



TG/94/7(proj.4)

ORIGINAL: English

DATE: 2023-06-22

## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

## LING, SCOTS HEATHER

UPOV Code(s): CALLU\_VUL

*Calluna vulgaris* (L.) Hull

## GUIDELINES

## FOR THE CONDUCT OF TESTS

## FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from Germany**to be considered by**the Technical Committee for adoption by correspondence**Disclaimer: this document does not represent UPOV policies or guidance*

Alternative names:\*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Calluna vulgaris</i> (L.) Hull	Heather, Ling, Scots Heather	Bruyère callune, Bruyère commune, Callune	Besenheide	Biercol, Brezo

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](http://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 *Calluna vulgaris* (L.) Hull.

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 young plants.

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

20 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 20 plants.

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

3.5 *Additional Tests*

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

## 4. Assessment of Distinctness, Uniformity and Stability

### 4.1 *Distinctness*

#### 4.1.1 General Recommendations

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

#### 4.1.2 Consistent Differences

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

#### 4.1.3 Clear Differences

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

#### 4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts of plants taken from each of 5 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 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 2 off-types are allowed.

## 4.3 *Stability*

- 4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.
- 4.3.2 Where appropriate, or in cases of doubt, stability may be 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: flowering type (characteristic 1)
  - (b) Leaf: color on sunny side in autumn (characteristic 10)
  - (c) Flower: opening of bud (characteristic 14)
  - (d) Flower: color of outer side of sepal at beginning of flowering (characteristic 19) with the following groups:
    - Gr. 1: white
    - Gr. 2: pink
    - Gr. 3: red
    - Gr. 4: purple red
    - Gr. 5: blue violet
  - (e) Flower: color of outer side of petal at beginning of flowering (characteristic 21) with the following groups:
    - Gr. 1: white
    - Gr. 2: pink
    - Gr. 3: red
    - Gr. 4: purple red
    - Gr. 5: blue violet
- 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)-(e) 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
<b>1. (*)</b>	<b>QL</b>	<b>VG</b>	<b>(+)</b>				
	<b>Plant: flowering type</b>		<b>Plante: type de floraison</b>	<b>Pflanze: Blühtyp</b>	<b>Planta: tipo de floración</b>		
	regular		régulier	regelmäßig	regular	Laurentine	1
	irregular		irrégulier	unregelmäßig	irregular	Cologne	2
<b>2. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>				
	<b>Plant: growth habit</b>		<b>Plante: port</b>	<b>Pflanze: Wuchsform</b>	<b>Planta: hábito de crecimiento</b>		
	narrow upright		dressé étroit	schmal aufrecht	erecto estrecho	Linda	1
	broad upright		dressé large	breit aufrecht	erecto ancho	Laurentine	2
	broad upright to spreading		dressé large à étalé	breit aufrecht bis breitwüchsig	erecto ancho a extendido	Angie	3
	spreading		étalé	breitwüchsig	extendido	Vaika	4
	weeping		pleureur	lang überhängend	llorón	Nelly	5
<b>3.</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>				
	<b>Plant: density</b>		<b>Plante: densité</b>	<b>Pflanze: Dichte</b>	<b>Planta: densidad</b>		
	very sparse		très lâche	sehr locker	muy laxa		1
	very sparse to sparse		très lâche à lâche	sehr locker bis locker	muy laxa a laxa		2
	sparse		lâche	locker	laxa	Zulu	3
	sparse to medium		lâche à moyenne	locker bis mittel	laxa a media		4
	medium		moyenne	mittel	media	Dallas	5
	medium to dense		moyenne à dense	mittel bis dicht	media a densa		6
	dense		dense	dicht	densa	Las Vegas	7
	dense to very dense		dense à très dense	dicht bis sehr dicht	densa a muy densa		8
	very dense		très dense	sehr dicht	muy densa		9
<b>4. (*)</b>	<b>QN</b>	<b>MG/MS/VG</b>	<b>(+)</b>				
	<b>Plant: height</b>		<b>Plante: hauteur</b>	<b>Pflanze: Höhe</b>	<b>Planta: altura</b>		
	very short		très courte	sehr niedrig	muy baja	Nelly	1
	very short to short		très courte à courte	sehr niedrig bis niedrig	muy baja a baja		2
	short		courte	niedrig	baja	Inid	3
	short to medium		courte à moyenne	niedrig bis mittel	baja a media		4
	medium		moyenne	mittel	media	Franca	5
	medium to tall		moyenne à haute	mittel bis hoch	media a alta		6
	tall		haute	hoch	alta	Sydney	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 Beispielsorten Variedades ejemplo	Note/ Nota
<b>5. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(a), (b)</b>				
	<b>Shoot: color</b>	<b>Rameau: couleur</b>	<b>Trieb: Farbe</b>	<b>Rama: color</b>			
	yellow green	vert-jaune	gelbgrün	verde amarillento	Aufrechte Gelbe	1	
	light green	vert clair	hellgrün	verde claro	Nebula	2	
	grey red	rouge-gris	graurot	rojo grisáceo	Zilly	3	
	brown red	rouge-brun	braunrot	rojo amarronado	Selma	4	
	brown	brun	braun	marrón	Zulu	5	
<b>6. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>	<b>(b)</b>			
	<b>Only varieties with Plant: flowering type: regular: Shoot apex: leaf color</b>	<b>Seulement variétés avec Plante: type de floraison: régulier: Apex du rameau: couleur de la feuille</b>	<b>Nur Sorten mit Pflanze: Blühtyp: regelmäßig: Triebspitze: Blattfarbe</b>	<b>Solo variedades con Planta: tipo de floración: regular: Apice de la rama: color de la hoja</b>			
	light green	vert clair	hellgrün	verde claro	Sandy	1	
	medium green	vert moyen	mittelgrün	verde medio	Angie	2	
	dark green	vert foncé	dunkelgrün	verde oscuro	Lisbeth	3	
	grey green	vert-gris	graugrün	verde grisáceo	Grizabella	4	
<b>7. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(c)</b>				
	<b>Only varieties with Plant: flowering type: regular: Shoot apex: leaf color on sunny side in winter</b>	<b>Seulement variétés avec Plante: type de floraison: régulier: Apex du rameau: couleur de la feuille du côté ensoleillé en hiver</b>	<b>Nur Sorten mit Pflanze: Blühtyp: regelmäßig: Triebspitze: Blattfarbe auf der Sonnenseite im Winter</b>	<b>Solo variedades con Planta: tipo de floración: regular: Apice de la rama: color de la hoja en el lado expuesto al sol en invierno</b>			
	yellow	jaune	gelb	amarillo	Sandy	1	
	yellow green	vert-jaune	gelbgrün	verde amarillento	Lunolemon	2	
	light green	vert clair	hellgrün	verde claro	Lunospätrosa	3	
	medium green	vert moyen	mittelgrün	verde medio	Marlike	4	
	dark green	vert foncé	dunkelgrün	verde oscuro	Linda	5	
	grey green	vert-gris	graugrün	verde grisáceo	Silvana	6	
	green brown	brun-vert	grünbraun	marrón verdoso	WI 52018	7	
	brown	brun	braun	marrón	Nirina	8	
	red	rouge	rot	rojo	Bonita	9	
	blackish purple	pourpre noirâtre	schwärzlichpurpur	púrpura negruzco	Martina	10	
<b>8. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>	<b>(b), (d)</b>			
	<b>Leaf: color</b>	<b>Feuille: couleur</b>	<b>Blatt: Farbe</b>	<b>Hoja: color</b>			
	light green	vert clair	hellgrün	verde claro	Aufrechte Gelbe	1	
	medium green	vert moyen	mittelgrün	verde medio	Angie	2	
	dark green	vert foncé	dunkelgrün	verde oscuro	Lisbeth	3	
	grey green	vert-gris	graugrün	verde grisáceo	Zilly	4	

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>9. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(d)</b>			
	<b>Leaf: color on sunny side <u>in summer</u></b>	<b>Feuille: couleur du côté ensoleillé <u>en été</u></b>	<b>Blatt: Farbe auf der Sonnenseite <u>im Sommer</u></b>	<b>Hoja: color en el lado expuesto al sol <u>en verano</u></b>		
	yellow	jaune	gelb	amarillo	Aufrechte Gelbe	1
	yellow green	vert-jaune	gelbgrün	verde amarillento	Sandy	2
	light green	vert clair	hellgrün	verde claro	Nebula	3
	medium green	vert moyen	mittelgrün	verde medio	Laurentine	4
	dark green	vert foncé	dunkelgrün	verde oscuro	Havanna	5
	grey green	vert-gris	graugrün	verde grisáceo	Cologne, Grizabella	6
	brown green	vert-brun	braungrün	verde amarronado	Zorina	7
	yellow orange	orange-jaune	gelborange	naranja amarillento		8
	yellow pink	rose-jaune	gelbrosa	rosa amarillento	Red Lake	9
	red	rouge	rot	rojo		10
<b>10. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(d)</b>			
	<b>Leaf: color on sunny side <u>in autumn</u></b>	<b>Feuille: couleur du côté ensoleillé <u>en automne</u></b>	<b>Blatt: Farbe auf der Sonnenseite <u>im Herbst</u></b>	<b>Hoja: color en el lado expuesto al sol <u>en otoño</u></b>		
	yellow	jaune	gelb	amarillo	Zipi	1
	yellow green	vert-jaune	gelbgrün	verde amarillento	Sydney	2
	light green	vert clair	hellgrün	verde claro	Zelena	3
	medium green	vert moyen	mittelgrün	verde medio	Zelia	4
	dark green	vert foncé	dunkelgrün	verde oscuro	Stockholm	5
	grey green	vert-gris	graugrün	verde grisáceo	Cologne, Zilly	6
	blackish green	vert noirâtre	schwärzlichgrün	verde negruzco	Havanna, Zalina	7
	orange green	vert-orange	orangegrün	verde anaranjado	Dallas, Las Vegas	8
	orange red	rouge-orange	orangerot	rojo anaranjado	Zoe	9
	pink red	rouge-rose	rosarot	rojo rosado		10
	red	rouge	rot	rojo		11
	brown	brun	braun	marrón	Pretoria, Zorina	12

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11. (*)	PQ	VG	(c), (d)			
	<b>Only varieties with Plant: flowering type: irregular: Leaf: color on sunny side in winter</b>	<b>Seulement variétés avec Plante: type de floraison: irrégulier: Feuille: couleur du côté ensoleillé en hiver</b>	<b>Nur Sorten mit Pflanze: Blühtyp: unregelmäßig: Blatt: Farbe auf der Sonnenseite im Winter</b>	<b>Solo variedades con Planta: tipo de floración: irregular: Hoja: color en el lado expuesto al sol en invierno</b>		
	yellow	jaune	gelb	amarillo	Zipi	1
	yellow green	vert-jaune	gelbgrün	verde amarillento	Barcelona	2
	light green	vert clair	hellgrün	verde claro	Zelena	3
	medium green	vert moyen	mittelgrün	verde medio	Zelia	4
	dark green	vert foncé	dunkelgrün	verde oscuro		5
	grey green	vert-gris	graugrün	verde grisáceo	Zilly	6
	green brown	brun-vert	grünbraun	marrón verdoso	Stockholm	7
	red	rouge	rot	rojo	Zoe	8
	brown red	rouge-brun	braunrot	rojo amarronado	Zorina	9
	blackish purple	pourpre noirâtre	schwärzlichpurpurn	púrpura negruzco	Havanna	10
12. (*)	PQ	VG	(+)	(a)		
	<b>Inflorescence: branching</b>	<b>Inflorescence: ramification</b>	<b>Blütenstand: Verzweigung</b>	<b>Inflorescencia: ramificación</b>		
	absent	absente	fehlend	ausente	Angie, Lisbeth	1
	present	présente	vorhanden	presente	Sabella	9
13.	QN	VG	(+)	(a)		
	<b>Only varieties with Plant: flowering type: regular: Inflorescence: density of flowers</b>	<b>Seulement variétés avec Plante: type de floraison: régulier: Inflorescence: densité de fleurs</b>	<b>Nur Sorten mit Pflanze: Blühtyp: regelmäßig: Blütenstand: Dichte der Blüten</b>	<b>Solo variedades con Planta: tipo de floración: regular: Inflorescencia: densidad de las flores</b>		
	very sparse	très lâche	sehr locker	muy laxa		1
	very sparse to sparse	très lâche à lâche	sehr locker bis locker	muy laxa a laxa		2
	sparse	lâche	locker	laxa	Lisbeth	3
	sparse to medium	lâche à moyenne	locker bis mittel	laxa a media		4
	medium	moyenne	mittel	media	Lisann	5
	medium to dense	moyenne à dense	mittel bis dicht	media a densa		6
	dense	dense	dicht	densa	Rote Janina	7
	dense to very dense	dense à très dense	dicht bis sehr dicht	densa a muy densa		8
	very dense	très dense	sehr dicht	muy densa		9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. (*)	QL	VG	(+)				
	<b>Flower: opening of bud</b>		<b>Fleur: ouverture du bourgeon</b>	<b>Blüte: Öffnen der Knospe</b>	<b>Flor: apertura de la yema</b>		
	absent		absente	fehlend	ausente	Laurentine	1
	present		présente	vorhanden	presente	Dark Beauty	9
15. (*)	QL	VG	(+)				
	<b><u>Only varieties with Flower: opening of bud: present:</u> Flower: type</b>		<b><u>Seulement variétés avec Fleur: ouverture du bourgeon: présente:</u> Fleur: type</b>	<b><u>Nur Sorten mit Blüte: Öffnen der Knospe: vorhanden:</u> Blüte: Typ</b>	<b><u>Solo variedades con Flor: apertura de la yema: presente:</u> Flor: tipo</b>		
	single		simple	einfach	simple	Grizabella	1
	double		double	gefüllt	doble	Dark Beauty	2
16. (*)	QN	VG					
	<b><u>Only varieties with Flower: opening of bud: present:</u> Flower: size</b>		<b><u>Seulement variétés avec Fleur: ouverture du bourgeon: présente:</u> Fleur: taille</b>	<b><u>Nur Sorten mit Blüte: Öffnen der Knospe: vorhanden:</u> Blüte: Größe</b>	<b><u>Solo variedades con Flor: apertura de la yema: presente:</u> Flor: tamaño</b>		
	small		petite	klein	pequeño	Dark Beauty	1
	medium		moyenne	mittel	medio	Flamenco	2
	large		grande	groß	grande	Annemarie	3
17. (*)	QN	VG					
	<b><u>Only varieties with Flower: opening of bud: absent:</u> Flower: length</b>		<b><u>Seulement variétés avec Fleur: ouverture du bourgeon: absente:</u> Fleur: longueur</b>	<b><u>Nur Sorten mit Blüte: Öffnen der Knospe: fehlend:</u> Blüte: Länge</b>	<b><u>Solo variedades con Flor: apertura de la yema: ausente:</u> Flor: longitud</b>		
	very short		très courte	sehr kurz	muy corta	Zalina	1
	very short to short		très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short		courte	kurz	corta	Moulin Rouge	3
	short to medium		courte à moyenne	kurz bis mittel	corta a media		4
	medium		moyenne	mittel	media	Valeska	5
	medium to long		moyenne à longue	mittel bis lang	media a larga		6
	long		longue	lang	larga	Rita	7
	long to very long		longue à très longue	lang bis sehr lang	larga a muy larga	Pink Madonna	8
	very long		très longue	sehr lang	muy larga		9

	English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. (*)	QN	VG	(+)							
	<b><u>Only varieties with Flower: opening of bud: absent: Flower: width</u></b>		<b><u>Seulement variétés avec Fleur: ouverture du bourgeon: absente: Fleur: largeur</u></b>		<b><u>Nur Sorten mit Blüte: Öffnen der Knospe: fehlend: Blüte: Breite</u></b>		<b><u>Solo variedades con Flor: apertura de la yema: ausente: Flor: anchura</u></b>			
	very narrow		très étroite		sehr schmal		muy estrecha		Angie, Ini	1
	narrow		étroite		schmal		estrecha		Linda, Vaika	2
	medium		moyenne		mittel		media		Franca, Lisann	3
	broad		large		breit		ancha		Bettina, Maggy	4
	very broad		très large		sehr breit		muy ancha		Mary Ann	5
19. (*)	PQ	VG	(+)							
	<b><u>Flower: main color of outer side of sepal at beginning of flowering</u></b>		<b><u>Fleur: couleur principale de la face externe du sépale au début de la floraison</u></b>		<b><u>Blüte: Hauptfarbe der Außenseite des Kelchblattes bei Blühbeginn</u></b>		<b><u>Flor: color principal de la cara externa del sépalo al inicio de la floración</u></b>			
	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)			
20. (*)	PQ	VG	(+)	(e)						
	<b><u>Flower: main color of outer side of sepal at end of flowering</u></b>		<b><u>Fleur: couleur principale de la face externe du sépale à la fin de la floraison</u></b>		<b><u>Blüte: Hauptfarbe der Außenseite des Kelchblattes bei Blühende</u></b>		<b><u>Flor: color principal de la cara externa del sépalo al final de la floración</u></b>			
	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)			
21. (*)	PQ	VG	(+)							
	<b><u>Flower: color of outer side of petal at beginning of flowering</u></b>		<b><u>Fleur: couleur de la face externe du pétale au début de la floraison</u></b>		<b><u>Blüte: Farbe der Außenseite des Blütenblattes bei Blühbeginn</u></b>		<b><u>Flor: color de la cara externa del pétalo al inicio de la floración</u></b>			
	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)			
22. (*)	PQ	VG	(+)	(e)						
	<b><u>Flower: color of outer side of petal at end of flowering</u></b>		<b><u>Fleur: couleur de la face externe du pétale à la fin de la floraison</u></b>		<b><u>Blüte: Farbe der Außenseite des Blütenblattes bei Blühende</u></b>		<b><u>Flor: color de la cara externa del pétalo al final de la floración</u></b>			
	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 Beispielssorten Variedades ejemplo	Note/ Nota
<b>23.</b>	<b>PQ</b>	<b>VG</b>				
	<b>Time of beginning of flowering</b>	<b>Époque du début de la floraison</b>	<b>Zeitpunkt des Blühbeginns</b>	<b>Época de inicio de la floración</b>		
	very early	très précoce	sehr früh	muy temprana	Martina	1
	very early to early	très précoce à précoce	sehr früh bis früh	muy temprana a temprana		2
	early	précoce	früh	temprana	Pink Madonna	3
	early to medium	précoce à moyenne	früh bis mittel	temprana a media		4
	medium	moyenne	mittel	media	Amethyst	5
	medium to late	moyenne à tardive	mittel bis spät	de media a tardía		6
	late	tardive	spät	tardía	Moulin Rouge	7
	late to very late	tardive à très tardive	spät bis sehr spät	de tardía a muy tardía		8
	very late	très tardive	sehr spät	muy tardía	Ronja	9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

Unless otherwise indicated, observations on varieties with Plant: flowering type: regular should be made at the beginning of flowering when one third of the flowers are fully developed on 50% of the plants. Observations on varieties with Plant: flowering type: irregular should be made in the middle of autumn.

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

- (a) Observations should be made in the middle third of the shoots.
- (b) Observations should be made on the shaded part of the plant.
- (c) Observations should be made after a few days with minimum temperatures below zero degrees Celsius.
- (d) Observations should be made based on the general impression of the leaves.
- (e) Observations should be made when 10 % of the plants have at least 10 senescent flowers.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: flowering type

Varieties with Plant: flowering type: regular flower on the majority of shoots. Varieties with Plant: flowering type: irregular do not flower on the majority of shoots and if flowering does occur the number of flowers are few.

Ad. 2: Plant: growth habit



1  
narrow upright



2  
broad upright



3  
broad upright to  
spreading



4  
spreading



5  
weeping

Ad. 3: Plant: density



3  
sparse



5  
medium



7  
dense

Ad. 4: Plant: height



Observations should be made from the surface of the growing medium to the top of the plant.

Ad. 6: Only varieties with Plant: flowering type: regular: Shoot apex: leaf color



Observations should be made above the top flowers.

Ad. 8: Leaf: color

Observations should be made in the lower third of the plant.



Ad. 12: Inflorescence: branching



1  
absent



9  
present

Ad. 13: Only varieties with Plant: flowering type: regular: Inflorescence: density of flowers



3  
sparse



5  
medium



7  
dense

Ad. 14: Flower: opening of bud



1  
absent



9  
present

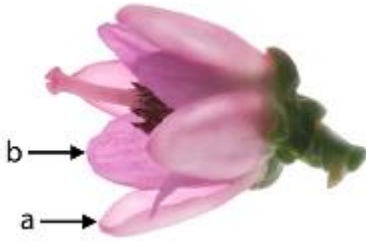
Ad. 15: Only varieties with Flower: opening of bud: present: Flower: type

A single flower has four petals. A double flower has more than four petals.

Ad. 18: Only varieties with Flower: opening of bud: absent: Flower: width

Observations should be made in the upper third of the flowering shoots.

Ad. 19: Flower: main color of outer side of sepal at beginning of flowering



a = sepal (characteristics 19 and 20)

b = petal (characteristics 21 and 22)

Ad. 20: Flower: main color of outer side of sepal at end of flowering

See Ad. 19

Ad. 21: Flower: color of outer side of petal at beginning of flowering

See Ad. 19

Ad. 22: Flower: color of outer side of petal at end of flowering

See Ad. 19

9. Literature

Nelson, E. C., 2011: Hardy Heathers from the Northern Hemisphere. Royal Botanic Gardens, Kew, GB

Knight, F. P., 1986: Heaths and Heathers. Wisley Handbook, Cassell/RHS.

Underhill, T., 1990: Heaths & Heathers, The Growers Encyclopedia. David & Charles, Newton Abbot, GB.

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="Calluna vulgaris (L.) Hull"/>
1.2	Common name	<input type="text" value="Heather, Ling, Scots Heather"/>
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"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]

(please state parent variety)

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

female parent male parent

(b) partially known cross [ ]

(please state 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:
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4.2	Method of propagating the variety	
4.2.1	Vegetative propagation	
(a)	Cuttings	[ ]
(b)	<i>In vitro</i> propagation	[ ]
(c)	Other (state method)	[ ]
	<input type="text"/>	
4.2.2	Other (Please provide details)	[ ]
	<input type="text"/>	

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
<b>5.1</b>	<b>Plant: flowering type</b>		
<b>(1)</b>			
	regular	Laurentine	1 [ ]
	irregular	Cologne	2 [ ]
<b>5.2</b>	<b>Plant: growth habit</b>		
<b>(2)</b>			
	narrow upright	Linda	1 [ ]
	broad upright	Laurentine	2 [ ]
	broad upright to spreading	Angie	3 [ ]
	spreading	Vaika	4 [ ]
	weeping	Nelly	5 [ ]
<b>5.3</b>	<b>Leaf: color on sunny side <u>in autumn</u></b>		
<b>(10)</b>			
	yellow	Zipi	1 [ ]
	yellow green	Sydney	2 [ ]
	light green	Zelena	3 [ ]
	medium green	Zelia	4 [ ]
	dark green	Stockholm	5 [ ]
	grey green	Cologne, Zilly	6 [ ]
	black green	Havanna, Zalina	7 [ ]
	orange green	Dallas, Las Vegas	8 [ ]
	orange red	Zoe	9 [ ]
	pink red		10 [ ]
	red		11 [ ]
	brown	Pretoria, Zorina	12 [ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.4</b> <u>Only varieties with Plant: flowering type: irregular: Leaf: color on sunny side in winter</u> (11)		
yellow	Zipi	1 [ ]
yellow green	Barcelona	2 [ ]
light green	Zelena	3 [ ]
medium green	Zelia	4 [ ]
dark green		5 [ ]
grey green	Zilly	6 [ ]
green brown	Stockholm	7 [ ]
red	Zoe	8 [ ]
brown red	Zorina	9 [ ]
blackish purple	Havanna	10 [ ]
<b>5.5</b> <u>Flower: opening of bud</u> (14)		
absent	Laurentine	1 [ ]
present	Dark Beauty	9 [ ]
<b>5.6</b> <u>Only varieties with Flower: opening of bud: absent: Flower: length</u> (17)		
very short	Zalina	1 [ ]
very short to short		2 [ ]
short	Moulin Rouge	3 [ ]
short to medium		4 [ ]
medium	Valeska	5 [ ]
medium to long		6 [ ]
long	Rita	7 [ ]
long to very long	Pink Madonna	8 [ ]
very long		9 [ ]
<b>5.7</b> <u>Only varieties with Flower: opening of bud: absent: Flower: width</u> (18)		
very narrow	Angie, Ini	1 [ ]
narrow	Linda, Vaika	2 [ ]
medium	Franca, Lisann	3 [ ]
broad	Bettina, Maggy	4 [ ]
very broad	Mary Ann	5 [ ]



TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.8(i) Flower: main color of outer side of sepal <u>at beginning of</u></b> <b>(19) <u>flowering</u></b> RHS Colour Chart (indicate reference number)		
<b>5.8(ii) Flower: main color of outer side of sepal <u>at beginning of</u></b> <b>(19) <u>flowering</u></b>		
white		1 [ ]
pink		2 [ ]
red		3 [ ]
purple red		4 [ ]
blue violet		5 [ ]
other (please indicate)		[ ]
<b>5.9(i) Flower: color of outer side of petal <u>at beginning of flowering</u></b> <b>(21)</b> RHS Colour Chart (indicate reference number)		
<b>5.9(ii) Flower: color of outer side of petal <u>at beginning of flowering</u></b> <b>(21)</b>		
white		1 [ ]
pink		2 [ ]
red		3 [ ]
purple red		4 [ ]
blue violet		5 [ ]
other (please indicate)		[ ]

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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>	<i>Leaf: color</i>	<i>light green</i>	<i>dark green</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]