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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

HELLEBORE

UPOV Code(s): HELLE

Helleborus L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from the Kingdom of the Netherlands

to be considered by the

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from 2025-03-31 to 2025-04-03*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative Names:*

Botanical name	English	French	German	Spanish
<i>Helleborus L.</i>	Christmas Rose, Hellebore, Lenten Rose	Hellébore, Rose de Noël	Christrose, Nieswurz, Schneerose	Eléboro

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 *Helleborus L.*.

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:

10 young 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) Only varieties with Young terminal leaflet: marbling: present: Young terminal leaflet: pinkish color (characteristic 7)
- (b) Terminal leaflet: main color (characteristic 10)
- (c) Terminal leaflet: variegation (characteristic 11)
- (d) Terminal leaflet: area of marbling (characteristic 12)
- (e) Flowering stem: length (characteristic 17)
- (f) Flower: type (characteristic 25)
- (g) Flower: diameter (characteristic 27)
- (h) Sepal: ground color (characteristic 32) with the following groups:
 - Gr. 1: white
 - Gr. 2: green
 - Gr. 3: yellow
 - Gr. 4: pink
 - Gr. 5: purple red
 - Gr. 6: violet
- (i) Sepal: over color (characteristic 33) with the following groups:
 - Gr. 1: white
 - Gr. 2: green
 - Gr. 3: yellow
 - Gr. 4: pink
 - Gr. 5: purple red
 - Gr. 6: violet
- (j) Sepal: number of spots (characteristic 36)

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

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 *States of Expression and Corresponding Notes*

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

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

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

6.3 *Types of Expression*

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

6.4 *Example Varieties*

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

6.5 Legend

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

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

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

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	QN	MS/VG		(a)				
	Petiole: length							
	very short						COSEH 1000	1
	short						JHE00325	2
	medium						ET EPB 1717	3
	long						HLR 210	4
	very long						JHE00209	5
2.	QN	VG	(+)	(a)				
	Petiole: anthocyanin coloration							
	absent or very weak						HLR 150	1
	weak						Winter Passion	2
	medium						HL 1044	3
	strong						COSEH 6300	4
	very strong						ET EPB 1717	5
3.	QN	VG		(a)				
	Petiolule: anthocyanin coloration							
	absent or very weak						HLR 150	1
	weak						Winter Passion	2
	medium						COSEH 1000	3
	strong						COSEH 4100	4
	very strong						ET EPB 1717	5
4.	QN	MS/VG	(+)	(a)				
	Leaf: width							
	very narrow						JHE00325	1
	narrow						42NB	2
	medium						HL 1024	3
	broad						HF 1116	4
	very broad						HG 1410	5
5.	QN	MS/VG	(+)	(a)				
	Leaf: number of leaflets							
	few						EPB 29	1
	medium						COSEH 1030	2
	many						JHE00294	3

		English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.		QL	VG		(b)						
		Young terminal leaflet: marbling									
		absent								COSEH 4200	1
		present								JHE00326	9
7.	(*)	QL	VG	(+)	(b)						
		<u>Only varieties with Young terminal leaflet: marbling: present:</u> Young terminal leaflet: pinkish color									
		absent								EPBRD01	1
		present								EPB 30	9
8.		QN	MS/VG	(+)	(a)						
		Terminal leaflet: length									
		very short								JHE00325	1
		short								ET EPB 716	2
		medium								HL 1024	3
		long								HG 1412	4
		very long								HG 1410	5
9.		QN	MS/VG	(+)	(a)						
		Terminal leaflet: width									
		very narrow								JHE00325	1
		narrow								JHE00091	2
		medium								HL 1024	3
		broad								HG 1410	4
		very broad								ET EPB 716	5
10.	(*)	PQ	VG		(a)						
		Terminal leaflet: main color									
		light green								HLR 150	1
		medium green								COSEH 6000	2
		dark green								JHE00325	3
		grey green								Diego Ice	4

		English	français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	(*)	QL	VG	(+)	(a)			
		Terminal leaflet: variegation						
		absent					COSEH 750	1
		present					COSEH 900	9
12.	(*)	QN	VG	(+)	(a)			
		Terminal leaflet: area of marbling						
		absent or very small					COSEH 4200	1
		small					EPB 31	2
		medium					EPBRD01	3
		large					ABCRD02	4
		very large					EPB 29	5
13.		QN	VG		(a)			
		Terminal leaflet: glossiness						
		absent or weak					Diego Ice	1
		medium					HLR 150	2
		strong					HG 1412	3
14.	(*)	QN	VG	(+)	(a)			
		Terminal leaflet: density of incisions of margin						
		absent or very sparse					HELNI 16	1
		sparse					COSEH 3010	2
		medium					HG 1426	3
		dense					COSEH 4200	4
		very dense					JHE00291	5
15.	(*)	QN	VG	(+)	(a)			
		Terminal leaflet: depth of incisions of margin						
		absent or very shallow					Winter Princess	1
		shallow					JHE00291	2
		medium					COSEH 4200	3
		deep					Winter Passion	4
		very deep					HG 1414	5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16.	QN	VG	(+)	(a)				
	Terminal leaflet: undulation of margin							
	absent or weak						Winter Passion	1
	medium						COSEH 4100	2
	strong						HG 1426	3
17.	(*) QN	MS/VG	(+)	(c)				
	Flowering stem: length							
	very short						COSEH 1030	1
	short						White Princess	2
	medium						HL 1044	3
	long						HM 1212	4
	very long						HG 1410	5
18.	QN	MS/VG	(+)	(c)				
	Flowering stem: diameter							
	very small						HLR 210	1
	small						HLR 150	2
	medium						COSEH 6200	3
	large						ET EPB 1717	4
	very large						JHE00316	5
19.	(*) QN	VG	(+)	(c)				
	Flowering stem: anthocyanin coloration							
	absent or very weak						HLR 210	1
	weak						JHE00277	2
	medium						HL 1014	3
	strong						ET EPB 716	4
	very strong						ET EPB 1717	5
20.	(*) QN	VG	(+)	(c)				
	Inflorescence: attitude							
	erect						HG 1412	1
	semi-erect						COSEH 7700	2
	horizontal						Pirouette	3
	semi-drooping						JHE00221	4
	drooping						JHE00208	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21.	(*)	QN	VG	(+)	(d)		
		Flower bud: conspicuousness of veins					
		absent or weak				EPB 29	1
		medium				JHE00234	2
		strong				RD06	3
22.	(*)	PQ	VG		(d),(h)		
		Flower bud: ground color					
		RHS Colour Chart (indicate reference number)					
23.	(*)	PQ	VG	(+)	(d),(h)		
		Flower bud: over color					
		RHS Colour Chart (indicate reference number)					
24.		QN	VG	(+)	(e)		
		Flower: attitude					
		erect				JHE00091	1
		semi-erect				COSEH 4500	2
		horizontal				HLR 150	3
		semi-drooping				Frozen Kristof	4
		drooping				EPB 29	5
25.	(*)	QL	VG	(+)	(e)		
		Flower: type					
		single				HLR 150	1
		anemone				Tutu	2
		double				HLR 210	3
26.	(*)	QN	MS/VG	(+)	(e)		
		Only varieties with Flower: type: double; Flower: number of petals					
		very few				HL 1036	1
		few				HLR 210	2
		medium					3
		many					4
		very many					5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27.	(*) QN	MS/VG	(+)	(e)		
	Flower: diameter					
	very small				JHE00300	1
	small				HG 1414	2
	medium				COSEH 750	3
	large				HM 1212	4
	very large				HG 1418	5
28.	QN	VG	(+)	(e)		
	<u>Only varieties with</u> Flower: type: single and anemone: Flower: overlapping of sepals					
	absent or weak				Winter Passion	1
	medium				HLR 150	2
	strong				JHE00316	3
29.	QN	MS/VG	(+)	(e),(f)		
	Sepal: length					
	very short				JHE00300	1
	short				JHE00209	2
	medium				EPBRD01	3
	long				HM 1212	4
	very long				COSEH 7700	5
30.	PQ	VG	(+)	(e),(f)		
	Sepal: shape					
	broad ovate				HF 1112	1
	medium ovate				COSEH 710	2
	narrow ovate				JHE00325	3
	broad elliptic				ET EPB 731	4
	medium elliptic				HON 1610	5
	narrow elliptic				COSEH 960	6
31.	PQ	VG	(+)	(e),(f)		
	Sepal: shape of apex					
	acuminate				HLR 150	1
	obtuse				Frozen Kristof	2
	rounded				HF 1112	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32.	(*)	PQ	VG	(e),(f),(h)			
		Sepal: ground color					
		RHS Colour Chart (indicate reference number)					
33.	(*)	PQ	VG	(e),(f),(h)			
		Sepal: over color					
		RHS Colour Chart (indicate reference number)					
34.		PQ	VG	(e),(f)			
		Sepal: color of veins					
		RHS Colour Chart (indicate reference number)					
35.		PQ	VG	(e),(f)			
		Sepal: color of margin					
		RHS Colour Chart (indicate reference number)					
36.	(*)	QN	VG	(+) (e),(f)			
		Sepal: number of spots					
		absent or very few				Winter Passion	1
		few				HG 1412	2
		medium				HLR 150	3
		many				Frozen Kristof	4
		very many				JHE00209	5
37.		PQ	VG	(e),(f)			
		Sepal: color of spots					
		RHS Colour Chart (indicate reference number)					
38.		PQ	VG	(+) (e),(f)			
		Sepal: color of macule					
		RHS Colour Chart (indicate reference number)					

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39.	QN	VG	(+)	(e),(f)				
	Sepal: undulation of margin							
	absent or weak						Frozen Kristof	1
	medium						HLR 150	2
	strong						Painted Bunting	3
40.	QN	VG		(e),(g)				
	Only varieties with Flower: type: single: Nectary: anthocyanin coloration							
	absent or very weak						HL 1038	1
	weak						COSEH 6500	2
	medium						ET EPB 716	3
	strong						ET EPB 731	4
	very strong						JHE00291	5
41.	QN	VG	(+)	(e),(g)				
	Only varieties with Flower: type: single: Nectary: distribution of anthocyanin coloration							
	at base						HL 1044	1
	basal three quarters						JHE00375	2
	distal quarter						ET EPB 731	3
	throughout							4
42.	PQ	VG	(+)	(e),(g)				
	Only varieties with Flower: type: single: Nectary: color of distal quarter							
	whitish						HL 1024	1
	yellowish						HL 1038	2
	greenish						Frozen Kristof	3
43.	QN	MS/VG		(e)				
	Filament: length							
	very short						JHE00214	1
	short						JHE00221	2
	medium						HL 1038	3
	long						ET EPB 731	4
	very long						HL 1024	5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	QN	VG		(e)				
	Filament: anthocyanin coloration							
	absent or very weak						HL 1038	1
	weak						COSEH 7300	2
	medium						COSEH 5300	3
	strong						COSEH 4900	4
	very strong							5
45.	PQ	VG	(+)	(e)				
	Filament: color							
	whitish						COSEH 7300	1
	yellowish						HL 1038	2
	greenish						COSEH 6200	3
46.	QN	VG		(e)				
	Style: anthocyanin coloration							
	absent or very weak						COSEH 7700	1
	weak						PINKPRIN01	2
	medium						COSEH 6400	3
	strong						COSEH 6200	4
	very strong						HL 1024	5
47.	PQ	VG	(+)	(e)				
	Style: color							
	whitish						COSEH 7700	1
	yellowish							2
	greenish						JHE00424	3
48.	QN	VG		(e)				
	Ovary: anthocyanin coloration							
	absent or very weak						COSEH 7700	1
	weak						COSEH 4200	2
	medium						COSEH 6600	3
	strong						Miyohere Nyr	4
	very strong						COSEH 5300	5

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
49.	(*)	QN	VG	(+)	(c)				
		<u>Only varieties with Sepal: ground color: white, yellow or green; Flower: pink or red coloration at aging</u>							
		absent or weak						COSEH 750	1
		medium						42NB	2
		strong						COSEH 7700	3

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

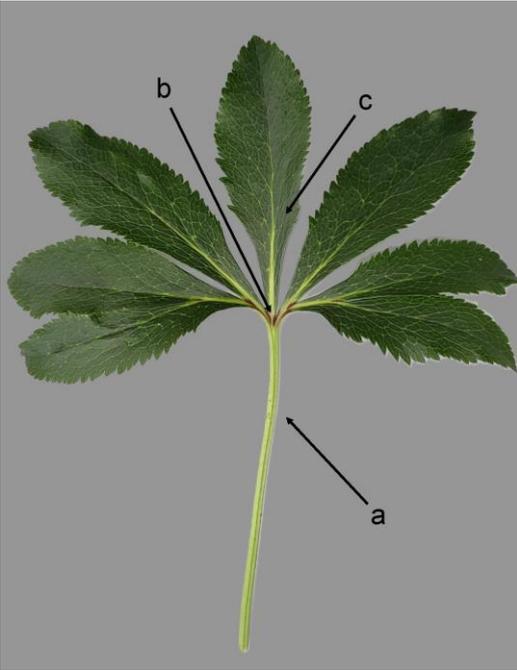
Characteristics containing the following key in the Table of Characteristics should be examined as indicated below:

(a) Observations should be made on full grown leaves after the flowering period.

a = Petiole

b = Petiolule

c = Terminal leaflet



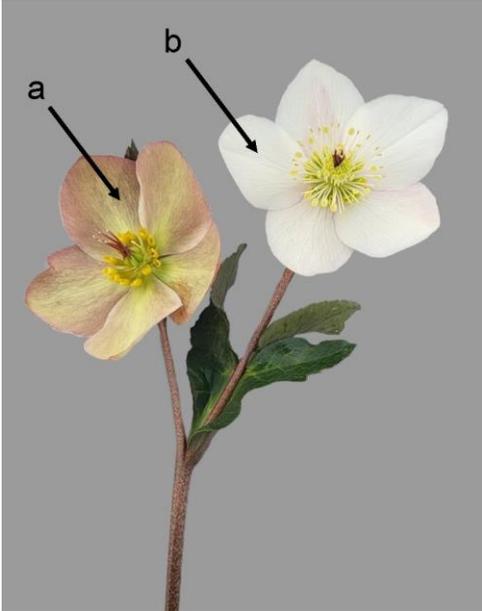
(b) Observations should be made after the flowering period before the leaves are fully grown.

(c) Observations should be made at the end of the flowering period.

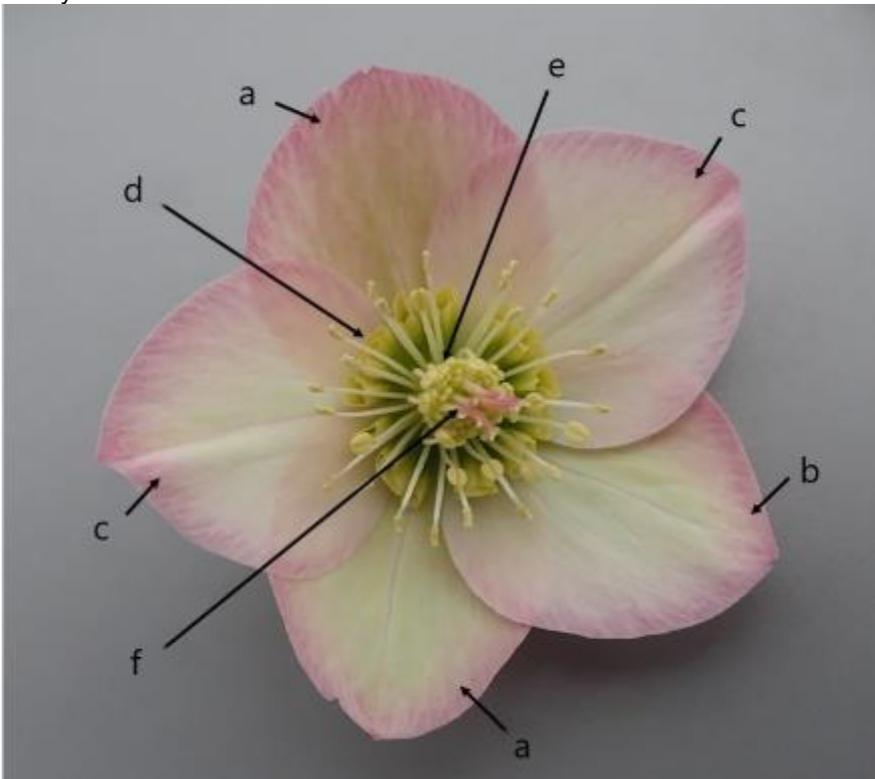
(d) Observations should be made just before opening.

(e) Observations should be made on the second flower of a primary inflorescence when approximately 10-30% of the filaments are full grown.

a = first flower
b = second flower



a = outer sepals
b = intermediate sepal
c = inner sepals
d = nectary
e = filament
f = style



(f) Observations should be made on the inner sepals.

(g) Observations should be made after the flower bud has opened, but before 10% of the filaments are fully grown. It is common for varieties to change from greenish or whitish to yellowish upon maturing.

(h) Ground color is the color which has a continuous dispersion across the surface. The ground color is not always the color occupying the largest surface area. In the case there is a ground color upon which a second color such as a flush develops over time, the flush is considered the over color. The over color is not always the color occupying the smallest surface area.

8.2 Explanations for individual characteristics

Ad. 2: Petiole: anthocyanin coloration

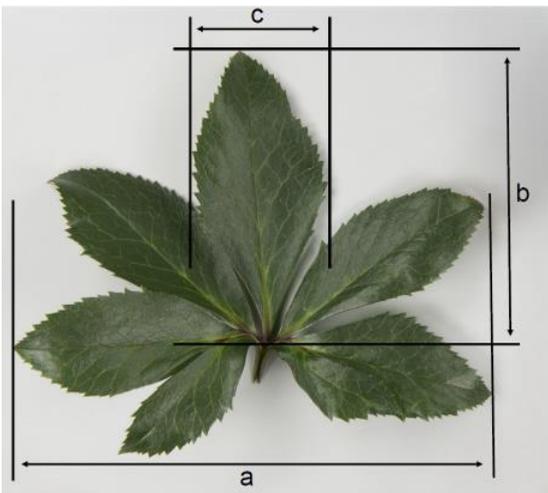
Observations should be made on the middle third of the petiole.

Ad. 4: Leaf: width

a = Leaf: width

b = Terminal leaflet: length

c = Terminal leaflet: width



Ad. 5: Leaf: number of leaflets

A true leaflet can be identified by a clear visible midrib on the underside of the leaf.



1
few



2
medium



3
many

Ad. 7: Only varieties with Young terminal leaflet: marbling: present: Young terminal leaflet: pinkish color



1
absent



9
present

Ad. 8: Terminal leaflet: length

Observations should be made including the petiolule.

See Ad. 4

Ad. 9: Terminal leaflet: width

See Ad. 4

Ad. 11: Terminal leaflet: variegation

Variegation should not be confused with marbling. Variegation is the appearance of differently colored zones which could be speckled or blotched. With marbling the different color is always present along the veins.



1
absent



9
present

Ad. 12: Terminal leaflet: area of marbling



1
absent or very small



2
small



3
medium



4
large



5
very large

Ad. 14: Terminal leaflet: density of incisions of margin



1
absent or very sparse



2
sparse



3
medium



4
dense



5
very dense

Ad. 15: Terminal leaflet: depth of incisions of margin



1
absent or very shallow



2
shallow



3
medium

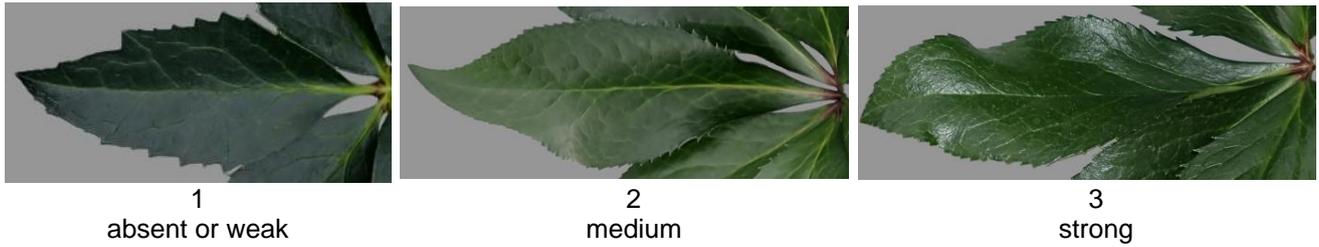


4
deep



5
very deep

Ad. 16: Terminal leaflet: undulation of margin



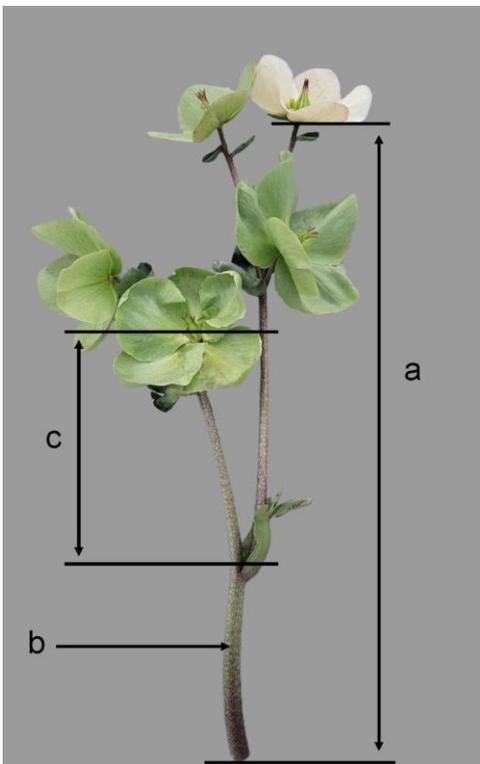
Ad. 17: Flowering stem: length

Observations should be made on the longest flowering stem from the soil level to the end of the flowering stem, excluding the last flower.

a = Flowering stem: length

b = Flowering stem: diameter

c = Flowering stem: anthocyanin coloration



Ad. 18: Flowering stem: diameter

Observations should be made on the longest flowering stem at the part below the point where the stem starts making lateral branches. This should be done at the middle third.

See Ad. 17

Ad. 19: Flowering stem: anthocyanin coloration

Observations should be made on the middle third of the flowering stem.

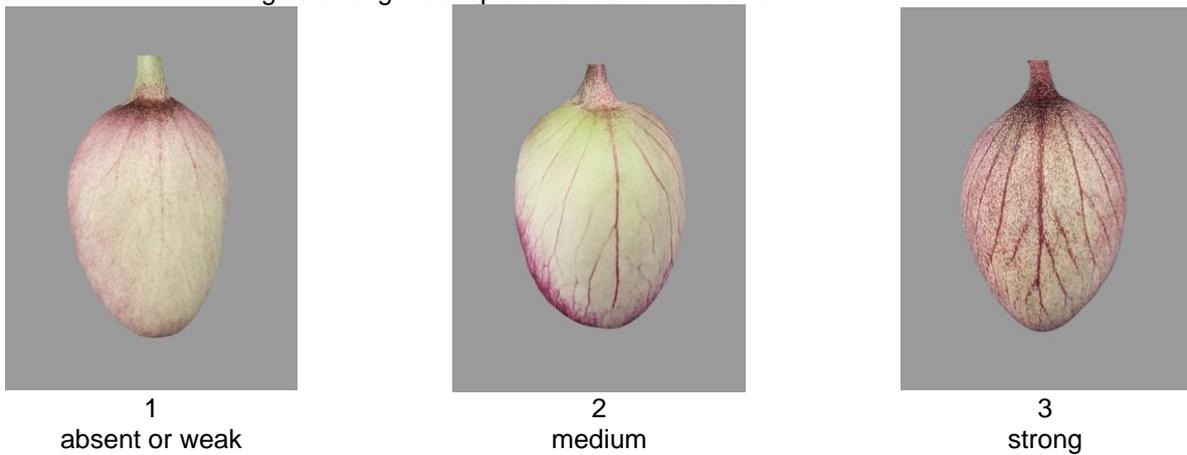
See Ad. 17

Ad. 20: Inflorescence: attitude



Ad. 21: Flower bud: conspicuousness of veins

The conspicuousness is defined as the contrast between the color of the flower bud and the color of the veins. A greater contrast in color will give stronger conspicuousness of the veins.



Ad. 23: Flower bud: over color

Veins should be excluded.

Ad. 24: Flower: attitude



1
erect



2
semi-erect



3
horizontal



4
semi-drooping



5
drooping

Ad. 25: Flower: type

1. single: flower has only sepals and nectaries are present.
2. anemone: nectaries are more petal-like, but still have the closed shape of nectaries.
3. double: nectaries are absent and replaced by petals.



1
single



2
anemone



3
double

Ad. 26: Only varieties with Flower: type: double: Flower: number of petals



1
few



2
few to medium



3
medium



4
medium to many

5
very many

Ad. 27: Flower: diameter

Observations should be made on the broadest part of the flower.

Ad. 28: Only varieties with Flower: type: single and anemone: Flower: overlapping of sepals



1
absent or weak



2
medium



3
strong

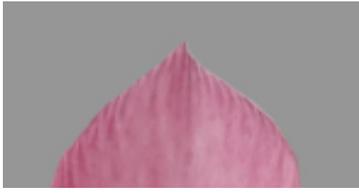
Ad. 29: Sepal: length



Ad. 30: Sepal: shape

		← broadest part →	
		(below middle)	at middle
↑ width (ratio length/width) ↓	narrow (elongated)	 3 narrow ovate	 6 narrow elliptic
	medium	 2 medium ovate	 5 medium elliptic
	broad (compressed)	 1 broad ovate	 4 broad elliptic

Ad. 31: Sepal: shape of apex



1
acuminate



2
obtuse



3
rounded

Ad. 36: Sepal: number of spots



1
absent or very few



2
few



3
medium



4
many



5
very many

Ad. 38: Sepal: color of macule



Ad. 39: Sepal: undulation of margin



1
absent or weak



2
medium



3
strong

Ad. 41: Only varieties with Flower: type: single: Nectary: distribution of anthocyanin coloration



1
at base



2
basal three quarters



3
distal quarter

Ad. 42: Only varieties with Flower: type: single: Nectary: color of distal quarter

Only to be observed for varieties with 'Nectary: distribution of anthocyanin coloration' at base and at basal three quarters (note 1 and 2).

Ad. 45: Filament: color

Only to be observed for varieties with 'Filament: anthocyanin coloration' less than strong (less than note 4 to 5).

Ad. 47: Style: color

Only to be observed for varieties with 'Style: anthocyanin coloration' less than strong (less than note 4 to 5).

Ad. 49: Only varieties with Sepal: ground color: white, yellow or green: Flower: pink or red coloration at aging



1
absent or weak



2
medium



3
strong

9. Literature

Bavcon, J., Eler, K., Susek, A., 2012: Helleborus (Helleborus L.) in Slovenia. University Botanic Gardens Ljubljana, SI

Clarke, I., Lee, H., 2019: Name that Flower: The Identification of Flowering Plants. Melbourne University Press, AU

Eggelte, H. 2012: Botanisch woordenboek. Knnv Uitgeverij, NL

Hickey, M., King, C., 2000: The Cambridge Illustrated Glossary of Botanical Terms. Cambridge University Press, UK

Leijger, E. 2017: Alles over het plantengeslacht Helleborus. Micha, NL

McLewin, W., 2019: Helleborus and the Helleborastrum Problem. Wellesley-Cambridge Press, UK

Thomsen, M., 2022: Lenzrosen, Die Wildarten – Schönheiten für jeden Garten. Haupt Verlag, DE

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1.1 Botanical name

1.1.2 Common name

1.1.3 Species:

2. Applicant

Name

Address

Telephone No.

Fax No.

E-mail address

Breeder (if different from applicant)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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3.	Proposed denomination and breeder's reference
Proposed denomination (if available)	<input data-bbox="595 380 1265 436" type="text"/>
Breeder's reference	<input data-bbox="595 492 1265 548" type="text"/>

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross []

(please state parent variety)

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

female parent

male parent

(b) partially known cross []

(please state parent variety(ies))

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

female parent

male parent

(c) unknown cross []

4.1.2 Mutation

(please state parent variety)

4.1.3 Discovery and development

(please state where and when discovered and how developed)

4.1.4 Other

(Please provide details)

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

4.2.1 Seed-propagated varieties

(a) Other (please provide details) []

4.2.2 Vegetative propagation

(a) 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 (7)	<u>Only varieties with Young terminal leaflet: marbling: present: Young terminal leaflet: pinkish color</u>		
	absent	EPBRD01	1 []
	present	EPB 30	9 []
5.2 (10)	Terminal leaflet: main color		
	light green	HLR 150	1 []
	medium green	COSEH 6000	2 []
	dark green	JHE00325	3 []
	grey green	Diego Ice	4 []
5.3 (11)	Terminal leaflet: variegation		
	absent	COSEH 750	1 []
	present	COSEH 900	9 []
5.4 (12)	Terminal leaflet: area of marbling		
	absent or very small	COSEH 4200	1 []
	small	EPB 31	2 []
	medium	EPBRD01	3 []
	large	ABCRD02	4 []
	very large	EPB 29	5 []
5.5 (17)	Flowering stem: length		
	very short	COSEH 1030	1 []
	short	White Princess	2 []
	medium	HL 1044	3 []
	long	HM 1212	4 []
	very long	HG 1410	5 []
5.6 (25)	Flower: type		
	single	HLR 150	1 []
	anemone	Tutu	2 []
	double	HLR 210	3 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.7 (27)	Flower: diameter		
	very small	JHE00300	1 []
	small	HG 1414	2 []
	medium	COSEH 750	3 []
	large	HM 1212	4 []
	very large	HG 1418	5 []
5.8 (i) (32)	Sepal: ground color		
	RHS Colour Chart (indicate reference number)		
5.8 (ii) (32)	Sepal: ground color		
	white		1 []
	green		2 []
	yellow		3 []
	pink		4 []
	purple red		5 []
	violet		6 []
5.9 (i) (33)	Sepal: over color		
	RHS Colour Chart (indicate reference number)		
5.9 (ii) (33)	Sepal: over color		
	white		1 []
	green		2 []
	yellow		3 []
	pink		4 []
	purple red		5 []
	violet		6 []
5.10 (36)	Sepal: number of spots		
	absent or very few	Winter Passion	1 []
	few	HG 1412	2 []
	medium	HLR 150	3 []
	many	Frozen Kristof	4 []
	very many	JHE00209	5 []

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

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Flowering stem: length</i>	<i>very short</i>	<i>medium</i>

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<p>Comments</p>

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

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

Yes No

(If yes, please provide details)

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

Yes No

(If yes, please provide details)

7.3 Other information

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

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

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

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

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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8. Authorization for release

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

Yes No

(b) Has such authorization been obtained?

Yes No

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

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

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes No

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes No

(c) Tissue culture Yes No

(d) Other factors Yes No

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

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes

(please provide details as specified by the Authority)

No

12. 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]