



TG/MOKARA(proj.2)

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**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**  
GENEVA

**DRAFT**

**MOKARA** \*

UPOV Code: MOKAR

*Mokara*

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by experts from Singapore*

*to be considered by the  
Technical Working Party for Ornamental Plants and Forest Trees  
at its fortieth session, to be held ~~at~~ in Kunming, China, from July 2 to 6,  
2007*

Alternative Names: \*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
Mokara Please note the below combinations for genus <i>Mokara</i> <i>Arachnis x Ascocentrum x Vanda</i> ; <i>Ascocenda (Ascocentrum x Vanda) x Arachnis</i> ; <i>Aranda (Arachnis x Vanda) x Ascocentrum</i> ; <i>Ascorachnis (Ascocentrum x Arachnis) x Vanda</i> ; <i>Ascocenda x Aranda; Ascocenda x Ascorachnis</i> ; <i>Aranda x Ascorachnis</i> Selfing or sibling of <i>Mokara</i> <i>Mokara x Arachnis; Mokara x Ascocentrum</i> ; <i>Mokara x Vanda; Mokara x Ascocenda</i> ; <i>Mokara x Aranda; Mokara x Ascorachnis</i>	<i>Mokara</i>			

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 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.]

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

TABLE OF CONTENTSPAGE

1. SUBJECT OF THESE TEST GUIDELINES .....	<u>434</u>
2. MATERIAL REQUIRED .....	<u>434</u>
3. METHOD OF EXAMINATION.....	<u>545</u>
3.1 Number of Growing cycles .....	<u>545</u>
3.2 Testing Place .....	<u>545</u>
3.3 Conditions for Conducting the Examination .....	<u>545</u>
3.4 Test Design.....	<u>545</u>
3.5 Number of Plants / Parts of Plants to be Examined.....	<u>545</u>
3.6 Additional Tests .....	<u>656</u>
4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY .....	<u>656</u>
4.1 Distinctness.....	<u>656</u>
4.2 Uniformity .....	<u>656</u>
4.3 Stability.....	<u>656</u>
5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL .....	<u>767</u>
6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS.....	<u>767</u>
6.1 Categories of Characteristics .....	<u>767</u>
6.2 States of Expression and Corresponding Notes.....	<u>878</u>
6.3 Types of Expression .....	<u>878</u>
6.4 States of Expression and Corresponding Notes.....	<u>878</u>
6.5 Example Varieties .....	<u>878</u>
6.6 Legend .....	<u>878</u>
7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES .....	<u>989</u>
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS .....	<u>232223</u>
9. LITERATURE.....	<u>292829</u>
10. TECHNICAL QUESTIONNAIRE .....	<u>302930</u>

## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of artificial hybrid genus *Mokara*, of the family *Orchidaceae*. The genus *Mokara* is a manmade genus that is consisted of 3 natural genus combinations of (*Arachnis x Ascocentrum x Vanda*) in the parental background. *Mokara* can also have the combination make up of following genera:

*Ascocenda (Ascocentrum x Vanda) x Arachnis*  
*Aranda (Arachnis x Vanda) x Ascocentrum*  
*Ascorachnis (Ascocentrum x Arachnis) x Vanda*  
*Ascocenda x Aranda*  
*Ascocenda x Ascorachnis*  
*Aranda x Ascorachnis*  
*Mokara x Arachnis*  
*Mokara x Ascocentrum*  
*Mokara x Vanda*  
*Mokara x Ascocenda*  
*Mokara x Aranda*  
*Mokara x Ascorachnis*

Progeny resulting in the selfing or sibling of *Mokara* also applies to this test guideline. Selfings refers to a population resulting from the self pollination of the *Mokara* flowers of the same plant, while Siblings refers to a population resulting from the cross pollination of 2 different *Mokara* flowers of different or the same varieties.

## 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 (clones) that have previously produced two inflorescence prior to submission and are about to flower for a third time.

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

10 plants

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

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

### 3. Method of Examination

#### 3.1 *Number of Growing Cycles*

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

#### 3.2 *Testing Place*

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

#### 3.3 *Conditions for Conducting the Examination*

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

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described at the end of Chapter 8.

3.3.3 The recommended method of observing the characteristic is indicated by the following key in the second column of the Table 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

3.3.4 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.

#### 3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 10 plants, which should be divided between 2 replicates.

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 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations should be made on 10 plants or parts taken from each of 10 plants.

### 3.6 *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.

### 4.2 *Uniformity*

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

4.2.2 For the assessment of uniformity, a population standard of 1% with an acceptance probability of at least 95% should be applied. In the case of a sample size of 10 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 tested, either by growing a further generation, or by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the previous 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: width (characteristic 1)
- (b) Inflorescence: number of flowers (characteristic 9)
- (c) Flower: length (characteristic 14)
- (d) Flower: width (characteristic 15)
- (e) Lateral sepal: main ~~colour~~ (background ~~colour~~) (characteristic 35)
- (f) Only varieties with more than one ~~colour~~ on petal: Petal: ~~colour~~ pattern (characteristic 44)
- (g) Petal: main ~~colour~~ (background ~~colour~~) (characteristic 45)
- (h) Only varieties with more than one ~~colour~~ on apical lobe of lip only: Apical lobe of lip: ~~colour~~ pattern (characteristic 53)
- (i) Lip: apical lobe: main ~~colour~~ (background ~~colour~~) (characteristic 54)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

## 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*

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.

## 6.3 *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 *States of Expression and Corresponding Notes*~~

~~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.~~

## ~~6.45 *Example Varieties*~~

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

## ~~6.56 *Legend*~~

(\*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS: See Chapter 3.3.2

(a)-{x} See Explanations on the Table of Characteristics in Chapter 8.1

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



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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>1. VG</b> <b>(*)</b>	<b>Plant: width</b> <b>(natural leaf spread)</b>					
<b>QN</b>	narrow (<30cm)				Bangkok Gold	3
	medium (30-45cm)				Chark Kuan 'Pink'	5
	broad (>45cm)				Dear Heart	7
<b>2. VG</b> <b>(+)</b>	<b>Leaf: attitude</b>					
<b>QL</b>	<b>(a)</b> semi-erect				Sunkist	1
	horizontal				Chark Kuan 'Pink'	2
	semi-pendulous				Dear Heart	3
<b>3. VG/</b> <b>(*)</b> <b>MS</b>	<b>Leaf: length</b>					
<b>QN</b>	<b>(a)</b> short (<15cm)				Bangkok Gold	3
	medium (15-20cm)				Khaw Phaik Suan	5
	long (>20cm)				Dear Heart	7
<b>4. VG/</b> <b>(*)</b> <b>MS</b>	<b>Leaf: width</b>					
<b>QN</b>	<b>(a)</b> narrow (<2.6cm)				Bangkok Gold	3
	medium (2.6- 3.0cm)				Luenberger Gold	5
	broad (>3.0cm)				Dear Heart	7
<b>5. VG</b> <b>(+)</b>	<b>Leaf: shape of apex</b>					
<b>QL</b>	<b>(a)</b> obtuse				Dinah Shore	1
	emarginate				Bangkok Gold	2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>6.</b> (*) (+)	<b>VG</b>	<b>Leaf: folding</b>				
<b>QN</b>	<b>(a)</b>	weak			Chark Kuan 'Pink'	3
		medium			Dear Heart	5
		strong			Margaret Thatcher	7
<b>7.</b>	<b>VG</b>	<b>Leaf: intensity of green <del>colour</del>color on upper side</b>				
<b>QN</b>	<b>(a)</b>	light			Singa Gold	3
		medium			Mak Chin On	5
		dark			Dinah Shore	7
<b>8.</b> (*) (+)	<b>VG/ MS</b>	<b>Inflorescence: length</b>				
<b>QN</b>	<b>(b)</b>	short (<25cm)			Lions Gold	3
		medium (25-35cm)			Prapin Gold	5
		long (>35cm)			Dear Heart	7
<b>9.</b> (*)	<b>VG</b>	<b>Inflorescence: number of flowers</b>				
<b>QN</b>	<b>(b)</b>	few (<10)			Lions Gold	3
		medium (10-20)			Luenberger Gold, Singa Gold	5
		many (>20)			Dear Heart, Dinah Shore	7
<b>10.</b> (*) (+)	<b>VG/ MS</b>	<b>Peduncle: length</b>				
<b>QN</b>	<b>(b)</b>	short (<35cm)			Margaret Thatcher	3
		medium (35-55cm)			Khaw Phaik Suan	5
		long (>55cm)			Dear Heart	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>11.</b>	<b>VG</b>	<b>Peduncle: anthocyanin coloration</b>				
<b>QL</b>	<b>(b)</b>	absent			Prapin Gold	1
		present			Sunkist	9
<b>12.</b>	<b>VG</b>	<b>Peduncle: intensity of green <del>colour</del>color</b>				
<b>(*)</b>						
<b>QN</b>	<b>(b)</b>	light			Prapin Gold	3
		medium			Chark Kuan 'Pink'	5
		dark			Dinah Shore	7
<b>13.</b>	<b>VG/ (*) MS</b>	<b>Pedicel: length</b>				
<b>QN</b>	<b>(b)(e)</b>	short (<3cm)			Margaret Thatcher	3
	<b>(c)</b>	medium (3-4cm)			Bangkok Gold	5
		long (>4cm)			Mak Chin On	7
<b>14.</b>	<b>VG/ (*) MS (+)</b>	<b>Flower: length</b>				
<b>QN</b>	<b>(b)(e)</b>	short (<5cm)			Margaret Thatcher	3
	<b>(c)</b>	medium (5-8cm)			Bangkok Gold	5
		long (>8cm)			Mak Chin On	7
<b>15.</b>	<b>VG/ (*) MS (+)</b>	<b>Flower: width</b>				
<b>QN</b>	<b>(b)(e)</b>	narrow (<5cm)			Margaret Thatcher	3
	<b>(c)</b>	medium (5-8cm)			Khaw Phaik Suan	5
		broad (>8cm)			Chark Kuan 'Pink'	7
<b>16.</b>	<b>VG (+)</b>	<b>Flower: general impression of sepals</b>				
<b>QL</b>	<b>(b)</b>	incurving			Willie How	1
		spreading			Dinah Shore	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>17.</b>	<b>VG</b>	<b>Flower: general impression of petals</b>				
(+)						
<b>QL</b>	<b>(b)</b>	incurving			Willie How	1
		spreading			Dinah Shore	9
<b>18.</b>	<b>VG</b>	<b>Flower: fragrance</b>				
<b>QL</b>	<b>(b)</b>	absent			Singa Gold	1
		present			Lions Gold	9
<b>19.</b>	<b>VG/ (* )</b>	<b>Dorsal sepal: length</b>				
	<b>MS</b>					
<b>QN</b>	<b>(b)(e)</b>	short (<3cm)			Margaret Thatcher	3
	<b>(c)</b>	medium (3-5cm)			Khaw Phaik Suan	5
		long (>5cm)			Chark Kuan 'Pink'	7
<b>20.</b>	<b>VG/ (* )</b>	<b>Dorsal sepal: width</b>				
	<b>MS</b>					
<b>QN</b>	<b>(b)(e)</b>	narrow (<1.5cm)			Margaret Thatcher	3
	<b>(c)</b>	medium (1.5-2.5cm)			Khaw Phaik Suan	5
		broad (>2.5cm)			Chark Kuan 'Pink'	7
<b>21.</b>	<b>VG</b>	<b>Dorsal sepal: shape</b>				
<b>(*)</b>						
<b>(+)</b>						
<b>PQ</b>	<b>(b)</b>	oblanceolate oblong			Luenberger Gold	1
		obovate			Dinah Shore	2
		broad obovate				3
		spatulate			Dear Heart	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22.	<b>VG</b>	<b>Dorsal sepal: shape of apex</b>				
(+)						
<b>PQ</b>	<b>(b)</b>	acute				1
		obtuse			Chark Kuan 'Pink'	2
		rounded				3
23.	<b>VG</b>	<b>Dorsal sepal: number of <del>colour</del> colors</b>				
(*)						
<b>QL</b>	<b>(b)</b> <del>(d)</del>	one			Prapin Gold	1
	<del>(d)</del>	two			Lions Gold	2
		three				3
		more than three				4
24.	<b>VG</b>	<b><u>Only varieties with more than one <del>colour</del> color on dorsal sepal:</u></b> <b>Dorsal sepal: <del>colour</del> color pattern</b>				
(*)						
<b>QL</b>	<b>(b)</b> <del>(d)</del>	shaded			Dickson How	1
	<del>(d)</del>	edged				2
		striped				3
		netted			Sumalee	4
		spotted			Khaw Phaik Suan	5
		shaded and netted			Mak Chin On	6
		shaded and spotted			Lions Gold	7
25.	<b>MG</b>	<b>Dorsal sepal: main <del>colour</del> color (background <del>colour</del> color)</b>				
(*)						
<b>PQ</b>	<b>(b)</b>	RHS Colour Chart				
	<b>(d)</b>	(indicate reference number)				

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	MG	<b>Dorsal sepal: Secondary color (<del>colour</del>color of pattern)</b>				
	PQ	(b) RHS Colour Chart (d) (indicate reference number)				
27.	VG	<b><u>Only varieties with shaded dorsal sepal :</u> Dorsal sepal : extent of shading</b>				
	QN	(b)( <del>a</del> ) small			Sunkist	3
		(d) medium			Lions Gold	5
		large			Margaret Thatcher	7
28.	VG	<b><u>Only varieties with spotted dorsal sepal : Dorsal sepal : size of spots</u></b>				
	QN	(b)( <del>a</del> ) small			Sunkist	3
		(d) medium			Chark Kuan 'Pink'	5
		large			Margaret Thatcher	7
29.	VG/ (*) MS (+)	<b>Lateral sepal: length</b>				
	QN	(c)( <del>a</del> ) short (<3cm)			Margaret Thatcher	3
		(d) medium (3-5cm)			Mak Chin On	5
		long (>5cm)			Chark Kuan 'Pink'	7
30	VG/ (*) MS (+)	<b>Lateral sepal: width</b>				
	QN	(b)( <del>e</del> ) narrow (<2cm)			Margaret Thatcher	3
		(c) medium (2-3cm)			Mak Chin On	5
		broad (>3cm)			Chark Kuan 'Pink'	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>31.</b> (*) (+)	<b>VG</b>	<b>Lateral sepal: shape</b>					
<b>PQ</b>	<b>(b)</b>	lanceolate oblong					1
		ovate				Singa Gold	2
		broad ovate				Five Friendships Gold	3
		elliptical					4
<b>32.</b> (+)	<b>VG</b>	<b>Lateral sepal: shape of apex</b>					
<b>PQ</b>	<b>(b)</b>	acute				Dear Heart	1
		obtuse				Dinah Shore	2
		rounded				Sunkist	3
<b>33.</b> (*)	<b>VG</b>	<b>Lateral sepal: number of <del>colour</del> colors</b>					
<b>QL</b>	<b>(b)</b> <del>(d)</del>	one				Prapin Gold	1
	<del>(d)</del>	two				Lions Gold	2
		three					3
		more than three					4
<b>34.</b> (*)	<b>VG</b>	<b><u>Only varieties with more than one <del>colour</del> color on lateral sepal :</u> Lateral sepal : <del>colour</del> color pattern</b>					
<b>QL</b>	<b>(b)</b> <del>(d)</del>	shaded				Dickson How	1
	<del>(d)</del>	edged					2
		striped					3
		netted				Sumalee	4
		spotted				Khaw Phaik Suan	5
		shaded and netted				Mak Chin On	6
		shaded and spotted				Luenberger Gold	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
35. MG (*)	<b>Lateral sepal: main</b> <del>eolour</del> color (background <del>eolour</del> color)					
PQ (b) (d)	RHS Colour Chart (indicate reference number)					
36. MG	<b>Lateral sepal:</b> <b>Secondary color</b> <del>eolour</del> color of pattern)					
PQ (b) (d)	RHS Colour Chart (indicate reference number)					
37. VG	<b><u>Only varieties with shaded lateral sepals</u></b> <b>: Lateral sepal : extent of shading</b>					
QN (b) (d)	small				Chark Kuan 'Pink'	3
	medium				Lions Gold	5
	large				Margaret Thatcher	7
38. VG	<b><u>Only varieties with spotted lateral sepals</u></b> <b>: Lateral sepal: size of spots</b>					
QN (b) (d)	small				Sunkist	3
	medium				Chark Kuan 'Pink'	5
	large				Margaret Thatcher	7
39. VG/ (*) MS (+)	<b>Petal: length</b>					
QN (b) (d)	short (<3cm)				Margaret Thatcher	3
	medium (3-4cm)				Luenberger Gold	5
	long (>4cm)				Chark Kuan 'Pink'	7



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>40.</b> (*) (+)	<b>VG/ MS</b>	<b>Petal: width</b>				
<b>QN</b>	narrow (<1.5cm)				Margaret Thatcher	3
	medium (1.5-2.5cm)				Luenberger Gold	5
	broad (>2.5cm)				Chark Kuan 'Pink'	7
<b>41.</b> (*) (+)	<b>VG</b>	<b>Petal: shape</b>				
<b>PQ</b>	(b)	oblanceolate	oblong			1
		obovate			Chark Kuan 'Pink'	2
		broad obovate			Five Friendships Gold	3
		spatulate			Luenberger Gold	4
<b>42.</b> (+)	<b>VG</b>	<b>Petal: shape of apex</b>				
<b>PQ</b>	(b)	acute				1
		obtuse			Chark Kuan 'Pink'	2
		rounded			Five Friendships Gold	3
<b>43.</b> (*)	<b>VG</b>	<b>Petal: number of <del>colour</del> colors</b>				
<b>QL</b>	(b) <del>(d)</del>	one			Prapin Gold	1
	<del>(d)</del>	two			Lions Gold	2
		three				3
		more than three				4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
44. (*)	VG	<b><u>Only varieties with more than one colourcolor on petal</u></b> ; Petal : <b><u>colourcolor</u></b> pattern				
QL	(b)(d)	shaded			Dickson How	1
	(d)	edged				2
		striped				3
		netted			Sumalee	4
		spotted			Khaw Phaik Suan	5
		shaded and netted			Mak Chin On	6
		shaded and spotted			Lions Gold	7
45. (*)	MG	<b>Petal: main colourcolor (background colourcolor)</b>				
PQ	(b) (d)	RHS Colour Chart (indicate reference number)				
46.	MG	<b>Petal: Secondary color (colourcolor of pattern)</b>				
PQ	(b) (d)	RHS Colour Chart (indicate reference number)				
47.	VG	<b><u>Only varieties with shaded petals</u></b> ; Petal : extent of shading				
QN	(b)(d)	small				3
	(d)	medium			Lions Gold	5
		large			Margaret Thatcher	7
48.	VG	<b><u>Only varieties with spotted petals</u></b> ; Petal : size of spots				
QN	(b)(d)	small			Sunkist	3
	(d)	medium			Chark Kuan 'Pink'	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
	large				Margaret Thatcher	7	
<b>49.</b>	<b>VG/ MS</b>	<b>Apical lobe of lip: length</b>					
(*)							
(+)							
<b>QN</b>	<b>(b)</b>	<b>(e)</b> short (<1cm)				3	
		<b>(c)</b> medium (1-1.5cm)			Khaw Phaik Suan	5	
		long (>1.5cm)			Chark Kuan 'Pink'	7	
<b>50.</b>	<b>VG/ MS</b>	<b>Apical lobe of lip: width</b>					
(*)							
(+)							
<b>QN</b>	<b>(b)</b>	<b>(e)</b> narrow (<0.5cm)			Singa Gold	3	
		<b>(c)</b> medium (0.5-0.7cm)			Chark Kuan 'Pink'	5	
		broad (>0.7cm)			Lions Gold	7	
<b>51.</b>	<b>VG</b>	<b>Apical lobe of lip: lobing of apex</b>					
(*)							
(+)							
<b>QL</b>	<b>(b)</b>	<b>absent</b>				1	
		<b>present</b>				9	
<b>52.</b>	<b>VG</b>	<b>Apical lobe of lip: protrusion on ventral side</b>					
(+)							
<b>QN</b>	<b>(b)</b>	Absent or very weak			Khaw Phaik Suan	1	
		weak			Dinah Shore	2	
		strong			Chark Kuan 'Pink'	3	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
53. (*)	VG	<b><u>Only varieties with more than one <del>colour</del>color on apical lobe of lip :</u></b> Apical lobe of lip: <del>colour</del> color pattern				
QL	(b) <del>(d)</del>	shaded				1
	<del>(d)</del>	edged				2
		striped			Luenberger Gold	3
		netted				4
		spotted				5
		shaded and striped			Dinah Shore	6
54. (*)	MG	<b>Apical lobe of lip: main <del>colour</del>color (background <del>colour</del>color)</b>				
PQ	(b)	RHS colour chart				
	(d)	(indicate reference number)				
55. (*)	MG	<b>Apical lobe of lip: Secondary color (<del>colour</del>color of pattern)</b>				
PQ	(b)	RHS colour chart				
	(d)	(indicate reference number)				
56.	VG	<b><u>Only varieties with spotted apical lobe of lip-: Apical lobe of lip : size of spots</u></b>				
QN	(b) <del>(d)</del>	small				3
	<del>(d)</del>	medium				5
		large				7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
57. (*)	<b>VG</b>	<b>Only varieties with more than one <del>colour</del>color on lateral lobe of lip:</b> <b>Lateral lobe of lip:</b> <b><del>colour</del>color pattern</b>				
QL	(b) <del>(d)</del>	shaded			Prapin Gold	1
	<del>(d)</del>	edged				2
		striped				3
		netted				4
		spotted			Luenberger Gold	5
		shaded and spotted			Lions Gold	6
		shaded, spotted and striped			Five Friendships Gold	7
58. (*)	<b>MG</b>	<b>Lateral lobe of lip:</b> <b>main <del>colour</del>color</b> <b>(background <del>colour</del>color)</b>				
PQ	(b)	RHS colour chart				
	(d)	(indicate reference number)				
59. (*)	<b>MG</b>	<b>Lateral lobe of lip:</b> <b>Secondary color</b> <b>(<del>colour</del>color of pattern)</b>				
PQ	(b)	RHS colour chart				
	(d)	(indicate reference number)				
60.	<b>VG</b>	<b>Only varieties with spotted lateral lobe of lip :</b> <b>Lateral lobe of lip :</b> <b>size of spots</b>				
QN	(b) <del>(e)</del>	small			Sunkist	3
	<del>(c)</del>	medium				5
		large				7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
61.	VG	Column: <del>colour</del> color pattern on upper side				
(+)						
QL	(b)					
		evenly <del>colour</del> colored			Prapin Gold	1
		shaded				2
		spotted			Lions Gold	3
62.	MG	Column: main <del>colour</del> color on upper side (background <del>colour</del> color)				
PQ	(b)	RHS colour chart (indicate reference number)				
63.	MG	Column: secondary color ( <del>colour</del> color of pattern)				
PQ	(b)	RHS colour chart (indicate reference number)				
64.	MG	<u>Only varieties with different <del>colour</del>colored throat : <del>colour</del>color of throat</u>				
PQ	(b)	RHS colour chart (indicate reference number)				

## 8. Explanations on the Table of Characteristics

### 8.1 *Explanations covering several characteristics*

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

- (a) Observations on the leaf should be made on the longest leaf of a flowering plant. Width of the leaf is observed by opening the folded leaf. Folding of leaf is observed at the mid point of the leaf length.
- (b) Observations on the inflorescence should be made at the time when 50% of the flowers on the inflorescence have opened. Observations on the flowers should be made on the most recently fully opened flower before the ~~colour~~color starts to fade.
- (c) Observations on the length and width of the flower and parts of the flower should be made on the unextended organ.
- (d) Observations on the color of the sepal, the petal and the lip should be made on the inner side.

### 8.2 *Explanations for individual characteristics*

#### Ad.2: Leaf: attitude



1  
semi-erect

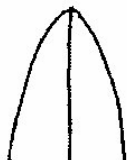


2  
horizontal



3  
semi-pendulous

#### Ad. 5: Leaf: shape of apex

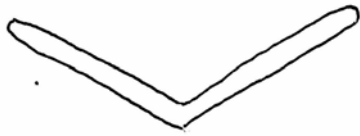


1  
obtuse



2  
emarginate

Ad. 6: Leaf: folding



1  
weak



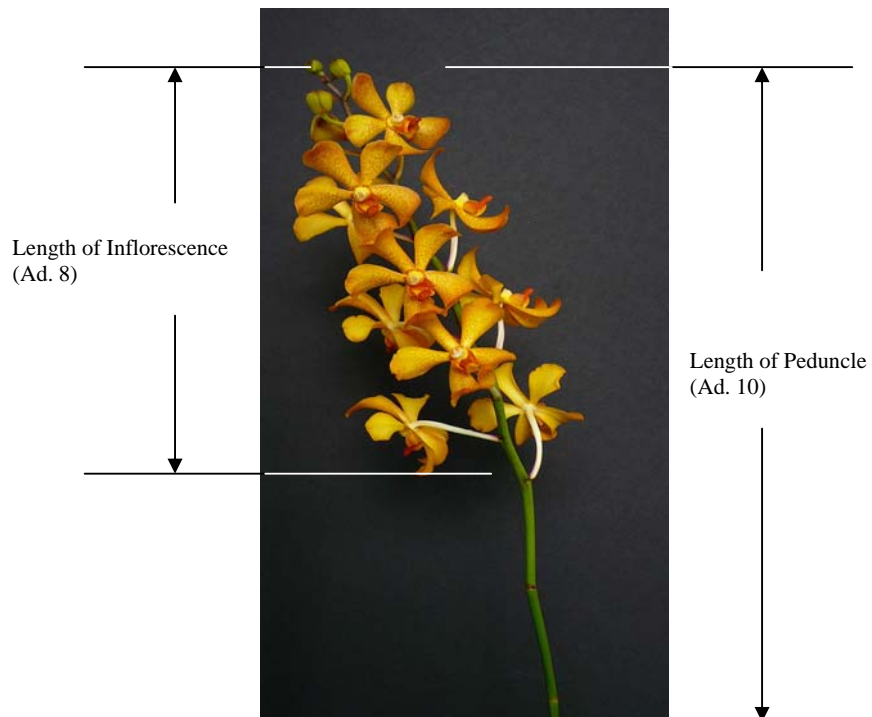
5  
medium



7  
strong

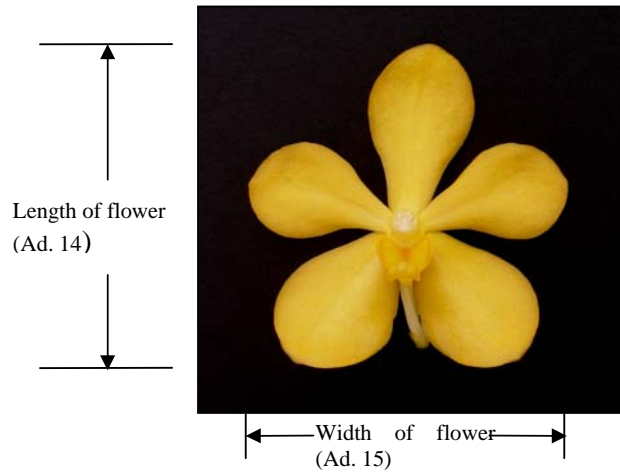
Ad. 8: Inflorescence: length

Ad. 10: Peduncle: length





Ad. 14: Flower: length  
Ad. 15: Flower: width



Ad 16 and Ad 17: Flower: general impression of sepals and petals

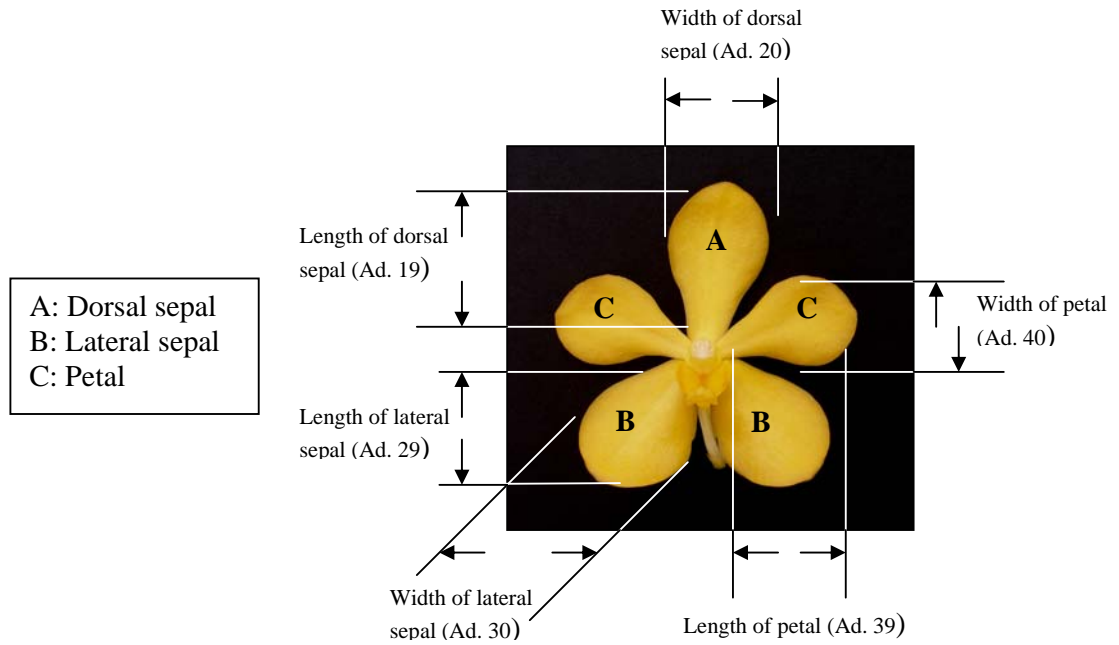


1  
incurving

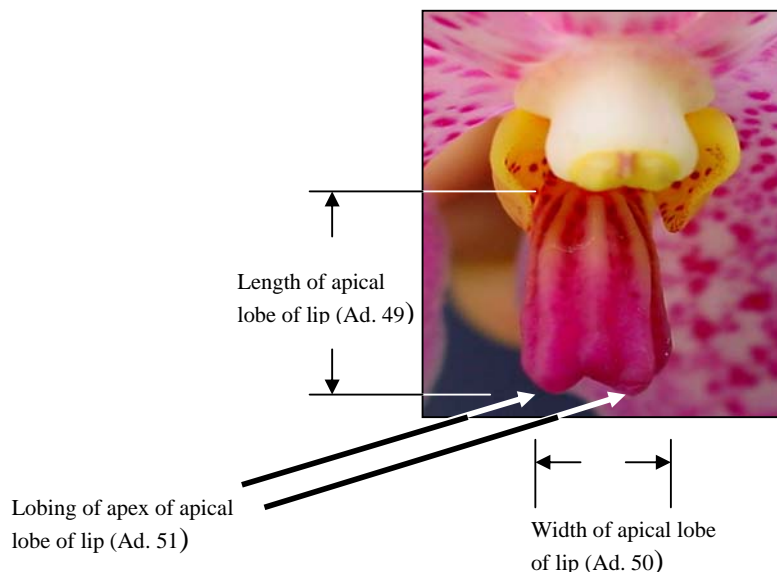


2  
spreading

Ad. 19 & 20: Dorsal sepal: length & width  
Ad. 29 & 30: Lateral sepal: length & width  
Ad. 39 & 40: Petal: length & width



Ad. 49 & 50: Apical lobe of lip: length & width  
Ad. 51: Apical lobe of lip: lobing of apex



Ad. 52: Apical lobe of lip: protrusion on ventral side

Ad. 61: Column: ~~colour~~color pattern on upper side

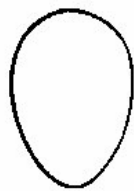


Ad. 21: Dorsal sepal: shape

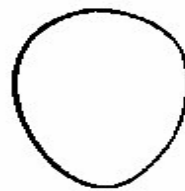
Ad. 41: Petal: shape



1  
oblanceolate  
oblong



2  
obovate



3  
broad obovate



4  
spatulate

Ad. 22: Dorsal sepal: shape of apex

Ad. 32: Lateral sepal: shape of apex

Ad. 42: Petal: shape of apex



1  
acute



2  
obtuse



3  
rounded

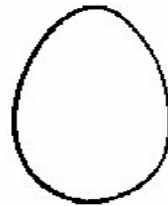
Ad. 31: Lateral sepal: shape



1  
lanceolate  
oblong



2  
ovate



3  
broad ovate



4  
elliptical

9. Literature

Yam, T.W., 1986: Orchids of the Singapore Botanic Gardens. Singapore.

Yam, T.W., and Aung, T, 1998: Fascinating Mokaras. Malayan Orchid Review. Vol 32, pp39-44.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<b>TECHNICAL QUESTIONNAIRE</b> 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="Mokara"/>	
1.2 Common name	<input type="text" value="Mokara"/>	
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:
#4. Information on the breeding scheme and propagation of the variety		
4.1 Breeding scheme		
Variety resulting from:		
4.1.1 Crossing		
(a) controlled cross	[ ]	
(please state parent varieties)		
(b) partially known cross	[ ]	
(please state known parent variety(ies))		
(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)	[ ]	
4.2 Method of propagating the variety		
4.2.1 Vegetative propagation		
(a) cuttings	[ ]	
(b) <i>in vitro</i> propagation	[ ]	
(c) other (state method)	[ ]	
4.2.2 Seed		
	[ ]	
4.2.3 Other		
(please provide details)	[ ]	
4.3 The region and country in which the variety was bred or discovered and developed		

# 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:	
<p>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).</p>			
Characteristics	Example Varieties	Note	
<p><b>5.1 Plant: width (natural leaf spread)</b> (1)</p>			
<p>narrow (&lt;30cm)</p>	Bangkok Gold	3 [ ]	
<p>medium (30-45cm)</p>	Chark Kuan 'Pink'	5 [ ]	
<p>broad (&gt;45cm)</p>	Dear Heart	7 [ ]	
<p><b>5.2 Inflorescence: number of flowers</b> (9)</p>			
<p>few (&lt;10)</p>	Lions Gold	3 [ ]	
<p>medium (10-20)</p>	Luenberger Gold, Singa Gold	5 [ ]	
<p>many (&gt;20)</p>	Dear Heart, Dinah Shore	7 [ ]	
<p><b>5.3 Flower: length</b> (14)</p>			
<p>short (&lt;5cm)</p>	Margaret Thatcher	3 [ ]	
<p>medium (5-8cm)</p>	Bangkok Gold	5 [ ]	
<p>long (&gt;8cm)</p>	Mak Chin On	7 [ ]	
<p><b>5.4 Flower: width</b> (15)</p>			
<p>narrow (&lt;5cm)</p>	Margaret Thatcher	3 [ ]	
<p>medium (5-8cm)</p>	Khaw Phaik Suan	5 [ ]	
<p>broad (&gt;8cm)</p>	Chark Kuan 'Pink'	7 [ ]	



TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
Characteristics	Example Varieties	Note	
<b>5.5 Lateral sepal: main <u>colour</u> (background <u>colour</u>)</b> (35)			
green			1 [ ]
white			2 [ ]
yellow	Bangkok Gold		3 [ ]
orange			4 [ ]
red	Dinah Shore		5 [ ]
purple	Dear Heart		6 [ ]
<b>5.6 Only varieties with more than one <u>colour</u> on petal: Petal: <u>colour</u> pattern</b> (44)			
shaded	Dickson How		1 [ ]
edged			2 [ ]
striped			3 [ ]
netted	Sumalee		4 [ ]
spotted	Khaw Phaik Suan		5 [ ]
shaded and netted	Mak Chin On		6 [ ]
shaded and spotted	Lions Gold		7 [ ]
<b>5.7 Petal: main <u>colour</u> (background <u>colour</u>)</b> (45)			
green			1 [ ]
white			2 [ ]
yellow	Prapin Gold		3 [ ]
orange	Singa Gold		4 [ ]
red	Dinah Shore		5 [ ]
purple	Chark Kuan 'Pink'		6 [ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
Characteristics	Example Varieties	Note	
<b>5.8 Only varieties with more than one <del>colour</del>color on apical lobe of lip :</b>			
<b>(53) Apical lobe of lip: <del>colour</del>color pattern</b>			
shaded		1[ ]	
edged		2[ ]	
striped	Luenberger Gold	3[ ]	
netted		4[ ]	
spotted		5[ ]	
shaded and striped	Dinah Shore	6[ ]	
<b>5.9 Apical lobe of lip: main <del>colour</del>color (background <del>colour</del>color)</b>			
<b>(54)</b>			
green		1[ ]	
white		2[ ]	
yellow	Prapin Gold	3[ ]	
orange	Singa Gold	4[ ]	
red	Dinah Shore	5[ ]	
purple	Chark Kuan 'Pink'	6[ ]	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
<p>6. Similar varieties and differences from these varieties</p> <p><i>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.</i></p>			
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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>	<i>petal: main color</i>	<i>orange</i>	<i>orange red</i>
<i>variety name</i>	<i>petal: main colour</i>	<i>orange</i>	<i>orange red</i>
<p>Comments:</p>			

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
<p>#7. Additional information which may help in the examination of the variety</p> <p>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?</p> <p>Yes    <input type="checkbox"/>                                  No    <input type="checkbox"/></p> <p>(If yes, please provide details)</p> <p>7.2 Are there any special conditions for growing the variety or conducting the examination?</p> <p>Yes    <input type="checkbox"/>                                  No    <input type="checkbox"/></p> <p>(If yes, please provide details)</p> <p>7.3 Other information</p> <p>“A representative color photograph of the variety should accompany the Technical Questionnaire.”</p>		
<p>8. Authorization for release</p> <p>(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?</p> <p>Yes    <input type="checkbox"/>                                  No    <input type="checkbox"/></p> <p>(b) Has such authorization been obtained?</p> <p>Yes    <input type="checkbox"/>                                  No    <input type="checkbox"/></p> <p>If the answer to (b) is yes, please attach a copy of the authorization.</p>		

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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9. Information on plant material to be examined or submitted for examination.

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

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

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

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

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]

(please provide details as specified by the Authority)

No [ ]

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

Applicant’s name

Signature  Date

[End of document]