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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

LEUCANTHEMUM

UPOV Code(s): LEUCA

Leucanthemum Mill.*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Leucanthemum Mill.	Leucanthemum	Marguerite	Margerite	Margarita

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 *Leucanthemum* Mill.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of vegetatively propagated young plants.

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

10 plants

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

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 10 plants.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 9 plants or parts of plants taken from each of 9 plants and any other observations made on all plants in the test, disregarding any off-type plants.

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 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 10 plants, 1 off-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) Plant: height (characteristic 1)
(b) Flower head: type (characteristic 12)
(c) Only varieties with flower head: type: single or semi-double: Flower head: disc type (characteristic 13)
(d) Ray floret: type (characteristic 20)
(e) Ray floret: color (characteristic 24) with the following groups:
Gr. 1: white
Gr. 2: light yellow
Gr. 3: medium yellow

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)-(c) See Explanations on the Table of Characteristics in Chapter 8.1

7 Not applicable

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	**(*)**	**QN** **MG/MS/VG**	**(+)**				
		Plant: height	**Plante : hauteur**	**Pflanze: Höhe**	**Planta: altura**		
		very short	très basse	sehr niedrig	muy baja		1
		very short to short	très basse à basse	sehr niedrig bis niedrig	muy baja a baja	Luna	2
		short	basse	niedrig	baja	Sunrimaiapy	3
		short to medium	basse à moyenne	niedrig bis mittel	baja a media		4
		medium	moyenne	mittel	media	REGLO	5
		medium to tall	moyenne à haute	mittel bis hoch	media a alta		6
		tall	haute	hoch	alta	Becky	7
		tall to very tall	haute à très haute	hoch bis sehr hoch	alta a muy alta		8
		very tall	très haute	sehr hoch	muy alta		9
2.		**QN** **VG**	**(+)**				
		Plant: density	**Plante : densité**	**Pflanze: Dichte**	**Planta: densidad**		
		very sparse	très lâche	sehr locker	muy laxa		1
		sparse	lâche	locker	laxa	REGLO	2
		medium	moyenne	mittel	media	Real Sunbeam	3
		dense	dense	dicht	densa	LEUZ0001	4
		very dense	très dense	sehr dicht	muy densa		5
3.		**QN** **VG**	**(+)**				
		Stem: pubescence	**Tige : pilosité**	**Stängel: Behaarung**	**Tallo: pubescencia**		
		absent or very sparse	absente ou très lâche	fehlend oder sehr locker	ausente o muy laxa	Lacrosse	1
		sparse	lâche	locker	laxa	Seiryu	2
		medium	moyenne	mittel	media		3
		dense	dense	dicht	densa	Ginga	4
		very dense	très dense	sehr dicht	muy densa	LEUZ0001	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4.	**QN MG/MS/VG**	**(a)**				
	Leaf: length	**Feuille : longueur**	**Blatt: Länge**	**Hoja: longitud**		
	very short	très courte	sehr kurz	muy corta		1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short	courte	kurz	corta		3
	short to medium	courte à moyenne	kurz bis mittel	corta a media	Angel, Macaroon	4
	medium	moyenne	mittel	media		5
	medium to long	moyenne à longue	mittel bis lang	media a larga	Luna	6
	long	longue	lang	larga		7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga		8
	very long	très longue	sehr lang	muy larga	Goldfinch, Real Galaxy	9
5.	**QN MG/MS/VG**	**(a)**				
	Leaf: width	**Feuille : largeur**	**Blatt: Breite**	**Hoja: anchura**		
	very narrow	très étroite	sehr schmal	muy estrecha	Angel	1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha	Macaroon	2
	narrow	étroite	schmal	estrecha		3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media	Goldfinch, Luna	4
	medium	moyenne	mittel	media		5
	medium to broad	moyenne à large	mittel bis breit	media a ancha	Real Galaxy	6
	broad	large	breit	ancha		7
	broad to very broad	large à très large	breit bis sehr breit	ancha a muy ancha		8
	very broad	très large	sehr breit	muy ancha		9
6. (*)	**QN MG/MS/VG**	**(a)**				
	Leaf: length/width ratio	**Feuille : rapport longueur/largeur**	**Blatt: Verhältnis Länge/Breite**	**Hoja: relación longitud/anchura**		
	very low	très bas	sehr klein	muy baja		1
	very low to low	très bas à bas	sehr klein bis klein	muy baja a baja		2
	low	bas	klein	baja		3
	low to medium	bas à moyen	klein bis mittel	baja a media	Macaroon	4
	medium	moyen	mittel	media	Luna, Real Galaxy	5
	medium to high	moyen à élevé	mittel bis groß	media a alta		6
	high	élevé	groß	alta	Angel	7
	high to very high	élevé à très élevé	groß bis sehr groß	alta a muy alta		8
	very high	très élevé	sehr groß	muy alta	Goldfinch	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7.	**QN** **VG**	**(a)**				
	Leaf: intensity of green color	**Feuille : intensité de la couleur verte**	**Blatt: Intensität der Grünfärbung**	**Hoja: intensidad del color verde**		
	light	claire	hell	clara	Luna	1
	medium	moyenne	mittel	media	Real Sunbeam	2
	dark	foncée	dunkel	oscura	LEUZ0003	3
8.	**QN** **VG**	**(+)** **(a)**				
	Leaf: number of indentations of margin	**Feuille : nombre de denticulations du bord**	**Blatt: Anzahl Randeinschnitte**	**Hoja: número de incisiones del borde**		
	very few	très petit	sehr gering	muy bajo		1
	few	petit	gering	bajo	Luna	2
	medium	moyen	mittel	medio	REGLO	3
	many	élevé	hoch	alto	Macaroon, Sunrimaiapy	4
	very many	très élevé	sehr hoch	muy alto	Real Sunbeam	5
9.	**QN** **VG**	**(+)** **(a)**				
	Leaf: depth of indentations of margin	**Feuille : profondeur des denticulations du bord**	**Blatt: Tiefe der Randeinschnitte**	**Hoja: profundidad de las incisiones del borde**		
	very shallow	très peu profonde	sehr flach	muy poco profunda	Luna	1
	shallow	peu profonde	flach	poco profunda		2
	medium	moyenne	mittel	media	Macaroon, Real Sunbeam	3
	deep	profonde	tief	profunda	Sunrimaiapy	4
	very deep	très profonde	sehr tief	muy profunda	REGLO	5
10.	**QN** **MG/MS/VG**	**(+)**				
	Peduncle: length	**Pédoncule : longueur**	**Blütenstandsstiel: Länge**	**Pedúnculo: longitud**		
	very short	très courte	sehr kurz	muy corta		1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short	courte	kurz	corta	LEUZ0003	3
	short to medium	courte à moyenne	kurz bis mittel	corta a media		4
	medium	moyenne	mittel	media	Real Dream	5
	medium to long	moyenne à longue	mittel bis lang	media a larga		6
	long	longue	lang	larga	Osiris Neige	7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga		8
	very long	très longue	sehr lang	muy larga		9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11. (*)	**PQ VG**	**(+)**				
	Flower bud: color	**Bouton floral : couleur**	**Blütenknospe: Farbe**	**Botón floral: color**		
	RHS colour chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
12. (*)	**PQ VG**	**(+) (b)**				
	Flower head: type	**Capitule : type**	**Blütenstand: Typ**	**Capítulo: tipo**		
	single	simple	einfach	sencillo	Angel	1
	semi-double	semi-double	halbgefüllt	semidoble	Real Sunbeam, REGLO	2
	double	double	gefüllt	doble	Luna	3
13. (*)	**QL VG**	**(+) (b)**				
	<u>Only varieties with flower head: type: single or semi-double:</u> Flower head: disc type	**<u>Seulement les variétés avec capitule : type : simple ou semi-double :</u> Capitule : type de disque**	**<u>Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt:</u> Blütenstand: Scheibentyp**	**<u>Sólo variedades con capítulo: tipo: sencillo o semidoble:</u> Capítulo: tipo de disco**		
	daisy	marguerite	margeritenförmig	margarita	Real Sunbeam	1
	anemone	anémone	anemonenförmig	anémona	REGLO	2
14. (*)	**QN MG/MS/VG**	**(+) (b)**				
	Flower head: diameter	**Capitule : diamètre**	**Blütenstand: Durchmesser**	**Capítulo: diámetro**		
	very small	très petit	sehr klein	muy pequeño		1
	very small to small	très petit à petit	sehr klein bis klein	muy pequeño a pequeño		2
	small	petit	klein	pequeño	Little Miss Muffet	3
	small to medium	petit à moyen	klein bis mittel	pequeño a medio		4
	medium	moyen	mittel	medio	Macaroon	5
	medium to large	moyen à grand	mittel bis groß	medio a grande		6
	large	grand	groß	grande	Real Sunbeam	7
	large to very large	grand à très grand	groß bis sehr groß	grande a muy grande		8
	very large	très grand	sehr groß	muy grande	REGLO	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.	**QN MG/MS/VG**	**(+) (b)**				
	Flower head: height	**Capitule : hauteur**	**Blütenstand: Höhe**	**Capítulo: altura**		
	very short	très basse	sehr niedrig	muy corta	Little Miss Muffet	1
	very short to short	très basse à basse	sehr niedrig bis niedrig	muy corta a corta		2
	short	basse	niedrig	corta	Real Dream	3
	short to medium	basse à moyenne	niedrig bis mittel	corta a media		4
	medium	moyenne	mittel	media	Real Sunbeam	5
	medium to tall	moyenne à haute	mittel bis hoch	media a alta		6
	tall	haute	hoch	alta	Macaroon	7
	tall to very tall	haute à très haute	hoch bis sehr hoch	alta a muy alta		8
	very tall	très haute	sehr hoch	muy alta		9
16. (*)	**QN MG/MS/VG**	**(+) (b)**				
	Only varieties with flower head: type: single or semi-double: Flower head: disc diameter relative to flower head diameter	**Seulement les variétés avec capitule : type : simple ou semi-double: Capitule : diamètre du disque par rapport au diamètre du capitule**	**Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt: Blütenstand: Scheibendurchmesser im Verhältnis zum Durchmesser des Blütenstandes**	**Sólo variedades con capítulo: tipo: sencillo o semidoble: Capítulo: diámetro del disco en relación con el diámetro del capítulo**		
	very small	très petit	sehr klein	muy pequeño		1
	small	petit	klein	pequeño	Macaroon	2
	medium	moyen	mittel	medio	Real Sunbeam	3
	large	grand	groß	grande	REGLO	4
	very large	très grand	sehr groß	muy grande		5
17. (*)	**QN MG/MS/VG**	**(b)**				
	Only varieties with flower head: type: single or semi-double: Flower head: ray floret number	**Seulement les variétés avec capitule : type : simple ou semi-double : Capitule : nombre de fleurs ligulées**	**Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt: Blütenstand: Anzahl Zungenblüten**	**Sólo variedades con capítulo: tipo: sencillo o semidoble: Capítulo: número de flores liguladas**		
	very few	très petit	sehr gering	muy bajo	Little Miss Muffet	1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo		2
	few	petit	gering	bajo	Sunrimaiapy	3
	few to medium	petit à moyen	gering bis mittel	bajo a medio		4
	medium	moyen	mittel	medio	REGLO	5
	medium to many	moyen à élevé	mittel bis hoch	medio a alto		6
	many	élevé	hoch	alto	LEUZ0001	7
	many to very many	élevé à très élevé	hoch bis sehr hoch	alto a muy alto		8
	very many	très élevé	sehr hoch	muy alto	Macaroon	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	**QN VG**	**(b)**				
	<u>Only varieties with flower head: type: double:</u> Ray floret: density	**<u>Seulement les variétés avec capitule : type : double :</u> Fleur ligulée : densité**	**<u>Nur Sorten mit Blütenstand: Typ: gefüllt:</u> Zungenblüte: Dichte**	**<u>Sólo variedades con capítulo: tipo: doble:</u> Flor ligulada: densidad**		
	very sparse	très lâche	sehr locker	muy laxa	Summer Snowball	1
	sparse	lâche	locker	laxa		2
	medium	moyenne	mittel	media	Osiris Neige	3
	dense	dense	dicht	densa	Luna	4
	very dense	très dense	sehr dicht	muy densa		5
19.	**QN VG**	**(+) (b), (c)**				
	Flower head: attitude of ray florets at base	**Capitule : port des fleurs ligulées à la base**	**Blütenstand: Stellung der Zungenblüten an der Basis**	**Capítulo: porte de las flores liguladas en la base**		
	moderately ascending	modérément redressé	mäßig aufwärts gerichtet	moderadamente orientado hacia arriba	Daisy Duke	1
	weakly ascending	faiblement redressé	etwas aufwärts gerichtet	débilmente orientado hacia arriba	Becky	2
	horizontal	horizontal	waagerecht	horizontal	Sunrimaiapy	3
	weakly descending	faiblement retombant	etwas abwärts gerichtet	débilmente descendente	Macaroon	4
	moderately descending	modérément retombant	mäßig abwärts gerichtet	moderadamente descendente		5
20. (*)	**PQ VG**	**(+) (b), (c)**				
	Ray floret: type	**Fleur ligulée : type**	**Zungenblüte: Typ**	**Flor ligulada: tipo**		
	undivided ligulate	ligulé non découpé	zungenförmig ungelappt	ligulado no dividido	GFLEUWHMTN	1
	divided ligulate	ligulé découpé	zungenförmig gelappt	ligulado dividido	Luna	2
	irregular divided	irrégulier découpé	ungleichmäßig gelappt	irregular dividido	Real Galaxy	3
	undivided spatulate	spatulé non découpé	spatelförmig ungelappt	espatulado no dividido	Doleuswedaso	4
	divided spatulate	spatulé découpé	spatelförmig gelappt	espatulado dividido	Lacrosse	5
	divided funnel shaped	en forme d'entonnoir découpé	trichterförmig gelappt	en forma de embudo dividido	Osiris Neige	6

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. (*)	**QN MG/MS/VG**	**(b), (c)**				
	Ray floret: length	**Fleur ligulée : longueur**	**Zungenblüte: Länge**	**Flor ligulada: longitud**		
	very short	très courte	sehr kurz	muy corta		1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short	courte	kurz	corta	Little Miss Muffet	3
	short to medium	courte à moyenne	kurz bis mittel	corta a media		4
	medium	moyenne	mittel	media	LEUZ0001	5
	medium to long	moyenne à longue	mittel bis lang	media a larga		6
	long	longue	lang	larga	Daisy Duke	7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga		8
	very long	très longue	sehr lang	muy larga		9
22. (*)	**QN MG/MS/VG**	**(b), (c)**				
	Only varieties with ray floret: type: undivided ligulate or undivided spatulate: Ray floret: width	**Seulement les variétés avec fleur ligulée : type : ligulé non découpé ou spatulé non découpé : Fleur ligulée : largeur**	**Nur Sorten mit Zungenblüte: Typ: zungenförmig ungelappt oder spatelförmig ungelappt: Zungenblüte: Breite**	**Sólo variedades con flor ligulada: tipo: ligulado o espatulado: Flor ligulada: anchura**		
	very narrow	très étroite	sehr schmal	muy estrecha	Angel	1
	narrow	étroite	schmal	estrecha		2
	medium	moyenne	mittel	media	GFLEUWHMTN	3
	broad	large	breit	ancha	Daisy Duke	4
	very broad	très large	sehr breit	muy ancha		5
23. (*)	**QN MG/MS/VG**	**(b), (c)**				
	Only varieties with ray floret: type: undivided ligulate or undivided spatulate: Ray floret: length/width ratio	**Seulement les variétés avec fleur ligulée : type : ligulé non découpé ou spatulé non découpé : Fleur ligulée : rapport longueur/largeur**	**Nur Sorten mit Zungenblüte: Typ: zungenförmig ungelappt oder spatelförmig ungelappt: Zungenblüte: Verhältnis Länge/Breite**	**Sólo variedades con flor ligulada: tipo: ligulado no dividido o espatulado no dividido: Flor ligulada: relación longitud/anchura**		
	very low	très bas	sehr klein	muy baja	GFLEUWHMTN	1
	very low to low	très bas à bas	sehr klein bis klein	muy baja a baja		2
	low	bas	klein	baja	Real Dream	3
	low to medium	bas à moyen	klein bis mittel	baja a media		4
	medium	moyen	mittel	media		5
	medium to high	moyen à élevé	mittel bis groß	media a alta	REGLO	6
	high	élevé	groß	alta		7
	high to very high	élevé à très élevé	groß bis sehr groß	alta a muy alta	Angel	8
	very high	très élevé	sehr groß	muy alta		9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24.	**(*)**	**PQ** **VG**	**(b), (c)**				
		Ray floret: color	**Fleur ligulée : couleur**	**Zungenblüte: Farbe**	**Flor ligulada: color**		
		RHS colour chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
25.		**PQ** **VG**	**(b), (c)**				
		Ray floret: color of tip	**Fleur ligulée : couleur de l'extrémité**	**Zungenblüte: Farbe der Spitze**	**Flor ligulada: color de la punta**		
		RHS colour chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
26.	**(*)**	**PQ** **VG**	**(b), (c)**				
		Only varieties with ray floret: type: undivided ligulate or undivided spatulate: Ray floret: longitudinal axis	**Seulement les variétés avec fleur ligulée : type : ligulé non découpé ou spatulé non découpé : Fleur ligulée : axe longitudinal**	**Nur Sorten mit Zungenblüte: Typ: zungenförmig ungelappt oder spatelförmig ungelappt: Zungenblüte: Längsachse**	**Sólo variedades con flor ligulada: tipo: ligulado no dividido o espatulado no dividido: Flor ligulada: eje longitudinal**		
		incurved	incurvé	aufgebogen	incurvado	REGLO	1
		straight	droit	gerade	recto	Real Sunbeam	2
		recurved	recourbé	zurückgebogen	recurvado	Daisy Duke	3
27.		**QN** **VG**	**(+)** **(b), (c)**				
		Ray floret: degree of curvature	**Fleur ligulée : degré de courbure**	**Zungenblüte: Stärke der Biegung**	**Flor ligulada: grado de curvatura**		
		very weak	très faible	sehr gering	muy débil	REGLO	1
		weak	faible	gering	débil		2
		medium	moyen	mittel	medio	Luna	3
		strong	fort	stark	fuerte	LEUZ0003	4
		very strong	très fort	sehr stark	muy fuerte	LEUZ0001	5
28.	**(*)**	**PQ** **VG**	**(+)** **(b), (c)**				
		Only varieties with ray floret: type: undivided ligulate or undivided spatulate: Ray floret: shape of apex	**Seulement les variétés avec fleur ligulée : type : ligulé non découpé ou spatulé non découpé : Fleur ligulée : forme de l'apex**	**Nur Sorten mit Zungenblüte: Typ: zungenförmig ungelappt oder spatelförmig ungelappt: Zungenblüte: Form des Apex**	**Sólo variedades con flor ligulada: tipo: ligulado no dividido o espatulado no dividido: Flor ligulada: forma del ápice**		
		acute	aiguë	spitz	aguda	Becky	1
		rounded	arrondie	abgerundet	redondeada	REGLO	2
		truncate	tronquée	gerade	truncada	Real Sunbeam	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
29.		**QN VG**					
		Ray floret: number of indentations	**Fleur ligulée : nombre de denticulations**	**Zungenblüte: Anzahl Einschnitte**	**Florida ligulada: número de incisiones**		
		absent or very few	absent ou très petit	fehlend oder sehr gering	ausente o muy bajo		1
		few	petit	gering	bajo	Becky	2
		medium	moyen	mittel	medio	Luna	3
		many	élevé	hoch	alto		4
		very many	très élevé	sehr hoch	muy alto	Osiris Neige	5
30.	**(*)**	**PQ VG**	**(+) (b), (c)**				
		Ray floret: depth of indentations	**Fleur ligulée : profondeur des denticulations**	**Zungenblüte: Tiefe der Einschnitte**	**Flor ligulada: profundidad de las incisiones**		
		all shallow	toutes peu profondes	alle flach	todas pocos profundas	Daisy Duke	1
		mainly shallow, some medium or deep	principalement peu profondes, certaines moyennes ou profondes	überwiegend flach, einige mittel oder tief	principalmente poco profundas, algunas medias o profundas	Luna	2
		mainly medium	principalement moyennes	überwiegend mittel	principalmente medias	Macaroon	3
		some medium, some deep	certaines moyennes, d'autres profondes	einige mittel, einige tief	algunas medias, algunas profundas	LaSpider	4
		all deep	toutes profondes	alle tief	todas profundas	Engelina	5
31.		**PQ VG**	**(+) (b)**				
		<u>Only varieties with flower head: type: single or semi-double:</u> Disc: color before anthesis	**<u>Seulement les variétés avec capitule : type : simple ou semi-double :</u> Disque : couleur avant l'anthèse**	**<u>Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt:</u> Scheibe: Farbe vor der Blüte**	**<u>Sólo variedades con capítulo: tipo: sencillo o semidoble:</u> Disco: color antes de la antesis**		
		yellow green	vert-jaune	gelbgrün	verde amarillento	Real Galaxy	1
		yellow	jaune	gelb	amarillo	Sunrimaiapy	2
		yellow orange	orange-jaune	gelborange	naranja amarillento	Real Sunbeam	3
32.	**(*)**	**PQ VG**	**(+) (b)**				
		<u>Only varieties with flower head: type: single or semi-double:</u> Disc: color after anthesis	**<u>Seulement les variétés avec capitule : type : simple ou semi-double:</u> Disque : couleur après l'anthèse**	**<u>Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt:</u> Scheibe: Farbe nach der Blüte**	**<u>Sólo variedades con capítulo: tipo: sencillo o semidoble:</u> Disco: color después de la antesis**		
		white	blanc	weiß	blanco	Angel	1
		yellow	jaune	gelb	amarillo	REGLO	2
		yellow orange	orange-jaune	gelborange	naranja amarillento	Real Sunbeam	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
33.	**QN** **MG/MS/VG**	**(b)**				
	<u>Only varieties with flower head: type: single or semi-double:</u> Disc: number of ray florets within disc	**<u>Seulement les variétés avec capitule : type : simple ou semi-double:</u> Disque : nombre de fleurs ligulées à l'intérieur du disque**	**<u>Nur Sorten mit Blütenstand: Typ: einfach oder halbgefüllt:</u> Scheibe: Anzahl Zungenblüten innerhalb der Scheibe**	**<u>Sólo variedades con capítulo: tipo: sencillo o semidoble:</u> Disco: número de flores liguladas dentro del disco**		
	absent or few	absent ou petit	fehlend oder gering	ausente o bajo	Daisy Duke	1
	medium	moyen	mittel	medio	Macaroon	2
	many	élevé	hoch	alto		3
34.	**QN** **MG/MS/VG**	**(+)** **(b)**				
	<u>Only varieties with flower head: disc type: anemone:</u> Disc floret: length	**<u>Seulement les variétés avec capitule : type de disque : anémone :</u> Fleuron : longueur**	**<u>Nur Sorten mit Blütenstand: Scheibentyp: anemonenförmig:</u> Scheibenblüte: Länge**	**<u>Sólo variedades con capítulo: tipo de disco: anémona:</u> Flósculo: longitud**		
	very short	très courte	sehr kurz	muy corta	Angel	1
	short	courte	kurz	corta		2
	medium	moyenne	mittel	media	REGLO	3
	long	longue	lang	larga		4
	very long	très longue	sehr lang	muy larga		5

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Unless otherwise indicated, all observations should be made at the time of full flowering.

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

(a) Observations should be made on fully developed leaves from the middle third of the stem, and, unless otherwise indicated, on the upper surface.

(b) Observations should be made on fresh, fully open flowers. In the case of single and semi-double flower head types, 2 or 3 rows of disc florets should have opened.

(c) Observations should be made on ray florets from the outer rows, and, unless otherwise indicated, on the upper surface.

8.2 Explanations for individual characteristics

Ad. 1: Plant: height

Observation should be made from the surface of the growing medium to the highest point of the plant.

Ad. 2: Plant: density

Observations should be made taking into account the stems, leaves and flowers.

2
sparse

3
medium

4
dense

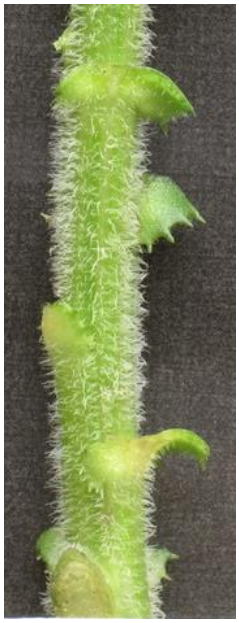
Ad. 3: Stem: pubescence

Observations should be made in the middle third of the stem.

1
absent or very sparse

2
sparse

4
dense



5
very dense

Ad. 8: Leaf: number of indentations of margin

1
very few

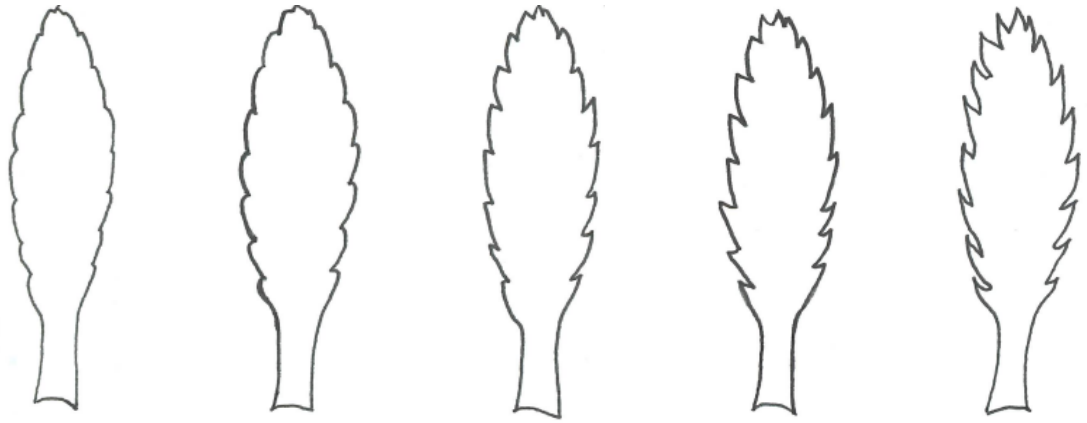
2
few

3
medium

4
many

5
very many

Ad. 9: Leaf: depth of indentations of margin



1	2	3	4	5
very shallow	shallow	medium	deep	very deep

Ad. 10: Peduncle: length

Ad. 11: Flower bud: color

Observations should be made on the outer side of the ray florets just before the bud opens.

Ad. 12: Flower head: type

A single flower head has less than 2 full rows of ray florets, a semi-double flower head has 2 or more rows of ray florets and a clearly defined disc, a double flower head has many rows of ray florets and the disc florets are not clearly defined into a disc or not visible.

1
single

2
semi-double

3
double

Ad. 13: Only varieties with flower head: type: single or semi-double: Flower head: disc type

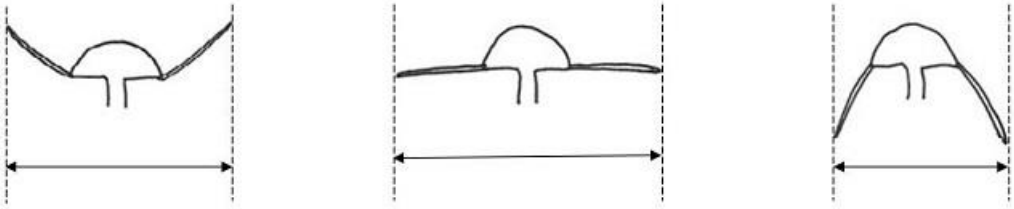
Varieties with anemone disc type are where the disc florets are of a petaloid type. Varieties with daisy disc may have additional ray florets within the disc but these are not modified disc florets. The illustration below shows examples of varieties with daisy type disc with additional ray florets (top), and without additional ray florets (bottom). For note 2, the illustrations show examples of varieties with anemone disc but with different lengths of disc florets, very short (top), and medium (bottom).

1
daisy

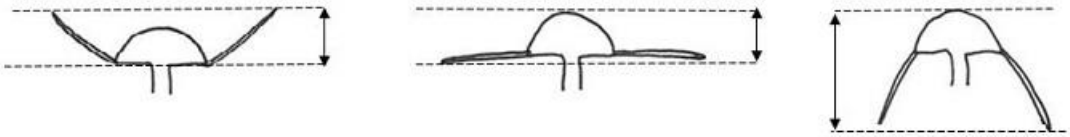
2
anemone

Ad. 14: Flower head: diameter

Observations should be made on the natural diameter of the flower head.



Ad. 15: Flower head: height



Ad. 16: Only varieties with flower head: type: single or semi-double: Flower head: disc diameter relative to flower head diameter

Observations should be made excluding any extra ray florets that are present in the disc.

2
small

3
medium

4
large

Ad. 19: Flower head: attitude of ray florets at base

1
moderately ascending

2
weakly ascending

3
horizontal

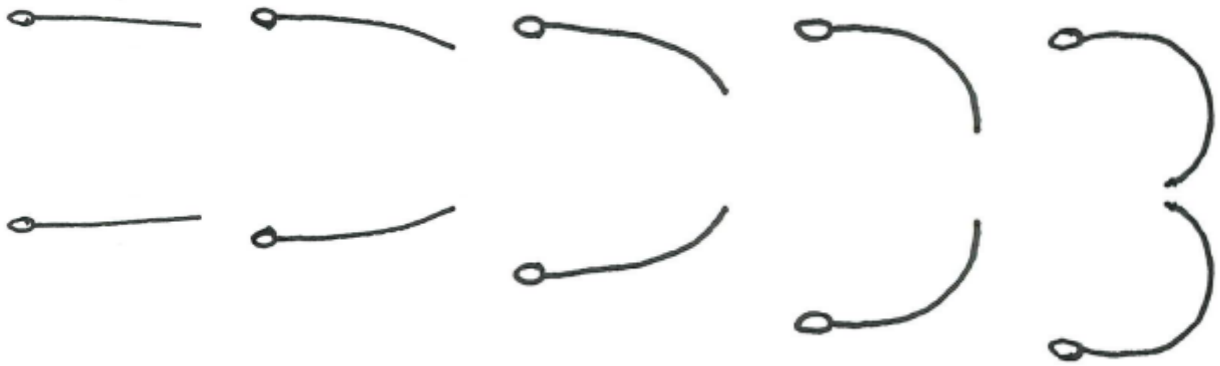
4
weakly descending

5
moderately descending

Ad. 20: Ray floret: type

1 undivided ligulate | 2 divided ligulate | 3 irregular divided | 4 undivided spatulate | 5 divided spatulate | 6 divided funnel shaped

Ad. 27: Ray floret: degree of curvature

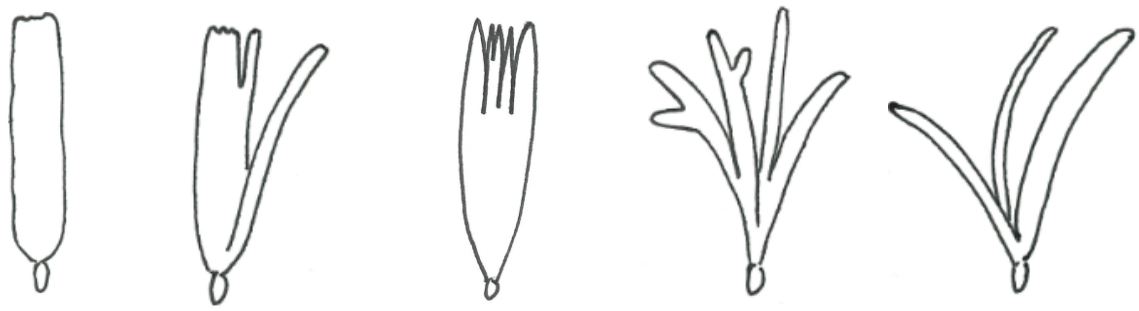


1 very weak | 2 weak | 3 medium | 4 strong | 5 very strong

Ad. 28: Only varieties with ray floret: type: undivided ligulate or undivided spatulate: Ray floret: shape of apex

1 acute | 2 rounded | 3 truncate

Ad. 30: Ray floret: depth of indentations



1	2	3	4	5
all shallow	mainly shallow, some medium or deep	mainly medium	some medium, some deep	all deep

Ad. 31: Only varieties with flower head: type: single or semi-double: Disc: color before anthesis

Observations should be made on the part of the disc that has not started to dehisce.

Ad. 32: Only varieties with flower head: type: single or semi-double: Disc: color after anthesis

Observations should be made on the part of the disc where anthers have started to dehisce.

Ad. 34: Only varieties with flower head: disc type: anemone: Disc floret: length

Observations should be made on the florets in the outer 2 or 3 rows of the disc.

9. Literature

Brickell, C. 2016: The Royal Horticultural Society A - Z Encyclopedia of Garden Plants. Dorling Kindersley, London, GB, pp. 616 to 617.

10. Technical Questionnaire

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

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1	Botanical name	*Leucanthemum* Mill.
1.2	Common name	Leucanthemum
1.3	Species (please indicate):	

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

#4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]

(please state parent variety)

(……..……..…) x (……..……..…)

female parent male parent

(b) partially known cross [ ]

(please state known parent variety(ies))

(……..……..…) x (……..……..…)

female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(Please provide details)

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

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

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties [ ]

4.2.2 Vegetative propagation

(a) Cuttings [ ]
(b) *In vitro* propagation [ ]
(c) Division [ ]
(d) Other (state method) [ ]

4.2.3 Other [ ]
(Please provide details)

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: height**		
	very short		1 [ ]
	very short to short	Luna	2 [ ]
	short	Sunrimaiapy	3 [ ]
	short to medium		4 [ ]
	medium	REGLO	5 [ ]
	medium to tall		6 [ ]
	tall	Becky	7 [ ]
	tall to very tall		8 [ ]
	very tall		9 [ ]
5.2 (12)	**Flower head: type**		
	single	Angel	1 [ ]
	semi-double	Real Sunbeam, REGLO	2 [ ]
	double	Luna	3 [ ]
5.3 (13)	**<u>Only varieties with flower head: type: single or semi-double:</u> Flower head: disc type**		
	daisy	Real Sunbeam	1 [ ]
	anemone	REGLO	2 [ ]
5.4 (20)	**Ray floret: type**		
	undivided ligulate	GFLEUWHMTN	1 [ ]
	divided ligulate	Luna	2 [ ]
	irregular divided	Real Galaxy	3 [ ]
	undivided spatulate	Doleuswedaso	4 [ ]
	divided spatulate	Lacrosse	5 [ ]
	divided funnel shaped	Osiris Neige	6 [ ]
5.5(i) (24)	**Ray floret: color**		
	RHS colour chart (indicate reference number)		
5.5(ii) (24)	**Ray floret: color**		
	white	REGLO	1 [ ]
	light yellow	Macaroon	2 [ ]
	medium yellow	Real Sunbeam	3 [ ]
	other (please specify)		[ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Plant: height*	*short*	*medium*

Comments:

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

#7. Additional information which may help in the examination of the variety

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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

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

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

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

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

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

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

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

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

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

(a)	Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes [ ]	No [ ]
(b)	Chemical treatment (e.g. growth retardant, pesticide)	Yes [ ]	No [ ]
(c)	Tissue culture	Yes [ ]	No [ ]
(d)	Other factors	Yes [ ]	No [ ]

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

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]