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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

MAGNOLIA

UPOV Code(s): MAGNO

Magnolia L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from China
to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its fifty-third session, to be held in Roelofarendsveen, Netherlands,
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Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Magnolia</i> L., <i>Michelia</i> L.	Magnolia	Magnolia	Magnolie	Magnolia

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 *Magnolia* 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 flowering and expressing all relevant characteristics of the variety during the first or later growing cycle. If the variety can not flower within five years after grafting or cutting, and its distinctness is irrelevant to its flowers, flowerless plants showing all the other relevant characteristics of the variety, along with flower pictures of their mother plant, could be accepted.

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

6 plants

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.1.2 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

3.2 *Testing Place*

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

3.3 *Conditions for Conducting the Examination*

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

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

3.4 *Test Design*

- 3.4.1 In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 6 plants.
- 3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 *Additional Tests*

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts of plants taken from each of 5 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 *Uniformity*

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

4.2.2 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 6 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: seasonality (characteristic 1)
 - (b) Plant: position of flower buds on branch (characteristic 6)
 - (c) Flower: number of tepals (characteristic 32)
 - (d) First whorl petaloid tepals: main color on outer side (characteristic 40)
 - Gr. 1: white
 - Gr. 2: green
 - Gr. 3: yellow
 - Gr. 4: red pink
 - Gr. 5: red
 - Gr. 6: purple
 - (e) Time of beginning of vegetative growth in relation to flowering (characteristic 56)
 - (f) Time of beginning of first flowering (characteristic 57)
- 5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".
6. Introduction to the Table of Characteristics
- 6.1 *Categories of Characteristics*
- 6.1.1 Standard Test Guidelines Characteristics

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

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.
- 6.2 *States of Expression and Corresponding Notes*
- 6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.
- 6.2.2 All relevant states of expression are presented in the characteristic.
- 6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

6.3 Types of Expression

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

6.4 Example Varieties

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

Latin name of example variety	Example variety
<i>Magnolia figo</i>	Purple Queen
<i>Magnolia acuminata</i>	Kenneth's Delight
<i>Magnolia denudata</i>	Duoban Baiyulan
<i>Magnolia liliifloraxfoveolata</i>	Hong Jixing
<i>Magnoliaxloebneri</i>	Mag 's Pirouette
<i>Magnolia sargentiana</i>	Mossman 's Giant
<i>Magnolia sprengeri</i>	Diva
<i>Magnoliaxbrooklynensis</i> x <i>acuminata</i> var. <i>subcordata</i>	Yellow Bird
<i>Magnoliaxsoulangiana</i>	Burgundy
<i>Magnolia obovata</i> x <i>tripetala</i>	Silver Parasol
<i>Magnolia sieboldii</i>	Qingxin
<i>Magnolia grandiflora</i>	Bracken's Brown Beauty
<i>Magnolia virginiana</i>	Tensaw
<i>Magnolia paenetalaumaxsoulangiana</i>	Lvyi Zijuan

6.5 Legend

English		français		deutsch	español	Example Varieties Exemples Be ejemplo	Note
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/
1. (*)	QL	VG	(a)				
	Plant: seasonality						
	deciduous						1
	evergreen						9
2. (*)	QL	VG	(+)	(a)			
	Plant: type						
	tree						1
	shrub						9
3.	QN	VG	(+)	(a)			
	Plant: growth habit						
	fastigate						1
	upright						2
	upright to spreading						3
	spreading						4
	drooping						5
4.	QN	MG	(+)				
	Plant: height						
	very short					Tensaw	1
	short					Hong Jixing	2
	medium					Burgundy	3
	tall					Yellow Bird	4
	very tall					Kenneth's Delight	5
5.	QN	VG		(a)			
	Plant: density of branches						
	sparse					Kenneth's Delight	1
	medium					Burgundy	3
	dense					Mag's Pirouette	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
6.	(*) QL VG	(+)				
	Plant: position of flower buds on branch					
	terminal only					1
	terminal and axillary					2
	axillary only					3
7.	QN MG	(+)				
	Plant: number of terminal or axillary flower on branch					
	only one					1
	more than one					2
8.	QN MS/VG	(+)				
	Plant: fruiting formation					
	absent				Hong Jixing	1
	few				Purple Queen	2
	medium				Bracken's Brown Beauty	3
	many				Duoban Baiyulan	4
	very many					5
9.	QN MS/VG	(+)	(a)			
	Flowering shoot: length of internodes					
	short				Tensaw	3
	medium				Burgundy	5
	long				Kenneth's Delight	7
10	QN MS/VG	(+)	(a)			
	Flowering shoot: thickness					
	thin				Tensaw	1
	medium				Burgundy	2
	thick				Kenneth's Delight	3

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
11	PQ	VG	(+)	(a)				
	One-year-old branch: color of shoot							
	green						Lvyi Zijuan	1
	yellow green						Diva	2
	yellow							3
	brown purple						Bracken's Brown Beauty	4
	brown						Yellow Bird	5
	yellow brown						Duoban Baiyulan	6
12	QN	VG		(b)				
	Young leaf blade: pubescence on lower side							
	absent							1
	sparse							2
	dense							3
	very dense							4
13	PQ	VG		(b)				
	Young leaf blade: main color of upper side(excluding variegation)							
	green							1
	yellow green							2
	yellow							3
	yellow brown							4
	red							5
	red brown							6

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
14	PQ	VG	(b)				
	Young leaf blade: color of lower side						
		white					1
		green					2
		grey green					3
		yellow					4
		brown red					5
		brown purple					6
		light brown					7
		medium brown					8
		dark brown					9
		yellow brown					10
15 (*)	QL	VG	(+)	(c)			
	Leaf: spiral arrangement						
		absent					1
		present					9
16 (*)	PQ	VG	(+)	(c)			
	Leaf blade: shape						
		broad ovate					1
		medium ovate					2
		narrow ovate					3
		circular					4
		broad elliptic					5
		medium elliptic					6
		narrow elliptic					7
		broad obovate					8
		medium obovate					9
		narrow obovate					10
17 (*)	QN	MS/VG	(+)	(c)			
	Leaf blade: length						
		very short				Tensaw	1
		short				Burgundy	3
		medium				Bracken's Brown Beauty	5
		long				Silver Parasol	7

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
18	QN	MS/VG	(+)	(c)				
	Leaf blade: width							
	very narrow						Tensaw	1
	narrow						Lvyi Zijuan	2
	medium						Burgundy	3
	broad						Kenneth's Delight	4
	very broad						Silver Parasol	5
19	PQ	VG	(+)	(c)				
	Leaf blade: shape of base							
	decurent							1
	acute cuneate							2
	attenuate							3
	obtuse cuneate							4
	rounded							5
	truncate							6
	cordate							7
	auriculate							8
20 (*)	PQ	VG	(+)	(c)				
	Leaf blade: shape of tip							
	acute							1
	obtuse							2
	rounded							3
	truncate							4
	apiculate							5
	acuminate							6
	caudate							7
	retuse							8
	emarginate							9

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
21	(*)	PQ	VG	(+)	(c)			
		Leaf blade: texture						
		thin-papery					Mag's Pirouette	1
		thick-papery					Duoban Baiyulan	2
		thin leathery					Purple Queen	3
		thick-leathery					Bracken's Brown Beauty	4
22		QN	VG		(c)			
		Leaf blade: glossiness of upper side						
		absent or very weak					Duoban Baiyulan	1
		weak					Diva	2
		medium					Purple Queen	3
		strong					Bracken's Brown Beauty	4
23		QL	VG					
		Leaf: variegation						
		absent						1
		present						9
24		PQ	VG		(c)			
		Leaf blade: main color of upper side						
		light green						1
		medium green						2
		dark green						3
		yellow green						4
		grey green						5
		blue green						6
		light yellow						7
		yellow						8
		variegation						9

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
25	PQ	VG	(+)	(c)				
	Leaf blade: color in autumn (only for deciduous)							
	green							1
	yellow green							2
	yellow							3
	brown purple							4
	brown							5
	yellow brown							6
26	(*)	QN	VG	(+)	(d)			
	Flower: attitude							
	erect						Bracken's Brown Beauty	1
	semi-erect						Burgundy	2
	drooping						Qingxin	3
27	QN	VG		(d)				
	Flower: fragrance							
	absent or weak						Lvyi Zijuan	1
	medium						Bracken's Brown Beauty	2
	strong						Purple Queen	3
28	PQ	VG						
	Flower: color of spathaceous bract							
	green							1
	grey green							2
	yellow							3
	grey yellow							4
	brown							5
	brown red							6

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
29	(*)	PQ	VG	(+)	(d)			
		Flower: shape						
		obovoid						1
		globose						2
		cup-shaped						3
		campanulate						4
		cup-plate-shaped						5
		bowl-shaped						6
		saucer-shaped						7
		stellate						8
		goldfish-shaped						9
30		QN	MS/VG	(d), (e)				
		Flower: diameter						
		very small						1
		small					Purple Queen	3
		medium					Burgundy	5
		large					Bracken's Brown Beauty	7
		very large					Mossman's Giant	9
31		QN	MS/VG	(d), (e)				
		Flower: height						
		short					Purple Queen	1
		medium					Burgundy, Kenneth's Delight	2
		tall					Silver Parasol	3
32	(*)	QN	MS/VG	(+)	(d)			
		Flower: number of tepals						
		very few					Purple Queen	1
		few					Burgundy	2
		medium					Diva	3
		many					Duoban Baiyulan	4
		very many					Mag's Pirouette	5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
33	(*)	QL	VG	(+)	(e)			
		First whorl of tepals: presence of sepaloid tepals						
		absent						1
		present						9
34	(*)	PQ	VG		(e)			
		First whorl tepals: texture						
		membranous					Mag's Pirouette	1
		fleshy					Bracken's Brown Beauty	2
		leathery					Lvyi Zijuan	3
35	(*)	PQ	VG	(+)	(d), (e)			
		First whorl petaloid tepals: shape						
		medium ovate						1
		narrow ovate						2
		circular						3
		elliptic						4
		oblong						5
		linear						6
		obovate						7
		oblanceolate						8
		spatulate						9
36		QN	MS/VG		(d), (e)			
		First whorl petaloid tepals: length						
		very short					Purple Queen	1
		short					Mag's Pirouette	3
		medium					Diva	5
		long					Bracken's Brown Beauty	7
		very long					Mossman's Giant	9

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
37	QN	MS/VG	(+)	(d), (e)				
	First whorl petaloid tepals: width							
	very narrow						Mag's Pirouette	1
	narrow						Burgundy	3
	medium						Duoban Baiyulan	5
	broad						Bracken's Brown Beauty	7
	very broad						Mossman's Giant	9
38	PQ	VG	(+)	(d), (e)				
	First whorl petaloid tepal: attitude							
	erect						Kenneth's Delight	1
	semi-erect						Burgundy	2
	incurved						Duoban Baiyulan	3
	straight							4
	recurved							5
	weeping							6
	twist and drooping							7
39	QN	VG	(+)	(d), (e)				
	First whorl petaloid tepal: shape in cross section view							
	concave							1
	flat							2
	convex							3
40 (*)	PQ	VG		(d), (e), (f)				
	First whorl petaloid tepals: main color on outer side							
	RHS Colour Chart							
41 (*)	PQ	VG		(d), (e), (f)				
	First whorl petaloid tepals: secondary color on outer side							
	RHS Colour Chart (indicate reference number)							

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
42	(*)	QN	VG	(+)	(d), (e), (f)			
		First whorl petaloid tepals: distribution of secondary color on outer side						
		absent						1
		at base						2
		basal quarter						3
		basal half						4
		basal three quarters						5
		at tip						6
		distal quarter						7
		distal half						8
		distal three quarters						9
		central						10
		transverse						11
		at margin						12
		throughout						13
43	(*)	PQ	VG	(+)	(d), (e), (f)			
		First whorl petaloid tepals: patterns of secondary color on outer side						
		flush						1
		flush and narrow bar						2
		flush and broad bar						3
		narrow marginate						4
		broad marginate						5
		spotted						6
44		PQ	VG		(d), (e), (f)			
		First whorl petaloid tepals: tertiary color on outer side						
		absent						1
		green						2
		yellow						3
		red						4
		orange						5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
45	(*)	PQ	VG	(d), (e), (f)		
	First whorl petaloid tepals: main color on inner side					
	RHS Colour Chart (indicate reference number)					
46	PQ	VG	(d), (e), (f)			
	First whorl petaloid tepals: secondary color on inner side					
	RHS Colour Chart (indicate reference number)					
47	PQ	VG	(+)	(d), (e), (f)		
	First whorl petaloid tepals: distribution of secondary color on inner side					
	absent					1
	at base					2
	basal quarter					3
	basal half					4
	basal three quarters					5
	at tip					6
	distal quarter					7
	distal half					8
	distal three quarters					9
	central					10
	transverse					11
	at margin					12
	throughout					13
48	PQ	VG	(+)	(d), (e), (f)		
	First whorl petaloid tepals: patterns of secondary color on inner side					
	flush					1
	flush and central bar					2
	marginate					3
	spotted					4

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
49	PQ	VG	(+)	(d), (e)				
	Second whorl petaloid tepals: attitude							
	erect							1
	semi-erect							2
	incurved							3
	straight							4
	recurved							5
	weeping							6
	twist and drooping							7
50 (*)	PQ	VG		(d), (e), (f)				
	Second whorl petaloid tepals: main color on outer side							
	RHS Colour Chart (indicate reference number)							
51	PQ	VG		(d), (e), (f)				
	Second whorl petaloid tepals: secondary color on outer side							
	RHS Colour Chart (indicate reference number)							

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
52	PQ	VG	(+)	(d), (e), (f)				
	Second whorl petaloid tepals: distribution of secondary color on outer side							
	absent							1
	at base							2
	basal quarter							3
	basal half							4
	basal three quarters							5
	at tip							6
	distal quarter							7
	distal half							8
	distal three quarters							9
	at base and central							10
	transverse							11
	at margin							12
	throughout							13
53	PQ	VG	(+)	(d), (e), (f)				
	Second whorl petaloid tepals: patterns of secondary color on outer side							
	absent							1
	flush							2
	flush and central bar							3
	narrow stripe							4
	broad stripe							5
	spotted							6
54	PQ	VG		(d), (e), (f)				
	Stamens: color							
	light yellow							1
	yellow							2
	red							3
	purple red							4
	purple							5

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
55	PQ	VG	(d), (e), (f)				
	Gynoecium: color						
	green						1
	yellow green						2
	light yellow						3
	yellow						4
	red						5
	purple red						6
	purple						7
56 (*)	PQ	VG					
	Time of beginning of vegetative growth in relation to flowering						
	before					Mag's Pirouette	1
	before or at the same time					Burgundy	2
	at the same time					Kenneth's Delight	3
	after					Bracken's Brown Beauty, Lvji Zijuan	4
57 (*)	QN	MG	(+)				
	Time of beginning of first flowering						
	very early						1
	early					Mag's Pirouette	3
	medium					Burgundy	5
	late					Hong Jixing	7
	very late					Bracken's Brown Beauty	9
58 (*)	QN	VG	(+)				
	Length of flowering period						
	very short						1
	short					Mag's Pirouette	3
	medium					Burgundy	5
	long					Bracken's Brown Beauty	7
	very long					Purple Queen	9
59 (*)	QN	VG	(+)				
	Flowering: frequency						
	once						1
	more than once						2

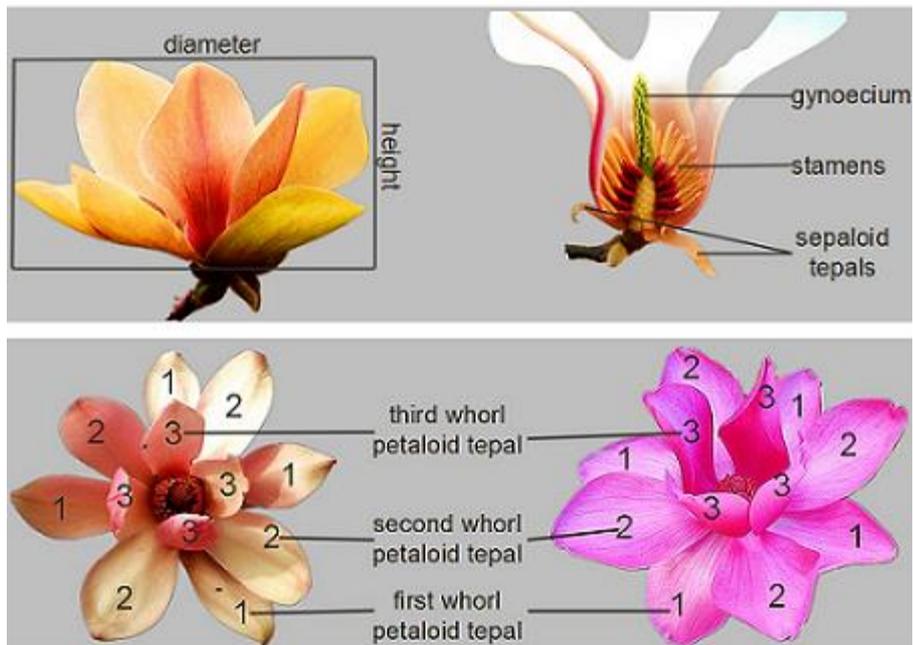
	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/
60	QN	MG	(+)				
	Time of beginning of leaf fall (only for deciduous plants)						
	very early					Kenneth's Delight	1
	early					Burgundy	3
	medium					Hong Jixing	5
	late						7
	very late						9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

- (a) Observations should be made during dormancy.
- (b) Observations should be made on fully developed new leaves on the top of the twig of middle upper part of plant.
- (c) Observations should be made on fully developed leaves in the central third of current-year shoot of middle upper part of plant.
- (d) Observations on the flower should be made on fully opened flowers at the beginning of anther dehiscence in the middle upper part of plant.
- (e) Flower structure:



Sepaloid tepals are the first whorl tepals whose shape or texture are obviously different with those inner tepals.

If no sepaloid tepals, first whorl of tepals are the first whorl petaloid tepals. Otherwise, they are second whorl of tepals.

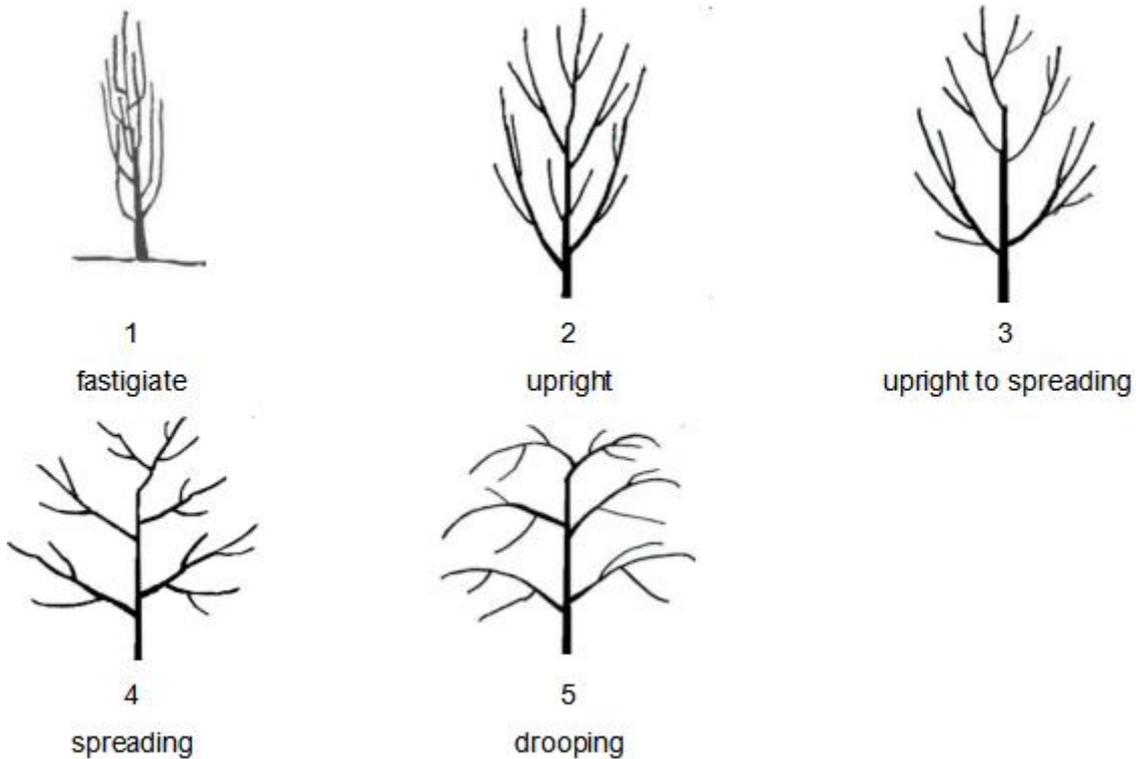
- (f) The main color is the color with the largest surface area, the secondary color is the color with the second largest surface area, and the tertiary color is the color with the third largest surface area. In cases where the area of the main and secondary color are too similar to reliably decide which color has the largest area, the darker color is considered to be the main color. In cases where the area of the secondary and tertiary color are too similar to reliably decide which color has the second largest area, the darker color is considered to be the secondary color.

8.2 Explanations for individual characteristics

Ad. 2: Plant: type

Trees have one or several obvious thick trunks. Shrubs have no obvious thicker trunks.

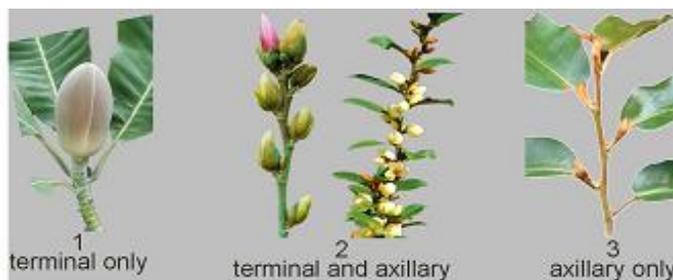
Ad. 3: Plant: growth habit



Ad. 4: Plant: height

Being observed at its give flower at first time.

Ad. 6: Plant: position of flower buds on branch



Ad. 7: Plant: number of terminal or axillary flower on branch

Observations should be made at time of beginning of flowering.

Ad. 8: Plant: fruiting formation

Observations should be made after flowering has completed for two months.

asent: never produce fruit.

few: can not produce fruit every year.

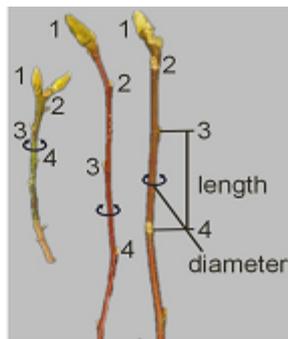
medium: can produce 1-2 fruits every year for a plant capable of flowering more than three years.

many: can produce 3-8 fruits every year for a plant capable of flowering more than three years.

very many: can produce more than 8 fruits every year for a plant capable of flowering more than three years.

Ad. 9: Flowering shoot: length of internodes

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



Ad. 10: Flowering shoot: thickness

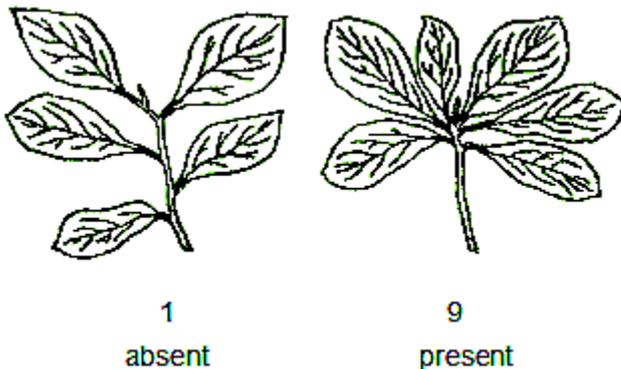
Same to Ad. 9.

Ad. 11: One-year-old branch: color of shoot

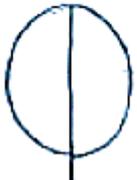
Observed on sunny side of the one-year-old shoot.

Ad. 15: Leaf: spiral arrangement

Observations should be made on fully developed leaves in the current-year shoot of middle upper part of plant.

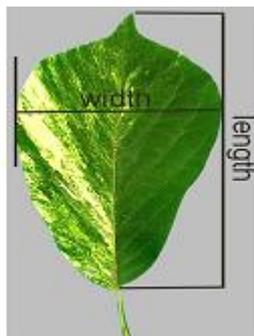


Ad. 16: Leaf blade: shape

		below middle	at middle	above middle
↑ relative width ↓	↑ narrow	 3 narrow ovate	 7 narrow elliptic	 10 narrow obovate
	↑	 2 medium ovate	 6 medium elliptic	 9 medium obovate
	↓	 1 broad ovate	 5 broad elliptic	 8 broad obovate
	broad ↓		 4 circular	

Ad. 17: Leaf blade: length

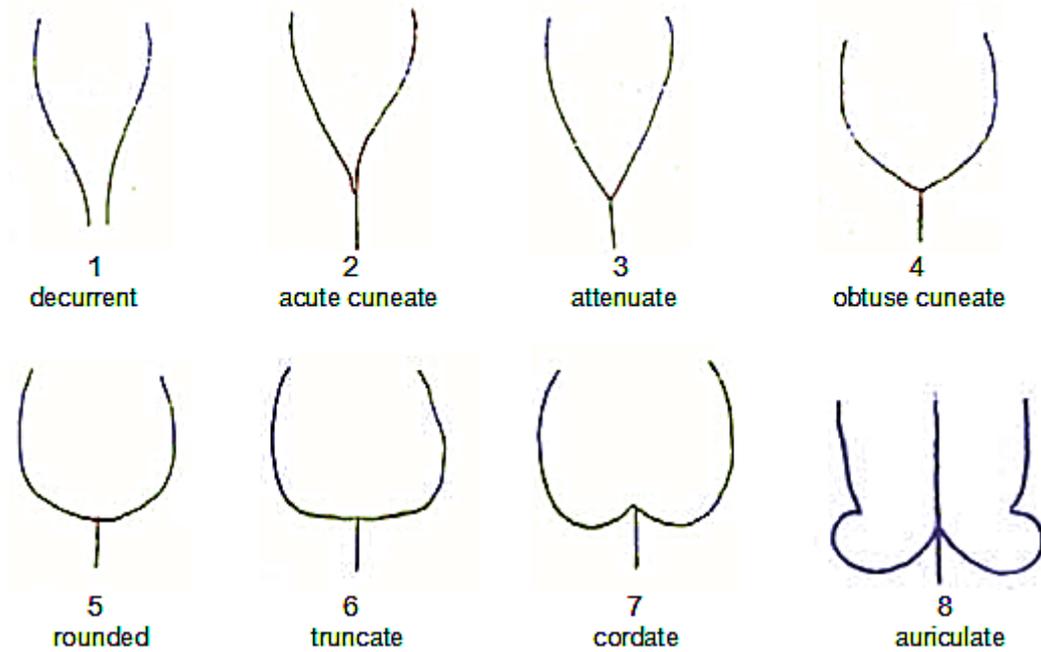
The leaf length is observed excluding the petiole.



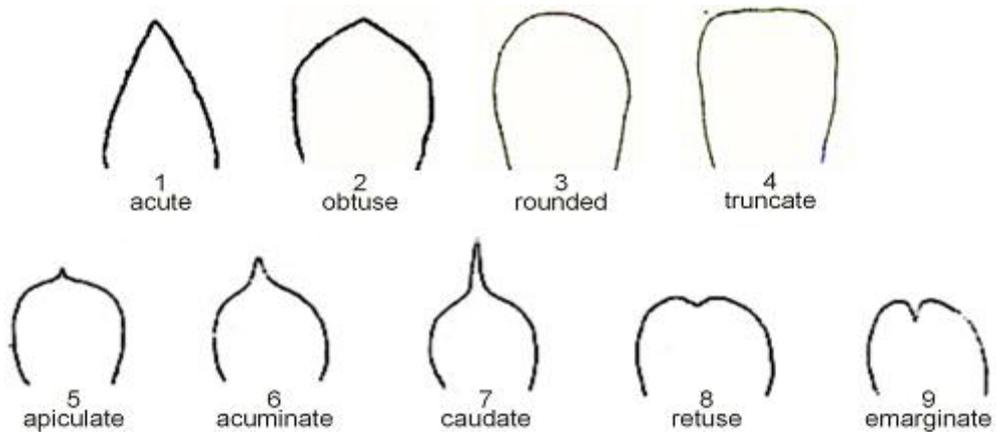
Ad. 18: Leaf blade: width

See Ad.17.

Ad. 19: Leaf blade: shape of base



Ad. 20: Leaf blade: shape of tip



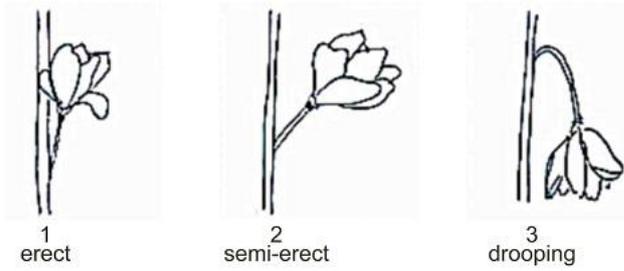
Ad. 21: Leaf blade: texture

Leathery leaf: waxiness on surface of leaves, with a firm and thick texture, such as *M. grandiflora*.
Papery leaf: a pliable and thin texture, such as *M. denudata*.

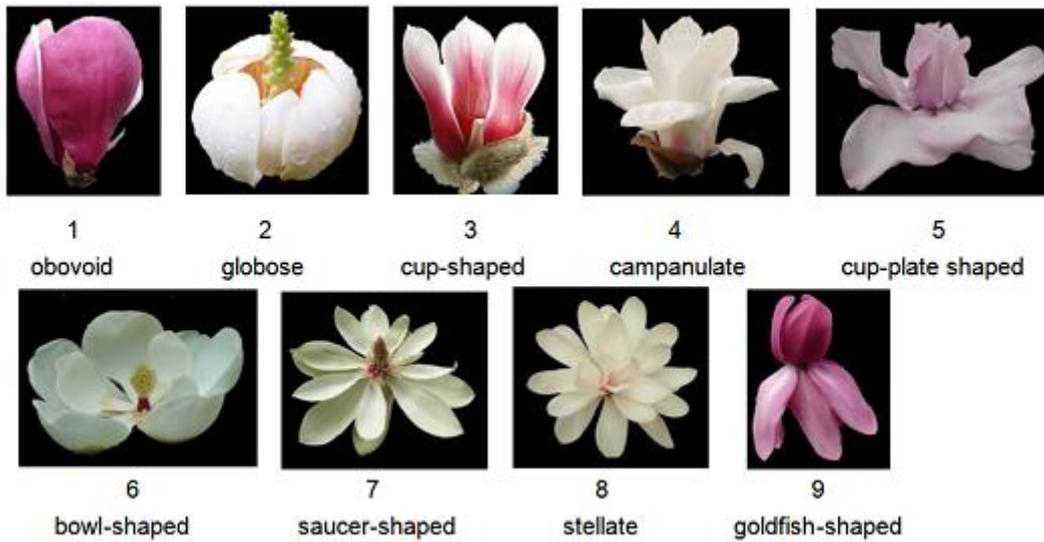
Ad. 25: Leaf blade: color in autumn (only for deciduous)

Observations on the time when the temperature is going to drop dramatically in autumn season. This characteristic is probably not applicable to varieties from warmer areas.

Ad. 26: Flower: attitude



Ad. 29: Flower: shape



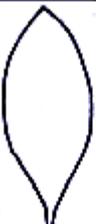
Ad. 32: Flower: number of tepals

very few: number of tepals ≤ 6
few: number of tepals ≤ 10
medium: number of tepals ≤ 14
many: number of tepals ≤ 18
very many: number of tepals > 18

Ad. 33: First whorl of tepals: presence of sepaloid tepals

Being observed at the beginning of flowering.

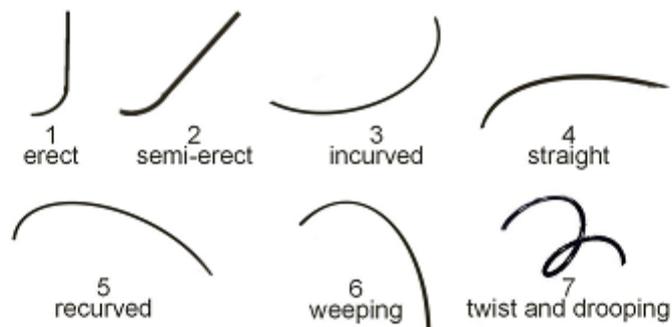
Ad. 35: First whorl petaloid tepals: shape

		← broadest part →		
		below middle	at middle	above middle
relative width	↑ narrow		 6 linear	
	→ narrow	 2 narrow ovate	 5 oblong	 8 oblanceolate
	← broad	 1 medium ovate	 4 elliptic	 7 obovate
	↓		 3 circular	

Ad. 37: First whorl petaloid tepals: width

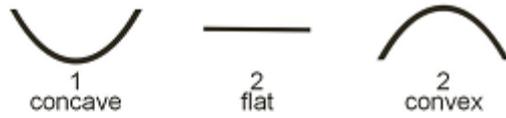
Measure the widest part of the tepals.

Ad. 38: First whorl petaloid tepal: attitude

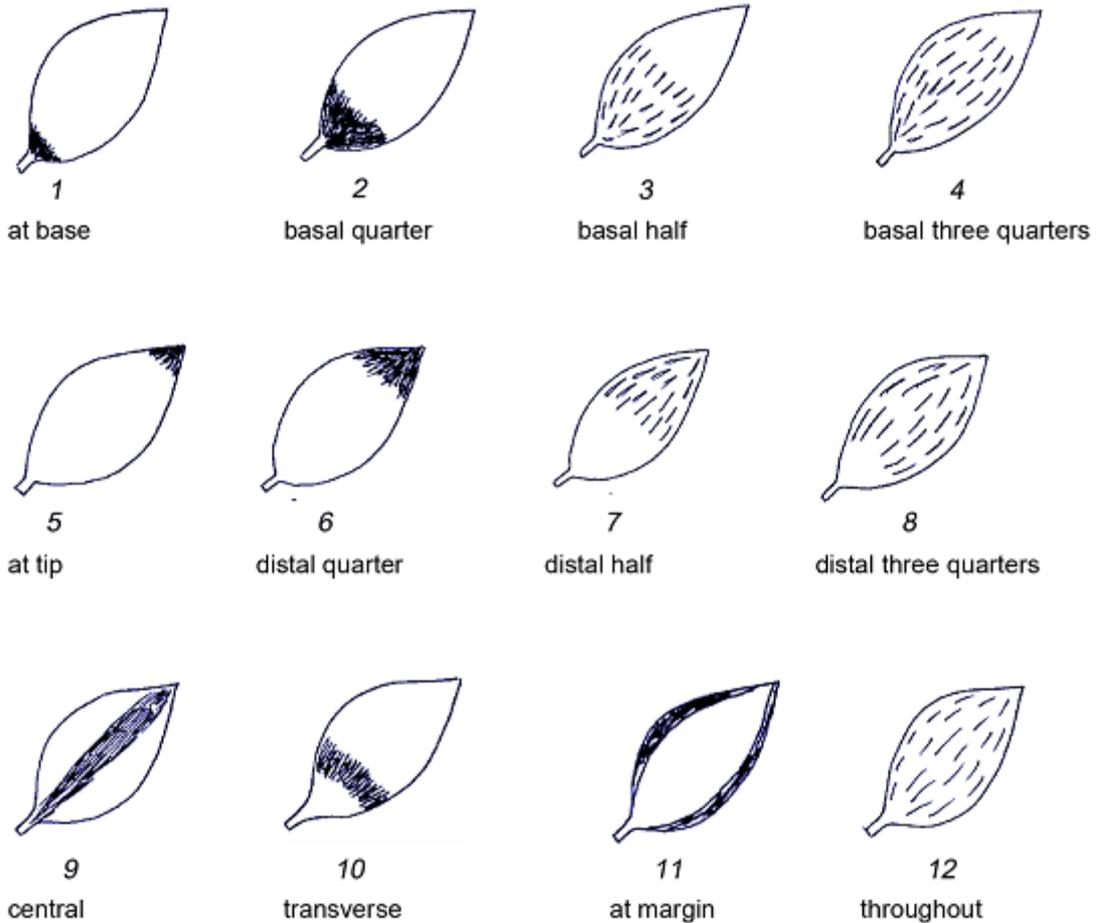


Ad. 39: First whorl petaloid tepal: shape in cross section view

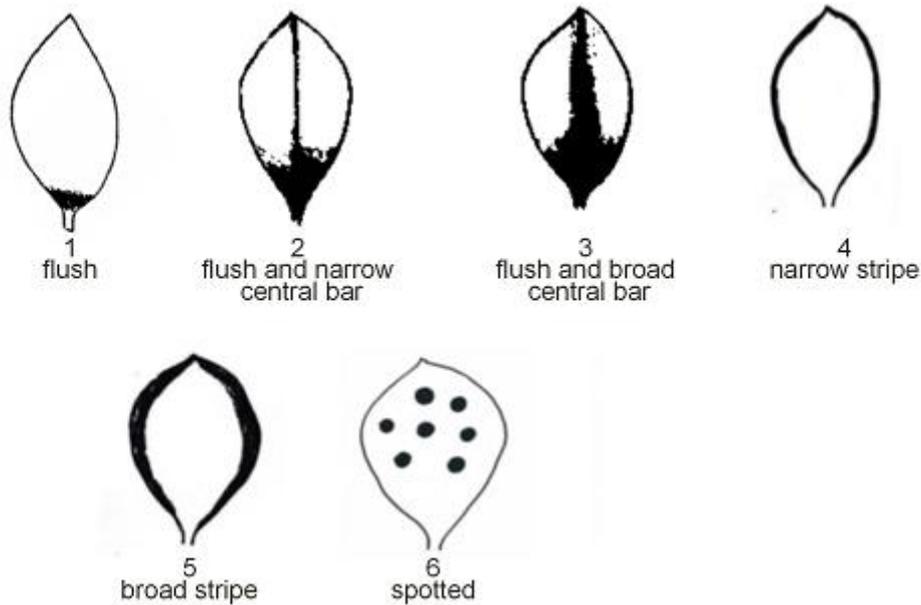
Being observed as follows.



Ad. 42: First whorl petaloid tepals: distribution of secondary color on outer side



Ad. 43: First whorl petaloid tepals: patterns of secondary color on outer side



Ad. 47: First whorl petaloid tepals: distribution of secondary color on inner side

Same to Ad. 44.

Ad. 48: First whorl petaloid tepals: patterns of secondary color on inner side

Same to Ad.45

Ad. 49: Second whorl petaloid tepals: attitude

Same to Ad.39.

Ad. 52: Second whorl petaloid tepals: distribution of secondary color on outer side

Same to Ad. 44.

Ad. 53: Second whorl petaloid tepals: patterns of secondary color on outer side

Same to Ad.45.

Ad. 57: Time of beginning of first flowering

The time of beginning of flowering is when more than 3 flowers have opened on each plant. In the case of more than one flowering period, the first flowering period should be observed.

Ad. 58: Length of flowering period

The time of flowering from beginning to ending. The beginning time of flowering is more than three flower buds bloom in all plants during five days. The ending time of flowering is less than three flowers bloom in all plants during five days.

In the case of more than one flowering period, the first flowering period should be observed.

Ad. 59: Flowering: frequency

One flowering time is from the beginning to ending of blooming.
See Ad.58.

Ad. 60: Time of beginning of leaf fall (only for deciduous plants)

Time of beginning of leaf fall is when 10% of leaves on all plants have fallen.

9. Literature

Callaway, D. J., 1994: *The World of Magnolias*. Timber Press, Oregon.

Figlar, R. B., Nootboom, H. P., 2004: Notes on Magnoliaceae IV. *Blumea* 49: 87-100.

Xia N.H., Liu Y.H., Nootboom H.P., 2008: Magnoliaceae. In: Wu ZY et al, *Flora of China* Vol.7. Science Press and Missouri Botanical Garden Press, pp. 47-91.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights		
1. Subject of the Technical Questionnaire		
1.1	Botanical name	<input type="text" value="Magnolia L."/>
1.2	Common name	<input type="text" value="Magnolia"/>
2. Applicant		
	Name	<input type="text"/>
	Address	<input type="text"/>
	Telephone No.	<input type="text"/>
	Fax No.	<input type="text"/>
	E-mail address	<input type="text"/>
	Breeder (if different from applicant)	<input type="text"/>
3. Proposed denomination and breeder's reference		
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross

(please state parent variety)

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

female parent male parent

(b) partially known cross

(please state known parent variety(ies))

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

female parent male parent

(c) unknown cross

4.1.2 Mutation

(please state parent variety)

4.1.3 Discovery and development

(please state where and when discovered and how developed)

4.1.4 Other

(Please provide details)

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2	Method of propagating the variety	
4.2.1	Vegetative propagation	
(a)	Cuttings	[]
(b)	<i>In vitro</i> propagation	[]
(c)	Budding or grafting	[]
(d)	Division	[]
(e)	Other (state method)	[]
	<input type="text"/>	
4.2.2	Other (Please provide details)	[]
	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).		
Characteristics	Example Varieties	Note
5.1 Plant: seasonality (1)		
deciduous		1 []
evergreen		9 []
5.2 Plant: type (2)		
tree		1 []
shrub		9 []
5.3 Plant: position of flower buds on branch (6)		
terminal only		1 []
terminal and axillary		2 []
axillary only		3 []
5.4 Leaf: spiral arrangement (15)		
absent		1 []
present		9 []
5.5 Leaf blade: shape (16)		
broad ovate		1 []
medium ovate		2 []
narrow ovate		3 []
circular		4 []
broad elliptic		5 []
medium elliptic		6 []
narrow elliptic		7 []
broad obovate		8 []
medium obovate		9 []
narrow obovate		10 []

Characteristics	Example Varieties	Note
5.6 Leaf blade: length (17)		
very short	Tensaw	1 []
very short to short		2 []
short	Burgundy	3 []
short to medium		4 []
medium	Bracken's Brown Beauty	5 []
medium to long		6 []
long	Silver Parasol	7 []
5.7 Leaf blade: shape of tip (20)		
acute		1 []
obtuse		2 []
rounded		3 []
truncate		4 []
apiculate		5 []
acuminate		6 []
caudate		7 []
retuse		8 []
emarginate		9 []
5.8 Leaf blade: texture (21)		
thin-papery	Mag's Pirouette	1 []
thick-papery	Duoban Baiyulan	2 []
thin leathery	Purple Queen	3 []
thick-leathery	Bracken's Brown Beauty	4 []
5.9 Flower: attitude (26)		
erect	Bracken's Brown Beauty	1 []
semi-erect	Burgundy	2 []
drooping	Qingxin	3 []
5.10 Flower: fragrance (27)		
absent or weak	Lvyi Zijuan	1 []
medium	Bracken's Brown Beauty	2 []
strong	Purple Queen	3 []

Characteristics	Example Varieties	Note
5.11 Flower: shape (29)		
obovoid		1 []
globose		2 []
cup-shaped		3 []
campanulate		4 []
cup-plate-shaped		5 []
bowl-shaped		6 []
saucer-shaped		7 []
stellate		8 []
goldfish-shaped		9 []
5.12 Flower: diameter (30)		
very small		1 []
small	Purple Queen	3 []
medium	Burgundy	5 []
large	Bracken's Brown Beauty	7 []
very large	Mossmann's Giant	9 []
5.13 Flower: number of tepals (32)		
very few	Purple Queen	1 []
few	Burgundy	2 []
medium	Diva	3 []
many	Duoban Baiyulan	4 []
very many	Mag's Pirouette	5 []
5.14 First whorl of tepals: presence of sepaloid tepals (33)		
absent		1 []
present		9 []
5.15 First whorl tepals: texture (34)		
membranous	Mag's Pirouette	1 []
fleshy	Bracken's Brown Beauty	2 []
leathery	Lvyi Zijuan	3 []

Characteristics	Example Varieties	Note
5.16 First whorl petaloid tepals: shape (35)		
medium ovate		1 []
narrow ovate		2 []
circular		3 []
elliptic		4 []
oblong		5 []
linear		6 []
obovate		7 []
oblanceolate		8 []
spatulate		9 []
5.17(i) First whorl petaloid tepals: main color on outer side (40)		
RHS Colour Chart		
5.17(ii) First whorl petaloid tepals: main color on outer side (40)		
white		1 []
green		2 []
yellow		3 []
red pink		4 []
red		5 []
purple		6 []
5.18(i) First whorl petaloid tepals: secondary color on outer side (41)		
RHS Colour Chart (indicate reference number)		
5.18(ii) First whorl petaloid tepals: secondary color on outer side (41)		
white		1 []
green		2 []
yellow		3 []
red pink		4 []
red		5 []
purple		6 []

Characteristics	Example Varieties	Note
5.19 First whorl petaloid tepals: distribution of secondary color on outer side (42)		
absent		1 []
at base		2 []
basal quarter		3 []
basal half		4 []
basal three quarters		5 []
at tip		6 []
distal quarter		7 []
distal half		8 []
distal three quarters		9 []
central		10 []
transverse		11 []
at margin		12 []
throughout		13 []
5.20 First whorl petaloid tepals: patterns of secondary color on outer side (43)		
flush		1 []
flush and narrow bar		2 []
flush and broad bar		3 []
narrow marginate		4 []
broad marginate		5 []
spotted		6 []
5.21(i) First whorl petaloid tepals: main color on inner side (45)		
RHS Colour Chart (indicate reference number)		
5.21(ii) First whorl petaloid tepals: main color on inner side (45)		
white		1 []
green		2 []
yellow		3 []
red pink		4 []
red		5 []
purple		6 []

Characteristics	Example Varieties	Note
5.22(i) Second whorl petaloid tepals: secondary color on outer side (51)		
RHS Colour Chart (indicate reference number)		
5.22(ii) Second whorl petaloid tepals: secondary color on outer side (51)		
white		1 []
green		2 []
yellow		3 []
red pink		4 []
red		5 []
purple		6 []
5.23 Time of beginning of vegetative growth in relation to flowering (56)		
before	Mag's Pirouette	1 []
before or at the same time	Burgundy	2 []
at the same time	Kenneth's Delight	3 []
after	Bracken's Brown Beauty, Lvyi Zijuan	4 []
5.24 Time of beginning of first flowering (57)		
very early		1 []
early	Mag's Pirouette	3 []
medium	Burgundy	5 []
late	Hong Jixing	7 []
very late	Bracken's Brown Beauty	9 []
5.25 Length of flowering period (58)		
very short		1 []
short	Mag's Pirouette	3 []
medium	Burgundy	5 []
long	Bracken's Brown Beauty	7 []
very long	Purple Queen	9 []
5.26 Flowering: frequency (59)		
once		1 []
more than once		2 []

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

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Flower: number of tepals</i>	<i>medium</i>	<i>few</i>
Comments:			

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

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

Yes No

(If yes, please provide details)

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

Yes No

(If yes, please provide details)

7.3 Other information

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

Annex

Variety of Species

Purple Queen: *Magnolia figo* (Lour.) DC

Kenneth's Delight: *Magnolia acuminata* (L.) L.

Duoban Baiyulan: *Magnolia denudata* Desr.

Hong Jixing: *Magnolia liliiflora* Desr. \times *foveolata* (Merr. Ex Dandy) Figlar

Mag 's Pirouette: *Magnolia* \times *loebneri*

Mossman 's Giant: *Magnolia sargentiana* Rehder & Wilson

Diva: *Magnolia sprengeri* Pamp.

Yellow Bird: *Magnolia* \times *brooklynensis* \times *acuminata* var. *subcordata* (Spach) Dandy

Burgundy: *Magnolia* \times *soulangiana* Soul.-Bod.

Silver Parasol: *Magnolia obovata* Thunb. \times *tripetala* (L.) L.

Qingxin: *Magnolia sieboldii* K. Koch

Bracken's Brown Beauty: *Magnolia grandiflora* L.

Tensaw: *Magnolia virginiana* Linn

Lvyi Zijuan: *Magnolia paenetauma* Dandy \times *soulangiana* Soul.-Bod.

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