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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-fifth session, to be held virtually
from 2023-06-12 to 2023-06-16

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Magnolia L. , *Michelia* 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 young plants, grafted or on their own roots.

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 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 4)
(c) Flower: number of tepals (characteristic 31)
(d) First whorl petaloid tepals: main color on outer side (characteristic 39) with the following groups
Gr. 1: white
Gr. 2: green
Gr. 3: yellow
Gr. 4: red pink
Gr. 5: red
Gr. 6: purple
(e) Time of beginning of flowering in relation to vegetative growth (characteristic 55)
(f) Time of beginning of first flowering (characteristic 56)

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.

Example variety
Magnolia acuminata 'Kenneth's Delight'
Magnolia denudata 'Duoban Baiyulan'
Magnolia figo 'Purple Queen'
Magnolia grandiflora 'Bracken's Brown Beauty'
Magnolia 'Hong Jixing'
Magnolia ×*loebneri* 'Mag's Pirouette'
Magnolia 'Lvyi Zijuan'
Magnolia maudiae 'Danyu'
Magnolia sargentiana 'Mossman's Giant'
Magnolia sieboldii 'Qingxin'
Magnolia 'Silver Parasol'
Magnolia ×*soulangiana* 'Burgundy'
Magnolia sprengerii 'Diva'
Magnolia virginiana 'Tensaw'
Magnolia 'Yellow Bird'

6.5 Legend

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

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

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

7 Not applicable

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*)	**QL VG**	**(a)**				
	Plant: seasonality					
	deciduous					1
	evergreen					2
2. (*)	**PQ VG**	**(+) (a)**				
	Plant: growth habit					
	fastigiate					1
	upright				Yellow Bird	2
	upright to spreading				Burgundy	3
	spreading				Duoban Baiyulan	4
	drooping					5
3.	**QN VG**	**(a)**				
	Plant: density of branches					
	sparse				Kenneth's Delight	1
	sparse to medium					2
	medium				Burgundy	3
	medium to dense					4
	dense				Mag's Pirouette	5
4. (*)	**PQ VG**	**(+)**				
	Plant: position of flower buds on branch					
	terminal only					1
	terminal and axillary					2
	axillary only					3
5.	**QN MG**	**(+)**				
	Plant: number of terminal or axillary flowers on branch					
	only one					1
	one and two					2
	more than two					3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.		**QN MG/MS/VG**	**(+)**				
		Plant: number of fruits relative to flowers					
		absent or few				Hong Jixing, Purple Queen	1
		medium				Yellow Bird	2
		many				Duoban Baiyulan	3
7.	**(*)**	**QN MG/MS/VG**	**(+)**	**(a)**			
		Flowering shoot: length of internodes					
		short				Tensaw	1
		medium				Burgundy	2
		long				Kenneth's Delight	3
8.	**(*)**	**PQ VG**	**(+)**	**(a)**			
		One-year-old shoot: color					
		green				Lvyi Zijuan	1
		yellow green					2
		yellow					3
		brown purple				Bracken's Brown Beauty	4
		brown				Yellow Bird	5
		yellow brown				Duoban Baiyulan	6
9.		**QN VG**		**(b)**			
		Young leaf blade: pubescence on lower side					
		absent or very sparse				Danyu, Diva	1
		sparse					2
		medium				Burgundy	3
		dense					4
		very dense				Bracken's Brown Beauty	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.		**PQ VG**	**(+) (b)**				
		Young leaf blade: color of upper side					
		green					1
		yellow green					2
		yellow					3
		yellow brown					4
		red					5
		red brown					6
11.		**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
12.		**QL VG**	**(+) (c)**				
		Leaf: arrangement					
		alternate					1
		clustered					9
13.	**(*)**	**PQ VG**	**(+) (c)**				
		Leaf blade: shape					
		ovate					1
		elliptic					2
		obovate					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14.	**(*) QN MG/MS**	**(+) (c)**				
	Leaf blade: length					
	very short				Tensaw	1
	short				Mag's Pirouette	2
	medium				Burgundy	3
	long				Bracken's Brown Beauty	4
	very long				Silver Parasol	5
15.	**QN MG/MS**	**(+) (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
16.	**QN MG/MS**	**(+) (c)**				
	Leaf blade: ratio length/width					
	very low				Duoban Baiyulan, Qingxin	1
	low				Diva	2
	medium				Burgundy	3
	high				Bracken's Brown Beauty	4
	very high				Lvyi Zijuan, Silver Parasol	5
17.	**PQ VG**	**(+) (c)**				
	Leaf blade: shape of base					
	decurrent					1
	attenuate					2
	acute cuneate					3
	obtuse cuneate					4
	rounded					5
	truncate					6
	cordate					7
	auriculate					8

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	**(*)**	**PQ VG**	**(+) (c)**				
		Leaf blade: shape of apex					
		acute					1
		obtuse					2
		rounded					3
		truncate					4
		apiculate					5
		acuminate					6
		caudate					7
		retuse					8
		emarginate					9
19.	**(*)**	**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
20.		**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
		very strong					5
21.		**QL VG**	**(c)**				
		Leaf: variegation					
		absent					1
		present					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22.	**PQ VG**	**(+) (c)**				
	Leaf blade: color of upper side					
	green				Bracken's Brown Beauty	1
	yellow green					2
	grey green					3
	yellow					4
	red brown					5
23.	**PQ VG**	**(+) (c)**				
	Only varieties with Plant: seasonality: deciduous: Leaf blade: color in autumn					
	green					1
	yellow green					2
	yellow					3
	brown purple					4
	brown					5
	yellow brown					6
24.	**PQ VG**	**(+)**				
	Flower bud: color of spathaceous bract					
	green					1
	grey green					2
	yellow					3
	grey yellow					4
	brown					5
	brown red					6
25.	**QN MG/VG**					
	Flower peduncle: length					
	short				Purple Queen	1
	medium				Danyu	2
	long				Silver Parasol	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
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**	**(+) (d)**				
		Flower: form					
		obovoid					1
		globose					2
		cup-shaped					3
		campanulate					4
		cup-plate-shaped					5
		bowl-shaped					6
		saucer-shaped					7
		stellate					8
		goldfish-shaped					9
		irregular					10
29.	**(*)**	**QN MG/MS**	**(d), (e)**				
		Flower: diameter					
		very small				Purple Queen	1
		very small to small				Lvyi Zijuan	2
		small				Kenneth's Delight	3
		small to medium				Mag's Pirouette	4
		medium				Burgundy	5
		medium to large				Diva	6
		large				Bracken's Brown Beauty	7
		large to very large					8
		very large				Mossman's Giant	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
30.		**QN MG/VG**	**(+) (d), (e)**				
		Flower: height					
		short					1
		short to medium				Purple Queen	2
		medium				Burgundy, Kenneth's Delight	3
		medium to tall					4
		tall				Silver Parasol	5
31.	**(*)**	**QN MG/MS**	**(+) (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
32.	**(*)**	**QL VG**	**(+) (e)**				
		Flower: sepaloid tepals					
		absent					1
		present					9
33.	**(*)**	**PQ VG**	**(+) (e)**				
		First whorl tepals: texture					
		membranous				Mag's Pirouette	1
		fleshy				Bracken's Brown Beauty	2
		leathery				Lvyi Zijuan	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
34. (*)	**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
35.	**QN MG/MS**	**(d), (e)**				
	First whorl petaloid tepals: length					
	very short					1
	very short to short				Purple Queen	2
	short				Mag's Pirouette	3
	short to medium					4
	medium				Burgundy	5
	medium to long					6
	long				Bracken's Brown Beauty	7
	long to very long					8
	very long				Silver Parasol	9
36.	**QN MG/MS**	**(+) (d), (e)**				
	First whorl petaloid tepals: width					
	very broad				Mossman's Giant	1
	broad					2
	medium				Bracken's Brown Beauty	3
	narrow				Burgundy	4
	very narrow				Mag's Pirouette	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
37.		**PQ VG**	**(+) (d), (e)**				
		First whorl petaloid tepals: attitude					
		inwards				Kenneth's Delight	1
		upwards				Purple Queen	2
		outwards				Duoban Baiyulan	3
		horizontal				Lvyi Zijuan	4
		drooping					5
		weeping				Silver Parasol	6
38.		**QN VG**	**(+) (d), (e)**				
		First whorl petaloid tepals: shape in cross section					
		concave					1
		flat					2
		convex					3
39.	**(*)**	**PQ VG**	**(d), (e), (f)**				
		First whorl petaloid tepals: main color on outer side					
		RHS Colour Chart（ indicate reference number）					
40.	**(*)**	**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/ Nota
41. (*)	**PQ VG**	**(+)**	**(d), (e), (f)**			
	First whorl petaloid tepals: distribution of secondary color on outer side					
	none					1
	at base only					2
	basal quarter					3
	basal half					4
	at apex only					5
	distal quarter					6
	distal half					7
	central band					8
	basal transverse					9
	on margin					10
42. (*)	**PQ VG**	**(+)**	**(d), (e), (f)**			
	First whorl petaloid tepals: pattern of secondary color on outer side					
	none					1
	flush only					2
	flush and stripe					3
	stripe only					4
	aciculate					5
	speckles					6
43.	**PQ VG**		**(d), (e), (f)**			
	First whorl petaloid tepals: tertiary color on outer side					
	none					1
	green					2
	yellow					3
	orange					4
	red					5
44. (*)	**PQ VG**		**(d), (e), (f)**			
	First whorl petaloid tepals: main color on inner side					
	RHS Colour Chart (indicate reference number)					

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
45.	**PQ** **VG**	**(d), (e), (f)**				
	First whorl petaloid tepals: secondary color on inner side					
	RHS Colour Chart (indicate reference number)					
46.	**PQ** **VG**	**(+)** **(d), (e), (f)**				
	First whorl petaloid tepals: distribution of secondary color on inner side					
	none					1
	at base only					2
	basal quarter					3
	basal half					4
	at apex only					5
	distal quarter					6
	distal half					7
	central band					8
	basal transverse					9
	on margin					10
47.	**PQ** **VG**	**(+)** **(d), (e), (f)**				
	First whorl petaloid tepals: pattern of secondary color on inner side					
	none					1
	flush only					2
	flush and stripe					3
	stripes only					4
	aciculate					5
	speckles					6

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
48.		**PQ VG**	**(+)** **(d), (e)**				
		Second whorl petaloid tepals: attitude					
		inwards					1
		upwards					2
		outwards					3
		horizontal					4
		drooping					5
		weeping					6
49.	**(*)**	**PQ VG**	**(d), (e), (f)**				
		Second whorl petaloid tepals: main color on outer side					
		RHS Colour Chart (indicate reference number)					
50.		**PQ VG**	**(d), (e), (f)**				
		Second whorl petaloid tepals: secondary color on outer side					
		RHS Colour Chart (indicate reference number)					
51.		**PQ VG**	**(+)** **(d), (e), (f)**				
		Second whorl petaloid tepals: distribution of secondary color on outer side					
		none					1
		at base only					2
		basal quarter					3
		basal half					4
		at apex only					5
		distal quarter					6
		distal half					7
		central band					8
		basal transverse					9
		on margin					10

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
52.		**PQ VG**	**(+) (d), (e), (f)**				
		Second whorl petaloid tepals: pattern of secondary color on outer side					
		none					1
		flush only					2
		flush and stripe					3
		stripe only					4
		aciculate					5
		speckles					6
53.	**(*)**	**PQ VG**	**(d), (e)**				
		Stamens: color					
		white					1
		yellow					2
		red					3
		purple red					4
		purple					5
54.		**PQ VG**	**(d), (e)**				
		Gynoecium: color					
		green					1
		yellow green					2
		yellow					3
		red					4
		purple red					5
		purple					6
55.	**(*)**	**PQ VG**	**(+)**				
		Time of beginning of flowering in relation to vegetative growth					
		before				Mag's Pirouette	1
		before or at same time				Burgundy	2
		at the same time				Kenneth's Delight	3
		after				Bracken's Brown Beauty, Lvyi Zijuan, Qingxin	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
56. (*)	**QN MG**	**(+)**				
	Time of beginning of first flowering					
	very early					1
	early				Mag's Pirouette	2
	medium				Burgundy	3
	late				Hong Jixing	4
	very late				Bracken's Brown Beauty	5
57. (*)	**QN MG/MS**	**(+)**				
	Length of flowering period					
	very short					1
	short				Mag's Pirouette	2
	medium				Burgundy	3
	long				Bracken's Brown Beauty	4
	very long				Purple Queen	5
58. (*)	**QN VG**	**(+)**				
	Flowering: frequency					
	once					1
	twice					2
	more than twice					3
59.	**QN MG**	**(+)**				
	Only varieties with Plant: seasonality: deciduous: Time of leaf fall					
	very early				Kenneth's Delight	1
	early					2
	medium				Burgundy	3
	late					4
	very late				Hong Jixing	5

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:

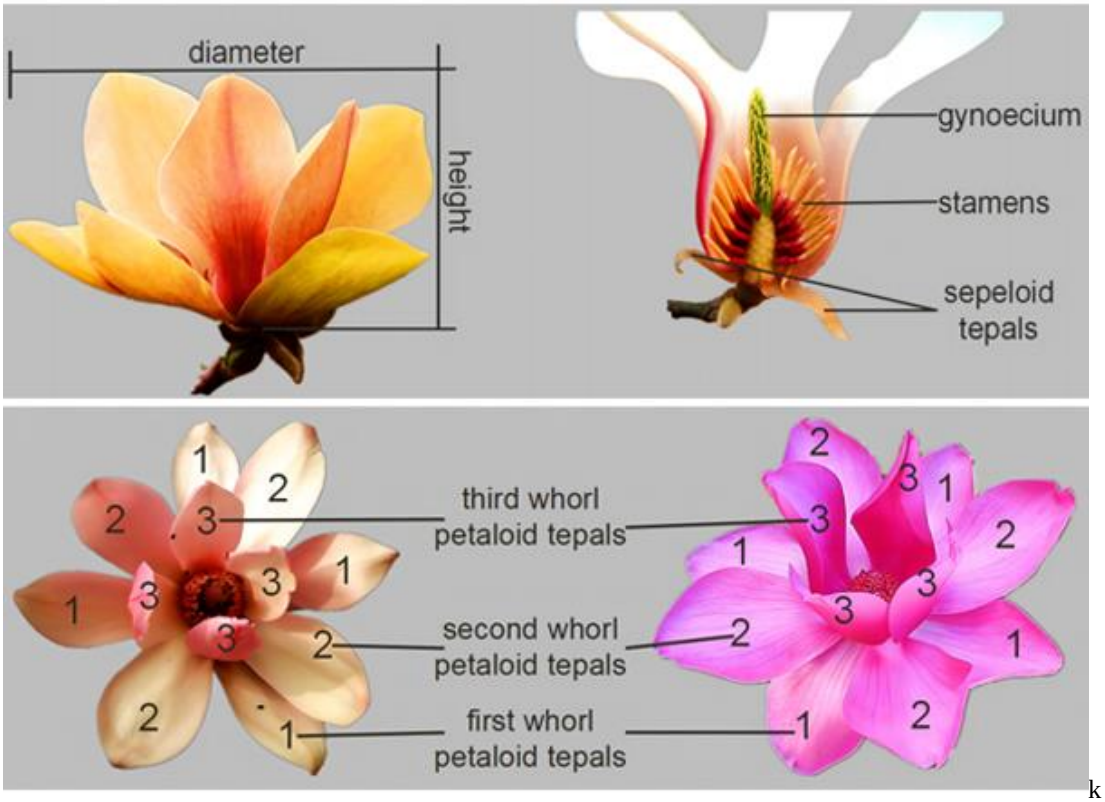
(a) Observations should be made during dormancy.

(b) Observations should be made on fully developed new leaves at the end of a shoot in the upper half of the plant.

(c) Observations should be made on fully developed leaves from the middle third of the current-year shoot in the upper half of the plant.

(d) Observations on the flower should be made on fully opened flowers at the beginning of anther dehiscence in the upper half of the plant.

(e) Flower structure:



k

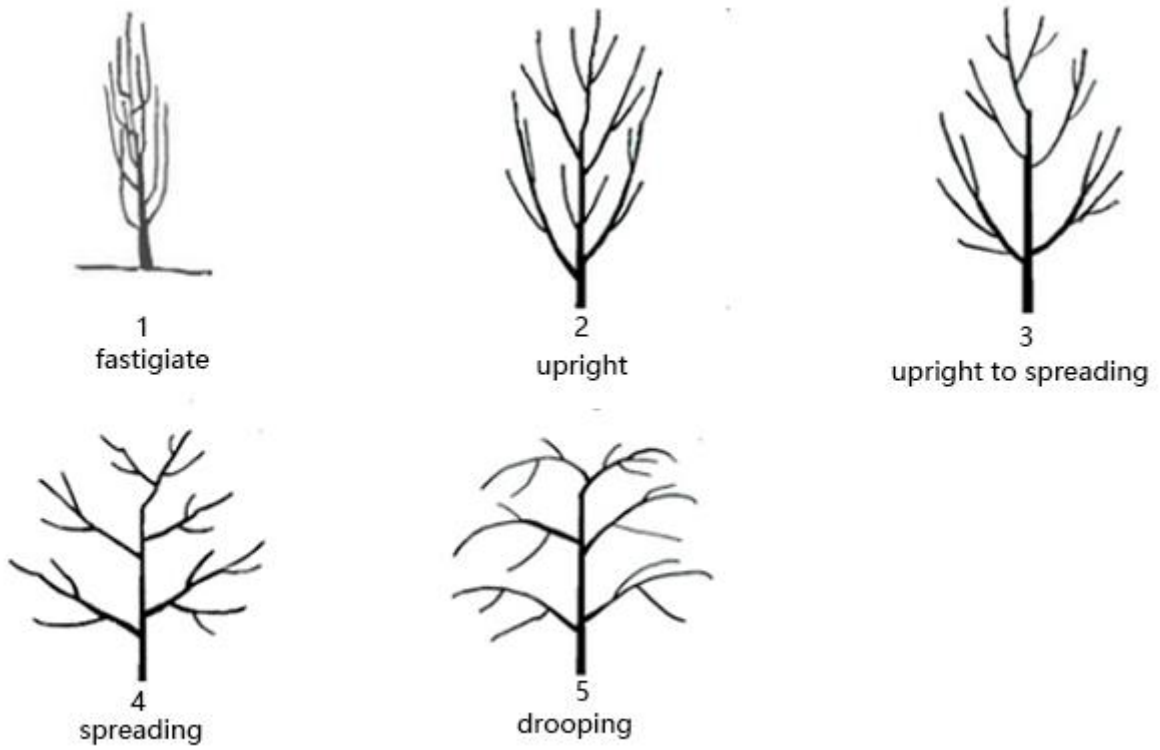
Sepaloid tepals are the first whorl tepals whose shape or texture are obviously different with those inner tepals.

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: growth habit



Ad. 4: Plant: position of flower buds on branch

Observations should be made at time of beginning of flowering.

Ad. 5: Plant: number of terminal or axillary flowers on branch

Observations should be made at time of beginning of flowering.

Ad. 6: Plant: number of fruits relative to flowers

Observations should be made four months after flowering.
The number of fruits is a relative number to be compared to the number of flowers.

Ad. 7: Flowering shoot: length of internodes

Observations should be made on the internodes on middle third of flower shoot.

Ad. 8: One-year-old shoot: color

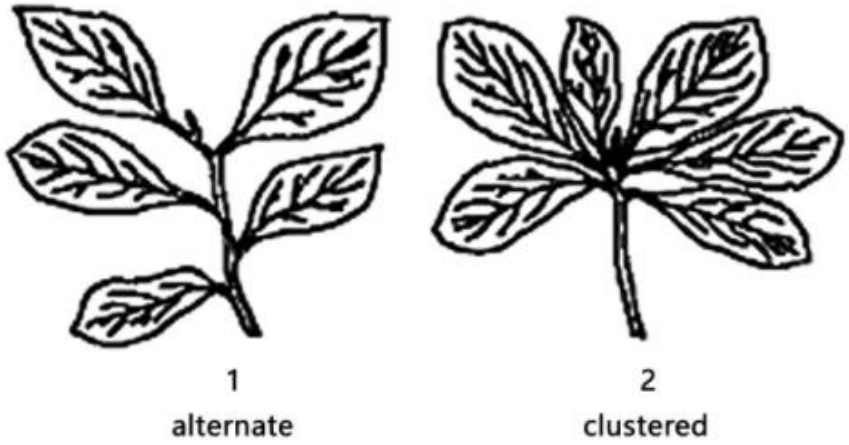
Observed on sunny side of the one-year-old shoot.

Ad. 10: Young leaf blade: color of upper side

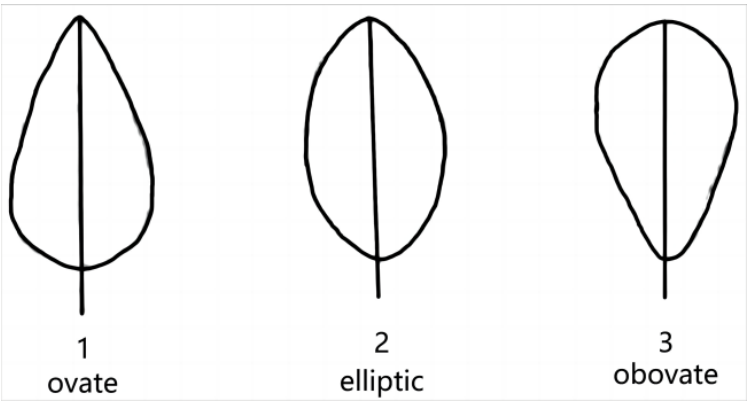
Observations should be made on the color covering the largest surface area.

Ad. 12: Leaf: arrangement

Observations should be made on the leaves from a flowering shoot.

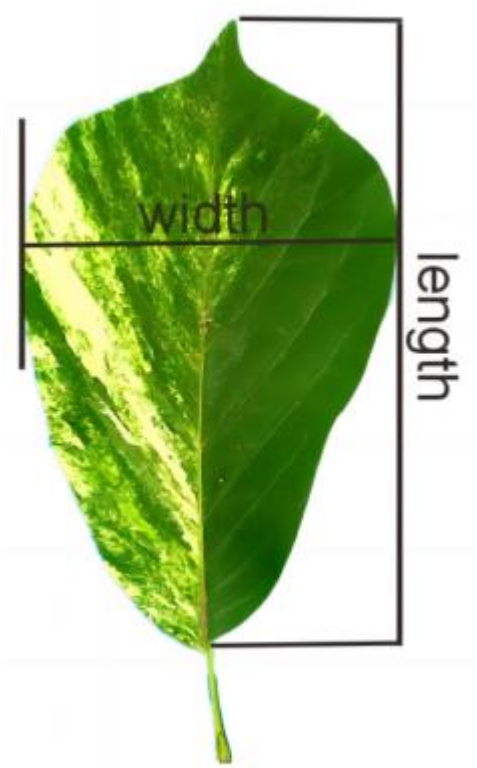


Ad. 13: Leaf blade: shape



Ad. 14: Leaf blade: length

The leaf length is observed excluding the petiole.



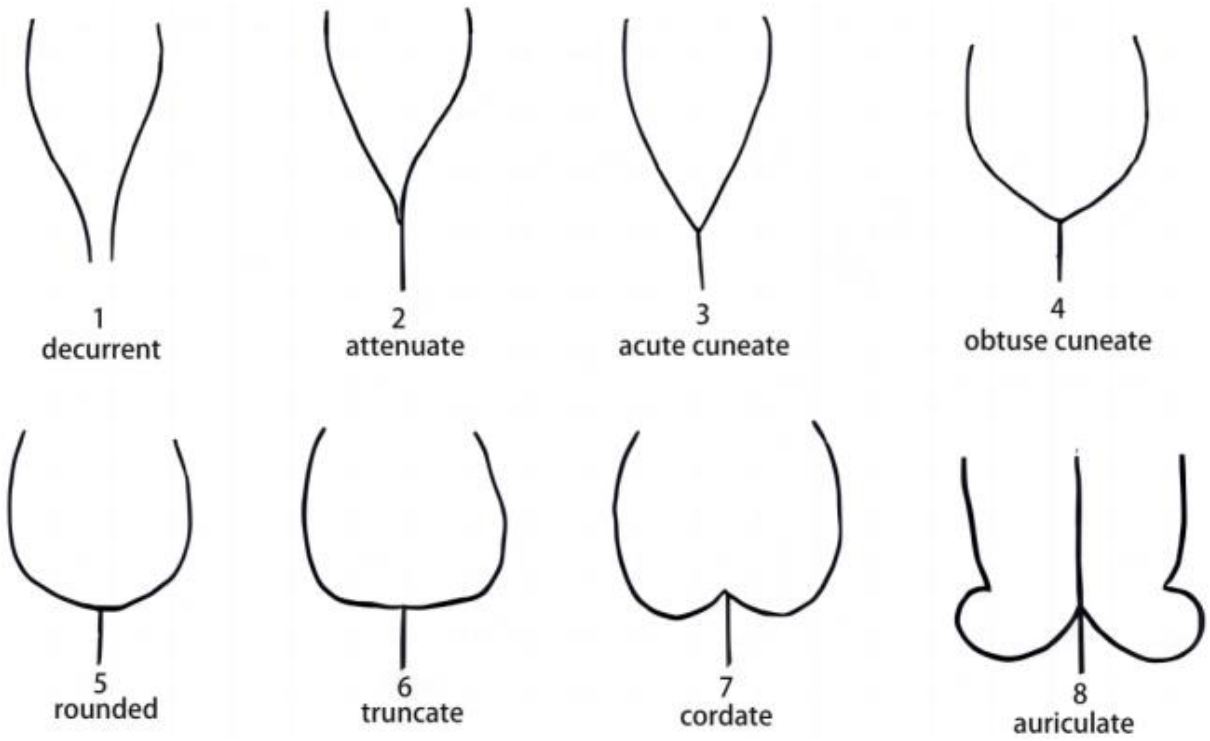
Ad. 15: Leaf blade: width

See Ad. 14.

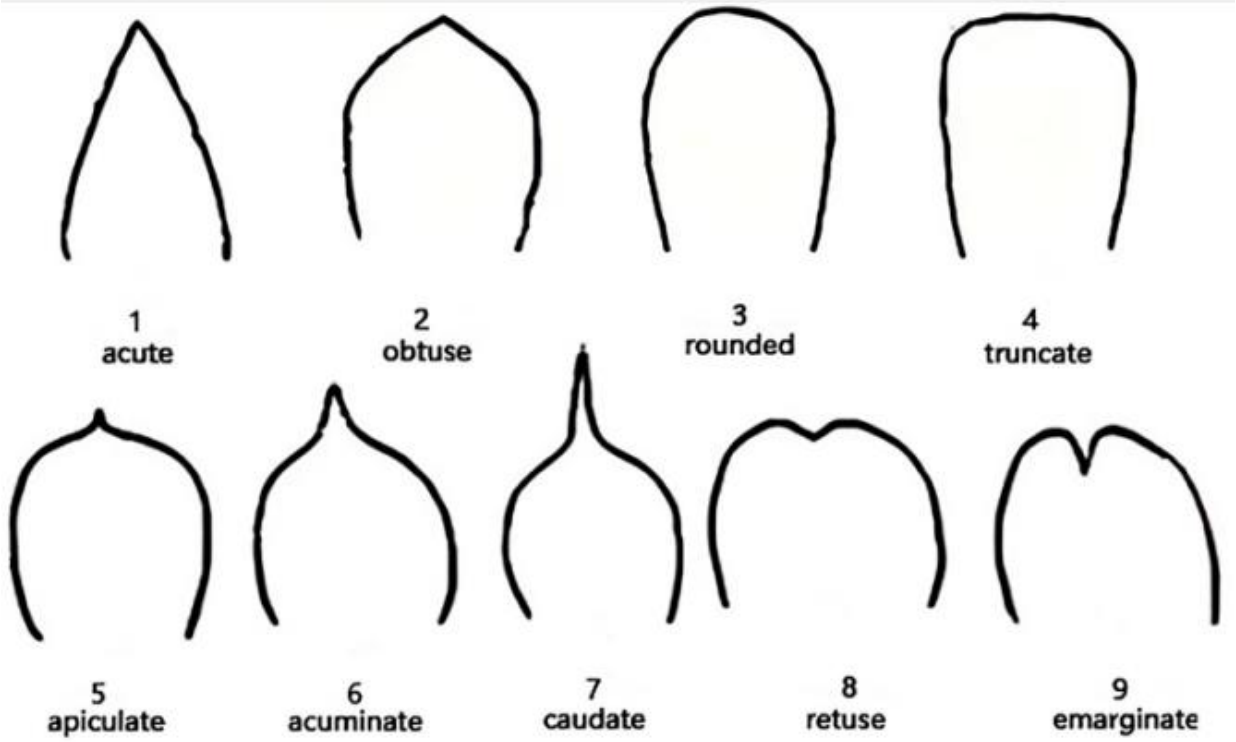
Ad. 16: Leaf blade: ratio length/width

very small<1.0
small: ≥1.0<1.5
medium: ≥ 1.5<2.0
large: ≥ 2.0<2.5
very large: ≥ 2.5

Ad. 17: Leaf blade: shape of base



Ad. 18: Leaf blade: shape of apex



Ad. 19: Leaf blade: texture

Texture refers to the tactile sensations achieved by touching the leaf, such as thickness, softness, firmness, smoothness etc.

Leathery leaf: waxiness on surface of leaves, with a firm and thick texture, such as *Magnolia grandiflora* 'Bracken's Brown Beauty'.

Papery leaf: a pliable and thin texture, such as *Magnolia denudata* 'Duoban Baiyulan'.

Ad. 22: Leaf blade: color of upper side

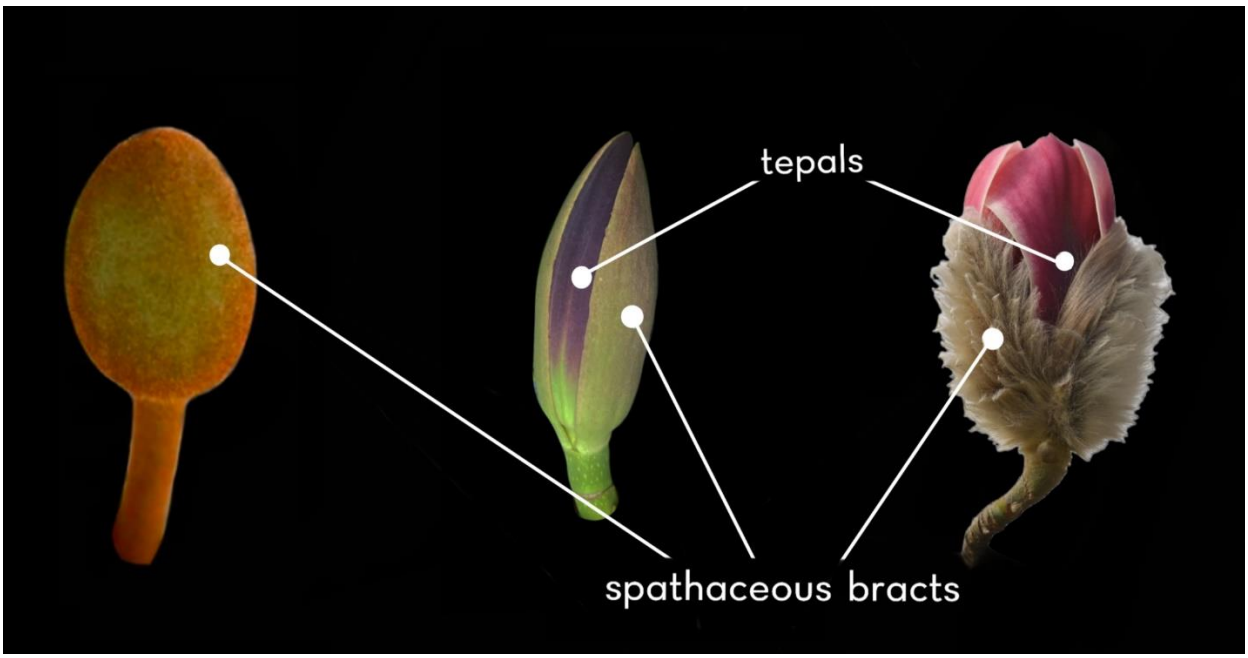
Observations should be made on the color covering the largest surface area.

Ad. 23: Only varieties with Plant: seasonality: deciduous: Leaf blade: color in autumn

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.

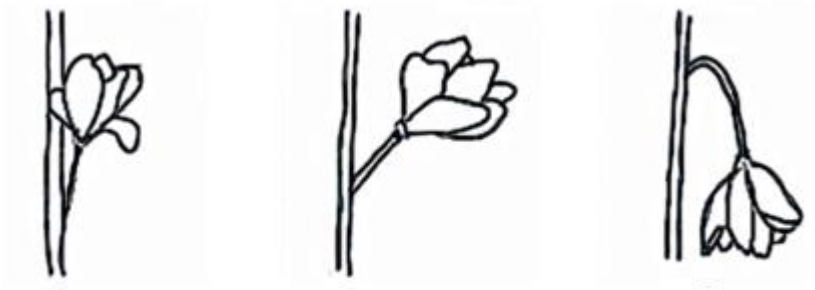
Ad. 24: Flower bud: color of spathaceous bract

Spathaceous bract: flower buds of Magnolias have big and obvious bract with colorful hair or glabrous, membranous or leathery, which resemble a spathe and protect flower buds.



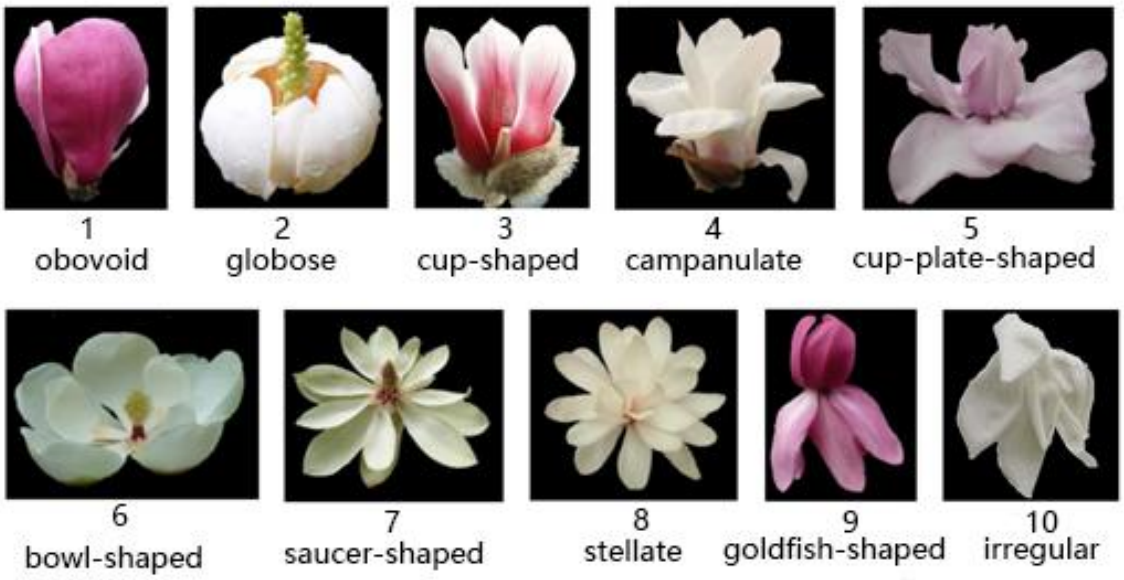
Observe before the bud has opened.

Ad. 26: Flower: attitude



Ad. 28: Flower: form

All flower forms are observed in lateral view.



Ad. 30: Flower: height

The height of goldfish shape or irregular flowers are observed from the lower edge of the lower tepals to the upper edge of the upper tepals.

Ad. 31: 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

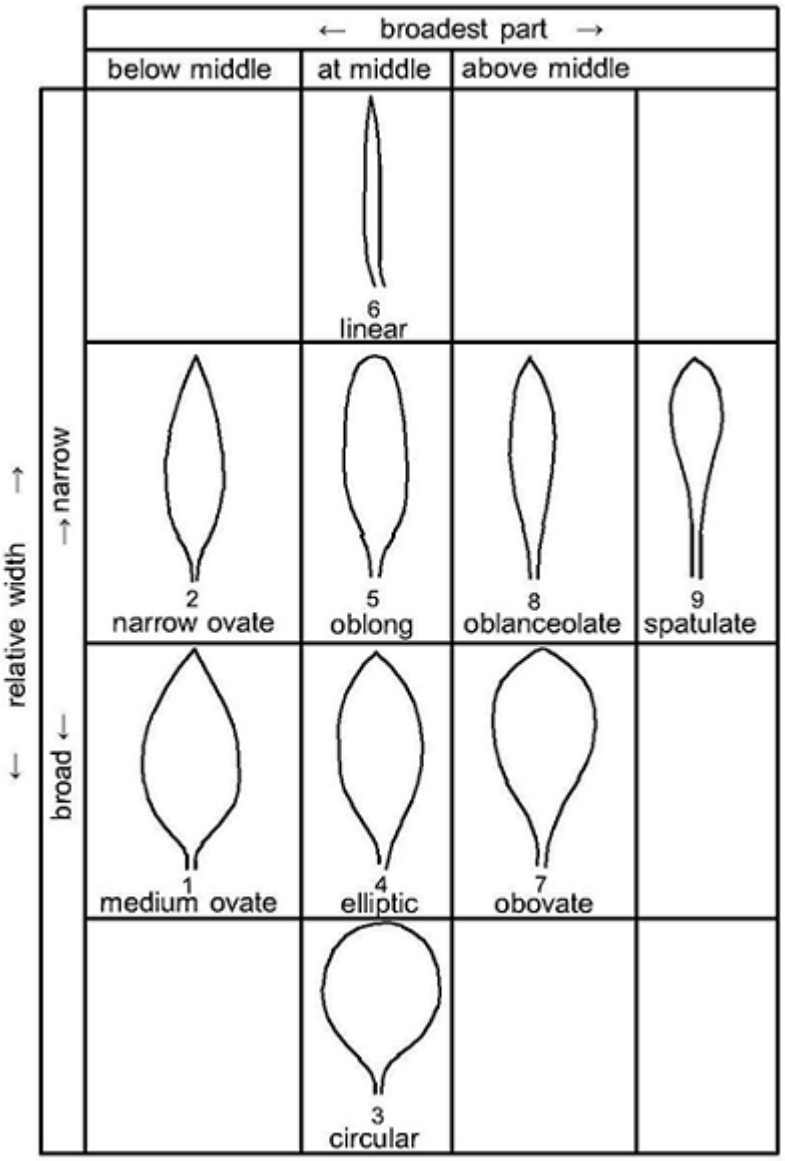
Ad. 32: Flower: sepaloid tepals

Observation should be made on the first tepal whorl at the beginning of flowering.

Ad. 33: First whorl tepals: texture

Texture refers to the tactile sensations achieved by touching the tepals, such as thickness, softness, firmness, smoothness etc.
Membranous tepals have a thin epidermis, without cutin thickening.
Fleshy tepals are soft and thick.
Leathery tepals are waxy on the surface, with a firm and thick texture.

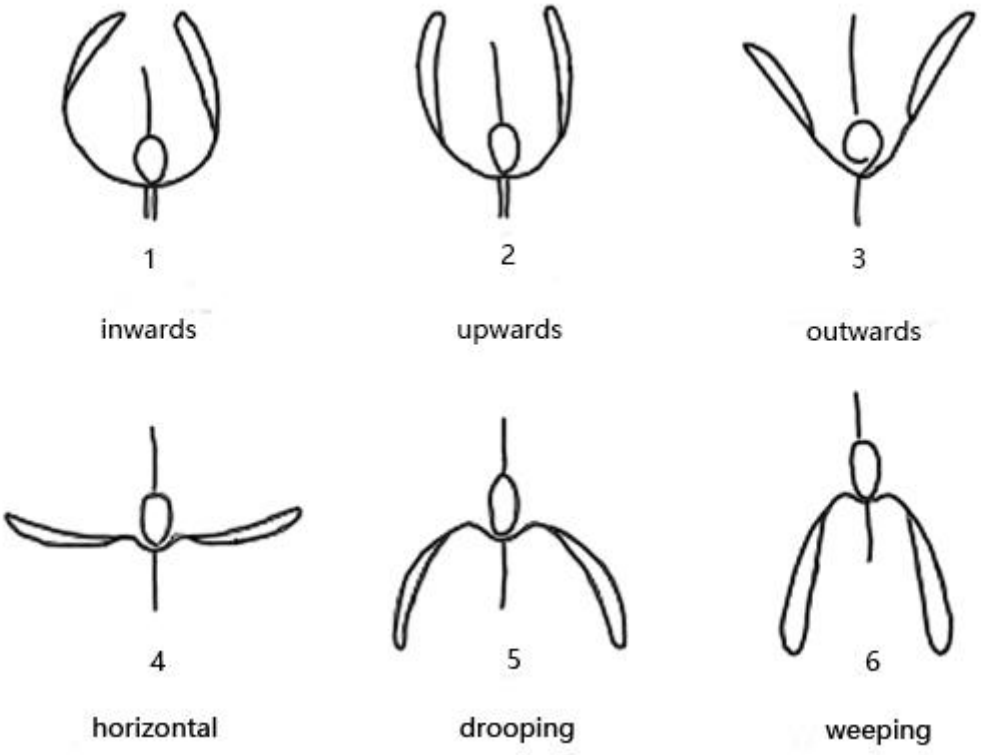
Ad. 34: First whorl petaloid tepals: shape



Ad. 36: First whorl petaloid tepals: width

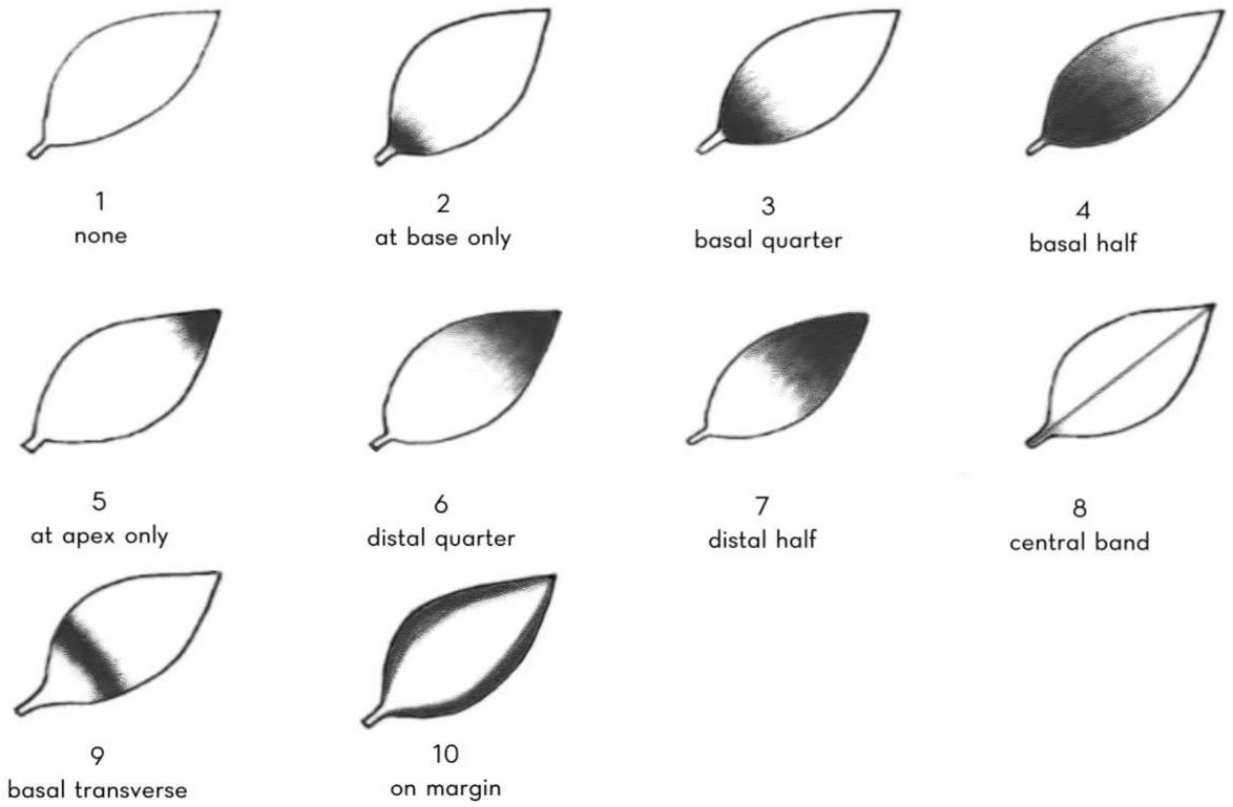
Observation should be made at the widest part of the tepal.

Ad. 37: First whorl petaloid tepals: attitude

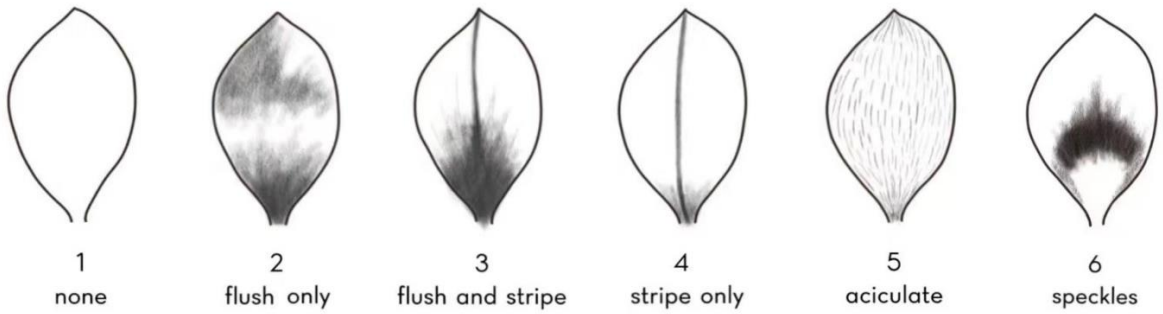


Ad. 38: First whorl petaloid tepals: shape in cross section

Ad. 41: First whorl petaloid tepals: distribution of secondary color on outer side



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



Ad. 46: First whorl petaloid tepals: distribution of secondary color on inner side

See Ad. 41.

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

See Ad. 42.

Ad. 48: Second whorl petaloid tepals: attitude

See Ad. 37.

Ad. 51: Second whorl petaloid tepals: distribution of secondary color on outer side

See Ad. 41.

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

See Ad. 42.

Ad. 55: Time of beginning of flowering in relation to vegetative growth

In spring, the time of young leaves sprouting out can be after, or at the same time, or before the flower buds unfolding.
The time of beginning of flowering occurs when more than 10% flower buds bloom on all plants.
Vegetative growth is when at least 10% of the leaf buds open on all plants.

Ad. 56: Time of beginning of first flowering

The time of beginning of flowering is when more than 3% flower buds bloom on all plants.
In the case of more than one flowering period, the first flowering period should be observed.

Ad. 57: Length of flowering period

Record the full time of flowering, from beginning to end.
The time of beginning of flowering occurs when at least 10% of the flower buds open on all plants.
The end of flowering occurs when less than 10% of flowers are left in bloom on all plants.
In the case of more than one flowering period, the first flowering period should be observed.

Ad. 58: Flowering: frequency

The frequency is defined by the number of flowering periods within a growing season.
One flowering period is from the beginning to the end of blooming.
See Ad. 57.

Ad. 59: Only varieties with Plant: seasonality: deciduous: Time of leaf fall

The time of leaf fall is reached when 50% of leaves on all plants have fallen from the plants.

9. Literature

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

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

Xia N.H., Liu Y.H., Nooteboom 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	*Magnolia* L.
1.2	Common name	Magnolia

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 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:

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a)	Cuttings	[ ]
(b)	*In vitro* propagation	[ ]
(c)	Budding or grafting	[ ]
(d)	Division	[ ]
(e)	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: seasonality**		
	deciduous		1 [ ]
	evergreen		2 [ ]
5.2 (4)	**Plant: position of flower buds on branch**		
	terminal only		1 [ ]
	terminal and axillary		2 [ ]
	axillary only		3 [ ]
5.3 (19)	**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 [ ]
5.4 (26)	**Flower: attitude**		
	erect	Bracken's Brown Beauty	1 [ ]
	semi-erect	Burgundy	2 [ ]
	drooping	Qingxin	3 [ ]
5.5 (27)	**Flower: fragrance**		
	absent or weak	Lvyi Zijuan	1 [ ]
	medium	Bracken's Brown Beauty	2 [ ]
	strong	Purple Queen	3 [ ]

	Characteristics	Example Varieties	Note
5.6 (28)	**Flower: form**		
	obovoid		1 [ ]
	globose		2 [ ]
	cup-shaped		3 [ ]
	campanulate		4 [ ]
	cup-plate-shaped		5 [ ]
	bowl-shaped		6 [ ]
	saucer-shaped		7 [ ]
	stellate		8 [ ]
	goldfish-shaped		9 [ ]
	irregular		10 [ ]
5.7 (29)	**Flower: diameter**		
	very small	Purple Queen	1 [ ]
	very small to small	Lvyi Zijuan	2 [ ]
	small	Kenneth's Delight	3 [ ]
	small to medium	Mag's Pirouette	4 [ ]
	medium	Burgundy	5 [ ]
	medium to large	Diva	6 [ ]
	large	Bracken's Brown Beauty	7 [ ]
	large to very large		8 [ ]
	very large	Mossman's Giant	9 [ ]
5.8 (31)	**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 [ ]
5.9 (39)	**First whorl petaloid tepals: main color on outer side**		
	RHS Colour Chart（indicate reference number）		
5.10 (40)	**First whorl petaloid tepals: secondary color on outer side**		
	RHS Colour Chart (indicate reference number)		

	Characteristics	Example Varieties	Note
5.11 (41)	**First whorl petaloid tepals: distribution of secondary color on outer side**		
	none		1 [ ]
	at base only		2 [ ]
	basal quarter		3 [ ]
	basal half		4 [ ]
	at apex only		5 [ ]
	distal quarter		6 [ ]
	distal half		7 [ ]
	central band		8 [ ]
	basal transverse		9 [ ]
	on margin		10 [ ]
5.12 (42)	**First whorl petaloid tepals: pattern of secondary color on outer side**		
	none		1 [ ]
	flush only		2 [ ]
	flush and stripe		3 [ ]
	stripe only		4 [ ]
	aciculate		5 [ ]
	speckles		6 [ ]
5.13 (44)	**First whorl petaloid tepals: main color on inner side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	red pink		4 [ ]
	red		5 [ ]
	purple		6 [ ]
5.14 (55)	**Time of beginning of flowering in relation to vegetative growth**		
	before	Mag's Pirouette	1 [ ]
	before or at same time	Burgundy	2 [ ]
	at the same time	Kenneth's Delight	3 [ ]
	after	Bracken's Brown Beauty, Lvyi Zijuan, Qingxin	4 [ ]

	Characteristics	Example Varieties	Note
5.15 (56)	**Time of beginning of first flowering**		
	very early		1 [ ]
	early	Mag's Pirouette	2 [ ]
	medium	Burgundy	3 [ ]
	late	Hong Jixing	4 [ ]
	very late	Bracken's Brown Beauty	5 [ ]
5.16 (58)	**Flowering: frequency**		
	once		1 [ ]
	twice		2 [ ]
	more than twice		3 [ ]
5.17	**First whorl petaloid tepals: main color on outer side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	red pink		4 [ ]
	red		5 [ ]
	purple		6 [ ]
	other (please specify)		7 [ ]
5.18	**First whorl petaloid tepals: secondary color on outer side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	red pink		4 [ ]
	red		5 [ ]
	purple		6 [ ]
	other (please specify)		7 [ ]
5.19	**First whorl petaloid tepals: main color on inner side**		
	white		1 [ ]
	green		2 [ ]
	yellow		3 [ ]
	red pink		4 [ ]
	red		5 [ ]
	purple		6 [ ]
	other (please specify)		7 [ ]

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: number of tepals*	*medium*	*few*

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]