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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CARNATION *

UPOV Code: DIANT

Dianthus L.
Species names to be specified in next version

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from the Netherlands

to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its forty-first session, to be held in Wageningen, Netherlands, from June 9 to 13, 2008

Alternative Names:*

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

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 *Dianthus* L. (all vegetatively propagated varieties). A trial has been started to check if seed-propagated varieties of D. sinensis can be included.

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:

60 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.

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.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 36 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 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations should be made at the time of full flowering on 10 plants or parts taken from each of 10 plants. In the case of parts of plants, the number to be taken from each of the plants should be 10.

3.6 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.

4.2 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, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 36 plants, 2 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 tested, either by growing a further generation, or by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the previous 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: cultural type
Type 1: one flower per stem
Produced for one-headed inflorescences. These types will be disbudded during growth.
Type 2: spray
Produced for multi-headed inflorescences (sprays). These types will not be disbudded during growth.
Type 3: pot carnation
Grown in greenhouse, very short plants, do not need a cold treatment to induce flowering.

Type 4: outdoor carnation
Grown outdoors, very short to short plants, do need a cold treatment to induce optimal flowering.

	
Type 1: one flower per stem	Type 2: spray carnation
	
Type 3: pot carnation	Type 4: outdoor carnation

(b) Flower: type (characteristic 38)
(c) Flower: color group

Group 1: white or near white
Group 2: green
Group 3: yellow
Group 4: orange
Group 5: pink
Group 6: pink purple
Group 7: red
Group 8: violet
Group 9: violet red

The flower color group is determined by the main color of the petals; the main color is the color which is present in the greatest area; if, in case of bicolored or multicolored petals, none of the colors is clearly predominant then the lightest color will be the main color.

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

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

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.

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

(a) See explanations on the table of characteristics in Chapter 8.1
(+) See explanations on the table of characteristics in Chapter 8.2

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

NB: example varieties to be included in next version

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	**Disbudded varieties (type 1) excluded: Stem: laterals without flower buds or flowers**					
QL	absent					1
	present				Martina (type 2)	9
2.	**Disbudded varieties (type 1) excluded: Stem: number of internodes between epicalyx and lowest node with laterals with flower buds or flowers**					
QL	one				Whatfield Can Can (type 4)	1
	two				Calypso Star (type 4)	2
	three				Devon Wizard (type 4)	3
	four				Scarlet Queen (type 2)	4
	more than four				Martina (type 2)	5
3.	**Disbudded varieties (type 1) excluded: Plant: laterals flower buds or flowers of second order**					
QN	absent or very few					1
	few					3
	medium					5
	many					7

		English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4.		**Disbudded varieties (type 1) excluded:**					
(+)		**Varieties with laterals with flower buds or flowers only: Stem: arrangement of totality of flowers**					
PQ		horizontal					1
		domed				Martina (type 2)	2
		cylindrical				Optima (type 2)	3
5.		**Disbudded varieties (type 1) excluded:**					
(+)		**Plant: arrangement of individual flowers, top flower excluded**					
QL		one-flowered				White Prestige (type 2)	1
		clustered					2
		one-flowered and clustered				Martina (type 2)	3
6.		**Main stem: total length of seven internodes (pot carnations five internodes) directly below flower (only to be observed if at least seven internodes (pot carnations five internodes) are present)**					
QN	**(a)**	short				Devon Wizard (type 4)	3
		medium				Aveiro (type 2)	5
		long				Sinai (type 1)	7

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7.	**Stem: thickness of fifth internode, (for pot carnation third internode) directly below flower**					
QN	very thin					1
	thin				Devon Glow (type 4)	3
	medium				White Prestige (type 2)	5
	thick				Goblin (type 1)	7
	very thick					9
8.	**Stem: length of 5th internode, (for pot carnation third internode) directly below flower**					
QN	short				Devon Glow (type 4)	3
	medium				Martina (type 2)	5
	long					7
9.	**Stem: cross section**					
QL	circular					1
	edged				Martina (type 2)	2
10.	**Stem: hollowness**					
QL	absent				Martina (type 2)	1
	present					9
11. (*)	**Leaf: shape**					
PQ	ovate					1
	elliptic				Martina (type 2)	2
	obovate				Shooting Star (type 4)	3

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12. (*)	**Leaf: length at 5th node, (for pot carnation third node) directly below flower**					
QN	short				Shooting Star (type 4)	3
	medium				Martina (type 2)	5
	long				Don Pedro (type 1)	7
13. (*)	**Leaf: width at 5th node, (for pot carnation third node) directly below flower**					
QN	narrow				Aveiro (type 2)	3
	medium				Grand Slam (type 1)	5
	broad					7
14. (*)	**Leaf: longitudinal axis**					
PQ	straight				Devon Wizard (type 4)	1
	weakly recurved				Shooting Star (type 4)	2
	moderately recurved				Martina (type 2)	3
	strongly recurved				Prado Pino (type 1)	4
	rolled				Raspberry Ripple (type 2)	5
15.	**Leaf: cross section (upper side)**					
PQ	straight					1
	weakly concave				Martina (type 2)	2
	moderately concave				Kiro (type 1)	3
	strongly concave					4

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	**Leaf: color**					
PQ	yellow green					1
	true green					2
	blue green				Martina (type 2)	3
17.	**Leaf: waxy layer**					
QN	absent or very weak					1
	weak				Farida (type 1)	3
	medium				Grand Slam (type 1)	5
	strong				White Prestige (type 2)	7
	very strong					9
18. **(+)**	**Leaf: spiny ciliation of margin**					
QL	absent				Martina (type 2)	1
	present				Whatfield Can Can (type 4)	9
19. **(*)**	**Bud: shape (immediately before color shows)**					
PQ	globose					1
	cylindrical				Kiro (type 1)	2
	ovoid					3
	ellipsoid					4
	obovoid				Martina (type 2)	5
20.	**Bud: extrusion of styles (as for 19)**					
QL	absent				Martina (type 2)	1
	present					9

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. (*)	**Flower: diameter**					
QN	very small					1
	small				Shooting Star (type 4)	3
	medium				Devon Wizard (type 4)	5
	large				Farida (type 1)	7
	very large					9
22. (*) (+)	**Flower: height of corolla**					
QN	low				Whatfield Can Can (type 4)	3
	medium				Farida (type 1)	5
	tall					7
23. (*) (+)	**Flower: profile of upper part of corolla**					
PQ	concave				Night Star (type 4)	1
	flat				Shooting Star (type 4)	2
	flat convex				Kiro (type 1)	3
	convex				Martina (type 2)	4
24. (*) (+)	**Flower: profile of lower part of corolla**					
PQ	concave				Martina (type 2)	1
	flat				Whatfield Can Can (type 4)	2
	flat convex				Night Star (type 4)	3
	convex					4
25.	**Epicalyx: position of outer leaves in relation to calyx**					
QL	adpressed				Martina (type 2)	1
	free				Nirvana (type 2)	2

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26. (*) (+)	**Epicalyx: apex of outer lobes**					
QL	acute				Martina (type 2)	1
	acuminate				Kiro (type 1)	2
27. (+)	**Epicalyx: length of apex of outer lobes**					
QN	short				Martina (type 2)	3
	medium				Devon Glow (type 4)	5
	long					7
28. (*) (+)	**Epicalyx: apex of inner lobes**					
QL	acute				Martina (type 2)	1
	acuminate				Kiro (type 1)	2
29. (+)	**Epicalyx: length of apex of inner lobes**					
QN	short				Martina (type 2)	3
	medium					5
	long					7
30.	**Calyx: length**					
QN	short				Whatfield Can Can (type 4)	3
	medium				Martina (type 2)	5
	long					7
31. (*) (+)	**Calyx: shape**					
PQ	funnel-shaped				Kiro (type 1)	1
	cylindrical				Martina (type 2)	2
	campanulate				Gaudina (type 1)	3

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
32. **(+)**	**Calyx: longitudinal axis of lobes (tip excluded)**					
PQ	straight				Whatfield Can Can (type 4)	1
	concave				Martina (type 2)	2
	flat				Optima (type 2)	3
	convex				Gaudina (type 1)	4
33.	**Calyx: anthocyanin coloration of lobes**					
QL	absent				Martina (type 2)	1
	present				Aveiro (type 2)	9
34.	**Calyx: position of anthocyanin coloration**					
PQ	edge of lobe				Aveiro (type 2)	1
	whole lobe				Houndspool Cheryl (type 4)	2
	whole calyx				Calypso Star (type 4)	3
35.	**Calyx: hue of anthocyanin coloration**					
PQ	reddish				Aveiro (type 2)	1
	purplish				Shooting Star (type 4)	2
	blackish					3
36. **(+)**	**Calyx: shape of lobe**					
PQ	long acute				Aveiro (type 2)	1
	short acute				Kiro (type 1)	2
	short acuminate					3

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
37.	**Calyx: length of lobe**					
QN	short				Kiro (type 1)	3
	medium				Aveiro (type 2)	5
	long					7
38. (*)	**Flower: type**					
QL	single				Calypso Star (type 4)	1
	double				Martina (type 2)	2
39. (*)	**Varieties with double flowers only: Flower: number of petals**					
QN	few				Claudia (type 2)	3
	medium				Martina (type 2)	5
	many				Grand Slam (type 1)	7
40. (+)	**Petal: predominant shape**					
QL	type 1				Martina (type 2)	1
	type 2				Baltico (type 1)	2
	type 3				Grand Slam (type 1)	3
	type 4					4
	type 5					5
	type 6				Gaudina (type 1)	6
41.	**Petal: surface of blade**					
PQ	flat					1
	undulate				Calypso Star (type 4)	2
	folded					3

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
42.	**Petal: incisions of margin**					
	absent					1
	present				Martina (type 2)	9
43. (*) (+)	**Petal: type of incisions of margin**					
PQ	sinuate				Farida (type 1)	1
	crenate				Grand Slam (type 1)	2
	dentate					3
	serrate				White Prestige (type 2)	4
	crenate-dentate				Martina (type 2)	5
44.	**Petal: depth of incisions of margin**					
QN	very shallow				Fleurette (type 2)	1
	shallow				Intermezzo (type 2)	3
	medium				Claudia (type 2)	5
	deep				Pop Star (type 4)	7
	very deep					9
45.	**Petal: length**					
QN	short				Whatfield Can Can (type 4)	3
	medium				Candela (type 2)	5
	long				Gaudina (type 1)	7
46.	**Petal: width**					
QN	narrow				Whatfield Can Can (type 4)	3
	medium				Kiro (type 1)	5
	broad					7

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
47. (*)	**Petal: number of colors of blade (claw and macule excluded)**					
PQ	one				White Prestige (type 2)	1
	two				Martina (type 2)	2
	three					3
	four					4
	more than four					5
48. (*)	**Varieties with more than one color only:** **Petal: color distribution of blade (claw and macule excluded)**					
PQ	picotee					1
	edged				Raspberry Ripple (type 2)	2
	striated				Intermezzo (type 2)	3
	speckled				Candela (type 2)	4
	picotee-striated					5
	picotee-speckled				Romany (type 2)	6
	edged-striated					7
	edged-speckled				Night Star (type 4)	8
	picotee-striated-speckled				Martina (type 2)	9
	edged-striated-speckled				Calypso Star (type 4)	10
	striated-speckled					11
	shading off					12
	flushed					13

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
49. (*)	**Petal: main color (macule and claw excluded)**					
PQ	RHS Colour Chart (indicate reference number)					
50.	**Petal: secondary color of blade (macule and claw excluded)**					
PQ	white or near white				Candela (type 2)	1
	yellow					2
	orange					3
	pink				Intermezzo (type 2)	4
	red				Martina (type 2)	5
	pale purple					6
	purple				Spectro (type 2)	7
	violet					8
51. (*)	**Petal: macule**					
QL	absent				Martina (type 2)	1
	present				Devon Wizard (type 4)	9
52.	**Petal: macule: main color**					
PQ	RHS Colour Chart (indicate reference number)					

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
53. (*)	**Ovary: shape**					
PQ	globose					1
	ellipsoid					2
	ovoid				White Prestige (type 2)	3
	obovoid				Farida (type 1)	4
	rhomboid				Martina (type 2)	5
	cylinder				Shooting Star (type 4)	6
54.	**Ovary: main color of lower part**					
PQ	whitish				White Prestige (type 2)	1
	yellowish					2
	green				Shooting Star (type 4)	3
55.	**Ovary: surface**					
QL	smooth				Claudia (type 2)	1
	ribbed				Martina (type 2)	2
56.	**Styles: number**					
QL	only two				Claudia (type 2)	1
	two and three				Aveiro (type 2)	2
	only three					3
	three and four				Kleos (type 1)	4
	only four					5
	two, three, four and five				Gaudina (type 1)	6
	more than five					7
57.	**Style: length**					
QN	short				Shooting Star (type 4)	3
	medium				Aveiro (type 2)	5
	long				Liberty (type 1)	7

	English	français	deutsch	español	Example varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
58.	**Style: shoulder**					
(+)						
QL	absent				Martina (type 2)	1
	present				Aveiro (type 2)	9
59. **(*)**	**Stigma: color**					
PQ	white or cream				Martina (type 2)	1
	yellow					2
	pink					3
	white with red flush				Aveiro (type 2)	4
	white with purple flush				Shooting Star (type 4)	5
	red				Grand Slam (type 1)	6
	pale purple					7
	purple					8

8. Explanations on the Table of Characteristics

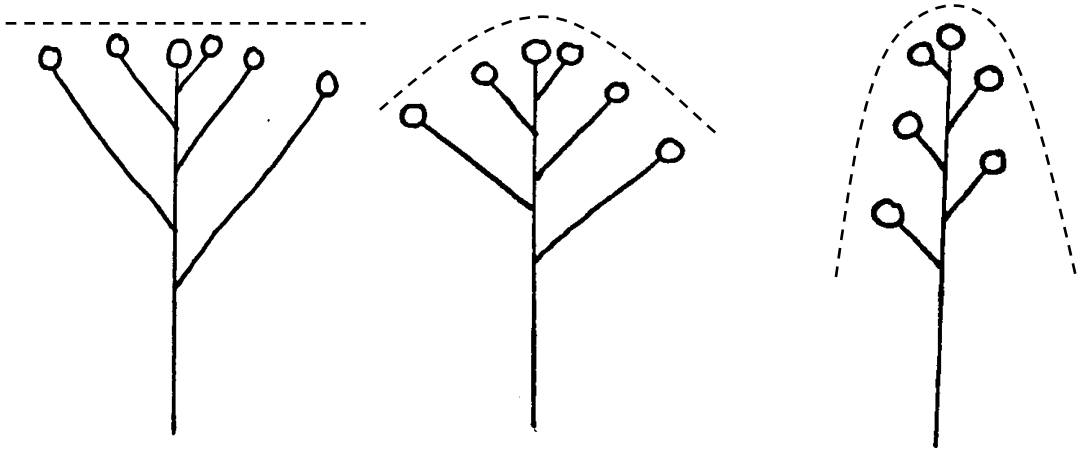
8.1 Explanations covering several characteristics

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

(a) Main stem can be found by following the most direct line from top-flower to base.

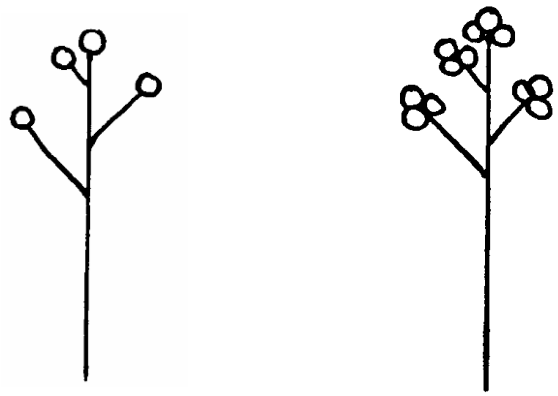
8.2 Explanations for individual characteristics

Ad. 4: Disbudded varieties (type 1) excluded: Varieties with laterals with flower buds or flowers only: Stem: arrangements of totality of flowers



1 horizontal | 2 domed | 3 cylindrical

Ad. 5: Disbudded varieties (type 1) excluded: Plant: arrangement of individual flowers, top flower excluded

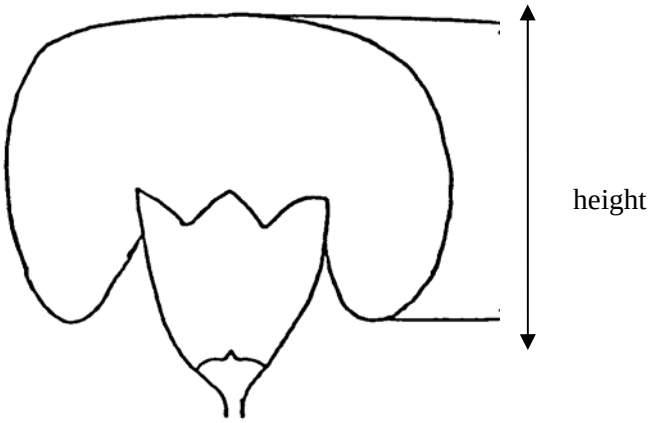


1 one-flowered | 2 clustered

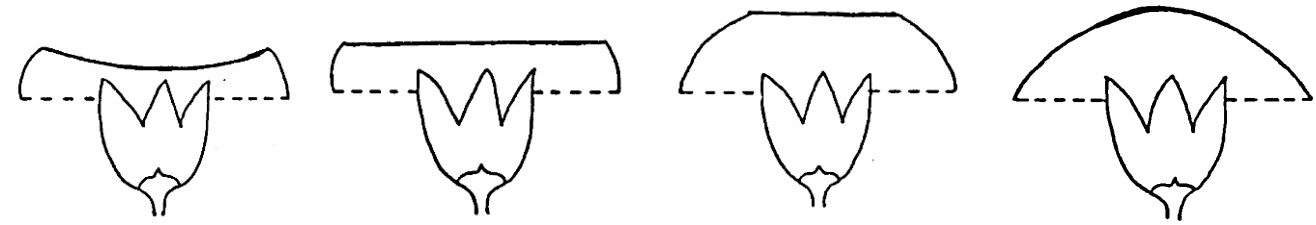
Ad. 18: Leaf: spiny ciliation of margin

To be observed by gently rubbing to and fro with your finger along the margin of the leaf. (PICTURE)

Ad. 22: Flower: height of corolla

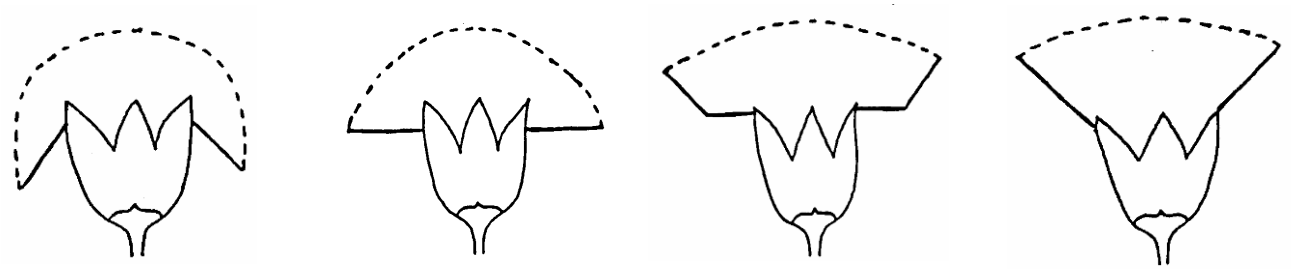


Ad. 23: Flower: profile of upper part of corolla



1 concave | 2 flat | 3 flat convex | 4 convex

Ad. 24: Flower: profile of lower part of corolla

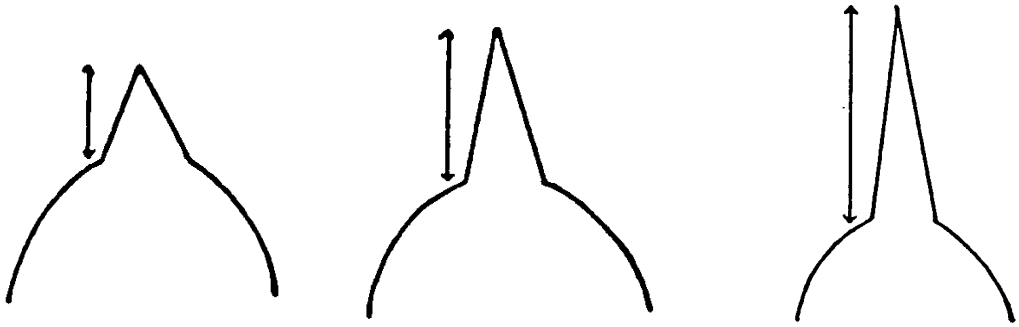


1 concave | 2 flat | 3 flat convex | 4 convex

Ad. 26: Epicalyx: apex of outer lobes
Ad. 28: Epicalyx: apex of inner lobes
Ad. 36: Calyx: shape of lobe

1 acute | 2 acuminate

Ad. 27: Epicalyx: length of apex of outer lobes
Ad. 29: Epicalyx: length of apex of inner lobes

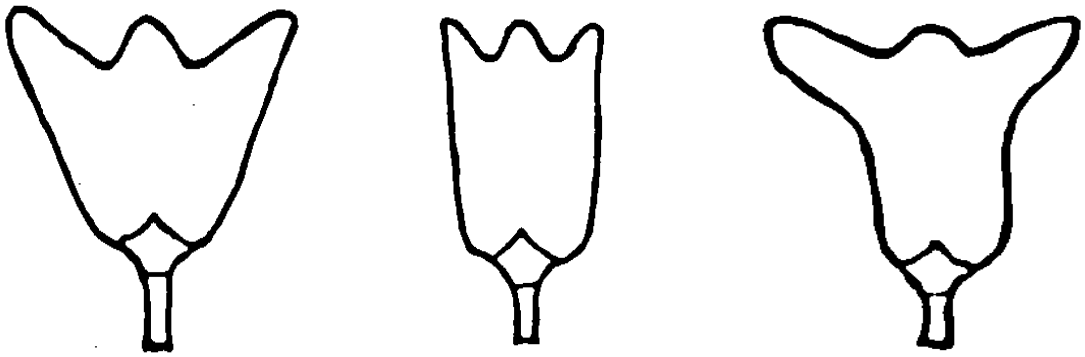


3
short

5
medium

7
long

Ad. 31: Calyx: shape

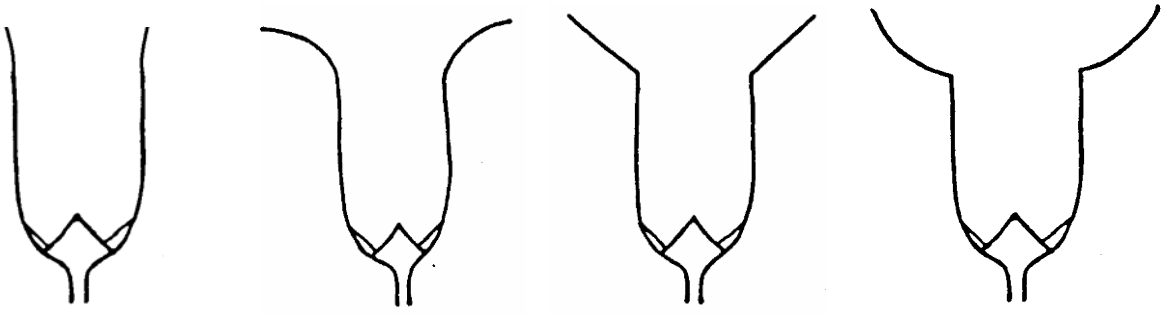


1
funnel-shaped

2
cylindrical

3
campanulate

Ad. 32: Calyx: longitudinal axis of lobes (tip excluded)



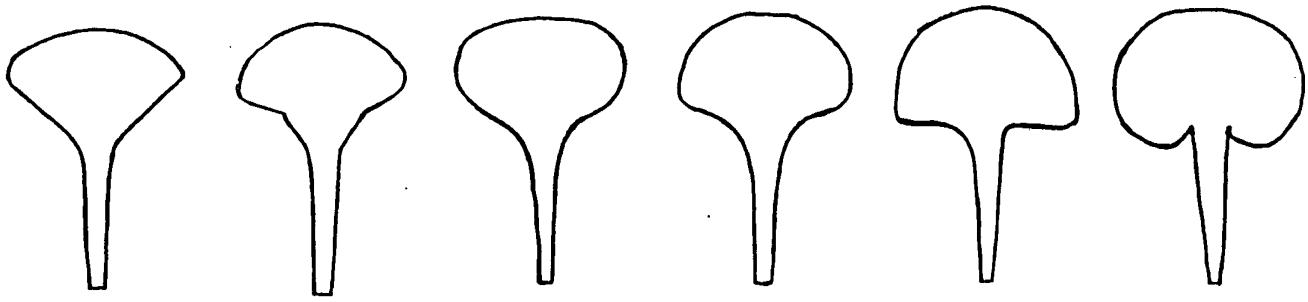
1
straight

2
concave

3
flat

4
convex

Ad. 40: Petal: predominant shape

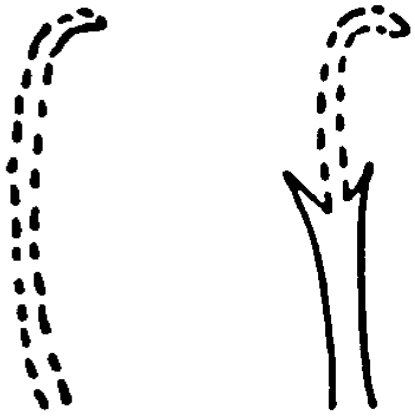


type 1 type 2 type 3 type 4 type 5 type 6

Ad. 43: Petal: type of incicions of margin

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

Ad. 58: Style: shoulder



1 9
absent present

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	Botanical name	*Dianthus* L.
1.2	Common name	Carnation

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]
(b) *in vitro* propagation [ ]
(c) other (state method) [ ]

[#] 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:

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: cultural type**		
	Type 1: one flower per stem (Produced for one-headed inflorescences. These types will be disbudded during growth)		1[ ]
	Type 2: spray (Produced for multi-headed inflorescences (sprays). These types will not be disbudded during growth)		2[ ]
	Type 3: pot carnation (Grown in greenhouse, very short plants, do not need a cold treatment to induce flowering).		3[ ]
	Type 4: outdoor carnation (Grown outdoors, very short to short plants, do need a cold treatment to induce optimal flowering).		4[ ]
5.2 (38)	**Flower: type**		
	single	Calypso Star (type 4)	1[ ]
	double	Martina (type 2)	2[ ]
5.3	**Flower: color group**		
	white or near white		1[ ]
	green		2[ ]
	yellow		3[ ]
	orange		4[ ]
	pink		5[ ]
	pink purple		6[ ]
	red		7[ ]
	violet		8[ ]
	violet red		9[ ]
	The flower color group is determined by the main color of the petals; the main color is the color which is present in the greatest area; if, in case of bicolored or multicolored petals, none of the colors is clearly predominant then the lightest color will be the main color.		

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 Other information

7.3.1 Main use

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

(please provide details)

7.3.2 A representative color photograph of the variety should accompany the Technical Questionnaire.

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

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

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

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

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

……

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]

(please provide details as specified by the authority)

No [ ]

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]