. 20: Leaf: undulation of margin

1
absent or weak

2
medium

3
strong

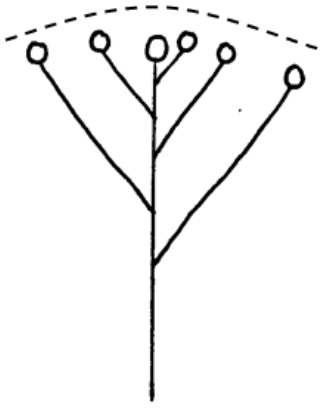
Ad. 21: Leaf: spiny ciliation of margin

To be observed by gently rubbing to and from with finger along the margin of the leaf.

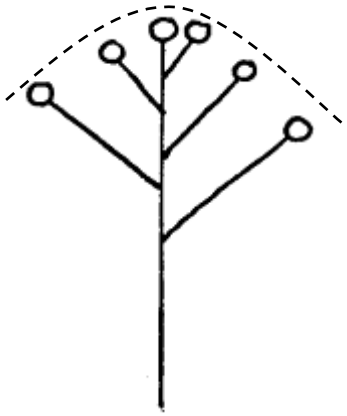
1
absent

9
present

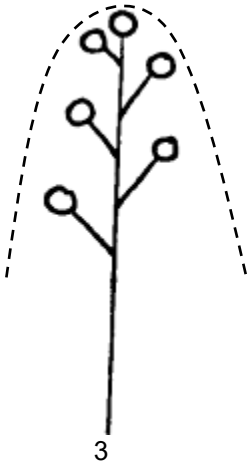
Ad. 22: Inflorescence: form



1
flat or slightly domed



2
moderately domed



3
strongly domed

Ad. 26: Bud: shape

To be observed immediately before color appears.

broad (*low*) ← width (ratio length/width) → narrow (*high*)	← broadest part →		
	below middle	at middle	above middle
		 4 oblong	
	 1 ovate	 3 elliptic	 5 obovate
		 2 circular	

Ad. 27: Bud: extrusion of styles

To be observed immediately before color appears.


1
absent


9
present

Ad. 28: Epicalyx: position of outer lobes in relation to calyx

1
adpressed

2
adpressed and free

3
free

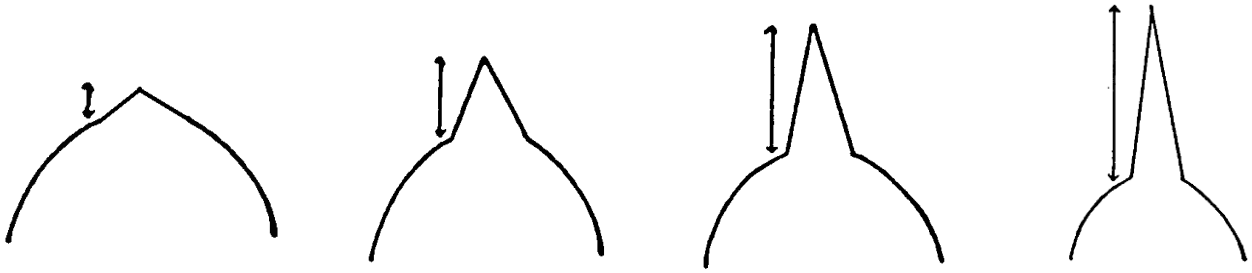
Ad. 29: Epicalyx: apex of outer lobes
Ad. 31: Epicalyx: apex of inner lobes

1
acute

2
short
acuminate

3
medium
acuminate

Ad. 30: Epicalyx: length of tip of outer lobes
Ad. 32: Epicalyx: length of tip of inner lobes



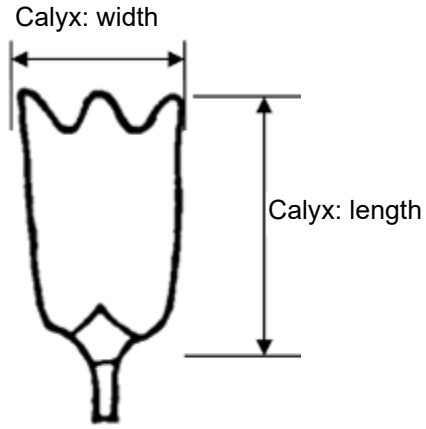
1
absent or very short

2
short

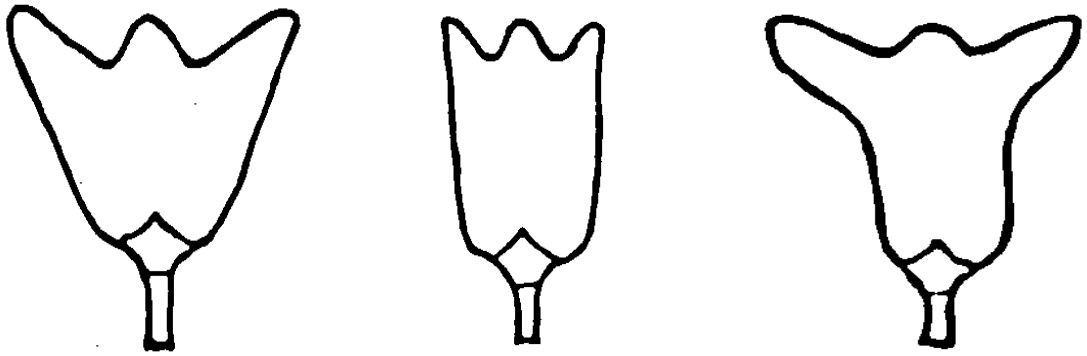
3
medium

4
long

Ad. 33: Calyx: length
Ad. 34: Calyx: width



Ad. 35: Calyx: shape



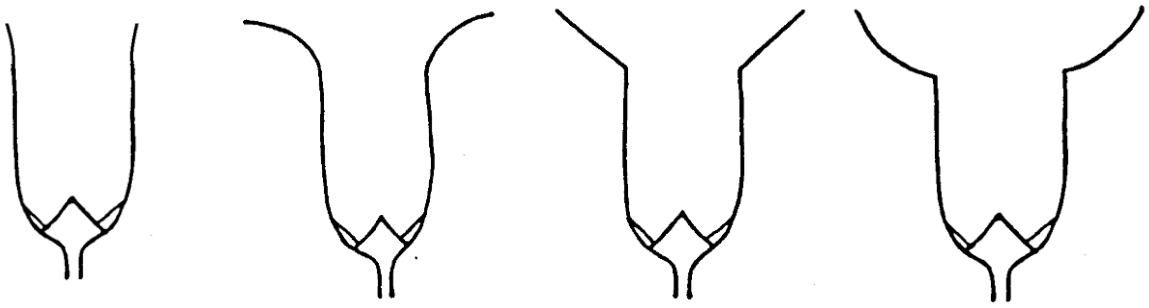
1
funnel-shaped

2
cylindrical

3
campanulate

Ad. 36: Calyx: longitudinal axis of lobes

When making this observation, the tip of the lobes should be excluded.



1
straight

2
concave

3
angled

4
convex

Ad. 39: Calyx: shape of apex of lobe

1
acute

2
acute to acuminate

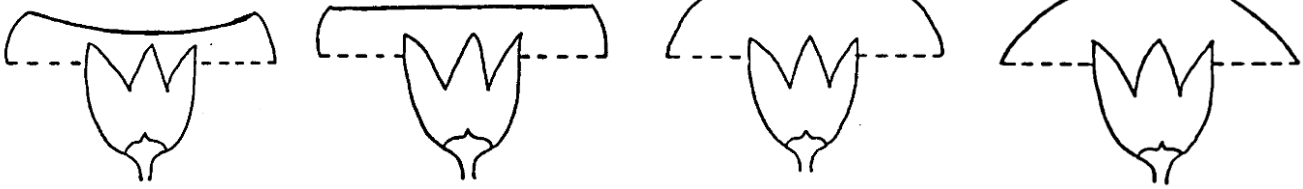
3
acuminate

Ad. 41: Flower: type

Double flowers have more than 5 petals.

Ad. 44: Corolla: height

Ad. 45: Corolla: profile of upper part in lateral view



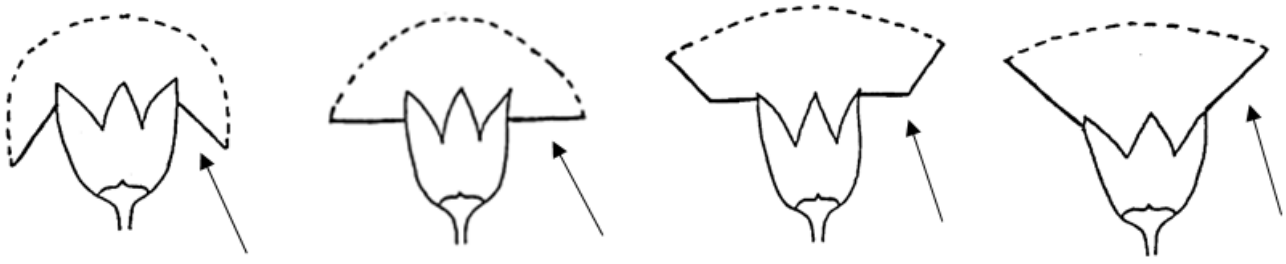
1
concave

2
flat

3
flat convex

4
convex

Ad. 46: Corolla: profile of lower part in lateral view



1
concave

2
flat

3
flat convex

4
convex

Ad. 47: Petal: predominant shape

type 1 type 2 type 3 type 4 type 5 type 6 type 7

Ad. 48: Petal: undulation

1
absent or weak

2
medium

3
strong

Ad. 49: Petal: number of incisions of margin

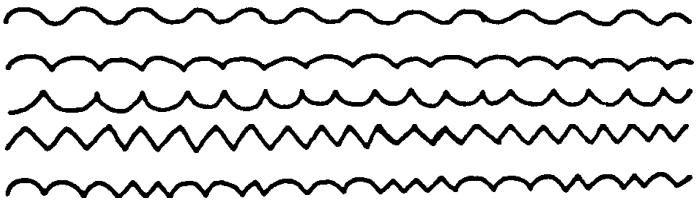
1
absent or few

2
medium

3
many

Ad. 50: Petal: type of incisions of margin

1	sinuate
2	crenate
3	spinose-dentate
4	dentate
5	crenate-dentate



Ad. 51: Petal: depth of incisions of margin

1
very shallow

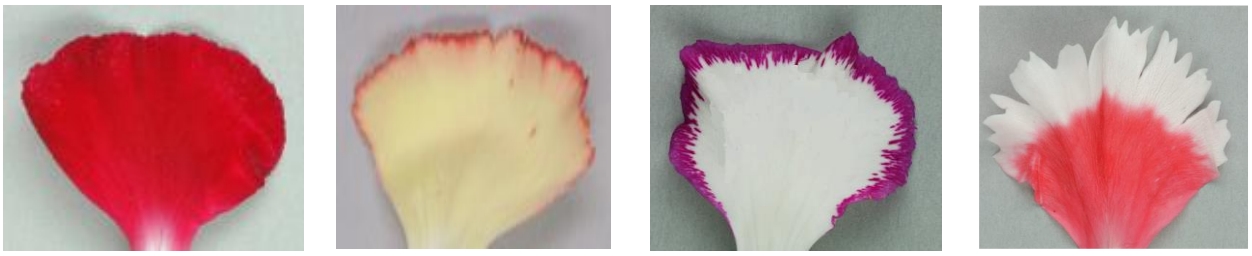
3
shallow

5
medium

7
deep

9
very deep

Ad. 56: Petal: width of differently colored margin



1 absent | 2 narrow | 3 medium | 4 broad

Ad. 57: Petal: number of stripes

1 none | 2 few | 3 medium | 4 many

Ad. 58: Petal: number of speckles

1 none | 2 few | 3 medium | 4 many

Ad. 59: Petal: area of flush

1 absent | 2 small | 3 medium | 4 large

Ad. 60: Petal: size of macule

1
absent

2
small

3
medium

4
large

Ad. 61: Petal: color pattern of tertiary color

2
marginated

3
striped

4
speckled

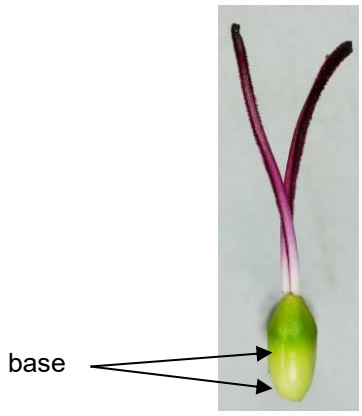
5
flushed

6
maculated

Ad. 63: Ovary: shape

broad (*low*) ← width (ratio length/width) → narrow (*high*)	← broadest part →		
	below middle	at middle	above middle
		 4 oblong	
	 1 ovate	 3 elliptic	 5 obovate
		 2 rhombic	

Ad. 64: Ovary: color of base

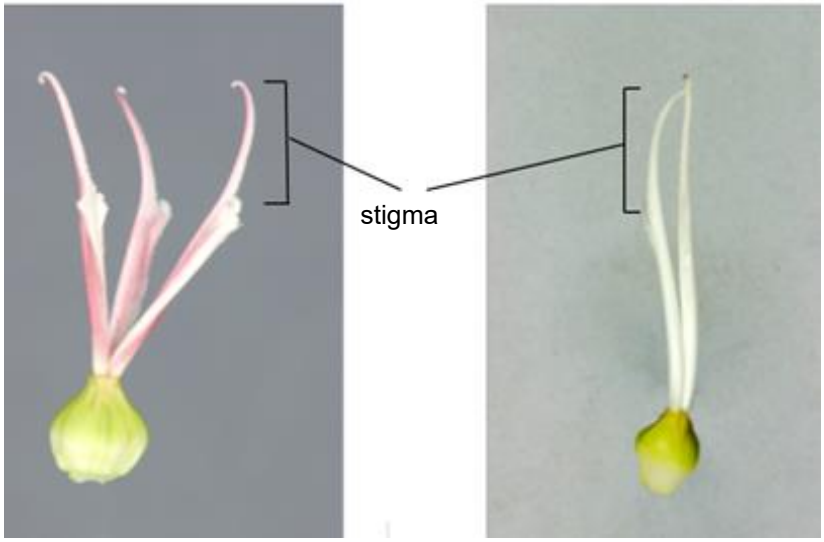


Ad. 68: Style: shoulder

1
absent

9
present

Ad. 69: Stigma: color



8.3 Growing types

As explained in Chapter 3.3.2, it may be necessary for separate growing trials to be established for cut flower types, garden types and pot types in order to ensure the satisfactory growth of varieties of those types. The following information is provided with regard to growing conditions for different types of varieties and information which may help in deciding on the type of trial(s) which may be appropriate for a variety:

Cut flower types (C)
In general varieties bred as cut flower have the following features:

- not very tolerant to low temperatures: heated greenhouses required for good crop development in temperate zones;
- to grow the varieties properly, sufficient support (horizontal nets) need to be provided

spray (Cs) and one flower per stem (Co)

- Breeding is done in a limited gene pool. In general, such types of variety belong to *D. caryophyllus*
- in varieties bred to be grown as one flower per stem carnation, the lateral flower heads or lateral shoots (if existing) are removed at an early stage to leave just the terminal flower head
- most varieties have double flowers

umbrella (D. barbatus) (Cu)

- All types of varieties belong to *D. barbatus*
- produce clusters with rudimentary or fully developed flowers
- most varieties have single flowers

Garden types (G)
Breeding is done in a rather large gene pool, in most cases much broader and different from other types. Varieties mainly come from *D. plumarius, D. x allwoodii* and related species. In general, such types of variety have the following features:

- tolerant to lower temperatures in general;
- plants with limited plant height;
- all flower types (single and double) can be seen in garden types;

Pot types (P)
Breeding is mainly done in a gene pool which is different from garden types. In general, such types of variety belong to *D. caryophyllus* and have the following features:

- not very tolerant to low temperatures: heated greenhouses required for good crop development in temperate zones;
- concern only types produced in greenhouses or other sheltered conditions;
- plants with limited plant height;
- nearly always have double flowers.

9. Literature

Galbally, J., Galbally, E., 1997: Carnations and Pinks. Timber Press Inc., Portland, Oregon, ISBN 0-88192-382-6

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 Genus

1.1.1 Botanical name	*Dianthus* L.
1.1.2 Common name	Carnation

1.2 Species

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 (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 (2)	**Plant: height (only for pot and garden types)**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	Hiljoli (P), Shooting Star (G)	3 [ ]
	short to medium		4 [ ]
	medium	Houndspool Cheryl (G), WP08 IAN04 (G)	5 [ ]
	medium to tall		6 [ ]
	tall	Devon Wizard (G)	7 [ ]
	tall to very tall		8 [ ]
	very tall		9 [ ]
5.2 (4)	**Plant: position of flowers compared to foliage (only for pot and garden types)**		
	same level or slightly above	Coral Reef (G), Hiljoli (P)	1 [ ]
	moderately above	Houndspool Cheryl (G), Koviol (P)	2 [ ]
	far above	Waterloo Sunset (G)	3 [ ]
5.3 (23)	**Inflorescence: development of flowers (only for cut flower 'umbrella' (*D. barbatus*) types)**		
	rudimentary	Punky Ball (Cu), Temarisou (Cu)	1 [ ]
	fully developed	Hilbreking (Cu)	2 [ ]
5.4 (41)	**Flower: type**		
	single	Calypso Star (G), Hilbreking (Cu)	1 [ ]
	double	Sam's Pride (Cs), William Sim (Co)	2 [ ]
5.5 (49)	**Petal: number of incisions of margin**		
	absent or few	Barmalyn (Cs), Koyevi (Co)	1 [ ]
	medium	Barlitar (Co)	2 [ ]
	many	Komari (Co), Martina (Cs), Wesroman (Cs)	3 [ ]

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

	Characteristics	Example Varieties	Note
5.6 i (54)	**Petal: main color**		
	RHS Colour Chart (indicate reference number)		
5.6 ii (54)	**Petal: main color**		
	white or near white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	orange		4 [ ]
	pink		5 [ ]
	medium red		6 [ ]
	dark red		7 [ ]
	violet red		8 [ ]
	purple		9 [ ]
	pink purple		10 [ ]
	purple violet		11 [ ]
	violet		12 [ ]
	brownish		13 [ ]
5.7 i (55)	**Petal: secondary color**		
	RHS Colour Chart (indicate reference number)		
5.7 ii (55)	**Petal: secondary color**		
	none		1 [ ]
	white or near white		2 [ ]
	green		3 [ ]
	yellow		4 [ ]
	orange		5 [ ]
	pink		6 [ ]
	medium red		7 [ ]
	dark red		8 [ ]
	violet red		9 [ ]
	purple		10 [ ]
	pink purple		11 [ ]
	purple violet		12 [ ]
	violet		13 [ ]
	brownish		14 [ ]

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

	Characteristics	Example Varieties	Note
5.8	**Petal: color pattern of secondary color (if present)**		
	marginated	Hilbreking (Cu), Komari (Co)	1 [ ]
	striped	Komonte (Co)	2 [ ]
	speckled	Barlitar (Co), CFPC Aztec (P)	3 [ ]
	flushed	Antigua (Co), Hilnotre (Co)	4 [ ]
	maculated	Hilmetal (P)	5 [ ]

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	*Flower: color*	*orange*	*orange red*

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 Main use

(a) cut flower
- one flower per stem [ ]
- spray [ ]
- umbrella (D. *barbatus*) [ ]

(b) garden plant [ ]
(c) pot plant [ ]
(d) other [ ]
(please provide details)

7.4. 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.]

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.

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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]

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