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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

HOSTA

UPOV Code: HOSTA

Hosta Tratt.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from the Netherlands

to be considered by the

Technical Working Party for Ornamental Plants and Forest Trees
at its forty-sixth session, to be held in Melbourne, Australia, from April 22 to 26, 2013

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Hosta Tratt.	Funkia, Hosta, Plantain Lily	Funkia, Hémérocalle du Japon	Funkie	Hosta

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 *Hosta* Tratt..

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 two years old plants ready to flower and able to express all their characteristics in the first year of examination.

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

20 plants.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

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

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 20 plants.

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

3.5 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other 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.

4.2 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 20 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) Leaf blade: shape (characteristic 11)
(b) Leaf blade: color covering the greatest surface area, with the following groups:
white
light yellow
medium yellow
dark yellow
light green
medium green
dark green
blue green
(c) Leaf blade: color covering the next greatest surface area, with the following groups:
white
light yellow
medium yellow
dark yellow
light green
medium green
dark green
blue green

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

(*)	Asterisked characteristic	– see Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5
(a)-(e)	See Explanations on the Table of Characteristics in Chapter 8.1.	
(+)	See Explanations on the Table of Characteristics in Chapter 8.2.	

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG**	**Plant shoot: color of first scaly leaves**					
PQ	**(a)**	green					1
		purple				El Capitan	2
		brown					3
2. **(*)**	**VG/ MS**	**Plant: height of foliage**					
QN	**(a)**	short				Great Escape	3
		medium				Paradise Island	5
		tall				Fragrant Queen	7
3.	**VG/ MG/ MS**	**Plant: width**					
QN	**(a)**	very narrow				Desert Mouse, Pandora's Box	1
		narrow				Secret Ambition	3
		medium				Paradise Island	5
		broad					7
		very broad				Big Boy	9
4. **(*)**	**VG/ MG/ MS**	**Petiole: length**					
QN	**(a)**	very short				Desert Mouse	1
		short				Time Tunnel	3
		medium				Earth Angel	5
		long				Blue Circle	7
		very long				Big Boy, Flower Power, Green Acres	9
5. **(+)**	**VG**	**Petiole: shape in cross-section**					
PQ	**(a)**	flat					1
		V-shape					2
		U-shape					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	**VG**	**Petiole: color**					
PQ	**(a)**	yellow				White Christmas	1
		yellow green				Desert Mouse	2
		light green				Fragrant Queen	3
		medium green				Stirfry	4
		dark green				Devon Green	5
		blue green				Bressingham Blue	6
		blue grey				Grand Marquee	7
7.	**VG**	**Petiole: pattern of anthocyanin coloration**					
PQ	**(a)**	none				Desert Mouse	1
		flush				Pilgrim	2
		spotted				Paradise Island	3
8. **(*)**	**VG/ MG/ MS**	**Leaf blade: length**					
QN	**(a)**	very short				Desert Mouse	1
		short				Little Treasure, Secret Ambition	3
		medium				Heat Wave	5
		long				Blue Circle	7
		very long				Big Boy	9
9. **(*)**	**VG/ MG/ MS**	**Leaf blade: width**					
QN	**(a)**	very narrow				Desert Mouse	1
		narrow				Secret Ambition	3
		medium				Risky Business	5
		broad					7
		very broad				Big Boy, Sum and Substance	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. **(+)**	**VG**	**Leaf blade: position of the broadest part**					
QN	**(a)**	in middle					1
		slightly towards base					2
		moderately towards base					3
		strongly towards base					4
11. **(*)** **(+)**	**VG**	**Leaf blade: shape**					
PQ	**(a)**	very narrow ovate				Stiletto	1
		narrow ovate					2
		medium ovate				Desert Mouse, Sagae	3
		broad ovate				Sum and Substance	4
		very narrow elliptic					5
		narrow elliptic				Saishu Jima	6
		medium elliptic				Pineapple Poll	7
		round				Abiqua Drinking Gourd	8
		transverse elliptic					9
12. **(*)** **(+)**	**VG**	**Leaf blade: shape of base**					
PQ	**(a)**	acute				Saishu Jima, Sea Octopus	1
		obtuse				Hoosier Harmony	2
		truncate				H. nakaiana	3
		cordate				Minnie Klopping, Pacific Blue Edger	4
13. **(+)**	**VG**	**Leaf blade: shape of apex (excluding tip)**					
PQ	**(a)**	acute				Otome-no-ka	1
		obtuse				Oriana	2
		rounded				Aureonebulosa, Great Expectations, Tokudama	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. **(*)** **(+)**		**Leaf blade: color 1**					
PQ	**(a)** **(b)**	RHS Colour Chart (indicate reference number)					
15. **(+)**	**VG**	**Leaf blade: color 1: total area**					
QN	**(a)**	small					3
		medium					5
		large					7
16. **(+)**	**VG**	**Leaf blade: color 1: distribution**					
PQ	**(a)**	basal zone					1
		at centre					2
		at top					3
		at margin					4
		scattered					5
		throughout					6
17. **(+)**	**VG**	**Leaf blade: color 1: pattern**					
PQ	**(a)**	flamed					1
		striped					2
		spotted					3
		in sectors					4
		marbled					5
		marginated					6
		solid or nearly solid					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18. **(*)** **(+)**	**VG**	**Leaf blade: color 2 (if present)**					
PQ	**(a)** **(b)**	RHS Colour Chart (indicate reference number)					
19. **(+)**	**VG**	**Leaf blade: color 2: total area**					
QN	**(a)**	small					3
		medium					5
		large					7
20. **(+)**	**VG**	**Leaf blade: color 2: distribution**					
PQ	**(a)**	none					**1**
		basal zone					2
		at centre					3
		at top					4
		at margin					5
		scattered					6
		throughout					7
21. **(+)**	**VG**	**Leaf blade: color 2: pattern**					
PQ	**(a)**	flamed					1
		striped					2
		spotted					3
		in sectors					4
		marbled					5
		marginated					6
		solid or nearly solid					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22. **(*)** **(+)**	**VG**	**Leaf blade: color 3 (if present)**					
PQ	**(a)** **(b)**	RHS Colour Chart (indicate reference number)					
23. **(+)**	**VG**	**Leaf blade: color 3: total area**					
QN	**(a)**	small					3
		medium					5
		large					7
24. **(+)**	**VG**	**Leaf blade: color 3: distribution**					
PQ	**(a)**	none					1
		basal zone					2
		at centre					3
		at top					4
		at margin					5
		scattered					6
		throughout					7
25. **(+)**	**VG**	**Leaf blade: color 3: pattern**					
PQ	**(a)**	flamed					1
		striped					2
		spotted					3
		in sectors					4
		marbled					5
		marginated					6
		solid or nearly solid					7
26. **(*)** **(+)**	**VG**	**Leaf blade: color 4 (if present)**					
PQ	**(a)** **(b)**	RHS Colour Chart (indicate reference number)					

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27. **(+)**	**VG**	**Leaf blade: color 4: total area**					
QN	**(a)**	small					3
		medium					5
		large					7
28. **(+)**	**VG**	**Leaf blade: color 4: distribution**					
PQ	**(a)**	none					1
		basal zone					2
		at centre					3
		at top					4
		at margin					5
		scattered					6
		throughout					7
29. **(+)**	**VG**	**Leaf blade: color 4: pattern**					
PQ	**(a)**	flamed					1
		striped					2
		spotted					3
		in sectors					4
		marbled					5
		marginated					6
		solid or nearly solid					7
30. **(*)** **(+)**	**VG**	**Leaf blade: color 5 (if present)**					
PQ	**(a)** **(b)**	RHS Colour Chart (indicate reference number)					
31. **(+)**	**VG**	**Leaf blade: color 5: total area**					
QN	**(a)**	small					3
		medium					5
		large					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. **(+)**	**VG**	**Leaf blade: color 5: distribution**					
PQ	**(a)**	none					1
		basal zone					2
		at centre					3
		at top					4
		at margin					5
		scattered					6
		throughout					7
33. **(+)**	**VG**	**Leaf blade: color 5: pattern**					
PQ	**(a)**	flamed					1
		striped					2
		spotted					3
		in sectors					4
		marbled					5
		marginated					6
		solid to nearly solid					7
34.	**VG**	**Leaf blade: profile in cross section**					
QN	**(a)**	convex				Big Daddy	1
		flat				Aphrodite, White Feather	2
		moderately concave				Desert Mouse	3
		strongly concave				Love Pat	4
35. **(+)**	**VG**	**Leaf blade: number of parallel veins**					
QN	**(a)**	few				Fragrant Queen	1
		medium				Frosted Mouse, Heat Wave	2
		many				Blue Circle	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. **(+)**	**VG**	**Leaf blade: degree of bulging**					
QN	**(a)**	absent or very weak				Peter Pan	1
		weak				Hyacinthina	2
		medium				Blue Circle	3
		strong				Ground Master	4
		very strong				Pizzazz	5
37. **(+)**	**VG**	**Leaf blade: blistering**					
QN	**(a)**	absent or weak				Fragrant Queen	1
		medium				Sea Dream	2
		strong				Midas Touch	3
38.	**VG**	**Leaf blade: undulation of margin**					
QN	**(a)**	absent or weak				Silvery Slugproof	1
		medium				American Sweetheart	2
		strong				Sparky	3
39. **(+)**	**VG**	**Leaf blade: twisting**					
QN	**(a)**	absent or weak				Devon Green, Earth Angel	1
		moderate				Blue Angel, Pizzazz	2
		strong				Green Power, White Christmas	3
40. **(+)**	**VG/ MS**	**Inflorescence: length**					
QN	**(c)**	short				Great Escape	3
		medium				Secret Ambition	5
		long				Fragant Queen	7
41.	**VG/ MG**	**Inflorescence: number of flowers**					
QN	**(c)**	few				Paradise Island	3
		medium				Secret Ambition	5
		many				Moonstruck	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
42.	**VG**	**Inflorescence: attitude of flowers**					
QN	**(c)**	erect					1
		horizontal				Diamond Tiara	2
		drooping				Halcyon, Georg Smith	3
43.	**VG**	**Peduncle: color**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
44.	**VG**	**Inflorescence: presence of bracts**					
QL	**(c) (e)**	absent					1
		present				Moonstruck	9
45.	**VG/ MS**	**Bract: length**					
QN	**(c) (e)**	short				Paradise Island	3
		medium				Grand Marquee	5
		long				Secret Ambition	7
46.	**VG/ MS**	**Bract: width**					
QN	**(c)**	narrow				American Sweetheart	3
		medium				Risky Business	5
		broad				Earth Angel	7
47.	**VG**	**Bract: cross section**					
QN	**(c)**	concave				Desert Mouse	1
		flat					2
		convex					3
48.	**VG**	**Bract: color**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
49. **(+)**	**VG/ MG**	**Pedicel: length**					
QN	**(e)**	short				Desert Mouse	3
		medium				Grand Marquee	5
		long				Earth Angel	7
50.	**VG**	**Pedicel: color**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
51. **(+)**	**VG**	**Flower: type**					
PQ	**(c)**	single				Halcyon, Tropical Dancer	1
		semi-double					2
		double					3
52. **(+)**	**VG**	**Perianth: length**					
QN	**(c)**	short				Desert Mouse	3
		medium				Secret Ambition	5
		long				Atlantis	7
53. **(+)**	**VG**	**Perianth: width**					
QN	**(c)**	narrow				Paradise Island	3
		medium				Secret Ambition	5
		broad					7
54. **(+)**	**VG**	**Perianth: shape in side-view**					
PQ	**(c)**	tubular					1
		flared					2
		funnel					3
		campanulate					4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
55.	**VG**	**Tube: length**					
(+)							
QN	**(c)**	short					3
		medium				Great Escape	5
		long				American Sweetheart	7
56.	**VG**	**Tube: color of outer side**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
57.	**VG**	**Corolla: length of outer lobes**					
(+)							
QN	**(c)**	short				Earth Angel	3
		medium				Risky Business	5
		long				American Sweetheart	7
58.	**VG**	**Corolla: shape of outer lobes**					
(+)							
PQ	**(c)**	very narrow ovate					1
		narrow ovate					2
		medium ovate				Desert Mouse, Lucky Mouse	3
		broad ovate					4
		narrow elliptic					5
		medium elliptic				Atlantis	6
		broad elliptic					7
		round					8
59. **(*)**	**VG**	**Corolla: color on outer side of outer lobes**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
60.	**VG**	**Corolla: shape of apex of outer lobes**					
PQ	**(c)**	acute				Atlantis, Fragant Queen	1
		obtuse					2
		rounded					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
61. **(+)**	**MG**	**Corolla: length of inner lobes**					
QN	**(c)**	short				Secret Ambition	3
		medium				Risky Business	5
		long					7
62. **(+)**	**VG**	**Corolla: shape of inner lobes**					
PQ	**(c)**	very narrow ovate					1
		narrow ovate					2
		medium ovate				Atlantis, Lucky Mouse	3
		broad ovate					4
		narrow elliptic					5
		medium elliptic				Risky Business	6
		round					7
		broad elliptic					8
63.	**VG**	**Corolla: color on outer side of inner lobes**					
PQ	**(c)**	RHS Colour Chart (indicate reference number)					
64.	**VG**	**Corolla: shape of apex of inner lobes**					
PQ	**(c)**	acute					1
		obtuse					2
		rounded				Atlantis, Desert Mouse	3
65.	**MG**	**Filament: length**					
QN	**(c)**	short				Heat Wave	3
		medium				Earth Angel	5
		long				American Sweetheart	7
66.	**VG**	**Filament: color**					
PQ	**(c)**	white or whitish				Atlantis	1
		light green				Roxsanne, Tattoo	2
		medium green					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
67.	**VG**	**Anther: color**					
PQ	**(c)**	yellow					1
		yellow with purple					2
		yellow brown				Desert Mouse	3
		purple				Atlantis, Secret Love	4
		brown purple				Paradise Island, Risky Business	5
68.	**MG**	**Style: length**					
QN	**(c)**	short				Desert Mouse	3
		medium				Secret Ambition	5
		long				American Sweetheart	7
69.	**VG**	**Style: color**					
PQ	**(c)**	white or whitish				Atlantis	1
		light green				Golden Meadows, Paradise Joyce	2
		medium green				Paradise Power	3
70.	**VG**	**Style: color of stigma**					
PQ	**(c)**	white or whitish				Atlantis, Desert Mouse	1
		light green				Last Dance, Liberty Hosta	2
		medium green				Roxsanne	3
		light yellow					4
		light purple				Liberty Hosta	5
		light violet blue				WAR 101	6
71.	**VG**	**Pollen: color**					
PQ	**(c)**	medium yellow				Fragrant Queen, Secret Ambition	1
		dark yellow				Roxsanne	2
		yellow orange				Earth Angel, Heat Wave	3
		orange				Atlantis, Desert Mouse	4

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) Plant, petiole and leaf characteristics should be observed before flowering.
(b) The order of colors should follow the RHS Colour Chart: color 1 is the color with the lowest RHS Colour Chart number; color 2 is the second lowest RHS Colour Chart number; color 3 is the third lowest, etc.
(c) Characteristics of the inflorescence should be observed when first flowers are open.
(d) Length of peduncle should be observed when all flowers are open.
(e) Characteristics on the bract should be observed on the bract of the first flower (when present).

A photograph of the leaf could be provided in conjunction with the description in order to clarify the color distribution and/or pattern. However, a warning should be added to this photograph, explaining that the primary intent of the photograph is to show the distribution and/or pattern of the colors on the plant part rather than the actual colors. Color on photographs can be affected by the technology of the camera and the facilities used to display the photograph (printer, overhead projector, etc.).

8.2 Explanations for individual characteristics

Ad. 1: Plant shoot: color of first scaly leaves

Characteristic should be observed at the moment the first shoots emerge and before opening.

Ad. 5: Petiole: shape in cross section

1
flat

2
V-shape

3
U-shape

Ad. 10: Leaf blade: position of broadest part

1
in the middle (1)

2
slightly towards base

3
moderately towards base

4
strongly towards base

Ad 11: Leaf blade: shape

← broadest part →		
(below middle)	at middle	(above middle)

(1) very narrow ovate	(5) very narrow elliptic	
 (2) narrow ovate	 (6) narrow elliptic	
 (3) medium ovate	 (7) medium elliptic	
 (4) broad ovate	 (8) round	
	 (9) transverse elliptic	

Ad. 12: Leaf blade: shape of base

1
acute

2
obtuse

3
truncate

4
cordate

Ad. 13: Leaf blade: shape of apex (excluding tip)

1
acute

2
obtuse

3
rounded

Ad. 15: Leaf blade: color 1: total area
Ad. 19: Leaf blade: color 2: total area
Ad. 23: Leaf blade: color 3: total area
Ad. 27: Leaf blade: color 4: total area
Ad. 31: Leaf blade: color 5: total area

The area has to be compared to the whole area of the leaf surface.

In order to provide an illustration of the recording method, two worked examples are provided below. The first describes a leaf with only one color, the second a leaf with several colors. In both cases these are described on the fully expanded leaf, but the method for the young leaf is identical.

Section 8.1(b) contains the instructions as to which material should be used for the observations.

Worked Example One – (variety with only one leaf color)

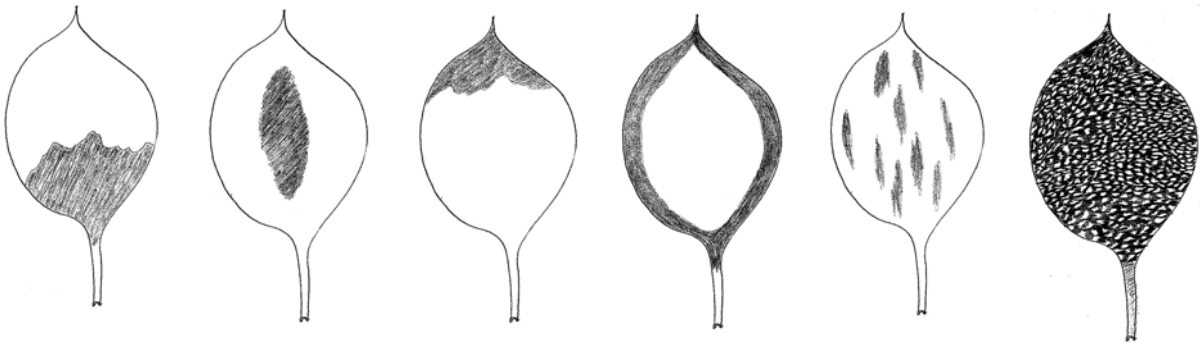
14. Leaf blade: color 1 – RHS Colour Chart – ca. RHS 144 A - dark green
15. Leaf blade: color 1: total area – very large (9)
16. Leaf blade: color 1: distribution – throughout (7)
17. Leaf blade: color 1: pattern – solid or nearly solid (7)
18. Leaf blade: color 2 – RHS Colour Chart – not applicable
19. Leaf blade: color 2: total area – not applicable
20. Leaf blade: color 2: distribution – none (1)
21. Leaf blade: color 2: pattern – not applicable
22. Leaf blade: color 3 – RHS Colour Chart – not applicable
23. Leaf blade: color 3: total area – not applicable
24. Leaf blade: color 3: distribution – none (1)
25. Leaf blade: color 3: pattern – not applicable
26. Leaf blade: color 4 – RHS Colour Chart – not applicable
27. Leaf blade: color 4: total area – not applicable
28. Leaf blade: color 4: distribution – none (1)
29. Leaf blade: color 4: pattern – not applicable
30. Leaf blade: color 5 – RHS Colour Chart – not applicable
31. Leaf blade: color 5: total area – not applicable
32. Leaf blade: color 5: distribution – none (1)
33. Leaf blade: color 5: pattern – not applicable

Worked Example Two – (variety with several leaf colors)

14. Leaf blade: color 1 – RHS Colour Chart – ca. RHS 146 A – brown green
15. Leaf blade: color 1: total area – medium (5)
16. Leaf blade: color 1: distribution – at margin (4)
17. Leaf blade: color 1: pattern – solid or nearly solid (7)
18. Leaf blade: color 2 – RHS Colour Chart – ca. RHS 151 A – green brown
19. Leaf blade: color 2: total area – small (3)
20. Leaf blade: color 2: distribution – scattered (6)
21. Leaf blade: color 2: pattern – in sectors (4)
22. Leaf blade: color 3 – RHS Colour Chart – ca. RHS 155 A - white
23. Leaf blade: color 3: total area – small to medium (4)
24. Leaf blade: color 3: distribution – at the centre (4)
25. Leaf blade: color 3: pattern – flamed (1)
26. Leaf blade: color 4 – RHS Colour Chart – not applicable

27. Leaf blade: color 4: total area – not applicable
28. Leaf blade: color 4: distribution – none (1)
29. Leaf blade: color 4: pattern – not applicable
30: Leaf blade: color 5 – RHS Colour Chart – not applicable
31. Leaf blade: color 5: total area – not applicable
32. Leaf blade: color 5: distribution – none (1)
33. Leaf blade: color 5: pattern – not applicable

Ad. 16: Leaf blade: color 1: distribution
Ad. 20: Leaf blade: color 2: distribution
Ad. 24: Leaf blade: color 3: distribution
Ad. 28: Leaf blade: color 4: distribution
Ad. 32: Leaf blade: color 5: distribution



1 basal zone | 2 at centre | 3 at top | 4 at margin | 5 scattered | 6 throughout

Ad. 17: Leaf blade: color 1: pattern
Ad. 21: Leaf blade: color 2: pattern
Ad. 25: Leaf blade: color 3: pattern
Ad. 29: Leaf blade: color 4: pattern
Ad. 33: Leaf blade: color 5: pattern

1
flamed (green)

2
striped (light yellow)

3
spotted (light yellow)

4
in sectors (yellow green)

5
marbled (white)

6
marginated (white)

Ad. 35: Leaf blade: number of parallel veins

1
few

3
many

Ad.36: Leaf blade: degree of bulging

1
absent or very weak

5
very strong

Ad. 37: Leaf blade: degree of blistering

1
absent or very weak

2
medium

3
strong

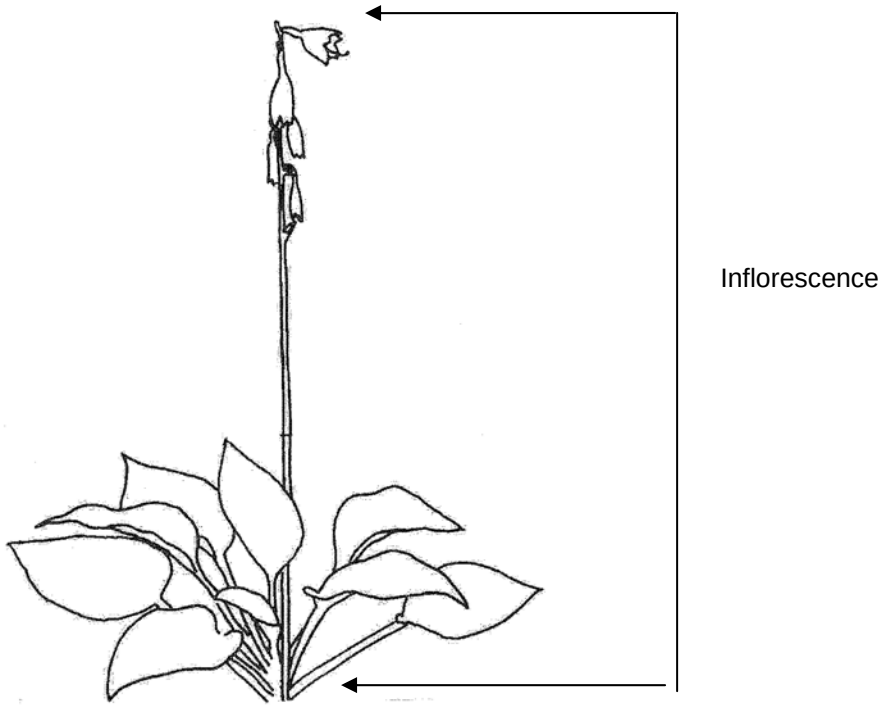
Ad. 39: Leaf blade: twisting

1
absent or weak

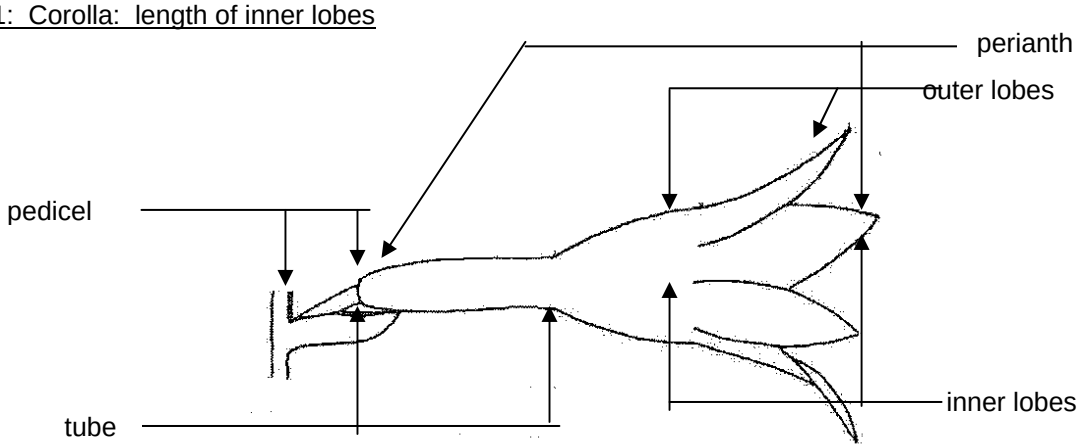
2
moderate

3
strong

Ad. 40: Inflorescence: length



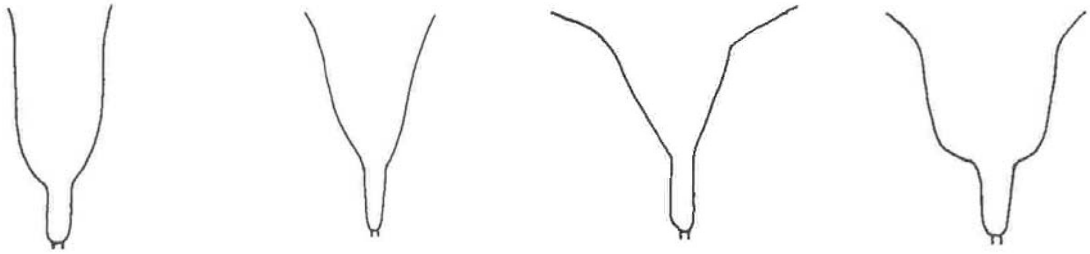
Ad. 49: Pedicel: length
Ad. 52: Perianth: length
Ad. 53: Perianth: width
Ad. 55: Tube: length
Ad. 57: Corolla: length of outer lobes
Ad. 61: Corolla: length of inner lobes



Ad. 51: Flower: type

Flowers with 6 corolla lobes are of the type single (1), flowers with 7 to 11 corolla lobes are of the type semi-double (2) and flowers with 12 or more corolla lobes are of the type double (3).

Ad. 54: Perianth: shape in side view



1 tubular | 2 flared | 3 funnel | 4 campanulate

Ad. 58: Corolla: shape of outer lobes
Ad. 62: Corolla: shape of inner lobes

1
very narrow ovate

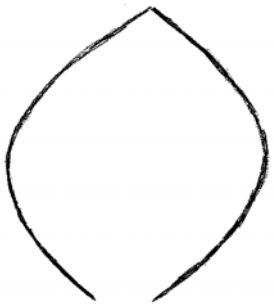
2
narrow ovate

3
medium ovate

4
broad ovate

5
narrow elliptic

6
medium elliptic



7
round

8
broad elliptic

9. Literature

Grenfell, D., and Shadrack, M., 2004: The color encyclopedia of Hosta's, Timber Press, Inc., Cambridge, GB, ISBN 0-88192-618-3

Aden, P, 1988, The Hosta Book, Timber Press Inc, Portland Oregon, U.S.A, ISBN 0-88192-260-9

Shadrack, M and Shadrack, K, 2010, The Book of Little Hostas, Timber Press, London, GB, ISBN 978-1-60469-060-6

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	*Hosta* Tratt.
1.2 Common name	Hosta

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) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

4.2.3 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 (2)	**Plant: height of foliage**		
	very short		1[ ]
	very short to short		2[ ]
	short	Great Escape	3[ ]
	short to medium		4[ ]
	medium	Paradise island	5[ ]
	medium to tall		6[ ]
	tall	Fragrant Queen	7[ ]
	tall to very tall		8[ ]
	very tall		9[ ]
5.2 (11)	**Leaf blade: shape**		
	very narrow ovate	Stiletto	1[ ]
	narrow ovate		2[ ]
	medium ovate	Desert Mouse, Sagae	3[ ]
	broad ovate	Sum and Substance	4[ ]
	very narrow elliptic		5[ ]
	narrow elliptic	Saishu Jima	6[ ]
	medium elliptic	Pineapple Poll	7[ ]
	round	Abiqua Drinking Gourd	8[ ]
	transverse elliptic		9[ ]
5.3i (14)	**Leaf blade: color 1**		
	RHS Colour Chart (indicate reference number)		

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

	Characteristics	Example Varieties	Note
5.3ii (14)	**Leaf blade: color 1**		
	white		1[ ]
	light yellow		2[ ]
	medium yellow		3[ ]
	dark yellow		4[ ]
	light green		5[ ]
	medium green		6[ ]
	dark green		7[ ]
	blue green		8[ ]
5.3 (17)	**Leaf blade: color 1: pattern**		
	flamed		1[ ]
	striped		2[ ]
	spotted		3[ ]
	in sectors		4[ ]
	marbled		5[ ]
	marginated		6[ ]
	solid or nearly solid		7[ ]
5.4 (18)	**Leaf blade: color 2 (if present)**		
	RHS Colour Chart (indicate reference number)		
5.4i (18)	**Leaf blade: color 2 (if present)**		
	white		1[ ]
	light yellow		2[ ]
	medium yellow		3[ ]
	dark yellow		4[ ]
	light green		5[ ]
	medium green		6[ ]
	dark green		7[ ]
	blue green		8[ ]

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	*Flower color*	*orange*	*orange red*

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 image of the variety should accompany the Technical Questionnaire.

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.

[#] 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:

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 [ ]

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]