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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CHRYSANTHEMUM *

UPOV Code: CHRYSA_MOR
CHRYSA_PAC*(Chrysanthemum x morifolium* Ramat.,
Ajania pacifica Bremer and Humphries,
and hybrids)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from the United Kingdom**to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its thirty-seventh session,
to be held in Hanover, Germany, from July 12 to 16, 2004*

Alternative Names: *

Latin	English	French	German	Spanish
<i>Chrysanthemum x morifolium</i> Ramat.	Chrysanthemum, Florists Chrysanthemum, Perennial Chrysanthemum	Chrysanthème	Chrysantheme	Crisantemo
<i>Dendranthema x morifolium</i> Tzvelev				
<i>Dendranthema x grandiflorum</i> (Ramat.) Kitamura				
<i>Ajania pacifica</i> Bremer and Humphries	Ajania, Gold-and-Silver Chrysanthemum			
<i>Chrysanthemum pacificum</i> Nakai				

* 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.]

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 guidelines (“Test Guidelines”) should be read in conjunction with document TG/1/3, “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants” (hereinafter referred to as the “General Introduction”) and its associated “TGP” documents.

Other associated UPOV documents:

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Chrysanthemum x morifolium* Ramat.; *Ajania pacifica* Bremer and Humphries, (syn. *Chrysanthemum pacificum* Nakai), and hybrids between them.

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 unrooted cuttings.

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

25 unrooted 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*

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.

3.3.1 Stage of development for the assessment

The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described at the end of Chapter 8.

3.3.2 Observation of color by eye

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

3.4 *Test Design*

3.4.1 To ensure exact comparability between varieties, in particular for the assessment of flowering response, the delivered cuttings may be used as mother plants to generate the test cuttings. Where this is done, the relationship between the delivered cuttings and the cuttings planted in the test should be clear.

3.4.1 Each test should be designed to root at least 20 mother plants from the 25 submitted cuttings, and to result in at least 20 test plants for multi-stemmed varieties [pinched varieties, or types with naturally bushy habit] and at least 40 test plants for single-stemmed varieties.

3.4.3 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 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.

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, in 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; in the case of a sample size of 40 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: natural habit (characteristic 2)

- (b) Flower head: type (characteristic 38)
- (c) Ray floret: number of colors of the inner side (characteristic 78)
- (d) Ray floret: main color of the inner side by group (characteristic 82)
- (e) Only varieties with single, semi-double and daisy-eyed double flower head: Disc type (characteristic 91)

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 Section 6.1.2
- (QL) Qualitative characteristic – see Section 6.3
- (QN) Quantitative characteristic – see Section 6.3
- (PQ) Pseudo-qualitative characteristic – see Section 6.3

- (a) – (g) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1
- (+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (a)	Plant: height					
(*)						
QN	short					3
	medium					5
	tall					7
2. (a)	Plant: natural habit					
(*)						
(+)						
PQ	non bushy				Reagan, Anastasia, Casmó, Boulou	1
	bushy				Tripoli, Guitpolin + a garden mum	2
3. (a)	<u>Bushy varieties</u>					
(*)	<u>only: plant: overall</u>					
(+)	<u>shape</u>					
PQ	upright					1
	semi upright					2
	hemispherical					3
	spreading					4
	hanging					5
4. (a)	<u>Bushy varieties</u>					
(*)	<u>only: plant: density</u>					
	<u>of branching</u>					
QN	sparse					3
	medium					5
	dense					7
5 (a)	Stem: strength					
QN	weak					3
	medium					5
	strong					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6 (a)	Stem: internode length					
QN (b)	short					3
	medium					5
	long					7
7 (a)	Stem: color					
PQ (b)	green					1
	green tinged with purple or brown					2
	brown					3
	purple					4
8 (a)	Stipule: size					
QN (b)	absent or very small					1
	small					3
	medium					5
	large					7
9. (*) (+)	Petiole: attitude					
QN (c)	very strongly upwards					1
	moderately upwards					3
	approximately horizontal					5
	moderately downwards					7
	drooping					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10	(a)	Leaf: longitudinal axis				
	(+)					
QN	(c)	curved upwards				3
		straight				5
		curved downwards				7
11	(a)	Leaf: length including petiole				
	(*)					
QN	(c)	short				3
		medium				5
		long				7
12	(a)	Leaf: width at widest point				
	(*)					
QN	(c)	narrow				3
		medium				5
		broad				7
13	(a)	Leaf: ratio length/width				
	(*)					
QN	(c)	low				3
		medium				5
		high				7
14	(a)	Leaf: position of widest point				
	(*)					
QN	(c)	towards the bottom				1
		at the middle				2
		towards the top				3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15. (a) (*)	Leaf: glossiness of upper side					
QN (c)	absent or very weak					1
	weak					2
	strong					3
16 (a) (*)	<u>Ajania types only:</u> leaf: pubescence of upper side					
QN (c)	weak					3
	medium					5
	strong					7
17. (a) (*)	<u>Ajania types only:</u> leaf: pubescence of lower side					
QN (c)	weak					3
	medium					5
	strong					7
18 (a)	Leaf: predominant number of lobes					
PQ (c)	mainly 3-lobed					1
	mainly 5-lobed					2
19. (a) (*) (+)	Leaf: length of lowest lateral lobe relative to overall width					
QN (c)	short					3
	medium					5
	long					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20. (a) (*) (+)	Leaf: length of terminal lobe relative to overall length					
QN (c)	short					3
	medium					5
	long					7
21. (a) (*)	Leaf: margins of sinus between lateral lobes					
PQ (c)	diverging					1
	parallel					2
	converging					3
	touching					4
	overlapping					5
22. (a) (*) (+)	Leaf: predominant shape of base					
PQ (c)	acute					1
	obtuse					2
	rounded					3
	truncate					4
	cordate					5
	asymmetric					6
23. (a) (*)	Leaf: color of upper side					
QN (c)	light green					3
	medium green					5
	dark green					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24. (a) (*)	<u>Ajania types only:</u> leaf: color of lower side					
PQ (c)	RHS chart					
25. (a) (*)	<u>Ajania types only:</u> leaf: pale margin					
QL (c)	absent					1
	present					9
26. (a) (*)	<u>Ajania types only:</u> leaf: strength of pale margin					
QN (c)	weak					3
	medium					5
	strong					7
27 (a) (+)	Leaf margin: number of indentations					
QN (c)	low					3
	medium					5
	high					7
28 (a) (+)	Leaf margin: depth of indentations					
QN (c)	shallow					3
	medium					5
	deep					7
29. (*) (+)	<u>Non-bushy spray varieties only:</u> inflorescence: form					
PQ	flat-corymbiform					1
	corymbiform					2
	cylindrical					3
	conical					4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
	deeply domed					5
30	<u>Non-bushy spray varieties only:</u> inflorescence: width at widest point					
QN	narrow					3
	medium					5
	broad					7
31. (* (+)	<u>Non-bushy spray varieties only:</u> inflorescence: angle between primary lateral shoot and stem					
QN	small					3
	medium					5
	large					7
32	<u>Non-bushy spray varieties only:</u> inflorescence: length of primary lateral shoot					
QN	short					3
	medium					5
	long					7
33	<u>Non-bushy spray varieties only:</u> inflorescence: secondary laterals					
QN	few					3
	medium					5
	many					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
34 (+)	<u>Non-bushy spray varieties only:</u> inflorescence: attitude of lateral flower heads					
QN	upright					1
	semi-erect					3
	horizontal					5
	nodding					7
35. (*)	<u>Non-bushy spray varieties only:</u> total number of flower heads					
QN	low					3
	medium					5
	high					7
36. (*)	<u>Bushy spray varieties only:</u> total number of flower heads					
QN	low					3
	medium					5
	high					7
37 (a) (d)	Flower bud: color of outer side just before opening					
PQ	RHS chart					
38. (d) (*) (+)	Flower head: type					
PQ	single					1
	semi-double					2
	daisy-eyed double					3
	double					4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
	without ray florets					5
39	(d)	<u>Double flowered</u>				
(+)		<u>varieties only:</u>				
		flower head: sub-				
		type				
PQ	decorative					1
	semi-pompon					2
	pompon					3
	brush					4
	tight incurve					5
	loose incurve					6
	skirted incurve					7
	reflex					8
	full reflex					9
	drooping [fountain type]					10
40.	(d)	<u>Spray varieties only:</u>				
(*)		flower head:				
		diameter				
QN	small					3
	medium					5
	large					7
41.	(d)	<u>Disbud varieties</u>				
(*)		<u>only: flower head:</u>				
		diameter				
QN	small					3
	medium					5
	large					7
42	(d)	<u>Spray varieties only:</u>				
		flower head: height				
QN	low					3
	medium					5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
	high					7
43 (d)	<u>Disbud varieties only:</u> flower head: height					
QN	low					3
	medium					5
	high					7
44 (d)	<u>Spray varieties only:</u> flower head: peduncle length					
QN	short					3
	medium					5
	long					7
45 (d)	<u>Spray varieties only:</u> flower head: peduncle width					
QN	narrow					3
	medium					5
	broad					7
46 (d)	<u>Semi-double and daisy-eyed double varieties only:</u> flower head: number of rows of ray florets					
QN	low					3
	medium					5
	high					7
47. (*) (d)	<u>Single and semi-double varieties only:</u> flower head: number of ray florets					
QN	low					3
	medium					5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
	high					7
48. (d) (*)	<u>Double and daisy- eved double vareities only:</u> flower head: density of ray florets					
QN	sparse					3
	medium					5
	dense					7
49. (d) (*)	Flower head: number of types of ray floret					
PQ	one					1
	two					2
	more than two					3
50. (d) (*) (+)	Flower head: predominant type of ray floret					
PQ	ligulate					1
	spatulate					2
	incurve [boat]					3
	quilled					4
	funnel shaped					5
51. (d) (*) (+)	Flower head: secondary type of ray floret					
PQ	ligulate					1
	spatulate					2
	incurve [boat]					3
	quilled					4
	funnel shaped					5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
52 (d)	Flower head:					
(+)	tertiary type of ray floret					
	ligulate					1
	spatulate					2
	incurve [boat]					3
	quilled					4
	funnel shaped					5
53. (e)	<u>Single and semi-</u>					
(*)	<u>double vareities</u>					
(+)	<u>only: ray floret:</u>					
	attitude of origin					
QN	ascending					3
	approximately horizontal					5
	descending					7
54 (e)	Ray floret: thickness					
QN	thin					3
	medium					5
	thick					7
55 (e)	Ray floret: surface					
PQ	smooth					1
	ribbed					2
	keeled					3
56 (e)	<u>Keeled florets only:</u>					
	ray floret: number of keels					
PQ	one					1
	two					2
	more than two					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
57. (e) (*)	Ray floret: length of corolla tube					
QN	short					3
	medium					5
	long					7
58. (e) (*) (+)	<u>Excluding florets with long corolla tube</u>; ray floret: profile in cross section					
PQ	concave					1
	flat					2
	convex					3
59 (e) (+)	<u>Excluding florets with long corolla tube</u>; non-flat ray florets only: degree of concavity or convexity					
QN	weak					3
	medium					5
	strong					7
60 (e)	<u>Ray florets with long corolla tube only</u>: profile of tube					
PQ	cylindrical					1
	flattened					2
61. (e) (*)	<u>Excluding florets with long corolla tube</u>; ray floret: rolling of margin					
PQ	absent					1
	present					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
62 (e) (+)	<u>Excluding florets with long corolla tube: ray floret: type of rolling of margin</u>					
PQ	involute					1
	revolute					2
63 (e)	<u>Excluding florets with long corolla tube: ray floret: degree of rolling of margin</u>					
QN	weak					3
	medium					5
	strong					7
64 (e)	<u>Excluding florets with long corolla tube: ray floret: position of rolling of margin</u>					
PQ	basal half					1
	distal half					2
	throughout					3
65. (* (+)	<u>Ray floret: longitudinal axis of majority[excluding outer rows]</u>					
PQ	incurving					1
	straight					2
	reflexing					3
	sinusoidal					4
	twisted					5
	broken					6

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
66. (*)	<u>Excluding straight ray florets:</u> Ray floret: longitudinal axis of majority: proportion not straight					
QN	distal 1/4					3
	distal 1/2					5
	distal 3/4					7
67. (*) (+)	<u>Excluding straight ray florets:</u> Ray floret: longitudinal axis of majority: strength of curvature					
QN	weak					3
	medium					5
	strong					7
68 (+)	Ray floret: longitudinal axis of outer row, if different					
PQ	incurving					1
	straight					2
	reflexing					3
	sinusoidal					4
	twisted					5
	broken					6

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
69	<u>Excluding straight ray florets:</u> Ray floret: longitudinal axis of outer row: proportion not straight					
QN	distal 1/4					3
	distal 1/2					5
	distal 3/4					7
70 (+)	<u>Excluding straight ray florets:</u> Ray floret: longitudinal axis of outer row: strength of curvature					
QN	weak					3
	medium					5
	strong					7
71. (e) (*)	Ray floret: length					
QN	short					3
	medium					5
	long					7
72. (e) (*)	Ray floret: width					
QN	narrow					3
	medium					5
	broad					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
73. (e) (*)	Ray floret: ratio length/width					
QN	low					3
	medium					5
	high					7
74 (e)	<u>Varieties with long corolla tube only:</u> Ray floret: width of tube at middle					
QN	narrow					3
	medium					5
	broad					7
75 (e)	Ray floret: shape of tip					
PQ	pointed					1
	rounded					2
	truncate					3
	emarginate					4
	dentate					5
	mamillate					6
	fringed					7
	lacinate					8
76 (d) (+)	Ray floret: projections on lower side					
PQ	absent					1
	present					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
77 (e)	Ray floret: type of projections on lower side					
PQ	bristles and/or hairs					1
	spurs					2
78. (e) (*)	Ray floret: number of colors of the inner side					
(f)						
PQ	one					1
	two					2
	more than two					3
79. (e)	Single colored ray florets only: color distribution					
QN	lighter towards the base					3
	even					5
	lighter towards the apex					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
80.	(e)	Ray floret with more than one color:					
	(*)	distribution of					
	(+)	secondary color					
PQ		at tip					1
		distal 1/4					2
		distal 1/2					3
		distal 3/4					4
		basal 3/4					5
		basal 1/2					6
		basal 1/4					7
		at base					8
		on margin					9
		on marginal zone					10
		central lengthways zone					11
		widthways zone [band]					12
		throughout					13
81.	(e)	Ray floret with more than one color:					
	(*)	pattern of secondary					
	(+)	color					
PQ		solid or nearly so					1
		flushed					2
		diffuse stripes					3
		clearly defined stripes					4
		flecked					5
		flecked and striped					6
		mottled					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
82.	(e) Ray floret: main (* color of the inner (f) side by group					
PQ	white					1
	off-white					2
	yellow					3
	bronze					4
	orange					5
	salmon					6
	pink					7
	red					8
	purple					9
	green					10
	greyish					11
83.	(e) Ray floret: main (* color of the inner (f) side					
	RHS chart					

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
84.	(e) <u>Ray floret with more than one color:</u>					
(*)	(f) secondary color of the inner side by group					
PQ	white					1
	off-white					2
	yellow					3
	bronze					4
	orange					5
	salmon					6
	pink					7
	red					8
	purple					9
	green					10
	greyish					11
85.	(e) Ray floret:					
(*)	(f) secondary color of the inner side					
	RHS chart					
86.	(e) Ray floret: color of the outer side					
(*)	[including tube for varieties with long corolla tubes]					
PQ	similar to inner side					1
	markedly different					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
87. (e) (*)	Ray floret: color of the outer side, where markedly different to inner side, by group					
PQ	white					1
	off-white					2
	yellow					3
	bronze					4
	orange					5
	salmon					6
	pink					7
	red					8
	purple					9
	green					10
	greyish					11
88. (e) (*)	Ray floret: color of the outer side, where markedly different to inner side					
	RHS Chart					
89	<u>Double and daisy-eyed double varieties only:</u> ray floret: color of the <u>inner</u> side of the <u>inner</u> florets, if different to majority					
	RHS Chart					
90	<u>Double and daisy-eyed double varieties only:</u> ray floret: color of the <u>outer</u> side of the <u>inner</u> florets, if different to majority					
	RHS Chart					

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
91. (d) (*) (+)	<u>Single, semi-double and daisy-eyed double varieties only: disc type</u>					
PQ	daisy type					1
	anemone type					2
92 (d)	<u>Daisy type discs only: disc diameter</u>					
QN	small					3
	medium					5
	large					7
93 (d)	<u>Anemone type discs only: disc diameter</u>					
QN	small					3
	medium					5
	large					7
94. (d) (*) (+)	<u>Single, and semi-double varieties only: disc diameter relative to head diameter</u>					
QN	small					3
	medium					5
	large					7
95 (d)	<u>Daisy type discs only: disc surface</u>					
PQ	smooth					1
	bumpy					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
96	(d)	<u>Daisy type discs</u>					
(+)		<u>only: disc: profile in cross section</u>					
PQ	indented					1	
	flat					2	
	slightly domed					3	
	slightly conical					4	
	strongly domed					5	
	strongly conical					6	
97.	(d)	<u>Daisy type discs</u>					
(*)		<u>only: disc: color</u>					
	(f)	<u>group before anther dehiscence</u>					
PQ	whitish					1	
	green					2	
	yellowish green					3	
	yellow					4	
	yellow orange					5	
	orange					6	
	reddish brown					7	
	brown					8	
	brownish black					9	
	purplish black					10	
98.	(d)	<u>Anemone type discs</u>					
(*)		<u>only: disc: color</u>					
	(f)	<u>before anther dehiscence</u>					
	RHS Chart						

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
99. (d) (*)	<u>Daisy type discs</u>					
	<u>only: disc: color</u>					
	<u>group at anther</u>					
	<u>dehiscence</u>					
PQ	whitish					1
	green					2
	yellowish green					3
	yellow					4
	yellow orange					5
	orange					6
	reddish brown					7
	brown					8
	brownish black					9
	purplish black					10
100 (d)	<u>Anemone type discs</u>					
	<u>only: disc: color at</u>					
	<u>anther dehiscence</u>					
	RHS Chart					
101 (d) (+)	<u>Anemone type discs</u>					
	<u>only: disc floret:</u>					
	<u>type</u>					
PQ	enlarged tubular					1
	funnel shaped					2
	quilled					3
	needle shaped					4
	petaloid					5
102 (d)	<u>Anemone type discs</u>					
	<u>only: disc floret:</u>					
	<u>length</u>					
QN	short					3
	medium					5
	long					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
103 (d) (+)	<u>Anemone type discs</u> <u>only: disc floret:</u> <u>attitude</u>					
PQ	straight					1
	incurved					2
104 (d)	<u>Anemone type discs</u> <u>only: disc floret:</u> <u>color</u>					
	RHS Chart					
105. (* (+)	<u>AYR varieties only:</u> <u>response group</u>					
QN	less than 6 weeks					1
	6 weeks					2
	7 weeks					3
	8 weeks					4
	9 weeks					5
	10 weeks					6
	11 weeks					7
	12 weeks					8
	more than 12 weeks					9
106. (* (+)	<u>Natural season</u> <u>varieties only:</u> <u>flowering period</u>					
QN	very early					1
	early					3
	medium					5
	late					7
	very late					9

8. Explanations on the Table of Characteristics

Unless otherwise indicated below, all characteristics should be recorded at the time of full flowering. In single and semi-double varieties this is when the outer two to three rows of disc florets in the terminal flower head have dehisced; in double flowered varieties it is when the terminal flower head is fully open but before it starts to look tired.

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:

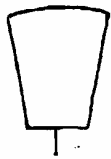
- (a) Plant, stem, stipule, petiole, leaf and bud characteristics should be observed when the terminal buds are showing full color, just before they begin to open.
- (b) Stem characteristics should be observed on the middle third of the stem.
- (c) Leaf characteristics should be observed on typical leaves taken from the middle third of the stem.
- (d) Flower head characters should be recorded on the terminal flower head.
- (e) Ray floret characteristics should be observed on the outermost row of florets, unless otherwise indicated.
- (f) The main color of the ray floret is the one which contributes most to the overall appearance of the flower head as seen from a slight distance. This means that, in the individual ray floret, the secondary color can occupy a greater area than the main color. If the inner side of the ray florets cannot be seen [as in a fully incurved variety] the main color of the inner side is the one occupying the greatest area.
- (g) These characters should be observed after the flower bud has opened, but before the disc florets begin to dehisce.

8.2 *Explanations for individual characteristics*

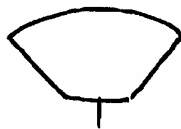
Ad. 2. Plant: natural habit

1. non bushy: varieties with strong apical dominance which naturally produce a single stem, with or without laterals, unless pinched.
2. bushy: varieties with weak apical dominance which naturally produce bushy growth with no main single stem.

Ad. 3. Bushy varieties only: plant: overall shape



1
upright



2
semi-upright



3
hemispherical

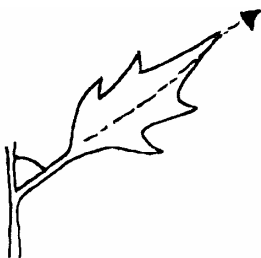


4
spreading



5
hanging

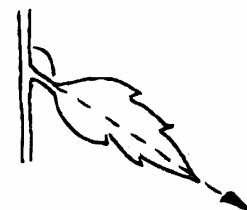
Ad. 9 Petiole: attitude



3
moderately upwards

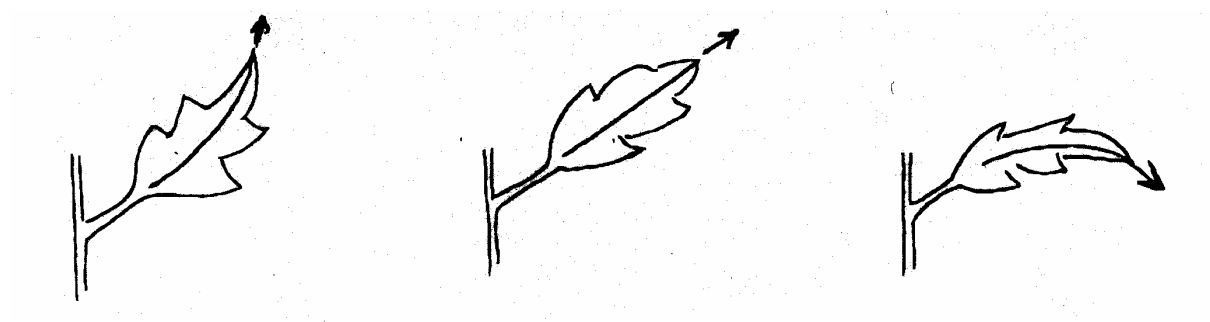


5
approximately horizontal



7
moderately downwards

Ad. 10. Leaf: longitudinal axis



3
curved upwards

5
straight

7
curved downwards

Ad. 19. Leaf: length of lowest lateral lobe relative to overall width

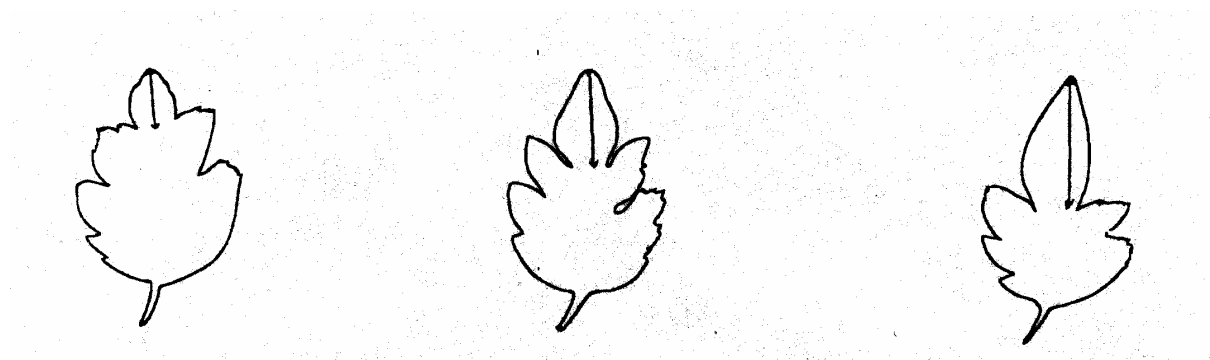


3
short

5
medium

7
long

Ad. 20 Leaf: length of terminal lobe relative to overall length

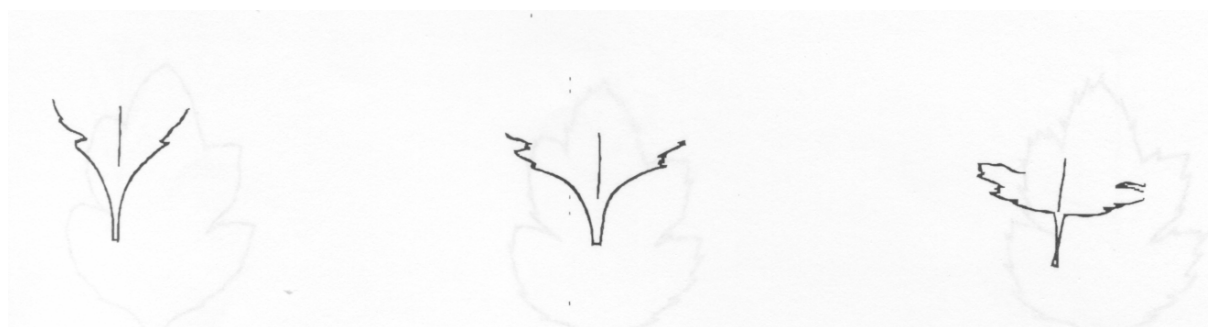


3
short

5
medium

7
long

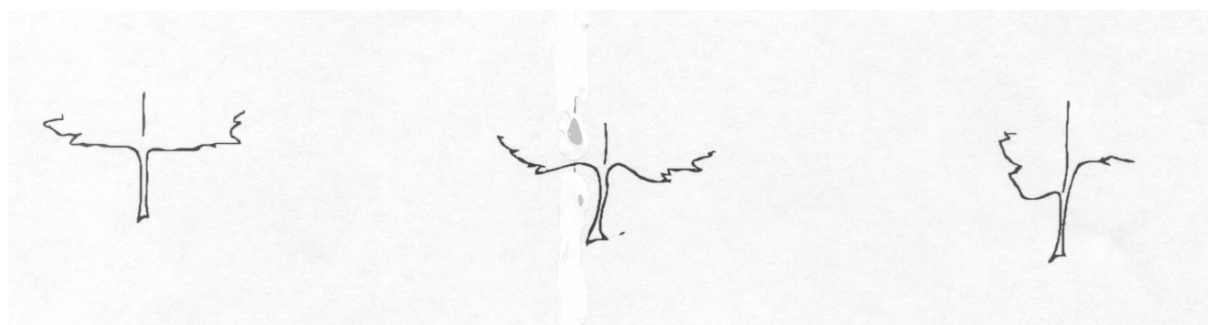
Ad. 22 Leaf: predominant shape of base



1
acute

2
obtuse

3
rounded

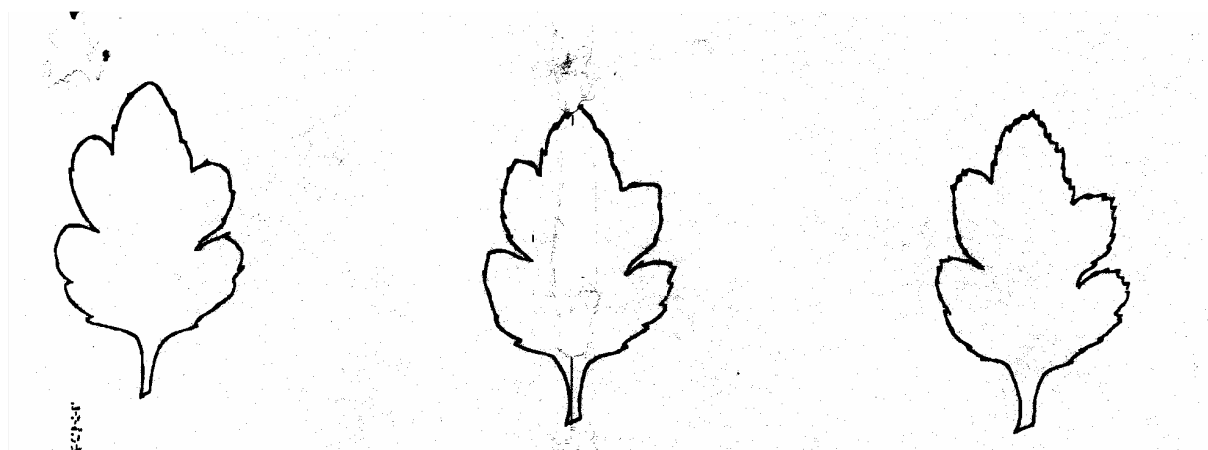


4
truncate

5
cordate

6
asymmetric

Ad. 27 Leaf margin: number of indentations

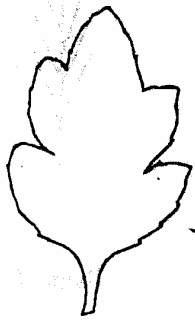


3
low

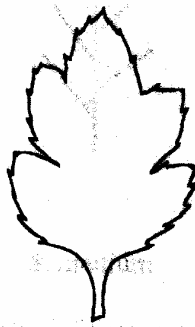
5
medium

7
high

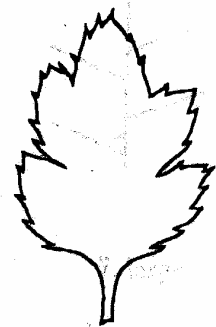
Ad. 28 Leaf margin: depth of indentations



3
shallow

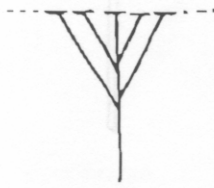


5
medium

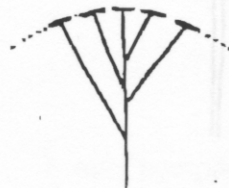


7
deep

Ad. 29 Non-bushy spray varieties only: inflorescence: form



1
flat-corymbiform



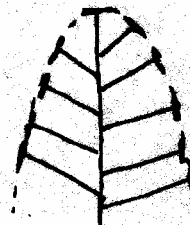
2
corymbiform



3
cylindrical

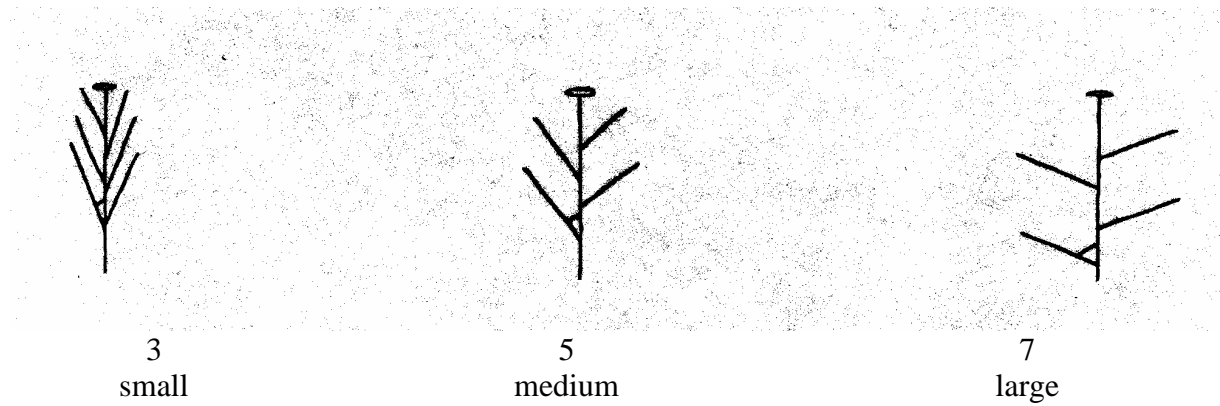


4
conical

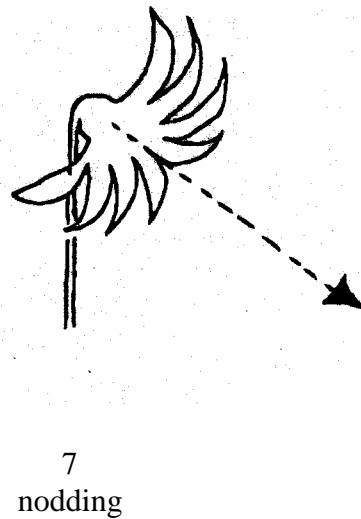
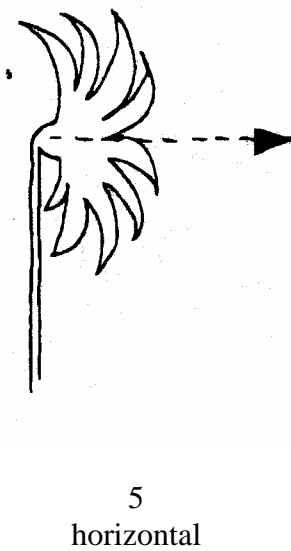
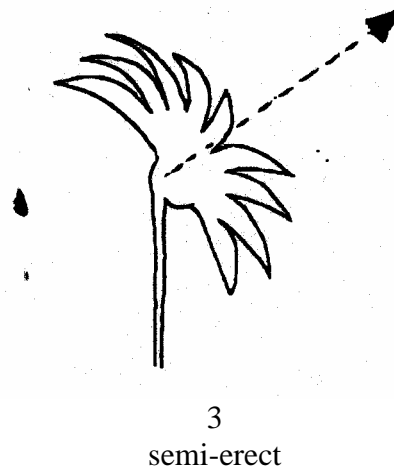
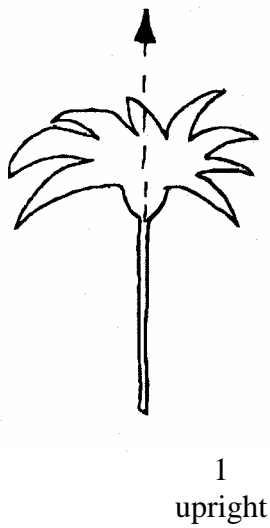


5
deeply domed

Ad. 31 Non-bushy spray varieties only: inflorescence: angle between primary lateral shoot and stem



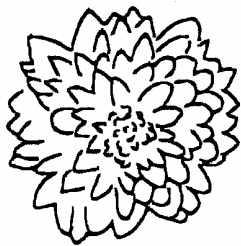
Ad. 34 Non-bushy spray varieties only: inflorescence: attitude of lateral flower heads



Ad. 38 Flower head: type

1. single: flower heads with one row of ray florets, and a clearly defined central disc which is always visible.
2. semi-double: flower heads with more than one row of ray florets, and a clearly defined central disc which is always visible.
3. daisy-eyed double: double flower heads where a disc is not visible in the early stages of flowering, but can be seen as the flower head opens fully. The disc is not always clearly defined.
4. double: double flower heads where a disc is not visible at any stage of flowering.
5. without ray florets: flower heads consist of disc florets only

Ad. 39 Double flowered varieties only: flower head: sub-type



1
decorative



2
semi pompon



3
pompon



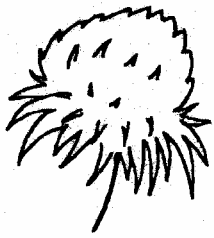
4
brush



5
tight incurve



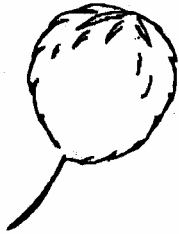
6
loose incurve



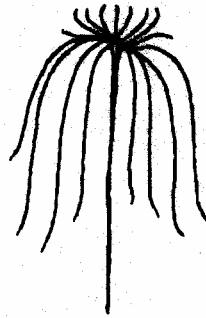
7
skirted incurve



8
reflex

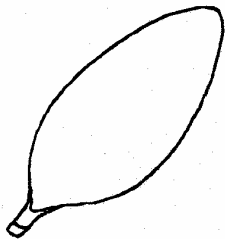


9
full reflex

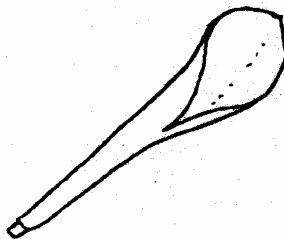


10
drooping

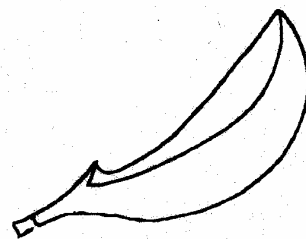
Ad. 50, 51, 52 Flower head: predominant type of ray floret



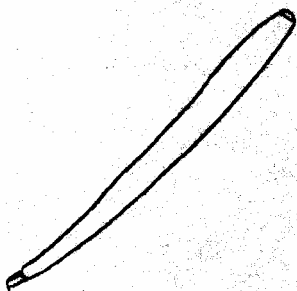
1
ligulate



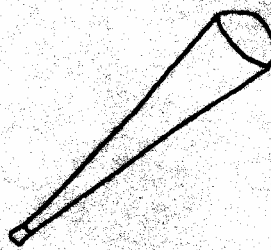
2
spatulate



3
incurve

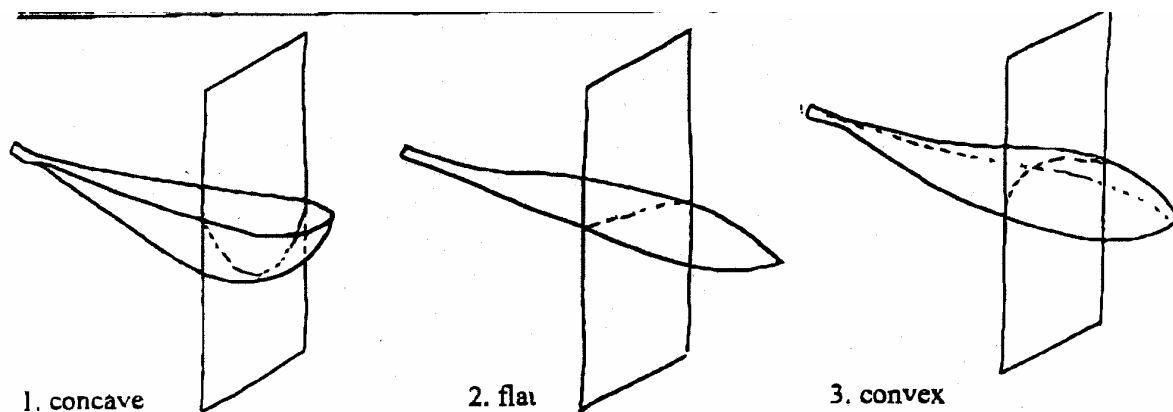


4
quilled

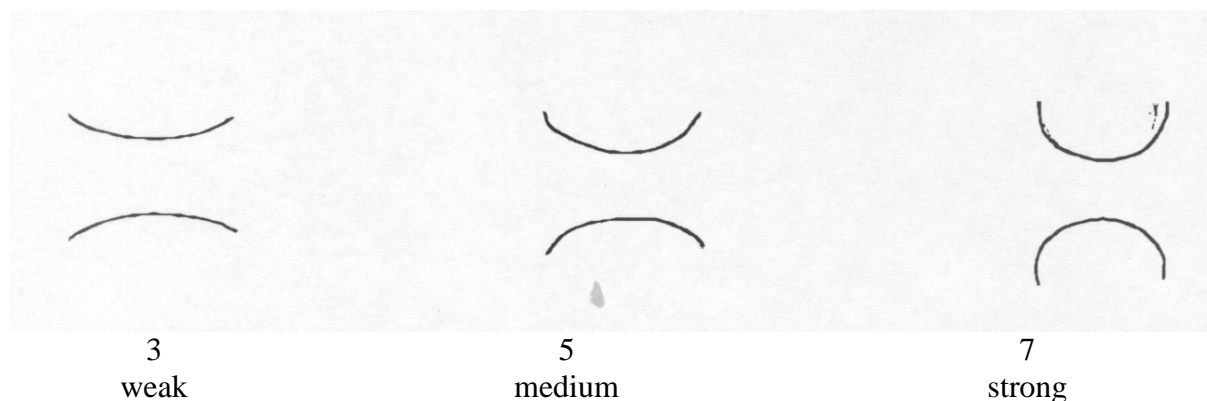


5
funnel shaped

Ad. 58 Excluding florets with long corolla tube: ray floret: profile in cross section



Ad. 59 Excluding florets with long corolla tube: non-flat ray florets only: degree of concavity or convexity



Ad. 62 Excluding florets with long corolla tube: ray floret: type of rolling of margin

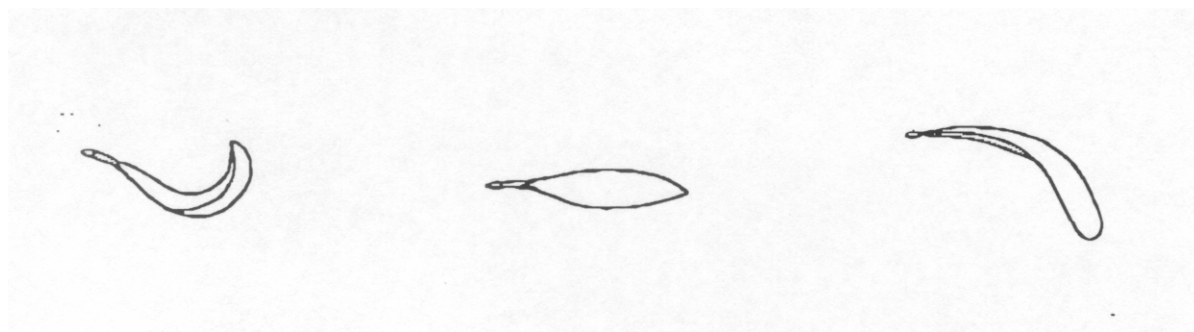


1
Involute



2
revolute

Ad. 65, 68 Ray floret: longitudinal axis



1
incurving

2
straight

3
reflexing

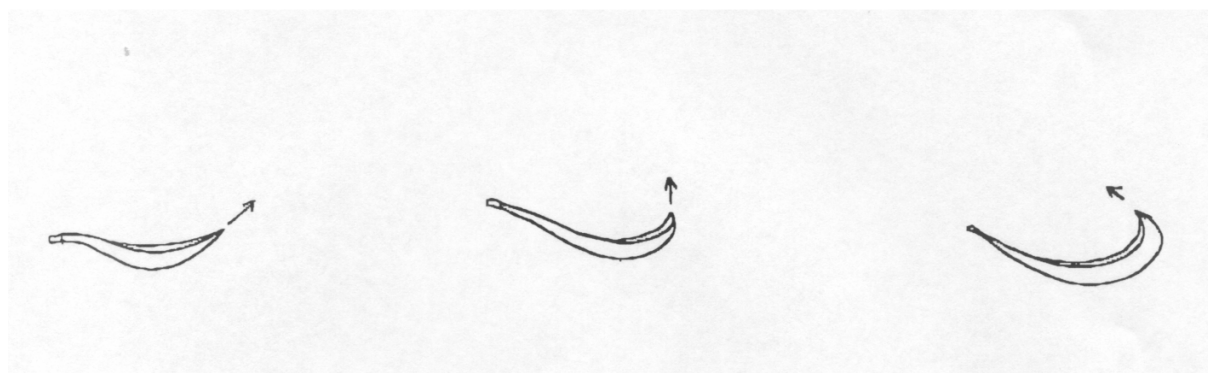


4
sinusoidal

5
twisted

6
broken

Ad. 67, 70 Excluding straight ray florets: Ray floret: longitudinal axis of majority: strength of curvature

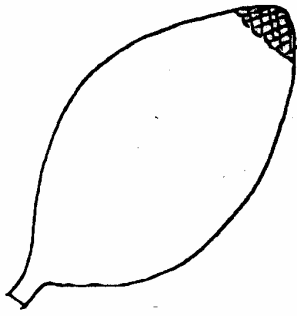


3
weak

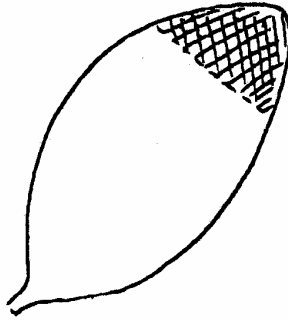
5
medium

7
strong

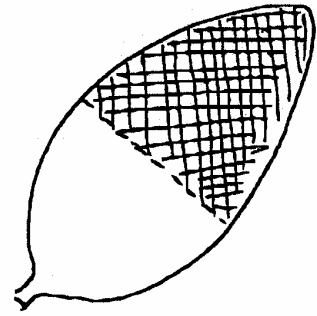
Ad. 80 Ray floret with more than one color: distribution of secondary color



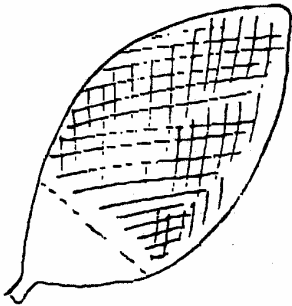
1
at tip



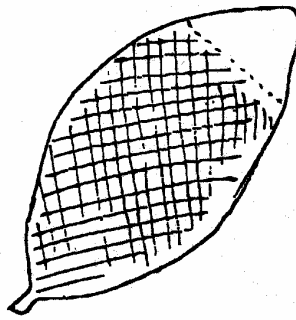
2
distal 1/4



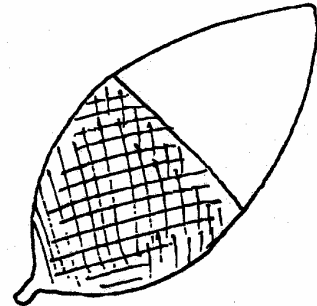
3
distal 1/2



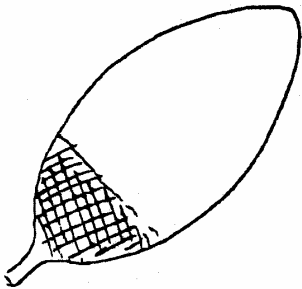
4
distal 3/4



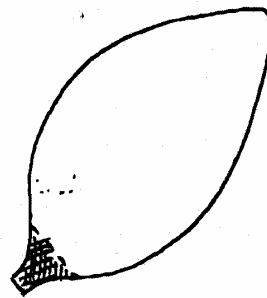
5
basal 3/4



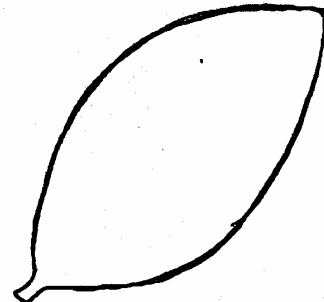
6
basal 1/2



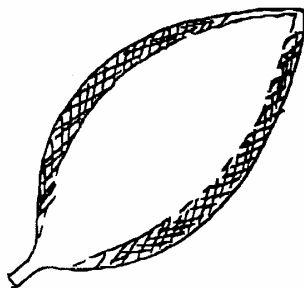
7
basal 1/4



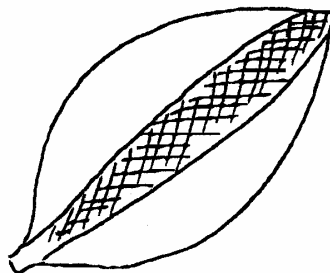
8
at base



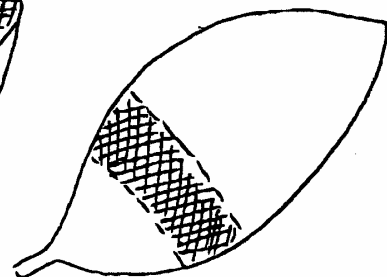
9
on margin



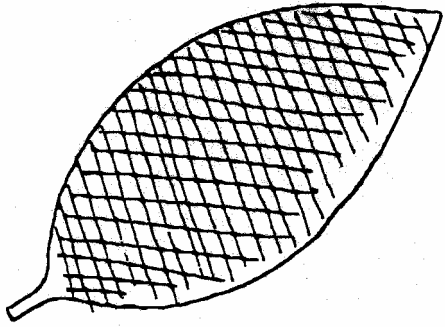
10
marginal zone



11
central lengthways zone



12
Widthways zone[band]

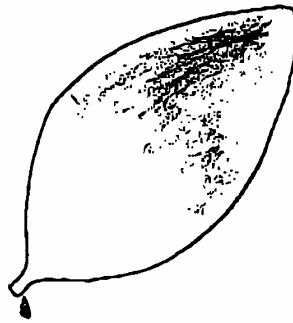


1
throughout

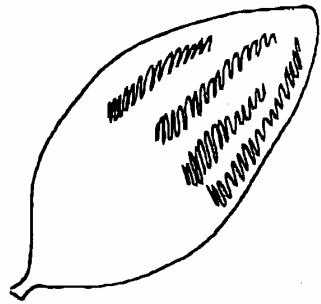
Ad. 81 Ray floret with more than one color: pattern of secondary color



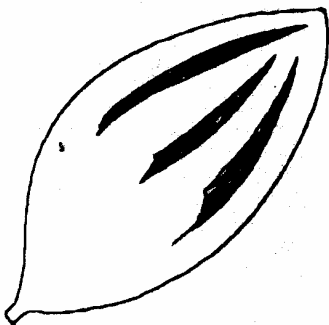
1
solid or nearly so



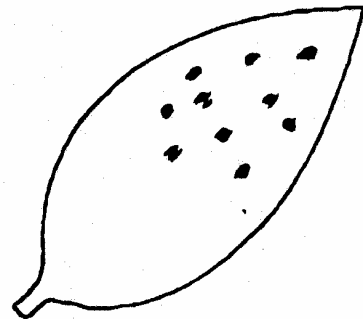
2
flushed



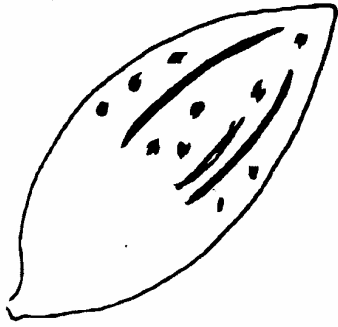
3
diffuse stripes



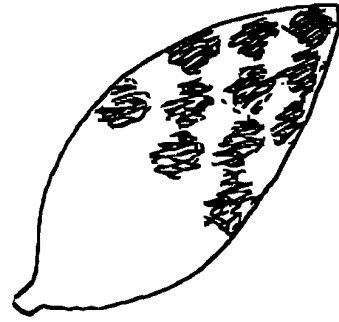
4
clearly defined stripes



5
flecked

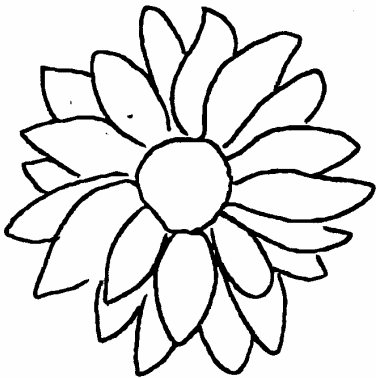


6
flecked and striped

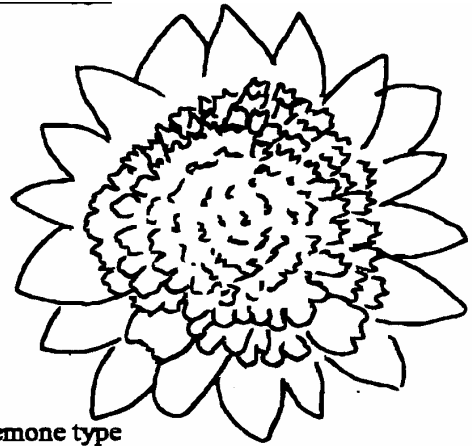


7
mottled

Ad. 91 Single, semi-double and daisy-eyed double varieties only: disc type

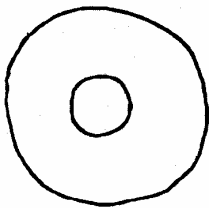


1. daisy type

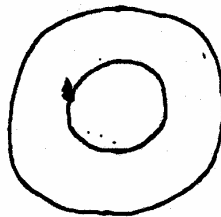


2. anemone type

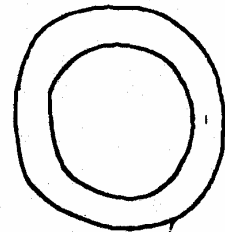
Ad. 94 Single, and semi-double varieties only: disc diameter relative to head diameter



3
small

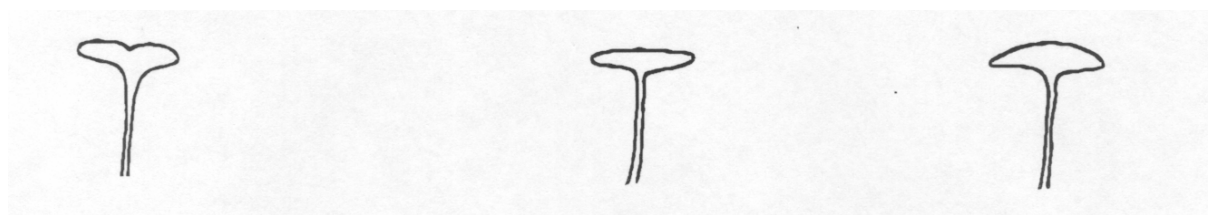


5
medium



7
large

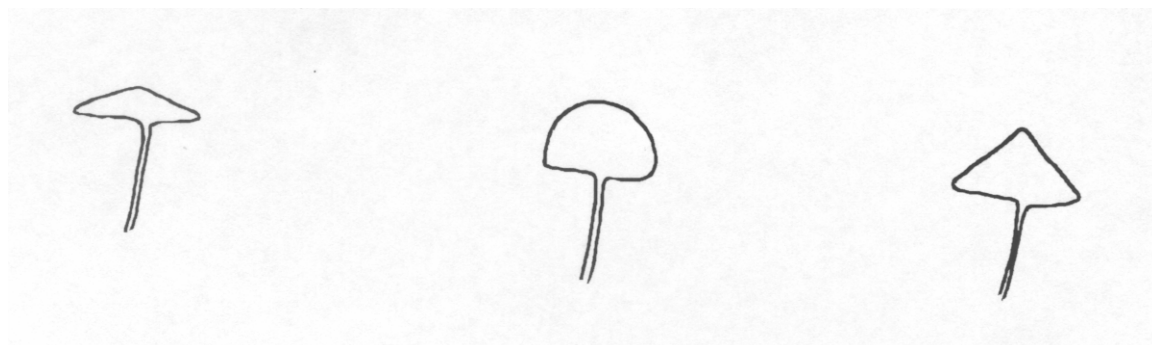
Ad. 96 Daisy type discs only: disc: profile in cross section



1
indented

2
flat

3
slightly domed

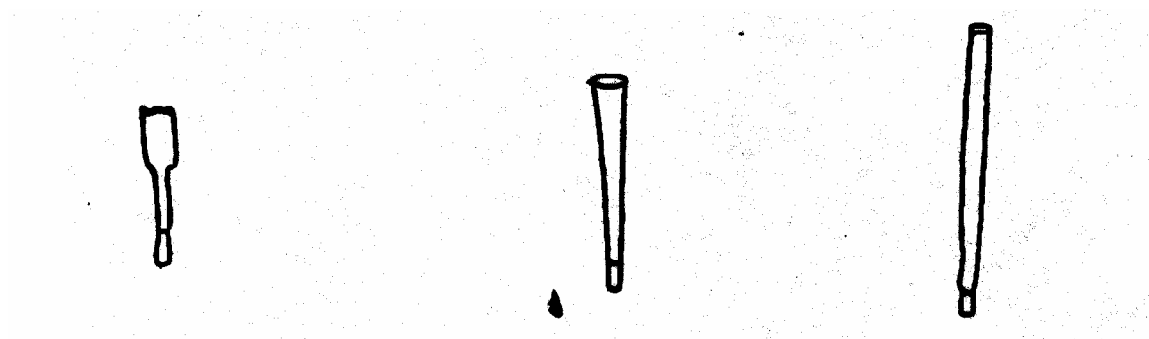


4
slightly conical

5
strongly domed

6
strongly conical

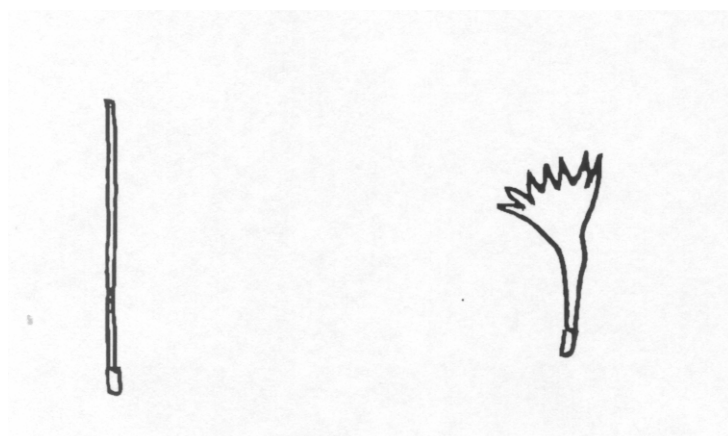
Ad. 101 Anemone type discs only: disc floret: type



1
enlarged tubular

2
funnel shaped

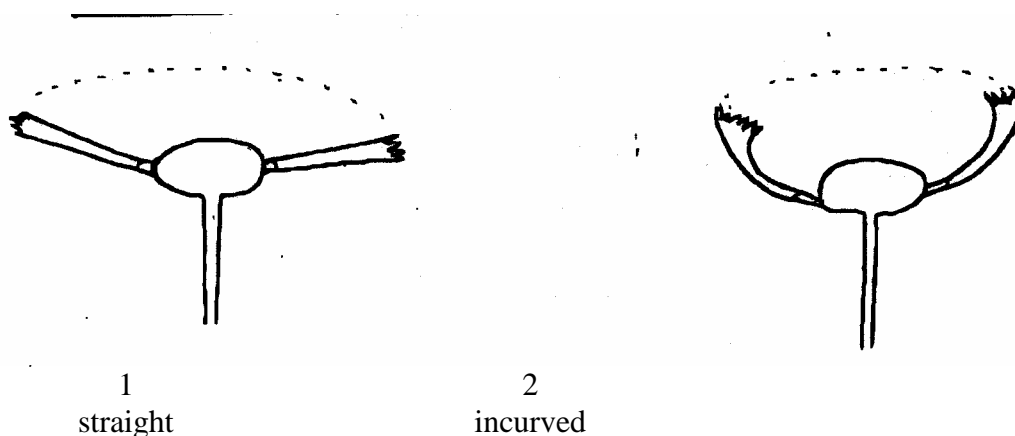
3
quilled



4
needle shaped

5
petaloid

Ad. 103 Anemone type discs only: disc floret: attitude



Ad. 105 AYR varieties only: response group

AYR varieties are those which can, in principle, be grown and flowered throughout the year by means of daylength control. They are generally grown under glass or other protection depending on the region and climate. They are not seasonally dependent, although particular varieties may be adapted better to flowering at certain times of the year.

The Response Group is defined as the number of weeks, to the nearest whole week, from the start of the short day treatment to the production of an inflorescence with at least four fully developed heads in 50% of the plants. It can only be recorded if the varieties are being grown under controlled conditions.

Ad. 106 Natural season varieties only: flowering period

Natural Season varieties are those grown and flowered under seasonal control. After establishment, they are generally grown outdoors although, depending on climate, it may be necessary to protect some types, particularly at the final pre-flowering stage.

9. Literature

Machin, Barrie, 1996: "Cut flower chrysanthemum production", Grower Books, Swanley, Kent, GB

Machin, Barrie, 1997: "Pot chrysanthemum production", Grower Books, Swanley, Kent, GB

Royal Horticultural Society, 1992: "The New RHS Dictionary of Gardening", Macmillan, London GB

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		
1.1.1 Botanical name	<input type="text" value="Chrysanthemum x grandiflorum Ramat."/>	
1.1.2 Common name	<input type="text" value="Perennial Chrysanthemum, Florists' Chrysanthemum"/>	[]
1.2.1 Botanical name	<input type="text" value="Ajania pacifica Bremer and Humphries [syn. Chrysanthemum pacificum Nakai.]"/>	
1.2.2 Common name	<input type="text" value="Ajania, Gold-and-Silver Chrysanthemum"/>	[]
2. Applicant		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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3. Proposed denomination and breeder's reference

Proposed denomination
(if available)

Breeder's reference

#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

- (a) Cuttings
- (b) Other [please state]

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:
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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: height (1)		
short		3
medium		5
tall		7
5.2 Plant: natural habit (2)		
non bushy	Reagan, Anastasia, Casmo, Boulou	1
bushy	Tripoli, Guitpolin + a garden mum	2
5.3 Flower head: type (38)		
single		1
semi-double		2
daisy-eyed double		3
double		4
without ray florets		5

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
5.4 <u>Double flowered varieties only:</u> flower head: sub-type (39)		
decorative		1
semi-pompon		2
pompon		3
brush		4
tight incurve		5
loose incurve		6
skirted incurve		7
reflex		8
full reflex		9
drooping [fountain type]		10
5.5 <u>Spray varieties only:</u> flower head: diameter (40)		
small		3
medium		5
large		7
5.6 <u>Disbud varieties only:</u> flower head: diameter (41)		
small		3
medium		5
large		7
5.7 <u>Ray floret: number of colors of the inner side</u> (78)		
one		1
two		2
more than two		3

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
5.8 Ray floret: main color of the inner side by group (82)		
white		1
off-white		2
yellow		3
bronze		4
orange		5
salmon		6
pink		7
red		8
purple		9
green		10
greyish		11
5.9 <u>Single, semi-double and daisy-eyed double varieties only:</u> disc (91) type		
daisy type		1
anemone type		2

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Ray floret: main color of the inner side</i>	<i>Orange</i>	<i>Red</i>
Comments:			

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#7. Additional information which may help in the examination of the variety

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

Yes [] No []

(If yes, please provide details)

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

Yes [] No []

(If yes, please provide details)

7.3 Use

Please fill in according to the **main** use of your variety:

i] Cultivation a) under glass or other protection []
b) outdoors []

ii] Flowering regime a) by daylength control []
[indicate response group in days.....]

b) by natural season []
[indicate season of flowering]

iii] Main use a) pot plant []
b) cut flower []
c) garden [for pots, containers or bed use] []
d) All Saints Day type []
e) exhibition type [for the show bench] []

iv] Type a) spray variety []
b) disbud variety []

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

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:
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8. Authorization for release

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

Yes [] No []

(b) Has such authorization been obtained?

Yes [] No []

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

9. Information on plant material to be examined.

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 or pesticide) | Yes [] | No [] |
| (c) Tissue culture | Yes [] | No [] |
| (d) Other factors | Yes [] | No [] |

Please provide details of where you have indicated "yes".

.....

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