



TG/177/4(proj.2) Corr.

ORIGINAL: English

DATE: 2025-03-18

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

ZANTEDESCHIA

UPOV Code(s): ZANTE

Zantedeschia Spreng.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from the Kingdom of the Netherlands**to be considered by the*

*Technical Working Party for Ornamental Plants and Forest Trees at its fifty-seventh session,
to be held in Roelofarendsveen, Kingdom of the Netherlands,
from 2025-03-31 to 2025-04-03*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Zantedeschia</i> Spreng.	Calla Lily, <i>Zantedeschia</i>	Arum, Zantédesquie	Calla, Kalla	Cala

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 *Zantedeschia* Spreng..

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 rhizomes/tubers of flowering size.

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

vegetatively propagated varieties: 20 rhizomes/tubers
seed-propagated varieties: 40 rhizomes/tubers

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

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*

3.1.1 The minimum duration of tests should normally be a single growing cycle.

3.1.2 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

3.2 *Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

3.3 *Conditions for Conducting the Examination*

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

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

3.4 *Test Design*

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

In the case of vegetatively propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observation made on all plants in the test, disregarding any off-type plants.

In the case of seed-propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 40 plants or parts taken from each of 40 plants and any other observation 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 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 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.

4.2.4 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:

- (a) Leaf blade: size of lobes (characteristic 8)
- (b) Leaf blade: number of spots (characteristic 10)
- (c) Spathe: main color of inner side (characteristic 30) with the following groups:
 - Gr. 1: white
 - Gr. 2: yellowish white
 - Gr. 3: yellow
 - Gr. 4: yellow brown
 - Gr. 5: yellow orange
 - Gr. 6: orange
 - Gr. 7: orange red
 - Gr. 8: red
 - Gr. 9: purple red
 - Gr. 10: pink
 - Gr. 11: pink red
 - Gr. 12: purple
- (d) Spathe: size of throat spot (characteristic 34)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 *States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 All relevant states of expression are presented in the characteristic.

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

6.3 *Types of Expression*

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

6.4 *Example Varieties*

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

6.5 Legend

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

- 1 Characteristic number
- 2 (*) Asterisked characteristic – see Chapter 6.1.2
- 3 Type of expression
 QL Qualitative characteristic – see Chapter 6.3
 QN Quantitative characteristic – see Chapter 6.3
 PQ Pseudo-qualitative characteristic – see Chapter 6.3
- 4 Method of observation (and type of plot, if applicable)
 MG, MS, VG, VS – see Chapter 4.1.5
- 5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
- 6 (a)-(x) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Growth stage key (if applicable) See Explanations on the Table of Characteristics in Chapter 8.3

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

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	(*)	QN	MG/MS/VG	(+)	(a)				
		Plant: height							
		very short						KONZWHITEA	1
		very short to short						Izzy Mae	2
		short						Captain Serano	3
		short to medium						Blushing Lady	4
		medium						Captain Ranomi	5
		medium to tall							6
		tall						Snowstar	7
		tall to very tall						Captain Chelsea	8
		very tall						Flamingo	9
2.		QN	MG/MS/VG		(a)				
		Plant: total number of shoots							
		very few						Outback	1
		few						Snowstar	2
		medium						Blushing Lady	3
		many						Captain Ranomi	4
		very many						Captain Serano	5
3.		PQ	VG						
		Young shoot: color							
		green						Blushing Lady	1
		yellow green						Captain Serano	2
		red purple						Captain Ranomi	3
4.		QN	VG		(b)				
		Leaf blade: attitude							
		erect						Captain Ranomi	1
		erect to horizontal						Blushing Lady	2
		horizontal							3

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	(*)	QN	MG/MS/VG	(+)	(b)				
		Leaf blade: length							
		very short						Universe	1
		very short to short						Captain Serano	2
		short						Blushing Lady	3
		short to medium						Captain Ranomi	4
		medium						Snowstar	5
		medium to long							6
		long						Sapporo	7
		long to very long						Flamingo	8
		very long							9
6.	(*)	QN	MG/MS/VG	(+)	(b)				
		Leaf blade: width							
		very narrow						KONZWHITEA	1
		very narrow to narrow							2
		narrow							3
		narrow to medium						Captain Ranomi	4
		medium						Captain Chelsea	5
		medium to broad							6
		broad						Flamingo	7
		broad to very broad							8
		very broad							9
7.	(*)	QN	MG/MS/VG	(+)	(b)				
		Leaf blade: ratio length /width							
		very low							1
		very low to low						Dream Lady	2
		low							3
		low to medium						Royal Blizz	4
		medium						Captain Ranomi	5
		medium to high						Royal Dutch	6
		high							7
		high to very high							8
		very high							9

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8.	(*)	QN	MG/MS/VG	(+)	(b)				
		Leaf blade: size of lobes							
		absent or very small					KONZWHITEA	1	
		small					Universe	2	
		medium						3	
		large					Flamingo	4	
		very large						5	
9.	(*)	PQ	VG	(+)	(b)				
		Leaf blade: angle of apex							
		acute					Captain Redwood	1	
		acute to obtuse					Karetta	2	
		obtuse						3	
10.	(*)	QN	MG/VG	(+)	(b)				
		Leaf blade: number of spots							
		absent or very few					Izzy Mae	1	
		very few to few					Dream Lady	2	
		few					Captain Serano	3	
		few to medium					Outback	4	
		medium					KONZWHITEA	5	
		medium to many					Captain Chelsea	6	
		many					Captain Nevado	7	
		many to very many					Royal Blizz	8	
		very many						9	
11.	(*)	QN	MG/VG	(+)	(b)				
		Leaf blade: size of spots							
		very small						1	
		very small to small					Paco	2	
		small					Dream Lady	3	
		small to medium					Outback	4	
		medium					Universe	5	
		medium to large					Captain Tango	6	
		large					Captain Ranomi	7	
		large to very large						8	
		very large						9	

		English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo		Note/ Nota	
12.	(*)	QN	VG		(b)								
		Leaf blade: intensity of green color											
		very light										1	
		light								Dream Lady		2	
		medium								Captain Tango		3	
		dark								Royal Blizz		4	
		very dark										5	
13.	(*)	PQ	VG	(+)	(b)								
		Leaf blade: secondary color											
		none										1	
		yellow										2	
		red										3	
		red purple								Dozanpinha		4	
		purple								Karetta		5	
14.	(*)	PQ	VG	(+)	(b)								
		Leaf blade: distribution of secondary color											
		none								Royal Blizz		1	
		on margin								Dozanpinha		2	
		marginal zone										3	
		Throughout								Karetta		4	
15.		QN	VG		(b)								
		Leaf blade: undulation of margin											
		absent or very weak										1	
		weak								Luxury		2	
		medium								Captain Redwood		3	
		strong								Dozanpinha		4	
		very strong										5	

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16.	(*)	QN	MG/MS/VG	(+)	(b)				
		Petiole: length							
		very short						Universe	1
		short						Captain Chelsea	2
		medium		courte		kurz	corta	Paco	3
		long						Royal Blizz	4
		very long		moyenne		mittel	media	Royal Dutch	5
17.	(*)	PQ	VG		(b)				
		Petiole: color of basal third							
		light green						Dozanwhumba	1
		medium green						KONZWHITEA	2
		dark green						Royal Dutch	3
		yellow green							4
		brown red						Izzy Mae	5
		purple						Captain Tango	6
18.		QN	MG/MS/VG		(c)				
		Peduncle: length							
		very short							1
		very short to short						Universe	2
		short						Snowstar	3
		short to medium						Captain Tango	4
		medium						Paco	5
		medium to long						Izzy Mae	6
		long							7
		long to very long						Royal Blizz	8
		very long						Flamingo	9
19.		QN	MG/MS/VG		(c)				
		Peduncle: thickness							
		very thin						Paco	1
		thin						Dozanwhumba	2
		medium						Captain Ranomi	3
		thick						Captain Tango	4
		very thick						Royal Blizz	5

		English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo		Note/ Nota	
20.		QN	VG		(c)								
		Peduncle: anthocyanin coloration											
		absent or very weak								Royal Blizz		1	
		weak								Captain Redwood		2	
		medium								Captain Chelsea		3	
		strong								Dozanpinha		4	
		very strong								Starry Night		5	
21.	(*)	QN	VG		(c)								
		Inflorescence: position in relation to foliage											
		slightly above								Captain Serano		1	
		strongly above								Flamingo		2	
22.	(*)	QN	MG/MS/VG	(+)	(c)								
		Spathe: length in side view											
		very short										1	
		very short to short										2	
		short								Dream Lady		3	
		short to medium								Captain Tango		4	
		medium								Dozanpinha		5	
		medium to long								Captain Chelsea		6	
		long										7	
		long to very long								Flamingo		8	
		very long										9	
23.	(*)	QN	MG/MS/VG	(+)	(c)								
		Spathe: length of overlapping part											
		absent or very short										1	
		very short to short										2	
		short								Flamingo		3	
		short to medium										4	
		medium								Captain Ranomi		5	
		medium to long										6	
		long								Captain Chelsea		7	
		long to very long								Outback		8	
		very long										9	

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24.	(*)	QN	MG/MS/VG	(+)	(c)				
		Spathe: length							
		very short							1
		very short to short						Royal Blizz	2
		short						Dozanwhumba	3
		short to medium						Captain Redwood	4
		medium						Captain Linda	5
		medium to long						Sapporo	6
		long							7
		long to very long						Flamingo	8
		very long							9
25.	(*)	QN	MG/MS/VG	(+)	(c)				
		Spathe: width							
		very narrow							1
		very narrow to narrow							2
		narrow							3
		narrow to medium						Captain Tango	4
		medium						Captain Redwood	5
		medium to broad							6
		broad							7
		broad to very broad						Flamingo	8
		very broad							9
26.		PQ	VG	(+)	(c)				
		Spathe: natural shape of distal part							
		acute						Captain Lorenzo	1
		obtuse							2
		round						Novi Sun	3
27.	(*)	QN	VG	(+)	(c)				
		Spathe: undulation of margin							
		absent or very weak						Captain Tango	1
		weak						Outback	2
		medium						Captain Redwood	3
		strong							4
		very strong							5

		English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo		Note/ Nota	
28.	(*)	QN	VG	(+)	(c)								
		Spathe: recurving of margin											
		absent or very weak								Luxury		1	
		weak								Royal Blizz		2	
		medium								Dozanwhumba		3	
		strong								Dream Lady		4	
		very strong										5	
29.	(*)	QN	VG	(+)	(c)								
		Spathe: recurving of tip											
		absent or very weak								Dozanwhumba		1	
		weak										2	
		medium								Royal Blizz		3	
		strong								Captain Tango		4	
		very strong								Captain Ranomi		5	
30.		PQ	VG		(c), (d)								
		Spathe: main color of inner side											
		RHS Colour Chart (indicate reference number)											
31.		PQ	VG	(+)	(c), (d)								
		Spathe: secondary color of inner side											
		RHS Colour Chart (indicate reference number)											
32.		PQ	VG	(+)	(c), (d)								
		Spathe: distribution of secondary color of inner side											
		none								Captain Tango		1	
		basal zone										2	
		central zone								Dozanwhumba		3	
		apex										4	
		marginal zone								Captain Ranomi		5	
		throughout								Royal Dutch		6	

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33.	PQ	VG	(+)	(c), (d)				
	Spathe: pattern of secondary color of inner side							
	solid							1
	flushed					Royal Dutch		2
	striped							3
	speckled							4
34.	QN	MG/MS/VG		(c)				
	Spathe: size of throat spot							
	absent or very small					Captain Tango		1
	small					Royal Blizz		2
	medium					Dozanpinha		3
	large					Captain Lorenzo		4
	very large					Captain Miro		5
35.	PQ	VG		(c)				
	Spathe: color of throat spot							
	RHS Colour Chart (indicate reference number)							
36.	PQ	VG		(c), (d)				
	Spathe: main color of outer side							
	RHS Colour Chart (indicate reference number)							
37.	QN	MG/MS/VG	(+)	(c)				
	Spadix: thickness							
	very thin							1
	thin					Konartorange		2
	medium					Captain Lorenzo		3
	thick					Dozanpinha		4
	very thick					Universe		5

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
38.	(*)	QN	MG/MS/VG	(+)	(c)				
		Spadix: length							
		very short						KONZWHITEA	1
		very short to short						Captain Redwood	2
		short						Royal Dutch	3
		short to medium						Dozanwhumba	4
		medium						Captain Ranomi	5
		medium to long							6
		long							7
		long to very long						Flamingo	8
		very long							9
39.		PQ	VG		(c)				
		Spadix: main color							
		white							1
		yellow green							2
		light yellow						Dream Lady	3
		medium yellow						Dozanwhumba	4
		yellow orange						Captain Tango	5
		orange brown							6
		orange red							7
		pink							8
		purple red						Dozantoky	9
		purple						Starry Night	10
40.		PQ	VG	(+)	(e)				
		Spathe: main color on aging							
		RHS Colour Chart (indicate reference number)							

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

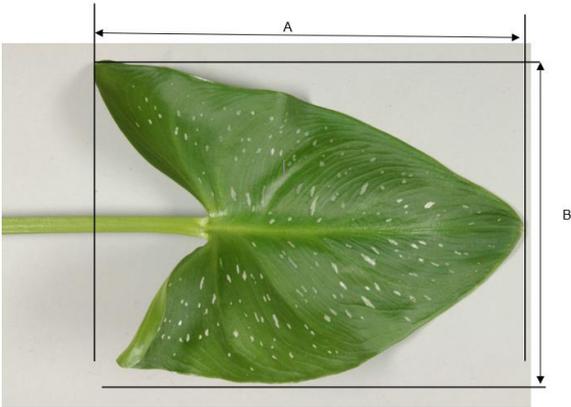
- (a) Observations should be made at the time of full flowering.
- (b) Observations should be made on full-grown leaves.
- (c) Observations should be made on fully ripe flowers when pollen starts to become loose.
- (d) The main color is the color with the largest surface area, the secondary color is the color with the second largest surface area, and the tertiary color is the color with the third largest surface area. In cases where the area of the main and secondary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the main color. In cases where the area of the secondary and tertiary color are too similar to reliably decide which color has the second largest area, the darker color is considered to be the secondary color.
- (e) Observations should be made after three to four weeks after the pollen has become loose.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: height



Ad. 5: Leaf blade: length

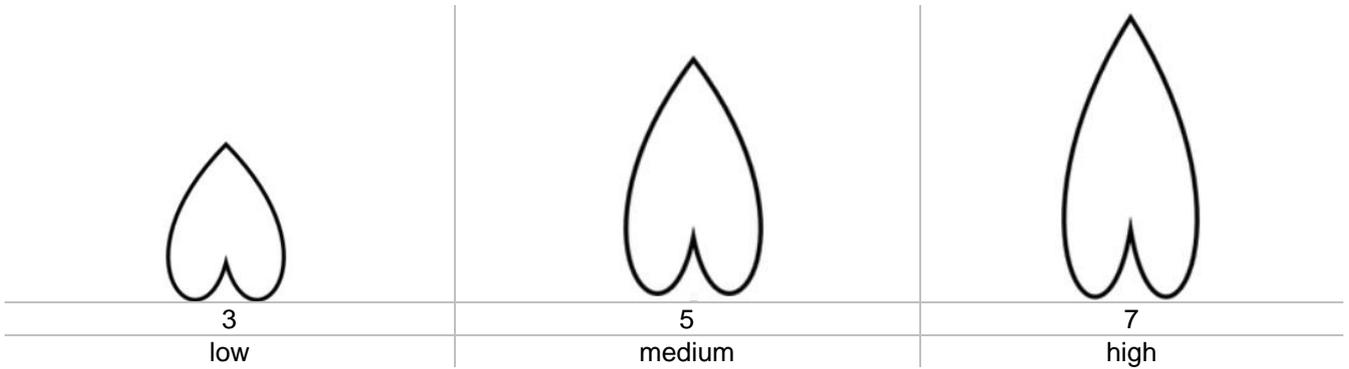


A = Leaf blade: length
B = Leaf blade: width

Ad. 6: Leaf blade: width

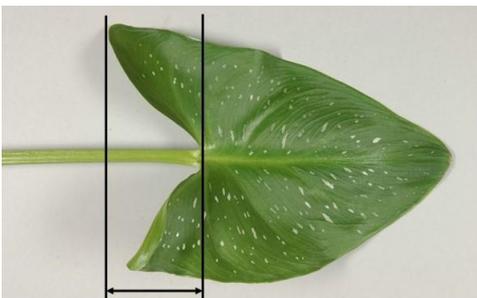
See ad Leaf blade: length

Ad. 7: Leaf blade: ratio length /width



Ad. 8: Leaf blade: size of lobes

Observations should be made relative to the full size of the leaf blade.



Ad. 9: Leaf blade: angle of apex



1
acute



2
acute to obtuse



3
obtuse

Ad. 10: Leaf blade: number of spots



1
absent or very few



3
few



5
medium



7
many

Ad. 11: Leaf blade: size of spots

Observation should be made relative to the full size of the leaf blade.

Ad. 13: Leaf blade: secondary color

Observation should be made exclusive the leafspots

Ad. 14: Leaf blade: distribution of secondary color



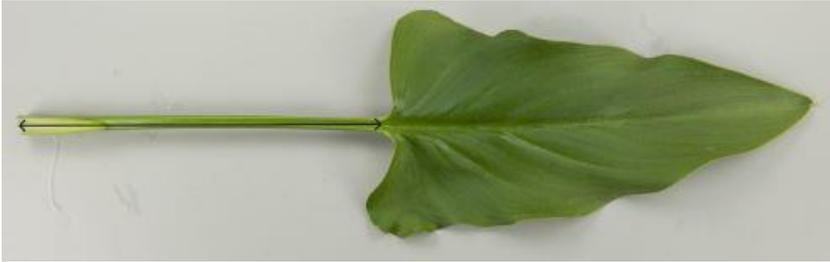
2
on margin



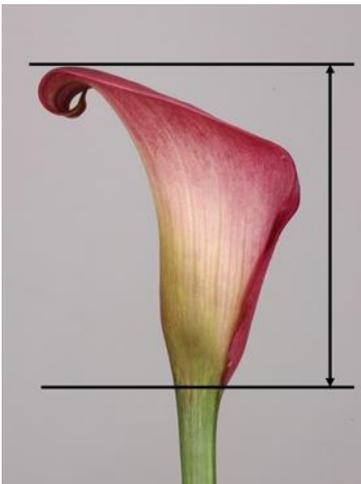
4
throughout

Ad. 16: Petiole: length

Observations should be made including leaf sheath.

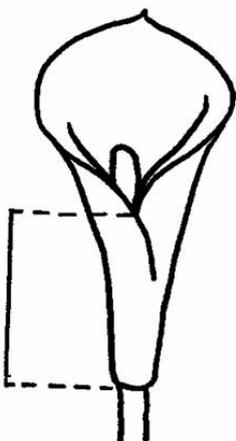


Ad. 22: Spathe: length in side view



Ad. 23: Spathe: length of overlapping part

Observations should be made relative to the full size of the spathe.



Ad. 24: Spathe: length

Observations should be made from above.



Ad. 25: Spathe: width

Observations should be made from above.



Ad. 26: Spathe: natural shape of distal part

Observation should be made excluding caudate tip.



1
acute



3
round

Ad. 27: Spathe: undulation of margin

photo will follow

Ad. 28: Spathe: recurving of margin



2
weak



4
strong

Ad. 29: Spathe: recurving of tip



1
absent or very weak



3
medium



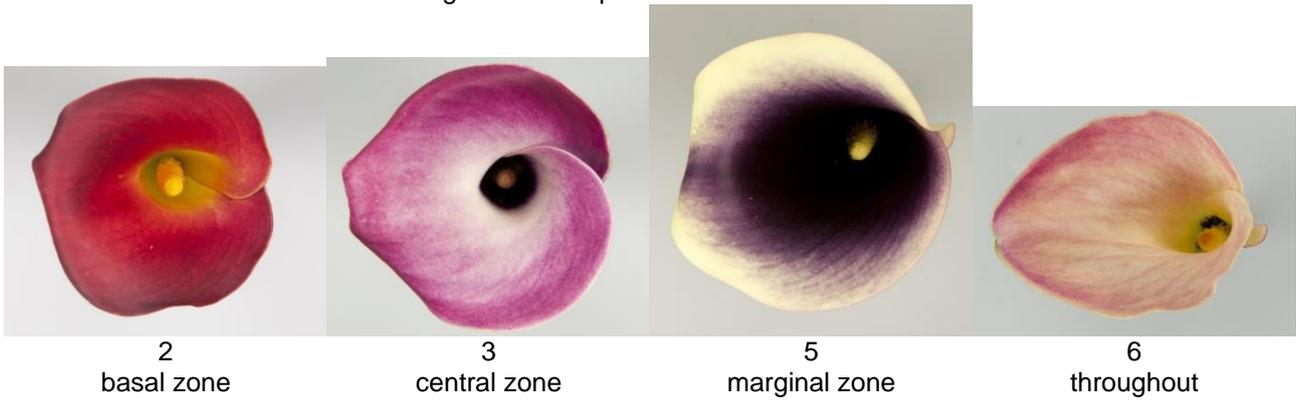
5
very strong

Ad. 31: Spathe: secondary color of inner side

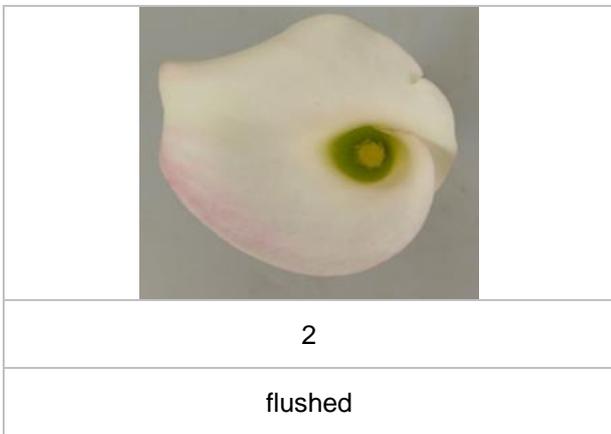
Observations should be made excluding the throat spot.

Ad. 32: Spathe: distribution of secondary color of inner side

Observations should be made excluding the throat spot.



Ad. 33: Spathe: pattern of secondary color of inner side



Ad. 37: Spadix: thickness

Observations should be made at the middle of male part.



Ad. 38: Spadix: length

Observation should be made on the male part.



Ad. 40: Spathe: main color on aging

Observations should be made three to four weeks after the pollen has become loose.

9. Literature

Batten, Auriol, 1988: "Flowers of Southern Africa", Southern Book Publishers (Pty) Ltd., Johannesburg, 3pp.

Letty, Cythna, 1973: "The Genus Zantedeschia", Bothalia 11, 1 & 2, pp 5 - 26

Singh, Y.; Van Wyk, A.E.; Baijnath, H., 1996: "Taxonomic notes on the genus Zantedeschia Spreng. (Araceae) in Southern Africa", S. Afr. J. Bot. 62(6), pp 321-324..

Still, S.M., 1980: "Manual of Herbaceous Ornamental Plants", STIPES Publishing Company, Illinois, pp 716-717

Tija, B.O., 1989: Zantedeschia in Handbook of Flowering (Halevy, A.H. ed.) Volume VI, CRC Press, Boca Raton, pp 697-702

Knippes, P, 2019, De teelt en broei van Zantedeschia

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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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

1.1.2 Common name

1.1.3 Species:

2. Applicant

Name

Address

Telephone No.

Fax No.

E-mail address

Breeder (if different from applicant)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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3. Proposed denomination and breeder's reference	
Proposed denomination (if available)	<input type="text"/>
Breeder's reference	<input type="text"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#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 variety)

(.....) x (.....)

female parent male parent

(b) partially known cross []

(please state 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)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

- (a) Self-pollination
- (b) Cross-pollination
- (c) Hybrid
- (d) Inbred line
- (e) Other (please provide details)

4.2.2 Vegetative propagation

- (a) Tuber
- (b) In vitro propagation
- (c) Division
- (d) Rhizomes
- (e) Other (state method)

4.2.3 Other
(Please provide details)

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 (8) Leaf blade: size of lobes		
absent or very small	KONZWHITEA	1 []
small	Universe	2 []
medium		3 []
large	Flamingo	4 []
very large		5 []
5.2 (10) Leaf blade: number of spots		
absent or very few	Izzy Mae	1 []
very few to few	Dream Lady	2 []
few	Captain Serano	3 []
few to medium	Outback	4 []
medium	KONZWHITEA	5 []
medium to many	Captain Chelsea	6 []
many	Captain Nevado	7 []
many to very many	Royal Blizz	8 []
very many		9 []
5.3 (24) Spathe: length		
very short		1 []
very short to short	Royal Blizz	2 []
short	Dozanwhumba	3 []
short to medium	Captain Redwood	4 []
medium	Captain Linda	5 []
medium to long	Sapporo	6 []
long		7 []
long to very long	Flamingo	8 []
very long		9 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.4 (25)	Spathe: width		
	very narrow		1 []
	very narrow to narrow		2 []
	narrow		3 []
	narrow to medium	Captain Tango	4 []
	medium	Captain Redwood	5 []
	medium to broad		6 []
	broad		7 []
	broad to very broad	Flamingo	8 []
	very broad		9 []
5.5 (i) (30)	Spathe: main color of inner side		
	RHS Colour Chart (indicate reference number)		
5.5 (ii) (30)	Spathe: main color of inner side		
	white		1 []
	yellowish white		2 []
	yellow		3 []
	yellow brown		4 []
	yellow orange		5 []
	orange		6 []
	orange red		7 []
	red		8 []
	purple red		9 []
	pink		10 []
	red pink		11 []
	purple		12 []
	other (please indicate)		13 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.6 (34)	Spathe: size of throat spot		
	absent or very small	Captain Tango	1 []
	small	Royal Blizz	2 []
	medium	Dozanpinha	3 []
	large	Captain Lorenzo	4 []
	very large	Captain Miro	5 []

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>Leaf blade: number of spots</i>	<i>few</i>	<i>many</i>

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<p>Comments</p>

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 Other information

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

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

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

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

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

- Resistance to pests and diseases

- Special conditions for the examination of the variety

(a) conditions for planting

- to be covered completely with soil

- to be partly uncovered

(b) other conditions

- Use of the variety

(a) garden

(b) cut flower

(c) pot plant

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 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]