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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

EUSTOMA*

UPOV Code(s): EUSTO_GRA

Eustoma exaltatum (L.) Salisb. ex G. Don
subsp. *russellianum* (Hook.) Kartesz

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative names:*

Botanical name	English	French	German	Spanish
<i>Eustoma exaltatum</i> (L.) Salisb. ex G. Don subsp. <i>russellianum</i> (Hook.) Kartesz, <i>Bilamista grandiflora</i> Raf., <i>Eustoma</i> <i>grandiflorum</i> (Raf.) Shinners, <i>Eustoma</i> <i>russellianum</i> (Hook.) G. Don, <i>Lisianthus</i> <i>russellianus</i> Hook.	Eustoma, Lisianthus	Eustoma, Lisianthus	Eustoma, Lisianthus	Eustoma, Lisiantus

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

- 1.1 These Test Guidelines apply to all varieties of *Eustoma exaltatum* (L.) Salisb. ex G. Don subsp. *russellianum* (Hook.) Kartesz.
- 1.2 Guidance on the use of Test Guidelines for hybrids with other subspecies that are not explicitly covered by Test Guidelines is provided in document TGP/13 "Guidance for New Types and Species".

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 plants or seed.
- 2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

vegetatively propagated varieties: 20 plants
seed-propagated varieties: a sufficient quantity of seed to produce 40 plants.

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. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

- 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 In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 20 plants.
- 3.4.2 In the case of seed-propagated varieties, each test should be designed to result in a total of at least 40 plants.
- 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 *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 10 plants or parts taken from each of 10 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 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.

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 and seed-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 cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.4 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.

4.2.5 For the assessment of uniformity of vegetatively propagated varieties and self-pollinated 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 self-pollinated varieties of a sample size of 40 plants, 2 off-type 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 further examined by testing a new seed or 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: type (characteristic 14)
 - (c) Flower: width (characteristic 18)
 - (d) Petal: main color of inner side (characteristic 27) with the following groups:
 - Gr. 1: white
 - Gr. 2: light green
 - Gr. 3: yellow
 - Gr. 4: orange
 - Gr. 5: pink
 - Gr. 6: red
 - Gr. 7: purple
 - Gr. 8: blue purple
 - (e) Petal: secondary color of inner side (characteristic 28) with the following groups:
 - Gr. 1: none
 - Gr. 2: white
 - Gr. 3: light green
 - Gr. 4: yellow
 - Gr. 5: orange
 - Gr. 6: pink
 - Gr. 7: red
 - Gr. 8: purple
 - Gr. 9: blue purple
 - (f) Petal: distribution of secondary color of inner side (characteristic 29)
 - (g) Petal: color of base of inner side (characteristic 31)
- 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/Merkmalestabelle/Tabla de caracteres

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	QN	MS/VG	(+)				
	Plant: height	Plante : hauteur	Pflanze: Höhe	Planta: altura			
	very short	très courte	sehr niedrig	muy baja			1
	very short to short	très courte à courte	sehr niedrig bis niedrig	muy baja a baja			2
	short	courte	niedrig	baja	Sase LIS02		3
	short to medium	courte à moyenne	niedrig bis mittel	baja a media			4
	medium	moyenne	mittel	media	Momo Sen		5
	medium to tall	moyenne à haute	mittel bis hoch	media a alta			6
	tall	haute	hoch	alta	Mio Peach Chuchu		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	MS/VG	(+)				
	Plant: number of primary branches	Plante : nombre de branches primaires	Pflanze: Anzahl Hauptseitenzweige	Planta: número de ramas primarias			
	very few	très petit	sehr gering	muy bajo			1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo			2
	few	petit	gering	bajo	Shonai Cross Pink		3
	few to medium	petit à moyen	gering bis mittel	bajo a medio			4
	medium	moyen	mittel	medio	Exe Pink		5
	medium to many	moyen à grand	mittel bis hoch	medio a alto			6
	many	grand	hoch	alto	Illumypink		7
	many to very many	grand à très grand	hoch bis sehr hoch	alto a muy alto			8
	very many	très grand	sehr hoch	muy alto			9
3.	PQ	VG	(+)				
	Plant: position of primary branches	Plante : position des branches primaires	Pflanze: Position der Hauptseitenzweige	Planta: posición de las ramas primarias			
	upper part only	partie supérieure seulement	nur oberer Teil	solo en la parte superior	Saga T2go		1
	upper and middle part	partie supérieure et médiane	oberer und mittlerer Teil	en la parte superior y en la central	Lilac Pink Thumb		2
	throughout	partout	überall	en la totalidad	Cherrybee		3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
4.	QN	MS/VG				
	Stem: number of nodes	Tige : nombre de nœuds	Stängel: Anzahl Knoten	Tallo: número de nudos		
	very few	très petit	sehr gering	muy bajo		1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo		2
	few	petit	gering	bajo	Cherrybee 3go	3
	few to medium	petit à moyen	gering bis mittel	bajo a medio		4
	medium	moyen	mittel	medio	Momo Sen	5
	medium to many	moyen à grand	mittel bis hoch	medio a alto		6
	many	grand	hoch	alto	Shonai Cross White	7
	many to very many	grand à très grand	hoch bis sehr hoch	alto a muy alto		8
	very many	très grand	sehr hoch	muy alto		9
5. (*)	QN	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	Diamond	3
	short to medium	courte à moyenne	kurz bis mittel	corta a media		4
	medium	moyenne	mittel	media	Momo Sen	5
	medium to long	moyenne à longue	mittel bis lang	media a larga		6
	long	longue	lang	larga	Sase LIS02	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
6. (*)	QN	MS/VG	(+)	(a)		
	Leaf: width	Feuille : largeur	Blatt: Breite	Hoja: anchura		
	very narrow	très étroite	sehr schmal	muy estrecha		1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha		2
	narrow	étroite	schmal	estrecha	Cherrybee 3go	3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media		4
	medium	moyenne	mittel	media	Momo Sen	5
	medium to broad	moyenne à large	mittel bis breit	media a ancha		6
	broad	large	breit	ancha	Komachi White Dress	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

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7. (*)	QN	MS/VG	(+)	(a)				
	Leaf: ratio length/width	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	Komachi White Dress			3
	low to medium	bas à moyen	klein bis mittel	baja a media				4
	medium	moyen	mittel	media	Momo Sen			5
	medium to high	moyen à élevé	mittel bis groß	media a alta				6
	high	élevé	groß	alta	Shonai Cross White			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				9
8. (*)	QN	VG	(+)	(a)				
	Leaf: glaucosity	Feuille : glauescence	Blatt: Bereifung	Hoja: glauescencia				
	absent or weak	nulle ou faible	fehlend oder gering	ausente o débil	Cherrybee			1
	medium	moyenne	mittel	media	Komachi Green Dress			2
	strong	forte	stark	fuerte	Momo Sen			3
9. (*)	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	Saga T2go			1
	medium	moyenne	mittel	media	Momo Sen			2
	dark	foncée	dunkel	oscura	Lilac Pink Thumb			3
10.	QN	MS/VG	(+)					
	Pedicel: length	Pédicelle : longueur	Blütenstiel: Länge	Pedicelo: 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	Lilac Pink Thumb			3
	short to medium	courte à moyenne	kurz bis mittel	corta a medio				4
	medium	moyenne	mittel	medio	Momo Sen			5
	medium to long	moyenne à longue	mittel bis lang	medio a larga				6
	long	longue	lang	larga	Diamond			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.	QN	MS/VG	(+)			
	Calyx: length	Calice : longueur	Kelch: Länge	Cáliz: 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	Cherrybee	3
	short to medium	courte à moyenne	kurz bis mittel	corta a medio		4
	medium	moyenne	mittel	medio	Momo Sen	5
	medium to long	moyenne à longue	mittel bis lang	medio a larga		6
	long	longue	lang	larga	Asamiyae	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
12.	QN	VG				
	Calyx: anthocyanin coloration	Calice : pigmentation anthocyanique	Kelch: Anthocyanfärbung	Cáliz: pigmentación antocianica		
	absent or weak	nulle ou faible	fehlend oder gering	ausente o débil	Light Blue Thumb	1
	medium	moyenne	mittel	media		2
	strong	forte	stark	fuerte	Cherrybee	3
13.	QN	MS/VG				
	Flower: number	Fleur : nombre	Blüte: Anzahl	Flor: número		
	very few	très petit	sehr gering	muy bajo		1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo		2
	few	petit	gering	bajo	Kirara Apricot 2	3
	few to medium	petit à moyen	gering bis mittel	bajo a medio		4
	medium	moyen	mittel	medio	Momo Sen	5
	medium to many	moyen à grand	mittel bis hoch	medio a alto		6
	many	grand	hoch	alto	Mahoroba Peach	7
	many to very many	grand à très grand	hoch bis sehr hoch	alto a muy alto		8
	very many	très grand	sehr hoch	muy alto		9
14. (*)	QL	VG	(+)			
	Flower: type	Fleur : type	Blüte: Typ	Flor: tipo		
	single	simple	einfach	simple	Momo Sen	1
	double	double	gefüllt	doble	Piccorosa Pink Picotee	2

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. (*)	QN	MS/VG				
	<u>Only varieties with Flower: type: double: Flower: number of petals</u>	<u>Seulement les variétés à Fleur : type : double : Fleur : nombre de pétales</u>	<u>Nur Sorten mit Blüte: Typ: gefüllt: Blüte: Anzahl Blütenblätter</u>	<u>Solo variedades con flor: tipo: doble: Flor: número de pétalos</u>		
	very few	très petit	sehr gering	muy bajo		1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo		2
	few	petit	gering	bajo	Komachi Green Dress	3
	few to medium	petit à moyen	gering bis mittel	bajo a medio		4
	medium	moyen	mittel	medio	Diamond	5
	medium to many	moyen à grand	mittel bis hoch	medio a alto		6
	many	grand	hoch	alto	Lination Pink Picotee	7
	many to very many	grand à très grand	hoch bis sehr hoch	alto a muy alto		8
	very many	très grand	sehr hoch	muy alto		9
16.	PQ	VG	(+)			
	Flower: shape	Fleur : forme	Blüte: Form	Flor: forma		
	circular	circulaire	kreisförmig	circular	Chigusa	1
	pentagon	pentagone	fünfeckig	pentagonal	Azumanoshirabe	2
	star-shaped	étoile	sternförmig	estrellada	Shonai Cross White	3
17.	QN	MS/VG	(+)			
	Flower: height	Fleur : hauteur	Blüte: Höhe	Flor: altura		
	very short	très courte	sehr niedrig	muy baja		1
	very short to short	très courte à courte	sehr niedrig bis niedrig	muy baja a baja		2
	short	courte	niedrig	baja	Chigusa	3
	short to medium	courte à moyenne	niedrig bis mittel	baja a media		4
	medium	moyenne	mittel	media	Momo Sen	5
	medium to tall	moyenne à haute	mittel bis hoch	media a alta		6
	tall	haute	hoch	alta		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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. (*)	QN	MS/VG	(+)				
	Flower: width	Fleur : largeur	Blüte: Breite	Flor: anchura			
	very narrow	très étroite	sehr schmal	muy estrecha			1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha			2
	narrow	étroite	schmal	estrecha	Chigusa		3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media			4
	medium	moyenne	mittel	media	Momo Sen		5
	medium to broad	moyenne à large	mittel bis breit	media a ancha			6
	broad	large	breit	ancha	Rainbow White		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
19.	QN	MS/VG	(+)				
	Flower: ratio height/width	Fleur : rapport hauteur/largeur	Blüte: Verhältnis Höhe/Breite	Flor: relación altura/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	Mahoroba Peach		3
	low to medium	bas à moyen	klein bis mittel	baja a media			4
	medium	moyen	mittel	media	Momo Sen		5
	medium to high	moyen à élevé	mittel bis groß	media a alta			6
	high	élevé	groß	alta	Shonai Cross White		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			9
20. (*)	QN	MS/VG	(+)	(b)			
	Petal: length	Pétale : longueur	Blütenblatt: Länge	Pétalo: 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	Komachi White Dress		3
	short to medium	courte à moyenne	kurz bis mittel	corta a medio			4
	medium	moyenne	mittel	medio	Momo Sen		5
	medium to long	moyenne à longue	mittel bis lang	medio a larga			6
	long	longue	lang	larga	Suibijin		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 Beispielsorten Variedades ejemplo	Note/ Nota
21. (*)	QN	MS/VG	(+)	(b)				
	Petal: width	Pétale : largeur	Blütenblatt: Breite	Pétalo: anchura				
	very narrow	très étroite	sehr schmal	muy estrecha				1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha				2
	narrow	étroite	schmal	estrecha	Shonai Cross White			3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media				4
	medium	moyenne	mittel	media	Momo Sen			5
	medium to broad	moyenne à large	mittel bis breit	media a ancha				6
	broad	large	breit	ancha	Suibijin			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
22.	PQ	VG	(+)	(b)				
	Petal: shape	Pétale : forme	Blütenblatt: Form	Pétalo: forma				
	elliptic	elliptique	elliptisch	elíptica	Shonai Cross Pink			1
	oblanceolate	oblancéolée	verkehrt lanzettlich	oblanceolada	Bouquet White			2
	obovate	obovale	verkehrt eiförmig	oboval	Momo Sen			3
23. (*)	PQ	VG	(+)	(b)				
	Petal: shape of apex	Pétale : forme de l'apex	Blütenblatt: Form des Apex	Pétalo: forma del ápice				
	acuminate	acuminée	zugespitzt	acuminada	Lination Pink Picotee			1
	obtuse	obtuse	stumpf	obtusa				2
	rounded	arrondie	abgerundet	redondeada	Momo Sen			3
	flat	plate	flach	plana	Komachi Green Dress			4
	retuse	rétuse	eingedrückt	retusa	Piccorosa Pink Picotee			5
24.	QN	VG	(+)	(b)				
	Petal: recurving of margin	Pétale : recourbure du bord	Blütenblatt: Zurückbiegung des Randes	Pétalo: recurvado del borde				
	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Tokyo E1go			1
	weak	faible	gering	débil	Cute Green			2
	medium	moyenne	mittel	medio	Light Blue Thumb			3
	strong	forte	stark	fuerte	Momo Sen			4
	very strong	très forte	sehr stark	muy fuerte	Petit Snow			5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. (*)	QN	VG	(+)	(b)				
	Petal: undulation of margin	Pétale : ondulation du bord	Blütenblatt: Randwellung	Pétalo: ondulación del borde				
	very weak	très faible	sehr gering	muy débil				1
	very weak to weak	très faible à faible	sehr gering bis gering	muy débil a débil				2
	weak	faible	gering	débil	Momo Sen			3
	weak to medium	faible à moyenne	gering bis mittel	débil a media				4
	medium	moyenne	mittel	media	Mio Peach Chuchu			5
	medium to strong	moyenne à forte	mittel bis stark	media a fuerte				6
	strong	forte	stark	fuerte	Mahoroba Peach			7
	strong to very strong	forte à très forte	stark bis sehr stark	fuerte a muy fuerte				8
	very strong	très forte	sehr stark	muy fuerte				9
26. (*)	QN	VG	(+)	(b)				
	Petal: depth of incisions of margin	Pétale : profondeur des incisions du bord	Blütenblatt: Tiefe der Randeinschnitte	Pétalo: profundidad de las incisiones del borde				
	absent or very shallow	absente ou très peu profonde	fehlend oder sehr flach	ausente o muy poco profunda	Momo Sen			1
	shallow	peu profonde	flach	poco profunda				2
	medium	moyenne	mittel	media	Mio Peach Chuchu			3
	deep	profonde	tief	profunda				4
	very deep	très profonde	sehr tief	muy profunda	Sase LIS02			5
27. (*)	PQ	VG		(b), (c)				
	Petal: main color of <u>inner</u> side	Pétale : couleur principale de la face <u>interne</u>	Blütenblatt: Hauptfarbe der <u>Innenseite</u>	Pétalo: color principal de la cara <u>interna</u>				
	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)				
28. (*)	PQ	VG		(b), (c)				
	Petal: secondary color of <u>inner</u> side	Pétale : couleur secondaire de la face <u>interne</u>	Blütenblatt: Sekundärfarbe der <u>Innenseite</u>	Pétalo: color secundario de la cara <u>interna</u>				
	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)				

	English		français		deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
29. (*)	PQ	VG	(+)	(b), (c)				
	Petal: distribution of secondary color of <u>inner</u> side	Pétale : répartition de la couleur secondaire de la face <u>interne</u>	Blütenblatt: Verteilung der Sekundärfarbe der <u>Innenseite</u>	Pétalo: distribución del color secundario de la cara <u>interna</u>				
	none	aucune	keine	ausente				1
	at tip	à l'extrémité	an der Spitze	en la punta	Komachi Kiss			2
	margin	au bord	am Rand	en el borde	Piccorosa Pink Picotee			3
	central bar	barre centrale	Mittelstreifen	franja central				4
	distal half	moitié distale	distale Hälfte	en la mitad distal	Mahoroba Peach			5
	basal half	moitié basale	basale Hälfte	en la mitad basal	Cherrybee 2go			6
	throughout	partout	überall	en la totalidad				7
30. (*)	PQ	VG	(+)	(b), (c)				
	Petal: pattern of secondary color of <u>inner</u> side	Pétale : distribution de la couleur secondaire de la face <u>interne</u>	Blütenblatt: Muster der Sekundärseite der <u>Innenseite</u>	Pétalo: forma de disposición del color secundario de la cara <u>interna</u>				
	solid	uniforme	durchgefärbt	lisa	Piccorosa Pink Picotee			1
	flushed	diffuse	verschwommen	difusa	Mahoroba Peach			2
	irregular	irrégulière	unregelmäßig	irregular				3
31. (*)	PQ	VG	(+)	(b)				
	Petal: color of base of <u>inner</u> side	Pétale : couleur de la base de la face <u>interne</u>	Blütenblatt: Farbe der Basis der <u>Innenseite</u>	Pétalo: color de la base de la cara <u>interna</u>				
	green	vert	grün	verde	Chigusa			1
	violet	violet	violett	violeta	Momo Sen			2
	brown	brun	braun	marrón	Sase LIS02			3
32. (*)	PQ	VG		(b), (c)				
	Petal: main color of <u>outer</u> side	Pétale : couleur principale de la face <u>externe</u>	Blütenblatt: Hauptfarbe der <u>Außenseite</u>	Pétalo: color principal de la cara <u>externa</u>				
	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)				
33.	QN	VG						
	Style: anthocyanin coloration	Style : pigmentation anthocyanique	Griffel: Anthocyanfärbung	Estilo: pigmentación antocianica				
	absent or weak	nulle ou faible	fehlend oder gering	ausente o débil	Momo Sen			1
	medium	moyenne	mittel	media				2
	strong	forte	stark	fuerte	Cherrybee 2go			3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34.	QN	MG/VG	(+)			
	Only seed-propagated varieties: Time of beginning of flowering	Seulement les variétés reproduites par voie sexuée : Époque de début de floraison	Nur samenvermehrte Sorten: Zeitpunkt des Blühbeginns	Solo variedades propagadas mediante semillas: Época de inicio de la floración		
	very early	très précoce	sehr früh	muy temprana		1
	very early to early	très précoce à précoce	sehr früh bis früh	muy temprana a temprana		2
	early	précoce	früh	temprana	Cherrybee 3go	3
	early to medium	précoce à moyenne	früh bis mittel	temprana a media		4
	medium	moyenne	mittel	media	Mahoroba Yellow	5
	medium to late	moyenne à tardive	mittel bis spät	media a tardía		6
	late	tardive	spät	tardía	Saga T2go	7
	late to very late	tardive à très tardive	spät bis sehr spät	tardía a muy tardía		8
	very late	très tardive	sehr spät	muy tardía		9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

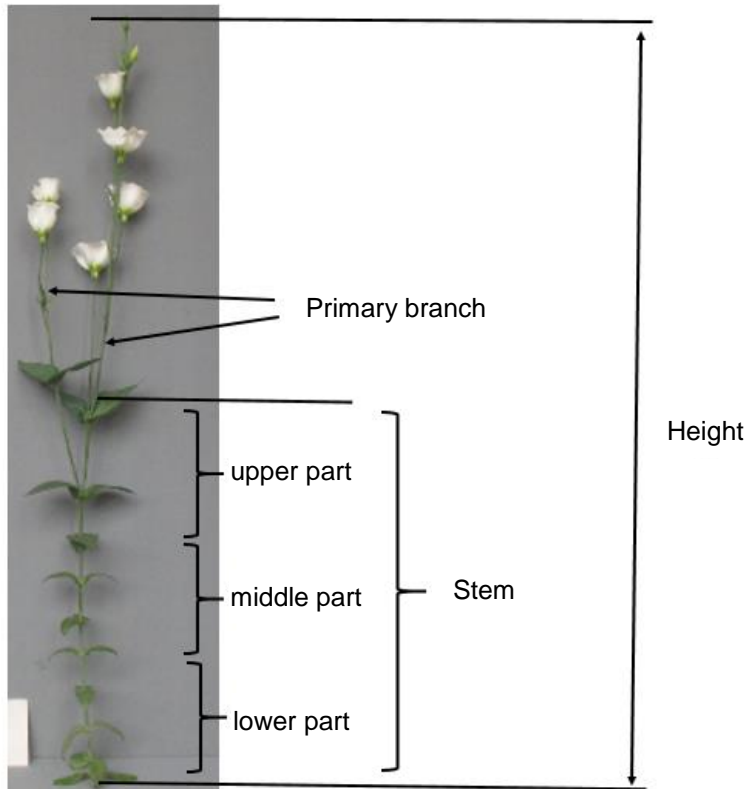
Unless otherwise indicated all characteristics should be observed at the time of full flowering.

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 a stem.
- (b) Observations should be made on a petal from the outermost whorl.
- (c) The main color is the color with the largest area excluding the color at base. The secondary color is the color with the second largest area excluding the color at base. In cases where the areas of the main and secondary color are too similar to decide which color has the largest area, the darker color is considered to be the main color.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: height



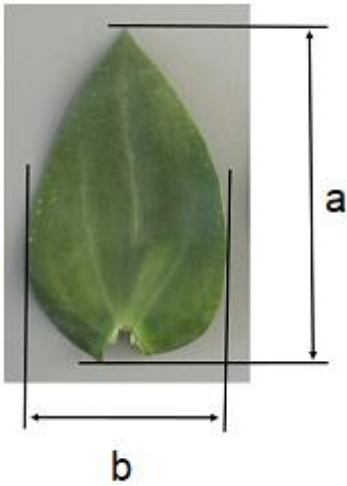
Ad. 2: Plant: number of primary branches

See Ad. 1

Ad. 3: Plant: position of primary branches

See Ad. 1

Ad. 5: Leaf: length



a = Length
b = Width

Ad. 6: Leaf: width

See Ad. 5

Ad. 7: Leaf: ratio length/width



3
low



5
medium



7
high

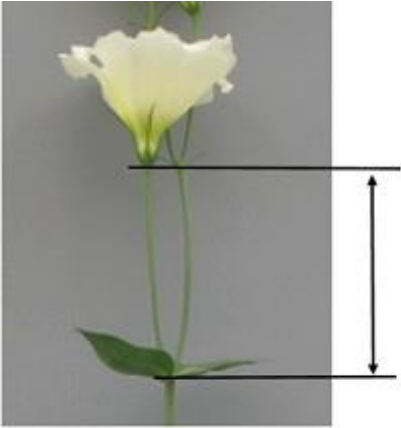
Ad. 8: Leaf: glaucosity

Observations should be made on the upper side of the leaves.

Ad. 9: Leaf: intensity of green color

Observations should be made on the upper side of the leaf after removing the glaucosity.

Ad. 10: Pedicel: length



Ad. 11: Calyx: length



Ad. 14: Flower: type

Single varieties have only five petals.



1
single



2
double

Ad. 16: Flower: shape



1
circular

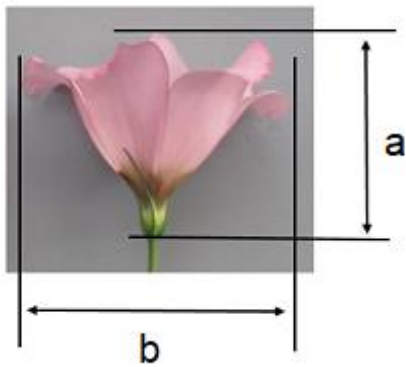


2
pentagon



3
star-shaped

Ad. 17: Flower: height



a = Height
b = Width

Ad. 18: Flower: width

See Ad. 17

Ad. 19: Flower: ratio height/width



3
low

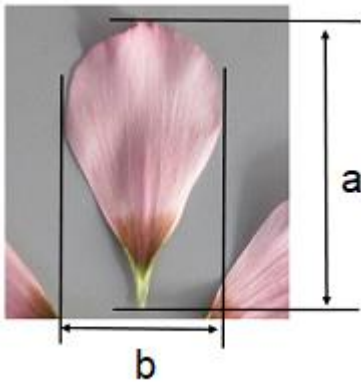


5
medium



7
high

Ad. 20: Petal: length



a = Length
b = Width

Ad. 21: Petal: width

See Ad. 20

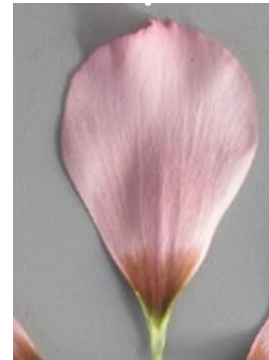
Ad. 22: Petal: shape



1
elliptic



2
oblong



3
obovate

Ad. 23: Petal: shape of apex



1
acuminate



2
obtuse



3
rounded

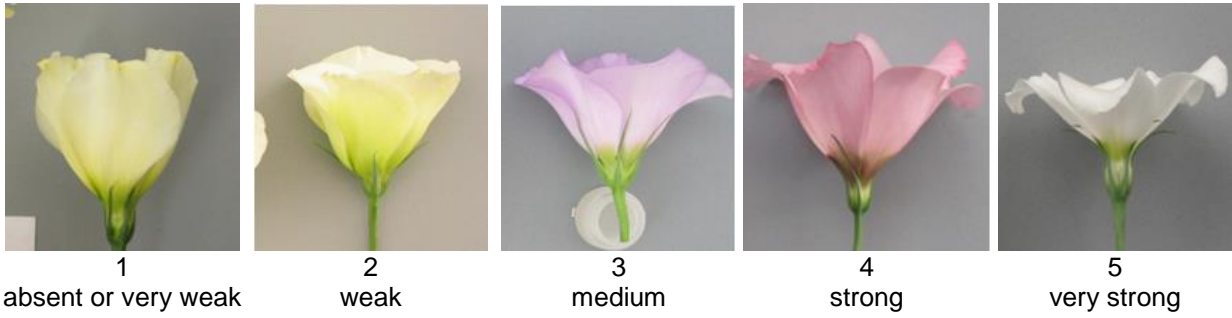


4
flat

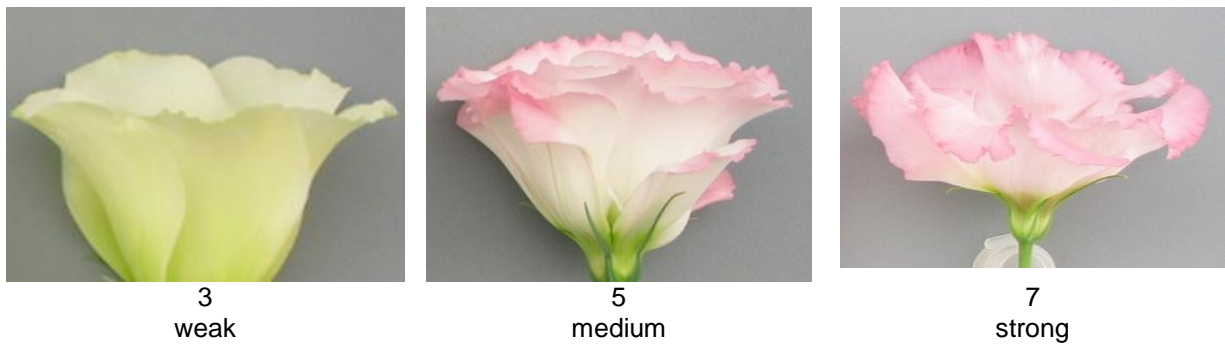


5
retuse

Ad. 24: Petal: recurving of margin



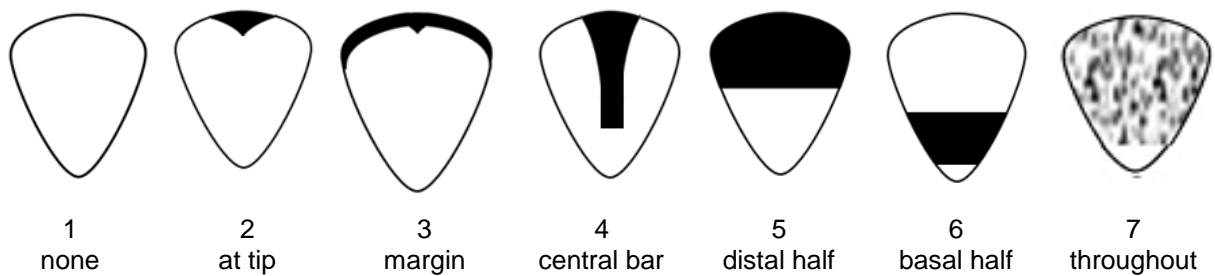
Ad. 25: Petal: undulation of margin



Ad. 26: Petal: depth of incisions of margin



Ad. 29: Petal: distribution of secondary color of inner side



Ad. 30: Petal: pattern of secondary color of inner side



1
solid



2
flushed



3
irregular

Ad. 31: Petal: color of base of inner side



Ad. 34: Only seed -propagated varieties: Time of beginning of flowering

The time of beginning of flowering is reached when at least 50% of plants have at least one open flower.

9. Literature

Kiyoshi Okawa, 1992: Eustoma (Torukogikyo) Seibundo-Shinkosha Co., Tokyo, JP.

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	<input type="text" value="Eustoma exaltatum (L.) Salisb. ex G. Don subsp. russellianum (Hook.) Kartesz"/>
1.2	Common name	<input type="text" value="Eustoma, Lisianthus"/>
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"/>
3. Proposed denomination and breeder's reference		
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

#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.

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

- (a) Self-pollination []
- (b) Cross-pollination []
- (c) Hybrid []
- (d) Other (please provide details) []

4.2.2 Vegetative propagation

- (a) Cuttings []
- (b) *In vitro* propagation []
- (c) 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 Plant: height (1)		
very short		1 []
very short to short		2 []
short	Sase LIS02	3 []
short to medium		4 []
medium	Momo Sen	5 []
medium to tall		6 []
tall	Mio Peach Chuchu	7 []
tall to very tall		8 []
very tall		9 []
5.2 Flower: type (14)		
single	Momo Sen	1 []
double	Piccorosa Pink Picotee	2 []
5.3 Flower: width (18)		
very narrow		1 []
very narrow to narrow		2 []
narrow	Chigusa	3 []
narrow to medium		4 []
medium	Momo Sen	5 []
medium to broad		6 []
broad	Rainbow White	7 []
broad to very broad		8 []
very broad		9 []
5.4(i) Petal: main color of <u>inner</u> side (27)		
RHS Colour Chart (indicate reference number)		
5.4(ii) Petal: main color of <u>inner</u> side (27)		
white		1 []
light green		2 []
yellow		3 []
orange		4 []
pink		5 []
red		6 []
purple		7 []
blue purple		8 []
other (please indicate)		[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.5(i) Petal: secondary color of <u>inner</u> side (28)		
RHS Colour Chart (indicate reference number)		
5.5(ii) Petal: secondary color of <u>inner</u> side (28)		
none		1 []
white		2 []
light green		3 []
yellow		4 []
orange		5 []
pink		6 []
red		7 []
purple		8 []
blue purple		9 []
other (please indicate)		[]
5.6 Petal: distribution of secondary color of <u>inner</u> side (29)		
none		1 []
at tip	Komachi Kiss	2 []
margin	Piccorosa Pink Picotee	3 []
central bar		4 []
distal half	Mahoroba Peach	5 []
basal half	Cherrybee 2go	6 []
throughout		7 []
5.7 Petal: color of base of <u>inner</u> side (31)		
green	Chigusa	1 []
violet	Momo Sen	2 []
brown	Sase LIS02	3 []

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>Plant: height</i>	<i>short</i>	<i>medium</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 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.]

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".

.....

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]