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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 fiftieth session, to be held in Victoria, British Columbia, Canada
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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 rooted cuttings, taken from a mother plant grown in a medium that will not specifically affect the sepal color. The material is to be supplied in a 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

3.1.1 The minimum duration of tests should normally be two independent growing cycles.

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

3.1.3 For the first cycle, as a minimum, each test should include a total of 8 plants (mother plants). For the second cycle each test should include a total of at least 4 mother plants (at least 4 out of the 8 submitted mother plants are kept for comparison with the daughter plants) and 8 daughter plants derived from, and representing each of the original mother plants.
The duration of the testing may be reduced to one growing cycle if all plants have flowered significantly, at least 2 inflorescences by plant, and if the results on distinctness and uniformity are clearly conclusive.

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 7 plants or parts of plants taken from each of 7 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 second column of 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.

4.1.6 Durind the first cycle observations should be made on the mother plants, during the second cycle observations should be made on the daughter plants.

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 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 4)
(c) Stem: color (characteristic 5)
Gr. 1: green
Gr. 2: red
Gr. 3: brown
Gr. 4: black
(d) Leaf blade: variegation (characteristic 16)
(e) Leaf blade: main color (characteristic 17)
Gr. 1: not visible
Gr. 2: yellow
Gr. 3: light green
Gr. 4: medium green
Gr. 5: dark green
(f) Leaf blade: anthocyanin coloration (characteristic 19)
(g) Inflorescence: shape (characteristic 24)
(h) Inflorescence: conspicuousness of fertile flowers (characteristic 27)
(i) Sterile flowers: number of sepals (characteristic 31)
(j) Sterile flower: main color of inner side of sepal: (characteristic 40)
Gr. 1: white
Gr. 2: green
Gr. 3: light pink
Gr. 4: medium pink
Gr. 5: dark pink
Gr. 6: red
Gr. 5: blue

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.

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)-(d) 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	1
		non-climbing				Merveille	2
2.	**(*)**	**QN MG/MS**	**(+) (a)**				
		Only varieties with plant type: non-climbing: Plant: height					
		short				Hörnli	3
		medium				Merveille	5
		tall				Maman	7
3.		**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
4.	**(*)**	**QL VG**	**(+) (b)**				
		Stem: fasciation					
		absent				Merveille	1
		present				Domotoi	9
5.	**(*)**	**PQ VG**	**(b)**				
		Stem: color					
		green				Merveille	1
		red				Wim Red	2
		brown				Limelight	3
		black				Nigra	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.		**QN VG**	**(+) (b)**				
		Stem: number of lenticels					
		absent				Blue Bird	1
		few				Imola	2
		medium				Merveille Sanguinea	3
		high				Sidsaskimp	4
		very high				Hobella	5
7.		**QN VG**	**(+) (b)**				
		Stem: size of lenticels					
		small				Mrs Kumiko	1
		medium				Bergfing	2
		large				Hokomac	3
8.	**(*)**	**PQ VG**	**(b)**				
		Stem: color of lenticels					
		whitish				Pink Diamond	1
		reddish				Leuchtfeuer	2
		blackish				Merveille	3
9.	**(*)**	**QN MS**	**(c)**				
		Leaf blade: length					
		short				Hörnli	3
		medium				Rosita	5
		long				Merveille	7
10.		**QN MS**	**(c)**				
		Leaf blade: width					
		narrow				Shichidanka	3
		medium				Mrs Kumiko	5
		broad				Snowflake	7
11.	**(*)**	**QL VG**	**(+) (c)**				
		Leaf blade: lobing					
		absent				Merveille	1
		present				Harmony	9

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.	**(*)**	**PQ VG**	**(+) (c)**				
		Leaf blade: main color					
		not visible				Dark Angel	1
		yellow				Ogonda	2
		light green				Mousseline	3
		medium green				Hobergine	4
		dark green				Rosalba	5
18.	**(*)**	**PQ VG**	**(c)**				
		Leaf blade: secondary color					
		white only				Variegata	1
		white and yellow				Tricolor	2
		yellow only				Lemon Wave	3
19.		**QN VG**	**(+) (c)**				
		Leaf blade: anthocyanin coloration					
		absent or very weak				Victoria	1
		weak				Sicamus 29-34 RV	2
		medium				Red Angel	3
		strong				Dark Angel	4
		very strong				Baroque Angel	5
20.		**QL VG**	**(+) (c)**				
		Leaf blade: glossiness					
		absent					1
		present					9
21.		**QN VG**	**(c)**				
		Leaf blade: blistering					
		absent or very weak				Blue Bird, Bokraflame	1
		weak				Red Red	2
		medium				La Marne	3
		strong				Paris	4
		very strong				Merveille Sanguinea	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22.		**PQ VG**	**(+) (c)**				
		Leaf blade: shape in cross section					
		concave					1
		flat					2
		convex					3
23.	**(*)**	**PQ VG**	**(+) (c)**				
		Petiole: color					
		green				Paris	1
		green and brown				Renba	2
		red				Preziosa	3
		black				Horzu	4
24.	**(*)**	**PQ VG**	**(+)**				
		Inflorescence: shape					
		flattened				Mousmée, Sea Foam	1
		flattened to globular				Dancing Snow	2
		globular				Merveille	3
		globular to conical				H20-02	4
		conical				Snowflake	5
25.		**QN MG/MS**	**(+)**				
		Inflorescence: height					
		short				Shichidanka	3
		medium				Mrs Kumiko	5
		tall				Snowflake	7
26.		**QN MG/MS**	**(+)**				
		Inflorescence: diameter					
		small				Hörnli	3
		medium				Merveille	5
		large				Maman	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27.	**(*)**	**PQ VG**	**(+)**				
		Inflorescence: conspicuousness of fertile flowers					
		inconspicuous or slightly conspicuous				Merveille	1
		moderately conspicuous				Mücke	2
		very conspicuous				Mousmée, Sea Foam	3
28.	**(*)**	**PQ VG**	**(+)**				
		Only varieties with inflorescence shape: flattened: Inflorescence: arrangement of sterile flowers					
		in one whorl				Tricolor	1
		in two or more whorls				Jogasaki	2
		irregular				Vetchie	3
29.		**QN VG**	**(+)**				
		Only varieties without inflorescence shape flattened: Inflorescence: density of sterile flowers					
		very sparse					1
		sparse					2
		medium					3
		dense					4
		very dense					5
30.		**QN MS**	**(+)**				
		Sterile flower: diameter of calyx					
		small				Ayesha	3
		medium				Hörnli, Mariesii	5
		large				Alpenglühen	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
31.	**(*)**	**QN MS**	**(+)**				
		Sterile flowers: number of sepals					
		3 or 4					1
		only 4					2
		4 or 5					3
		5 or 6					4
		7 or more					5
32.		**QN VG**	**(+)**				
		Sterile flowers: attitude of sepals					
		erect				Magical Revolution	1
		semi-erect				Horgew	2
		horizontal				Fasan	3
33.	**(*)**	**PQ VG**	**(+)**				
		Sterile flowers: shape of sepal apex					
		pointed				Horgew	1
		rounded				Zebra	2
		emarginated				H213905	3
34.		**QN VG**	**(+)**				
		Sterile flowers: blistering of sepals					
		absent or weak				Hobella	1
		medium				Hortmaclepa	2
		strong				Hbaroyalc	3
35.		**PQ VG**	**(+)**				
		Sterile flowers: shape of the sepal in cross section					
		flat				Fasan	1
		concave				Alpenglühen	2
		canaliculate				Sicamus 45-33 RV	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36.	**(*)**	**QN VG**	**(+)**				
		Sterile flower: degree of overlapping of sepals					
		absent or very weak				Hörnli	1
		weak				Mme Plumecoq	2
		medium				Bichon	3
		strong				Heinrich Siedel, Mme Gilles Goujon	4
		very strong				Merveille Sanguinea, Etoile Violette	5
37.		**QN VG**	**(+)**				
		Sterile flowers: undulation of sepal					
		absent or very weak				Dolfarf	1
		medium				Hortmacodre	2
		strong				Hbaroyalc	3
38.	**(*)**	**QN VG**	**(+)**				
		Sterile flower: incisions of margin of sepal					
		absent on all sepals				Merveille, Maman	1
		present on some sepals				Gloria	2
		present on all sepals				Europa	3
39.		**QN VG**	**(+)**				
		Sterile flower: depth of incisions of margin of sepal					
		shallow				Constellation	1
		medium				Dolfarf	2
		deep				Hbaroyalc	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40.	**(*)**	**PQ** **VG**	**(d)**				
		Sterile flower: main color of inner side of sepal:					
		white				Schneeball	1
		green				Hortmarhaso	2
		light pink				Horkron	3
		medium pink				Dolfarf	4
		dark pink				Hbaroyalc	5
		red				Rapa	6
		blue					7
41.		**PQ** **VG**	**(d)**				
		Sterile flower: main color of inner side of sepal					
		RHS Colour Chart (indicate reference number)					
42.	**(*)**	**PQ** **VG**	**(+)** **(d)**				
		Sterile flower: secondary color of inner side of sepal					
		absent				Schneeball	1
		white				Raberah	2
		green				Mak 20	3
		pink				Sandra	4
		red				Ripple	5
		blue					6
		brown				Ruby Tuesday	7
43.		**PQ** **VG**	**(+)**				
		Sterile flower: distribution of secondary color of inner side of sepal					
		distal part				Ripple	1
		marginal zone				Sandra	2
		flush				Rosalba	3
		central zone					4
		at base					5
		irregular					6

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	**(*)**	**PQ VG**					
		Fertile flower: color of petals					
		white				Rosalba	1
		green					2
		pink				Tricolor	3
		red					4
		purple				Lemon Wave	5
		blue					8
45.		**QN VG**	**(+)**				
		Time of beginning of flowering					
		early				Freudenstein	3
		medium				Merveille, Maman	5
		late				Hörnli, Europa, Magicien	7
46.		**QL VG**	**(+)**				
		Continuous flowering					
		absent				Napo	1
		present				Mak 20	9
47.		**PQ VG**	**(+)**				
		Only paniculata and quercifolia varieties: Inflorescence: pink or red colour at senescence					
		absent				Dolprim	1
		on a part of inflorescence				Renba, Renhy	2
		on the entire inflorescence				HP 524	3

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Characteristics containing the following key in the second column of 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 central third of the stem.

(c) Leaves should be examined before the opening of flowers on the 3rd node under the inflorescence.
Leaves observations should be made on the upper side.

(d) The color should be observed on plants grown in pots in a medium with pH higher than 5 and with no added aluminum or other metals that would affect the color. In other growing conditions the color could be different.
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 darkest color is considered to be the main color.

8.2 Explanations for individual characteristics

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

Ad. 4: Stem: fasciation

Ad. 6: Stem: number of lenticels

1
absent

2
few

3
medium

4
high

5
very high

Ad. 7: Stem: size of lenticels

1
small

2
medium

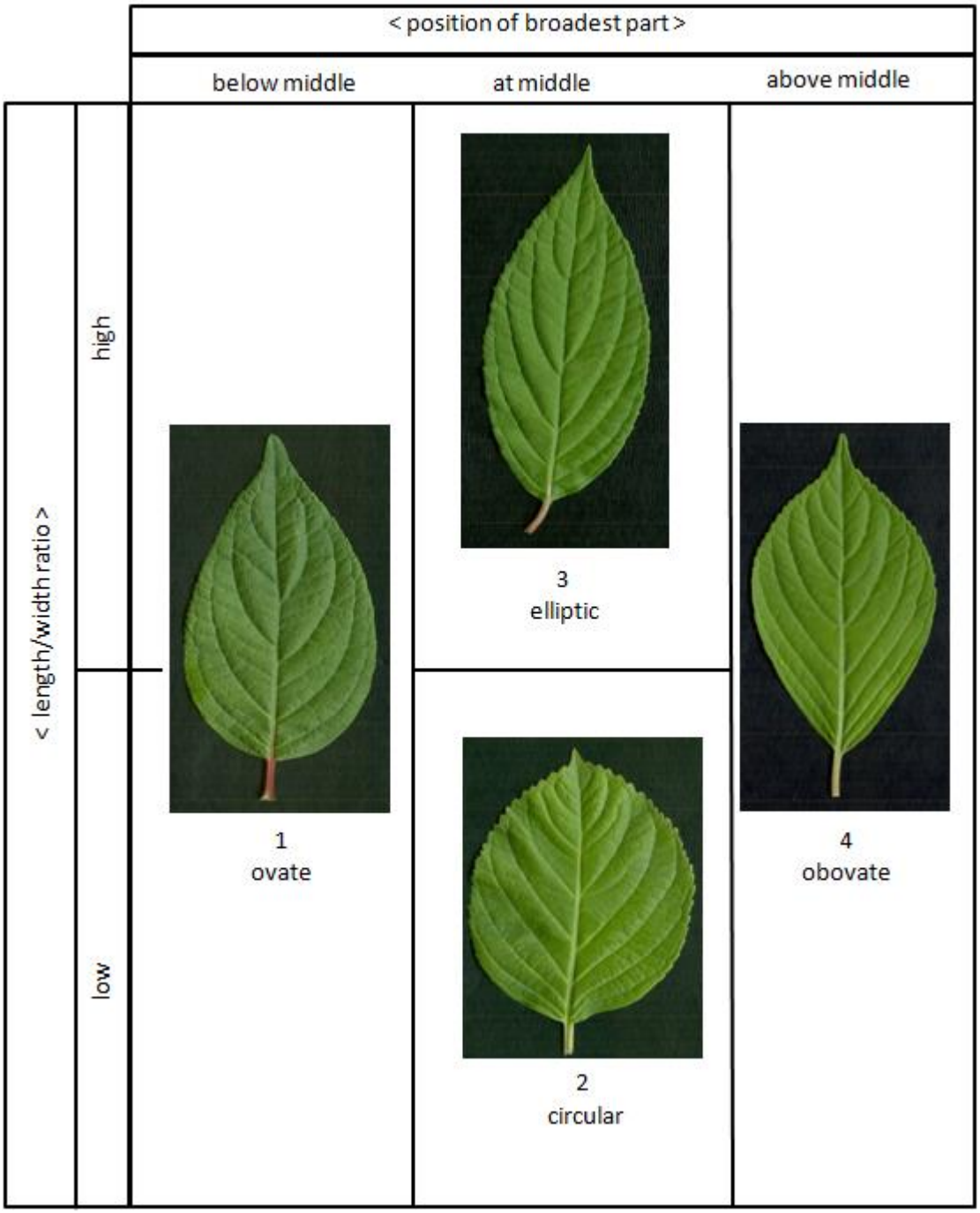
3
large

Ad. 11: Leaf blade: lobing

1
absent

9
present

Ad. 12: Only varieties with leaf blade lobing: absent: Leaf blade: shape



Ad. 13: Leaf blade: length of tip

1
short

2
medium

3
long

Ad. 14: Leaf blade: shape of base

1
acute

2
obtuse

3
rounded

4
cordate

Ad. 15: 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: main color

Color of the largest area without anthocyanin coloration.

Ad. 19: Leaf blade: anthocyanin coloration

1
absent or very weak

2
weak

3
medium

4
strong

5
very strong

Ad. 20: Leaf blade: glossiness

1
absent

9
present

Ad. 22: Leaf blade: shape in cross section

1
concave

2
flat

3
convex

Ad. 23: Petiole: color

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

Ad. 24: Inflorescence: shape

1
flattened

3
globular

5
conical

Ad. 25: Inflorescence: height

Ad. 26: Inflorescence: diameter

Ad. 27: Inflorescence: conspicuousness of fertile flowers

inconspicuous

very conspicuous

Ad. 28: Only varieties with inflorescence shape: flattened: Inflorescence: arrangement of sterile flowers

1
irregular

2
in one whorl

3
in 2 or more whorls

Ad. 29: Only varieties without inflorescence shape flattened: Inflorescence: density of sterile flowers

1
very sparse

3
medium

5
very dense

2
sparse

3
medium

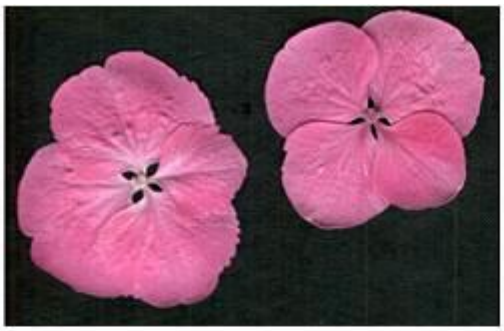
4
dense

Ad. 30: Sterile flower: diameter of calyx

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

Ad. 31: Sterile flowers: number of sepals

1
3 or 4



2
only 4

3
4 or 5

4
5 or 6

5
7 or more

Ad. 32: Sterile flowers: attitude of sepals

1
horizontal

2
semi-erect

3
erect

Ad. 33: Sterile flowers: shape of sepal apex

1
pointed

2
rounded

3
notched

Ad. 34: Sterile flowers: blistering of sepals

1
absent or weak

2
medium

a new illustration with the 3 states of expression will be provided

Ad. 35: Sterile flowers: shape of the sepal in cross section

1
flat

2
concave

3
canaliculate

Ad. 36: Sterile flower: degree of overlapping of sepals

1
absent or very weak

2
weak

3
medium

4
strong

5
very strong

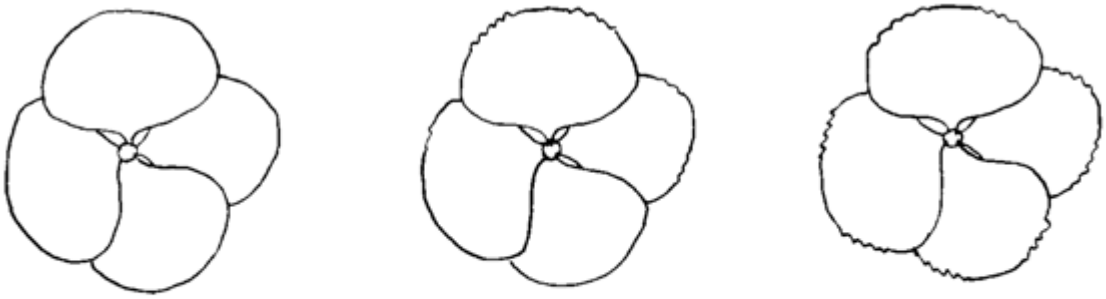
Ad. 37: Sterile flowers: undulation of sepal

1
absent or very weak

2
medium

3
strong

Ad. 38: Sterile flower: incisions of margin of sepal



1
absent on all sepals

2
present on some sepals

3
present on all sepals

Ad. 39: Sterile flower: depth of incisions of margin of sepal

1
shallow

2
medium

3
deep

Ad. 42: Sterile flower: secondary color of inner side of sepal

2
white

3
green

4
pink

5
red

7
brown

Ad. 43: Sterile flower: distribution of secondary color of inner side of sepal

1
distal part

2
marginal zone

3
diffuse

4
central zone

5
at base

6
irregular

Ad. 45: Time of beginning of flowering

The time of beginning of flowering is when 50% of plants have one or more inflorescences with at least 90% open sepals with coloration of the variety.

Ad. 46: Continuous flowering

Flowering continuing up to autumn.

Ad. 47: Only paniculata and quercifolia varieties: Inflorescence: pink or red colour at senescence

1	2	3
absent	on a part of inflorescence	on the entire inflorescence

9. Literature

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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	*Hydrangea* L.
1.2	Common name	Hydrangea

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	1 [ ]
	non-climbing	Merveille	2 [ ]
5.2 (4)	**Stem: fasciation**		
	absent	Merveille	1 [ ]
	present	Domotoi	9 [ ]
5.3 (5)	**Stem: color**		
	green	Merveille	1 [ ]
	red	Wim Red	2 [ ]
	brown	Limelight	3 [ ]
	black	Nigra	4 [ ]
5.4 (16)	**Leaf blade: variegation**		
	absent	Merveille	1 [ ]
	present	Tricolor	9 [ ]
5.5 (17)	**Leaf blade: main color**		
	not visible	Dark Angel	1 [ ]
	yellow	Ogonda	2 [ ]
	light green	Mousseline	3 [ ]
	medium green	Hobergine	4 [ ]
	dark green	Rosalba	5 [ ]
5.6 (18)	**Leaf blade: secondary color**		
	white only	Variegata	1 [ ]
	white and yellow	Tricolor	2 [ ]
	yellow only	Lemon Wave	3 [ ]

	Characteristics	Example Varieties	Note
5.7 (19)	**Leaf blade: anthocyanin coloration**		
	absent or very weak	Victoria	1 [ ]
	weak	Sicamus 29-34 RV	2 [ ]
	medium	Red Angel	3 [ ]
	strong	Dark Angel	4 [ ]
	very strong	Baroque Angel	5 [ ]
5.8 (23)	**Petiole: color**		
	green	Paris	1 [ ]
	green and brown	Renba	2 [ ]
	red	Preziosa	3 [ ]
	black	Horzu	4 [ ]
5.9 (24)	**Inflorescence: shape**		
	flattened	Mousmée, Sea Foam	1 [ ]
	flattened to globular	Dancing Snow	2 [ ]
	globular	Merveille	3 [ ]
	globular to conical	H20-02	4 [ ]
	conical	Snowflake	5 [ ]
5.10 (27)	**Inflorescence: conspicuousness of fertile flowers**		
	inconspicuous or slightly conspicuous	Merveille	1 [ ]
	moderately conspicuous	Mücke	2 [ ]
	very conspicuous	Mousmée, Sea Foam	3 [ ]
5.11 (28)	**Only varieties with inflorescence shape: flattened: Inflorescence: arrangement of sterile flowers**		
	in one whorl	Tricolor	1 [ ]
	in two or more whorls	Jogasaki	2 [ ]
	irregular	Vetchie	3 [ ]
5.12 (31)	**Sterile flowers: number of sepals**		
	3 or 4		1 [ ]
	only 4		2 [ ]
	4 or 5		3 [ ]
	5 or 6		4 [ ]
	7 or more		5 [ ]

	Characteristics	Example Varieties	Note
5.13 (36)	**Sterile flower: degree of overlapping of sepals**		
	absent or very weak	Hörnli	1 [ ]
	weak	Mme Plumecoq	2 [ ]
	medium	Bichon	3 [ ]
	strong	Heinrich Siedel, Mme Gilles Goujon	4 [ ]
	very strong	Etoile Violette, Merveille Sanguinea	5 [ ]
5.14 (38)	**Sterile flower: incisions of margin of sepal**		
	absent on all sepals	Maman, Merveille	1 [ ]
	present on some sepals	Gloria	2 [ ]
	present on all sepals	Europa	3 [ ]
5.15 (40)	**Sterile flower: main color of inner side of sepal:**		
	white	Schneeball	1 [ ]
	green	Hortmarhaso	2 [ ]
	light pink	Horkron	3 [ ]
	medium pink	Dolfarf	4 [ ]
	dark pink	Hbaroyalc	5 [ ]
	red	Rapa	6 [ ]
	blue		7 [ ]
5.16 (41)	**Sterile flower: main color of inner side of sepal**		
	RHS Colour Chart (indicate reference number)		
5.17 (42)	**Sterile flower: secondary color of inner side of sepal**		
	absent	Schneeball	1 [ ]
	white	Raberah	2 [ ]
	green	Mak 20	3 [ ]
	pink	Sandra	4 [ ]
	red	Ripple	5 [ ]
	blue		6 [ ]
	brown	Ruby Tuesday	7 [ ]
5.18 (46)	**Continuous flowering**		
	absent	Napo	1 [ ]
	present	Mak 20	9 [ ]
5.19 (47)	**Only paniculata and quercifolia varieties: Inflorescence: pink or red colour at senescence**		
	absent	Dolprim	1 [ ]
	on a part of inflorescence	Renba, Renhy	2 [ ]
	on the entire inflorescence	HP 524	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	*Time of beginning of flowering*	*early*	*medium*

Comments:

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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

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

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

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

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

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

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

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

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

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

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

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

.....

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

Applicant’s name

Signature Date

[End of document]