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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

HYDRANGEA

UPOV Code(s): HYDRN

Hydrangea L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from France
to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its fifty-first session, to be held in Christchurch, New Zealand,
from 2019-02-18 to 2019-02-22

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Hydrangea L.	Hydrangea	Hortensia	Hortensie	Hidrangea, Hortensia

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 *Hydrangea* 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 plants capable of expressing all characteristics in the first growing cycle.

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

8 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

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

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.

3.3.3 In particular, the plants should not be grown in a medium that will specifically affect the sepal color.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 8 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 8 plants or parts of plants taken from each of 8 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 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 8 plants, 1 off-type is allowed

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: type (characteristic 1)
(b) Stem: fasciation (characteristic 5)
(c) Stem: color (characteristic 6)
(d) Leaf blade: anthocyanin coloration (characteristic 17)
(e) Leaf blade: variegation (characteristic 19)
(f) Leaf blade: main color (characteristic 20)
(g) Inflorescence: shape (characteristic 26)
(h) Inflorescence: conspicuousness of fertile flowers (characteristic 29)
(i) Sterile flower: number of sepals (characteristic 34)
(j) Sterile flower: main color of inner side of sepal (characteristic 43)
Gr. 1: white
Gr. 2: green
Gr. 3: light pink
Gr. 4: medium pink
Gr. 5: dark pink
Gr. 6: red

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 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	*Note*
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	*Note*
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

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.

Exemple varieties' species are indicated as follow:
(a): Hydrangea macrophylla (Thunb.) Ser. And Hydrangea serrata (Thunb.) Ser. var. serrata
(b): Hydrangea paniculata Siebold
(c): Hydrangea arborescens L.
(d): Hydrangea quercifolia W. Bartram
(e): Hydrangea anomala D. Don subsp. petiolaris (Siebold & Zucc.) E. M. McClint.

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

7 Not applicable

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**(*)**	**QL VG**	**(a)**				
		Plant: type					
		climbing				Nana Yakushimanum (e)	1
		non-climbing				Merveille (a)	2
2.	**(*)**	**QN VG**	**(+) (a)**				
		Only varieties with plant type non-climbing: Plant: growth habit					
		upright					1
		semi-upright					2
		spreading					3
3.	**(*)**	**QN MG/MS/VG**	**(+) (a)**				
		Only varieties with plant type: non-climbing: Plant: height					
		very short				Saxabrose (a) / Dharuma (b) / Ncha 8 (c)	1
		short				H214903 (a) / Dolprim (b) / Ncha7 (c)	3
		medium				11 005 51 (a) / Bokraflame (b) / Ncha3 (c)	5
		tall				H215908 (a) / Early Sensation (b) / Ncha4 (c)	7
		very tall				Kazan (a) / Mite Late Summer (b) / Annabelle (c)	9
4.		**QN VG**	**(a)**				
		Only varieties with plant type: non-climbing: Plant: height in relation to width					
		taller than broad					1
		as tall as broad					2
		broader than tall					3
5.	**(*)**	**QL VG**	**(+) (b)**				
		Stem: fasciation					
		absent				Merveille (a)	1
		present				Domotoi (a)	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	**(*)**	**PQ VG**	**(b)**				
		Stem: color					
		green				Merveille (a)	1
		light red				Mite Late Summer (b)	2
		red				Wim Red (b)	3
		brown				Bokraflame (b)	4
		black				Nigra (a)	5
		green and black				Napo (a)	6
7.		**QN VG**	**(+) (b)**				
		Stem: number of lenticels					
		absent or few				Blue Bird (a), Imola (a)	1
		medium				Merveille Sanguinea (a)	3
		many				Hobella (a)	5
8.		**QN VG**	**(+) (b)**				
		Stem: size of lenticels					
		small				Mrs Kumiko (a)	1
		medium				Bergfink (a)	2
		large				Hokomac (a)	3
9.		**PQ VG**	**(b)**				
		Stem: color of lenticels					
		whitish				Pink Diamond (a)	1
		reddish				Leuchtfeuer (a)	2
		blackish				Merveille (a)	3
10.	**(*)**	**QN MS/VG**	**(c)**				
		Leaf blade: length					
		short				Hörnli (a)	3
		medium				Rosita (a)	5
		long				Merveille (a)	7
11.		**QN MS/VG**	**(c)**				
		Leaf blade: width					
		narrow				Shichidanka (a)	3
		medium				Mrs Kumiko (a)	5
		broad				Snowflake (d)	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12.	**(*)**	**QL VG**	**(+) (c)**				
		Leaf blade: lobing					
		absent				Merveille (a)	1
		present				Harmony (d)	9
13.	**(*)**	**PQ VG**	**(+) (c)**				
		Only varieties with leaf blade lobing: absent: **Leaf blade: shape**					
		ovate				Merveille (a)	1
		circular				Rosita (a)	2
		elliptic				Blue Wave (a)	3
		obovate				H213 (a), H213902 (a)	4
14.		**QN VG**	**(+) (c)**				
		Leaf blade: length of tip					
		short				Chaperon Rouge (a)	1
		medium				Mme E. Mouillère (a)	2
		long				Halla San (a)	3
15.	**(*)**	**PQ VG**	**(+) (c)**				
		Leaf blade: shape of base					
		acute				Europa (a)	1
		obtuse				Bosco (a), Hamburg (a)	2
		rounded				Rosabelle (a)	3
		cordate				Annabelle (c)	4
16.		**QN VG**	**(+) (c)**				
		Leaf blade: depth of incisions on margin					
		absent or very shallow				Bokraflame (b)	1
		shallow				Perfrie (a)	2
		medium				Hobergine (a)	3
		deep				Fasan (a)	4
		very deep				Paris (a)	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.	**(*)**	**QN VG**	**(+)**	**(c), (d)**			
		Leaf blade: anthocyanin coloration					
		absent or very weak				Victoria (a)	1
		weak				Sicamus 29 34 RV (a)	2
		medium				Red Angel (a)	3
		strong				Dark Angel (a)	4
		very stong				Baroque Angel (a)	5
18.		**QL VG**	**(+)**	**(c), (d)**			
		Leaf blade: distribution of anthocyanin coloration					
		none					1
		on margin					2
		throughout					3
19.	**(*)**	**QL VG**		**(c), (d)**			
		Leaf blade: variegation					
		absent				Merveille (a)	1
		present				Tricolor (a)	9
20.	**(*)**	**PQ VG**		**(c), (d), (e)**			
		Leaf blade: main color					
		yellow				Ogonba (a)	1
		light green				Mousseline (a)	2
		medium green				Hobergine (a)	3
		dark green				Rosalba (a)	4
21.	**(*)**	**PQ VG**		**(c), (d), (e)**			
		Leaf blade: secondary color					
		none				Hobella (a)	1
		white				Variegata (a)	2
		yellow				Lemon Wave (a)	3
22.		**QL VG**		**(c), (d)**			
		Leaf blade: glossiness					
		absent				Maman (a)	1
		present				Ayesha (a)	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23.		**QN VG**	**(c), (d)**				
		Leaf blade: blistering					
		absent or very weak				Blue Bird (a), Bokraflame (b)	1
		weak				Red Red (a)	2
		medium				La Marne (a)	3
		strong				Paris (a)	4
		very strong				Merveille Sanguinea (a)	5
24.		**QN VG**	**(+) (c)**				
		Leaf blade: shape in cross-section					
		concave					1
		flat					2
		convex					3
25.	**(*)**	**PQ VG**	**(+) (c)**				
		Petiole: color					
		green				Paris (a)	1
		green and brown				Renba (b)	2
		red				Preziosa (a)	3
		black				Horzu (a)	4
26.	**(*)**	**PQ VG**	**(+) (f)**				
		Inflorescence: shape					
		flattened				Mousmée (a), Sea Foam (a)	1
		flattened to globular				Dancing Snow (a)	2
		globular				Merveille (a)	3
		globular to conical				H2002 (a)	4
		conical				Snowflake (d)	5
27.		**QN MG/MS/VG**	**(+) (f)**				
		Inflorescence: height					
		short				Shichidanka (a)	3
		medium				Mrs Kumiko (a)	5
		tall				Snowflake (d)	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28.		**QN MG/MS/VG**	**(+) (f)**				
		Inflorescence: width					
		small				Hörnli (a)	3
		medium				Merveille (a)	5
		large				Maman (a)	7
29.	**(*)**	**QN VG**	**(+) (f)**				
		Inflorescence: conspicuousness of fertile flowers					
		inconspicuous or slightly conspicuous				Merveille (a)	1
		moderately conspicuous				Hope 2069 (a)	2
		very conspicuous				Mousmée (a), Sea Foam (a)	3
30.		**QL VG**	**(+) (f)**				
		Inflorescence: continuous forming of sterile flowers					
		absent				Maman (a)	1
		present				H213 (a)	9
31.	**(*)**	**PQ VG**	**(+) (f)**				
		<u>Only varieties with inflorescence shape: flattened:</u> Inflorescence: arrangement of sterile flowers					
		in one whorl				Tricolor (a)	1
		in two or more whorls				Jogasaki (a)	2
		irregular				Vetchie (a)	3
32.		**QN VG**	**(+) (f)**				
		<u>Only varieties with conspicuousness of fertile flowers: inconspicuous or slightly conspicuous:</u> Inflorescence: density of sterile flowers					
		sparse					1
		medium					3
		dense					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33.		**QN MG/MS**	**(+) (f)**				
		Sterile flower: diameter of calyx					
		small				Ayesha (a)	3
		medium				Hörnli (a), Mariesii (a)	5
		large				Alpenglühen (a)	7
34.	**(*)**	**QN MS**	**(f)**				
		Sterile flower: number of sepals					
		3 or 4					1
		only 4					2
		4 or 5					3
		5 or 6					4
		7 or more					5
35.		**QN VG**	**(+) (f)**				
		Sterile flower: attitude of sepals					
		erect				Hokomarevo (a)	1
		semi-erect				Horgew (a)	2
		horizontal				Fasan (a)	3
36.	**(*)**	**PQ VG**	**(+) (f)**				
		Sterile flower: shape of sepal apex					
		pointed				Horgew (a)	1
		rounded				Zebra (a)	2
		emarginated				H213905 (a)	3
37.		**QN VG**	**(+) (f)**				
		Sterile flower: blistering of sepals					
		absent or weak				Schneeball (a)	1
		medium				Hokomarevo (a)	2
		strong				Hortmarhaso (a)	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
38.		**PQ VG**	**(+) (f)**				
		Sterile flower: shape of the sepal in cross section					
		flat				Fasan (a)	1
		concave				Alpenglühen (a)	2
		canaliculate				Sicamu4533 (a)	3
39.	**(*)**	**QN VG**	**(+) (f)**				
		Sterile flower: degree of overlapping of sepals					
		absent or very weak				Hörnli (a)	1
		weak				Mme Plumecoq (a)	2
		medium				Bichon (a)	3
		strong				Heinrich Siedel (a), Mme Gilles Goujon (a)	4
		very strong				Etoile Violette (a), Merveille Sanguinea (a)	5
40.		**QN VG**	**(+) (f)**				
		Sterile flower: undulation of sepal					
		absent or weak				Dolfarf (a)	1
		medium				Hortmacodre (a)	2
		strong				Hbaroyalc (a)	3
41.	**(*)**	**QN VG**	**(+) (f)**				
		Sterile flower: incisions of margin of sepal					
		absent on all sepals				Maman (a), Merveille (a)	1
		present on some sepals				Gloria (a)	2
		present on all sepals				Europa (a)	3
42.		**QN VG**	**(+) (f)**				
		Sterile flower: depth of incisions of margin of sepal					
		shallow				Constellation (a)	1
		medium				Dolfarf (a)	2
		deep				Hbaroyalc (a)	3

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
43.	**(*)**	**PQ**	**VG**		**(e), (f)**				
		Sterile flower: main color of inner side of sepal							
		RHS Colour Chart (indicate reference number)							
44.	**(*)**	**PQ**	**VG**		**(e), (f)**				
		Sterile flower: secondary color of inner side of sepal							
		none						Schneeball (a)	1
		white						Raberah (a)	2
		green						Mak 20 (a)	3
		pink						Sandra (a)	4
		red						Ripple (a)	5
		brown						Ruby Tuesday (a)	6
45.		**PQ**	**VG**	**(+)**	**(f)**				
		Sterile flower: distribution of secondary color of inner side of sepal							
		marginal zone						Sandra (a)	1
		distal part						Ripple (a)	2
		upper half						AB green shadow (a)	3
		central zone						Rosalba (a)	4
		at base							5
		throughout							6
46.		**PQ**	**VG**	**(+)**	**(f)**				
		Sterile flower: pattern of secondary color of inner side							
		solid						Hokomac (a)	1
		flush						AB green shadow (a)	2
		irregular						Sweet fantasy (a)	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
47.	**(*)**	**PQ VG**	**(f)**				
		Fertile flower: color of petals					
		white				Rosalba (a)	1
		green					2
		pink				Tricolor (a)	3
		red					4
		purple				Lemon Wave (a)	5
		blue					8
48.		**PQ VG**	**(+)**				
		<u>Only paniculata or quercifolia variety type :</u> Inflorescence: pink or red colour at aging					
		absent				Dolprim (b)	1
		on a part of inflorescence				Renba (b), Renhy (b)	2
		on the entire inflorescence				HP 524 (b)	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:

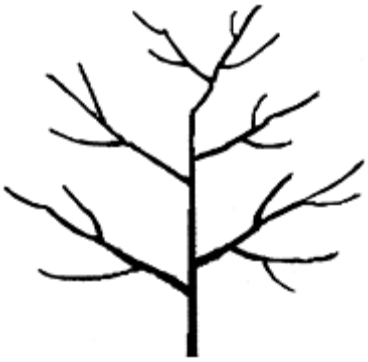
(a) Plants should be examined during the flowering period.
(b) Stems should be examined before the opening of flowers in the middle third of the stem.
(c) Leaves should be examined before the opening of flowers on the third node under the inflorescence.
(d) Leaves observations should be made on the upper side.
(e) The main color is the color with the largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the main color.
(f) Characteristics on inflorescence and flowers should be assessed on fully developed primary inflorescences.

8.2 Explanations for individual characteristics

Ad. 2: Only varieties with plant type non-climbing: Plant: growth habit

1
upright

2
semi upright



3
spreading

Ad. 3: Only varieties with plant type: non-climbing: Plant: height

Ad. 5: Stem: fasciation

Ad. 7: Stem: number of lenticels

1
absent or few

3
medium

5
many

Ad. 8: Stem: size of lenticels

1
small

2
medium

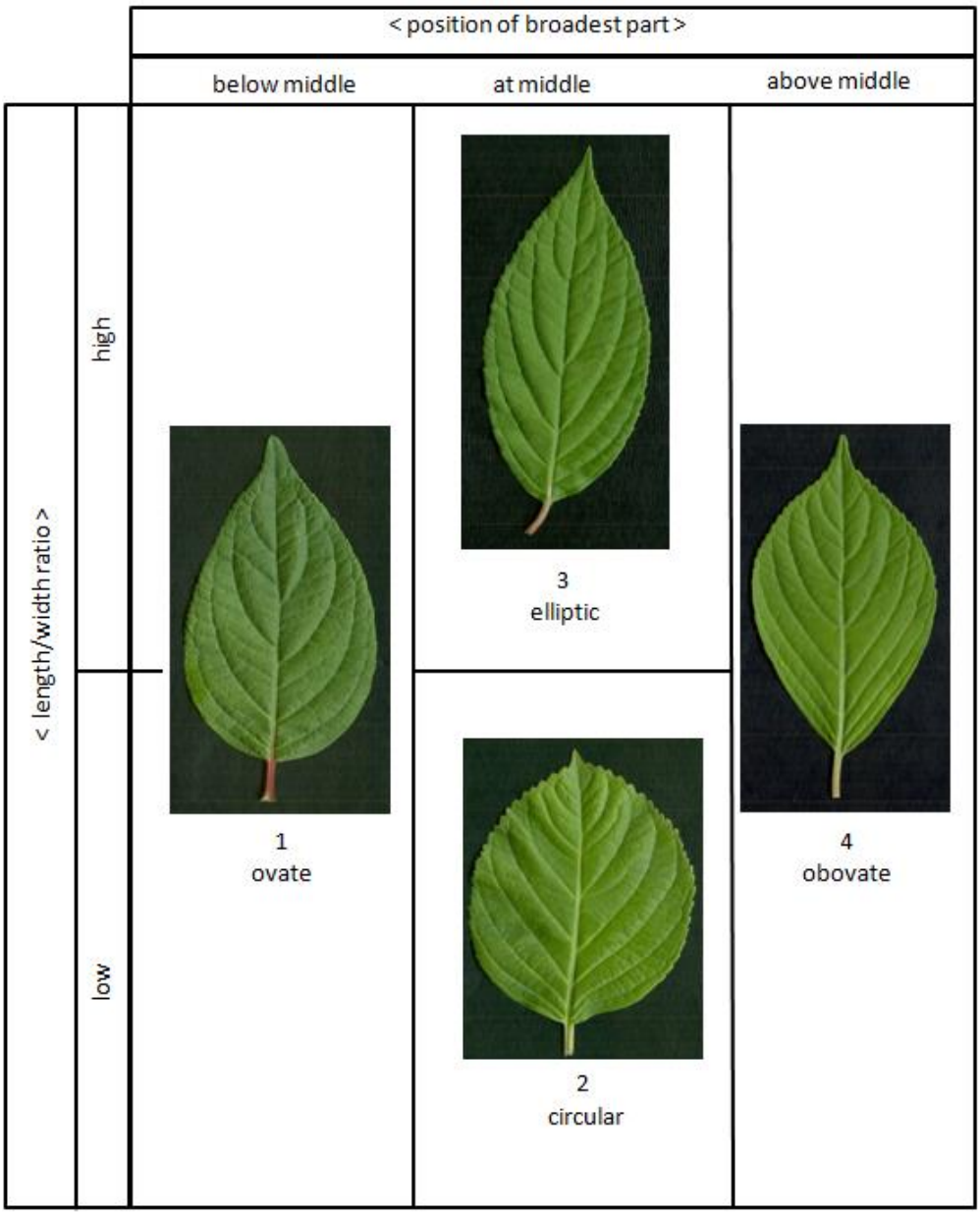
3
large

Ad. 12: Leaf blade: lobing

1
absent

9
present

Ad. 13: Only varieties with leaf blade lobing: absent: Leaf blade: shape



Ad. 14: Leaf blade: length of tip

Ad. 15: Leaf blade: shape of base

1
acute

2
obtuse

3
rounded

4
cordate

Ad. 16: Leaf blade: depth of incisions on margin

1
absent or very shallow

2
shallow

3
medium

4
deep

5
very deep

Ad. 17: Leaf blade: anthocyanin coloration

1
absent or very weak

2
weak

3
medium

4
strong

5
very strong

Ad. 18: Leaf blade: distribution of anthocyanin coloration

1
none

2
on margin

3
throughout

Ad. 24: Leaf blade: shape in cross-section

1
concave

2
flat

3
convex

Ad. 25: Petiole: color

Observations of petiole color should be made on the central zone of the petiol on the lower side.

Ad. 26: Inflorescence: shape

1
flattened

3
globular

5
conical

Ad. 27: Inflorescence: height

Ad. 28: Inflorescence: width

Ad. 29: Inflorescence: conspicuousness of fertile flowers

1
inconspicuous or slightly conspicuous

2
moderately conspicuous

3
very conspicuous

Ad. 30: Inflorescence: continuous forming of sterile flowers

1
absent

9
present

Ad. 31: Only varieties with inflorescence shape: flattened: Inflorescence: arrangement of sterile flowers

1
in one whorl

2
in two or more whorls

3
irregular

Ad. 32: Only varieties with conspicuousness of fertile flowers: inconspicuous or slightly conspicuous: Inflorescence: density of sterile flowers

1
sparse

3
medium

5
dense

Ad. 33: Sterile flower: diameter of calyx

The observations should be made on the flattened sterile flower.
The diameter should be observed at the broadest part of the calyx.

Ad. 35: Sterile flower: attitude of sepals

1
erect

2
semi-erect

3
horizontal

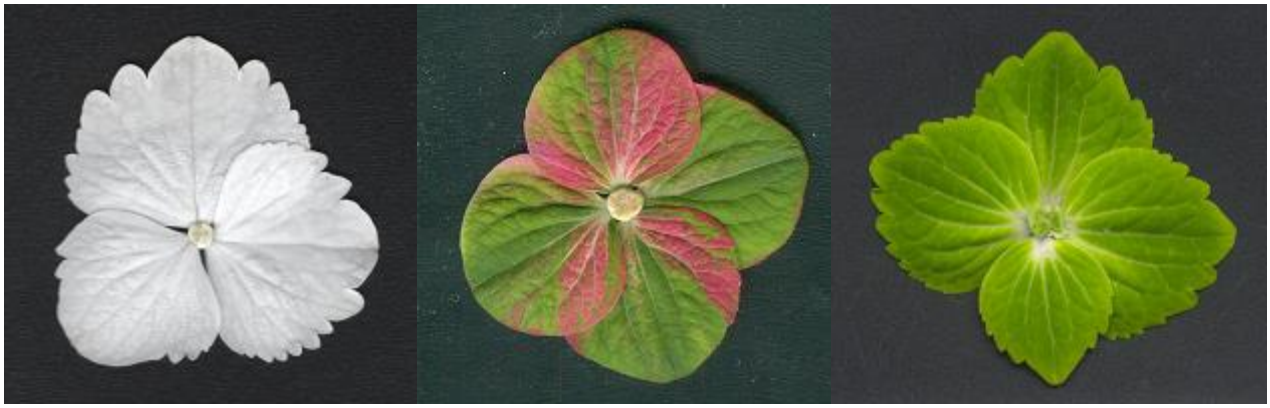
Ad. 36: Sterile flower: shape of sepal apex

1
pointed

2
rounded

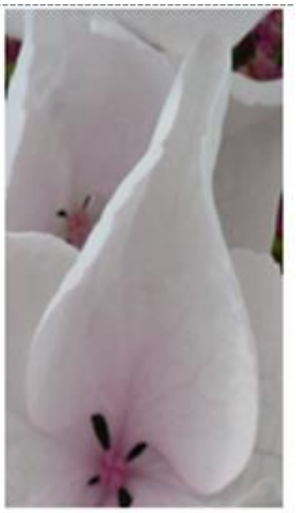
3
emarginated

Ad. 37: Sterile flower: blistering of sepals



1	2	3
absent or weak	medium	strong

Ad. 38: Sterile flower: shape of the sepal in cross section



1	2	3
flat	concave	canaliculate

Ad. 39: Sterile flower: degree of overlapping of sepals

1	2	3	4	5
absent or very weak	weak	medium	strong	very strong

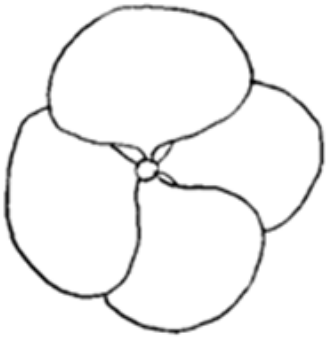
Ad. 40: Sterile flower: undulation of sepal

1
absent or very weak

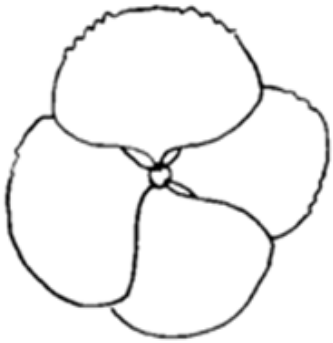
2
medium

3
strong

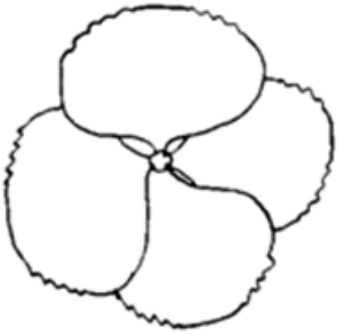
Ad. 41: Sterile flower: incisions of margin of sepal



1
absent on all sepals



2
present on some sepals



3
present on all sepals

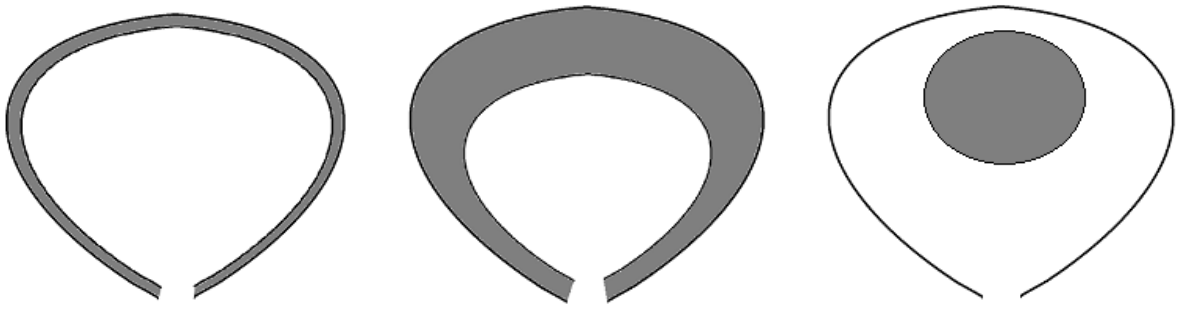
Ad. 42: Sterile flower: depth of incisions of margin of sepal

1
shallow

2
medium

3
deep

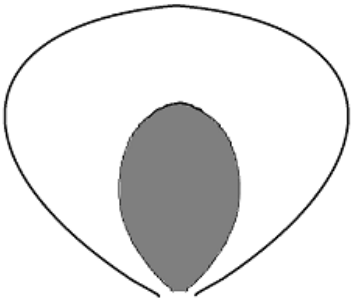
Ad. 45: Sterile flower: distribution of secondary color of inner side of sepal



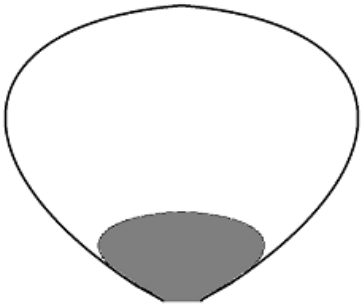
1
marginal zone

2
distal part

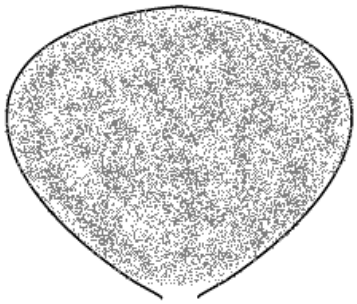
3
upper half



4
central zone



5
at base



6
throughout

Ad. 46: Sterile flower: pattern of secondary color of inner side

1
solid

2
flush

3
irregular

Ad. 48: Only paniculata or quercifolia variety type : Inflorescence: pink or red colour at aging

1
absent

2
on a part of inflorescence

3
on the entire inflorescence

9. Literature

Bertrand H., Becue I., Relion D., 2007: INH, BRG. Ressources génétiques du genre Hydrangea L., collection nationale, texte et iconographie. Jan. Edition 2007, 245 pp.

Bertrand H., Relion D., Boulineau F., Chevalier C., Retailleau JM, 2004: INH-GEVES CD ROM. Description officielle des variétés d'Hydrangeas:105 variétés décrites (version 1) Nov. 2004.

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Guerin V. Coord., 2002: Hydrangea: acquisitions nouvelles et applications. INRA Editions, 133 pp.

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Möhring, H.K., Kuhlen, H., Bosse, G., 1956: Die Hortensien. Verlag Dr. Rudolf Georgi, Aachen, DE, 238 pp.

Rehder, A., 1940: Manual of Cultivated Trees and Shrubs. 2nd Ed., Macmillan Company, New York, US, 996 pp.

Vidalie, H., 1986: Les productions florales. 4e éd., Edition J.B. Baillière, Paris, FR.

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

1.1.1	Botanical name	*Hydrangea* L.	[ ]
1.1.2	Common name	Hydrangea	
1.1.3	Add other Information		
1.2.1	Botanical name	*to precise*	[ ]
1.2.2	Common name	*to precise*	

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]

(please state parent varieties)

(……..……..…) x (……..……..…)

female parent male parent

(b) partially known cross [ ]

(please state known parent variety(ies))

(……..……..…) x (……..……..…)

female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]

(please state parent variety)

4.1.3 Discovery and development [ ]

(please state where and when discovered and how developed)

4.1.4 Other [ ]

(please provide details)

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

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) Cuttings [ ]
(b) Other (state method) [ ]

4.2.2 Other [ ]
(Please provide details)

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

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

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: type**		
	climbing	Nana Yakushimanum (e)	1 [ ]
	non-climbing	Merveille (a)	2 [ ]
5.2 (5)	**Stem: fasciation**		
	absent	Merveille (a)	1 [ ]
	present	Domotoi (a)	9 [ ]
5.3 (6)	**Stem: color**		
	green	Merveille (a)	1 [ ]
	light red	Mite Late Summer (b)	2 [ ]
	red	Wim Red (b)	3 [ ]
	brown	Bokraflame (b)	4 [ ]
	black	Nigra (a)	5 [ ]
	green and black	Napo (a)	6 [ ]
5.4 (17)	**Leaf blade: anthocyanin coloration**		
	absent or very weak	Victoria (a)	1 [ ]
	weak	Sicamus 29 34 RV (a)	2 [ ]
	medium	Red Angel (a)	3 [ ]
	strong	Dark Angel (a)	4 [ ]
	very stong	Baroque Angel (a)	5 [ ]
5.5 (19)	**Leaf blade: variegation**		
	absent	Merveille (a)	1 [ ]
	present	Tricolor (a)	9 [ ]
5.6 (20)	**Leaf blade: main color**		
	yellow	Ogonba (a)	1 [ ]
	light green	Mousseline (a)	2 [ ]
	medium green	Hobergine (a)	3 [ ]
	dark green	Rosalba (a)	4 [ ]

	Characteristics	Example Varieties	Note
5.7 (26)	**Inflorescence: shape**		
	flattened	Mousmée (a), Sea Foam (a)	1 [ ]
	flattened to globular	Dancing Snow (a)	2 [ ]
	globular	Merveille (a)	3 [ ]
	globular to conical	H2002 (a)	4 [ ]
	conical	Snowflake (d)	5 [ ]
5.8 (29)	**Inflorescence: conspicuousness of fertile flowers**		
	inconspicuous or slightly conspicuous	Merveille (a)	1 [ ]
	moderately conspicuous	Hope 2069 (a)	2 [ ]
	very conspicuous	Mousmée (a), Sea Foam (a)	3 [ ]
5.9 (31)	**Only varieties with inflorescence shape: flattened:** **Inflorescence: arrangement of sterile flowers**		
	in one whorl	Tricolor (a)	1 [ ]
	in two or more whorls	Jogasaki (a)	2 [ ]
	irregular	Vetchie (a)	3 [ ]
5.10 (34)	**Sterile flower: number of sepals**		
	3 or 4		1 [ ]
	only 4		2 [ ]
	4 or 5		3 [ ]
	5 or 6		4 [ ]
	7 or more		5 [ ]
5.11 (41)	**Sterile flower: incisions of margin of sepal**		
	absent on all sepals	Maman (a), Merveille (a)	1 [ ]
	present on some sepals	Gloria (a)	2 [ ]
	present on all sepals	Europa (a)	3 [ ]
5.12(i) (43)	**Sterile flower: main color of inner side of sepal**		
	RHS Colour Chart (indicate reference number)		
5.12(ii) (43)	**Sterile flower: main color of inner side of sepal**		
	Gr1: white		1 [ ]
	Gr2: green		2 [ ]
	Gr3: light pink		3 [ ]
	Gr4 :medium pink		4 [ ]
	Gr5: dark pink		5 [ ]
	Gr6: red		6 [ ]

	Characteristics	Example Varieties	Note
5.13 (44)	**Sterile flower: secondary color of inner side of sepal**		
	none	Schneeball (a)	1 [ ]
	white	Raberah (a)	2 [ ]
	green	Mak 20 (a)	3 [ ]
	pink	Sandra (a)	4 [ ]
	red	Ripple (a)	5 [ ]
	brown	Ruby Tuesday (a)	6 [ ]
5.14 (48)	**<u>Only paniculata or quercifolia variety type :</u> Inflorescence: pink or red colour at aging**		
	absent	Dolprim (b)	1 [ ]
	on a part of inflorescence	Renba (b), Renhy (b)	2 [ ]
	on the entire inflorescence	HP 524 (b)	3 [ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Sterile flower: number of sepals*	*3 or 4*	*5 or 6*

Comments:

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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

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

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

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

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

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

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

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

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

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

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

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

.....

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

Applicant’s name

Signature Date

[End of document]