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

<p><b>BITTER GOURD</b></p> <p>UPOV Code: MOMOR_CHA</p> <p><i>Momordica charantia</i> L.</p>
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**GUIDELINES**  
**FOR THE CONDUCT OF TESTS**  
**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

Alternative Names: \*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Momordica charantia</i> L.	Balsam apple, Balsam pear, Bitter cucumber, Bitter gourd, Bitter melon, Cassila gourd	Concombre africain, Margose, Momordique	Bittergurke, Balsambirne	Balsamito, Cundeamor, Momordica

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 *Momordica charantia* 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 seed.

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

1,500 seeds.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

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

## 3. Method of Examination

### 3.1 *Number of Growing Cycles*

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

### 3.2 *Testing Place*

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

### 3.3 *Conditions for Conducting the Examination*

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

3.3.2 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

### 3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 40 plants, which should be divided between two or more 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 on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations should be made on all plants in the test.

### 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 The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 The assessment of uniformity for hybrid 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 40 plants, 2 off-types are 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 seed 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) Leaf blade: number of lobes (characteristic 8)
- (b) Fruit: length (characteristic 14)
- (c) Fruit: diameter (characteristic 15)
- (d) Fruit: shape in longitudinal section (characteristic 16)
- (e) Fruit: color of skin (characteristic 17)
- (f) Fruit: wart: size (characteristic 21)

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 *Example Varieties*

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

### 6.5 *Legend*

(\*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS: See Chapter 3.3.2

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

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

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

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>1. VG</b>	<b>Cotyledon: intensity of green color</b>	<b>Cotylédon : intensité de la couleur verte</b>	<b>Keimblatt: Intensität der Grünfärbung</b>	<b>Cotiledón: intensidad del color verde</b>		
<b>QN</b>	light	claire	hell	clara	Miazaki-shiro-naga	3
	medium	moyenne	mittel	media		5
	dark	foncée	dunkel	oscura	Okinawa-ao-naga	7
<b>2. VG/ MS</b>	<b>Stem: length of internode of main stem (between 15<sup>th</sup> and 20<sup>th</sup> node)</b>	<b>Tige : longueur de l'entre-nœud de la tige principale (entre le 15<sup>e</sup> et le 20<sup>e</sup> nœud)</b>	<b>Stängel: Internodienlänge des Hauptstiels (zwischen dem 15. und dem 20. Knoten)</b>	<b>Tallo: longitud del internudo del tallo principal (entre el 15° y el 20° nudo)</b>		
<b>QN</b>	<b>(a)</b> short	court	kurz	corta	Okinawa-ao-chunaga	3
	medium	moyen	mittel	media	Sadowara-shiro-naga	5
	long	long	lang	larga	Miazaki-shiro-naga	7
<b>3. VG/ MS</b>	<b>Stem: thickness of main stem (as for 2)</b>	<b>Tige : grosseur de la tige principale (comme pour 2)</b>	<b>Stängel: Dicke des Hauptstiels (wie unter 2)</b>	<b>Tallo: espesor del tallo principal (como en el 2)</b>		
<b>QN</b>	<b>(a)</b> thin	fine	dünn	delgado		3
	medium	moyenne	mittel	medio	Miazaki-shiro-naga	5
	thick	épaisse	dick	grueso	Okinawa-tan-dai	7
<b>4. VG</b>	<b>Stem: number of side shoots</b>	<b>Tige : nombre de pousses latérales</b>	<b>Stängel: Anzahl Seitentriebe</b>	<b>Tallo: número de brotes laterales</b>		
<b>QN</b>	<b>(a)</b> few	petit	gering	bajo	Sadowara-shiro-naga	3
	medium	moyen	mittel	medio	Miazaki-shiro-naga	5
	many	grand	groß	alto	Okinawa-ao-chunaga	7
<b>5. VG</b>	<b>Leaf blade: size</b>	<b>Limbe : taille</b>	<b>Blattspreite: Größe</b>	<b>Limbo: tamaño</b>		
<b>QN</b>	<b>(b)</b> small	petit	klein	pequeño	Kagoshima-shiro-naga	3
	medium	moyen	mittel	medio	Okinawa-ao-naga	5
	large	grand	groß	grande	Miazaki-shiro-naga	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>6.</b>	<b>VG</b>	<b>Leaf blade: intensity of green color</b>	<b>Limbe : intensité de la couleur verte</b>	<b>Blattspreite: Intensität der Grünfärbung</b>	<b>Limbo: intensidad del color verde</b>	
<b>QN</b>	<b>(b)</b>	light	claire	hell	clara	Sadowara-shiro-naga 3
		medium	moyenne	mittel	media	Miazaki-shiro-naga 5
		dark	foncée	dunkel	oscura	Okinawa-ao-chunaga 7
<b>7.</b>	<b>VG</b>	<b>Leaf blade: ratio length/width lobe</b>	<b>Limbe : rapport longueur/largeur lobe</b>	<b>Blattspreite: Verhältnis Länge/Breite Lappen</b>	<b>Limbo: relación longitud/anchura lóbulo</b>	
<b>QN</b>	<b>(b)</b>	small	petit	klein	pequeña	Okinawa-ao-chuunaga 1
		medium	moyen	mittel	media	Miazaki-shiro-naga 2
		large	grand	groß	grande	3
<b>8.</b>	<b>MS</b>	<b>Leaf blade: number of lobes</b>	<b>Limbe : nombre de lobes</b>	<b>Blattspreite: Anzahl Lappen</b>	<b>Limbo: número de lóbulos</b>	
<b>QL</b>	<b>(b)</b>	five lobes	cinq lobes	fünf Lappen	cinco	1
		seven lobes	sept lobes	sieben Lappen	siete	Sadowara-shiro-naga 2
		nine lobes	neuf lobes	neun Lappen	nueve	3
<b>9.</b>	<b>VG</b>	<b>Leaf blade: depth of lobing</b>	<b>Limbe : profondeur de la découpeure des bords</b>	<b>Blattspreite: Tiefe der Einschnitte</b>	<b>Limbo: profundidad del lobulado</b>	
<b>QN</b>	<b>(b)</b>	shallow	peu profonde	flach	poco profunda	Sadowara-shiro-naga 3
		medium	moyenne	mittel	media	Kagoshima-shiro-naga 5
		deep	profonde	tief	profunda	Okinawa-ao-chunaga 7
<b>10.</b>	<b>VG/ MS</b>	<b>Petiole: length</b>	<b>Pétiole : longueur</b>	<b>Blattstiel: Länge</b>	<b>Peciolo: longitud</b>	
<b>QN</b>	<b>(b)</b>	short	court	kurz	corta	Kagoshima-shiro-naga 3
		medium	moyen	mittel	media	Sadowara-shiro-naga 5
		long	long	lang	larga	7



	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>11.</b>	<b>MS</b>	<b>Plant: number of nodes up to node with 1<sup>st</sup> female flower</b>	<b>Plante : nombre de nœuds jusqu'au nœud portant la première fleur femelle</b>	<b>Pflanze: Anzahl Knoten bis zum Knoten mit der 1. weiblichen Blüte</b>	<b>Planta: número de nudos hasta el nudo con la primera flor femenina</b>	
<b>QN</b>	<b>(c)</b>	few	petit	gering	bajo	Sadowara-shiro-naga 3
		medium	moyen	mittel	medio	Miazaki-shiro-naga 5
		many	grand	groß	alto	Okinawa-ao-chunaga 7
<b>12.</b>	<b>VG/ MS</b>	<b>Ovary: length</b>	<b>Ovaire : longueur</b>	<b>Fruchtknoten: Länge</b>	<b>Ovario: longitud</b>	
<b>QN</b>	<b>(c)</b>	short	court	kurz	corta	3
		medium	moyen	mittel	media	Okinawa-ao-chunaga 5
		long	long	lang	larga	Miazaki-shiro-naga 7
<b>13.</b>	<b>VG</b>	<b>Stigma : intensity of green color</b>	<b>Stigmate : intensité de la couleur verte</b>	<b>Narbe: Intensität der Grünfärbung</b>	<b>Estigma: intensidad del color verde</b>	
<b>QN</b>	<b>(c)</b>	light	claire	hell	clara	Okinawa-shiro-naga 3
		medium	moyenne	mittel	media	Onaga-nishaku 5
		dark	foncée	dunkel	oscura	Okinawa-ao-chunaga 7
<b>14.</b>	<b>VG/ (* MS</b>	<b>Fruit : length</b>	<b>Fruit : longueur</b>	<b>Frucht: Länge</b>	<b>Fruto: longitud</b>	
<b>QN</b>	<b>(d)</b>	short	court	kurz	corta	Okinawa-tandai 3
		medium	moyen	mittel	media	Okinawa-ao-chunaga 5
		long	long	lang	larga	Sadowara-shiro-naga 7
<b>15.</b>	<b>VG/ (* MS</b>	<b>Fruit: diameter</b>	<b>Fruit : diamètre</b>	<b>Frucht: Durchmesser</b>	<b>Fruto: diámetro</b>	
<b>QN</b>	<b>(d)</b>	small	petit	klein	pequeño	Miyazaki-shiro-naga 3
		medium	moyen	mittel	medio	Onaga-nishaku 5
		large	grand	groß	grande	Okinawa-ao-naga 7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielsorten/ Variedades ejemplo	Note/ Nota
<b>16. VG</b> (*) (+)	<b>Fruit: shape in longitudinal section</b>	<b>Fruit : forme en section longitudinale</b>	<b>Frucht: Form im Längsschnitt</b>	<b>Fruto: forma en sección longitudinal</b>		
<b>PQ</b>	(d) triangular	triangulaire	dreieckig	triangular		1
	ovate	ovale	eiförmig	oval		2
	spindle-shaped	fuselée	spindelförmig	fusiforme	Okinawa-ao-naga	3
	oblong	oblongue	rechteckig	oblonga	Sadowara-shiro-naga	4
<b>17. VG</b> (*)	<b>Fruit: color of skin</b>	<b>Fruit : couleur de l'épiderme</b>	<b>Frucht: Farbe der Schale:</b>	<b>Fruto: color de la epidermis</b>		
<b>PQ</b>	(d) white	blanc	weiß	blanco	Shiro-reishi	1
	light green	vert clair	hellgrün	verde claro	Sadowara-shiro-naga	2
	medium green	vert moyen	mittelgrün	verde medio	Onaga-nishaku	3
	dark green	vert foncé	dunkelgrün	verde oscuro	Okinawa-ao-naga	4
<b>18. VG</b> (*) (+)	<b>Fruit: shape of base</b>	<b>Fruit : forme de la base</b>	<b>Frucht: Form der Basis</b>	<b>Fruto: forma de la base</b>		
<b>PQ</b>	(d) acute	aiguë	spitz	aguda	Miazaki-shiro-naga	1
	obtuse	obtuse	stumpf	obtusa	Onaga-nishaku	2
	rounded	arrondie	abgerundet	redondeada	Okinawa-ao-chunaga	3
	flattened	aplatie	abgeflacht	aplanada		4
<b>19. VG</b> (*) (+)	<b>Fruit: shape of apex</b>	<b>Fruit : forme du sommet</b>	<b>Frucht: Form der Spitze</b>	<b>Fruto: forma del ápice</b>		
<b>PQ</b>	(d) acute	aiguë	spitz	aguda	Miazaki-shiro-naga	1
	obtuse	obtuse	stumpf	obtusa	Onaga-nishaku	2
	rounded	arrondie	abgerundet	redondeada	Okinawa-ao-chunaga	3
	flattened	aplatie	abgeflacht	aplanada	Torapi, Verdure	4

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>20.</b>	<b>VG/MS</b>	<b>Fruit: number of warts</b>	<b>Fruit : nombre de verrues</b>	<b>Frucht: Anzahl Warzen</b>	<b>Fruto: número de verrugas</b>	
(+)						
<b>QN</b>	<b>(d)</b>	few	petit	gering	bajo	3
		medium	moyen	mittel	medio	Onaga-nishaku 5
		many	grand	groß	alto	Okinawa-ao-chunaga 7
<b>21.</b>	<b>VG</b>	<b>Wart: size</b>	<b>Verrue : taille</b>	<b>Warze: Größe</b>	<b>Verruga: tamaño</b>	
(*)						
(+)						
<b>QN</b>	<b>(d)</b>	small	petites	klein	pequeño	Okinawa-ao-chunaga 3
		medium	moyennes	mittel	medio	Miazaki-shiro-naga 5
		large	grandes	groß	grande	Sadowara-shiro-naga 7
<b>22.</b>	<b>VG</b>	<b>Wart: shape of top</b>	<b>Verrue : forme du sommet</b>	<b>Warze: Form der Spitze</b>	<b>Verruga: forma del extremo superior</b>	
(*)						
(+)						
<b>PQ</b>	<b>(d)</b>	acute	aiguë	spitz	aguda	Okinawa-ao-chunaga 1
		obtuse	obtuse	stumpf	obtusa	Sadowara-shiro-naga 2
		rounded	arrondie	abgerundet	redondeada	Shiro-reishi 3
<b>23.</b>	<b>VG</b>	<b>Wart: presence of spines</b>	<b>Verrue : présence d'épines</b>	<b>Warze: Vorhandensein von der Warze</b>	<b>Verruga: presencia de espinas</b>	
<b>QL</b>	<b>(d)</b>	absent	absentes	fehlend	ausentes	Ravana 1
		present	présentes	vorhanden	presentes	Indra 9
<b>24.</b>	<b>VG/MS</b>	<b>Fruit: length of ridge</b>	<b>Fruit : longueur de l'arête</b>	<b>Frucht: Länge der Furche</b>	<b>Fruto: longitud de la cresta</b>	
(*)						
(+)						
<b>QN</b>	<b>(d)</b>	short	courte	kurz	corta	Okinawa-ao-chunaga 3
		medium	moyenne	mittel	media	Sadowara-shiro-naga 5
		long	longue	lang	larga	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>25.</b>	<b>VG</b>	<b>Fruit: color of skin at ripe stage</b>	<b>Fruit : couleur de l'épiderme à maturité</b>	<b>Frucht: Farbe der Schale im Reifestadium</b>	<b>Fruto: color de la epidermis en la etapa de madurez</b>		
	<b>(*)</b>						
	<b>(+)</b>						
<b>PQ</b>		yellow	jaune	gelb	amarillo	Shiro-reishi	1
		orange	orange	orange	anaranjado	Onaga-nishaku	2
		reddish orange	orange rougeâtre	rötlich orange	anaranjado rojizo		3
<b>26.</b>	<b>MG</b>	<b>Fruit: bitterness</b>	<b>Fruit : amertume</b>	<b>Frucht: Bitterkeit</b>	<b>Fruto: amargor</b>		
	<b>(+)</b>						
<b>QL</b>	<b>(d)</b>	absent	absente	fehlend	ausente		1
		present	présente	vorhanden	presente		9
<b>27.</b>	<b>MG</b>	<b>Fruit: intensity of bitterness</b>	<b>Fruit : intensité de l'amertume</b>	<b>Frucht: Intensität der Bitterkeit</b>	<b>Fruto: intensidad del amargor</b>		
	<b>(+)</b>						
<b>QN</b>	<b>(d)</b>	weak	faible	gering	débil		3
		medium	moyenne	mittel	media		5
		strong	forte	stark	fuerte		7
<b>28.</b>	<b>VG</b>	<b>Seed: size</b>	<b>Graine : taille</b>	<b>Samen: Größe</b>	<b>Semilla: tamaño</b>		
<b>QN</b>	<b>(e)</b>	small	petite	klein	pequeño		3
		medium	moyenne	mittel	medio	Onaga-nishaku	5
		large	grande	groß	grande	Sadowara-shiro-naga	7
<b>29.</b>	<b>VG</b>	<b>Seed: intensity of brown color of testa</b>	<b>Graine : intensité de la couleur brune des téguments</b>	<b>Samen: Intensität der Braunfärbung der Samenschale</b>	<b>Semilla: intensidad del color marrón de la testa</b>		
<b>QN</b>	<b>(e)</b>	light	claire	hell	clara	Sadowara-shiro-naga	3
		medium	moyenne	mittel	media	Onaga-nishaku	5
		dark	foncée	dunkel	oscura	Okinawa-shiro-naga	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>30.</b>	<b>VG</b>	<b>Seed: indentation of edge</b>	<b>Graine : découpure du bord</b>	<b>Samen: Buchtung des Randes</b>	<b>Semilla: indentación del borde</b>	
(+)						
<b>QN</b>	(e)	small	faible	gering	pequeña	Onaga-nishaku 3
		medium	moyenne	mittel	media	Sadowara-shiro-naga 5
		large	profonde	groß	grande	Okinawa-ao-naga 7
<b>31.</b>	<b>VG</b>	<b>Time of physiological maturity</b>	<b>Époque de maturité physiologique</b>	<b>Zeitpunkt der physiologischen Reife</b>	<b>Época de madurez fisiológica</b>	
(+)						
<b>QN</b>		early	précoce	früh	temprana	China girl 3
		medium	moyenne	mittel	media	Onaga-nishaku 5
		late	tardive	spät	tardía	Okinawa-ao-chunaga 7

## 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) Stem: should be observed when plant is fully developed.
- (b) Leaf (blade, petiole): All observations on the leaf should be made on fully developed leaves, from the 15<sup>th</sup> to 20<sup>th</sup> nodes.
- (c) Flower (flower, ovary, stigma): All observations on the flower should be made when the plant is fully developed.
- (d) Fruit: All observations on the fruit should be made approximately 20 days after flowering (harvest maturity stage).
- (e) Seed: All observations on the seed should be made on fully developed and dry seed, after washing and drying in the shade.

### 8.2 *Explanations for individual characteristics*

#### Ad. 1: Cotyledon: intensity of green color

Should be observed just before the development of the first true leaf.

#### Ad. 7: Leaf blade: ratio length/width lobe



1  
small

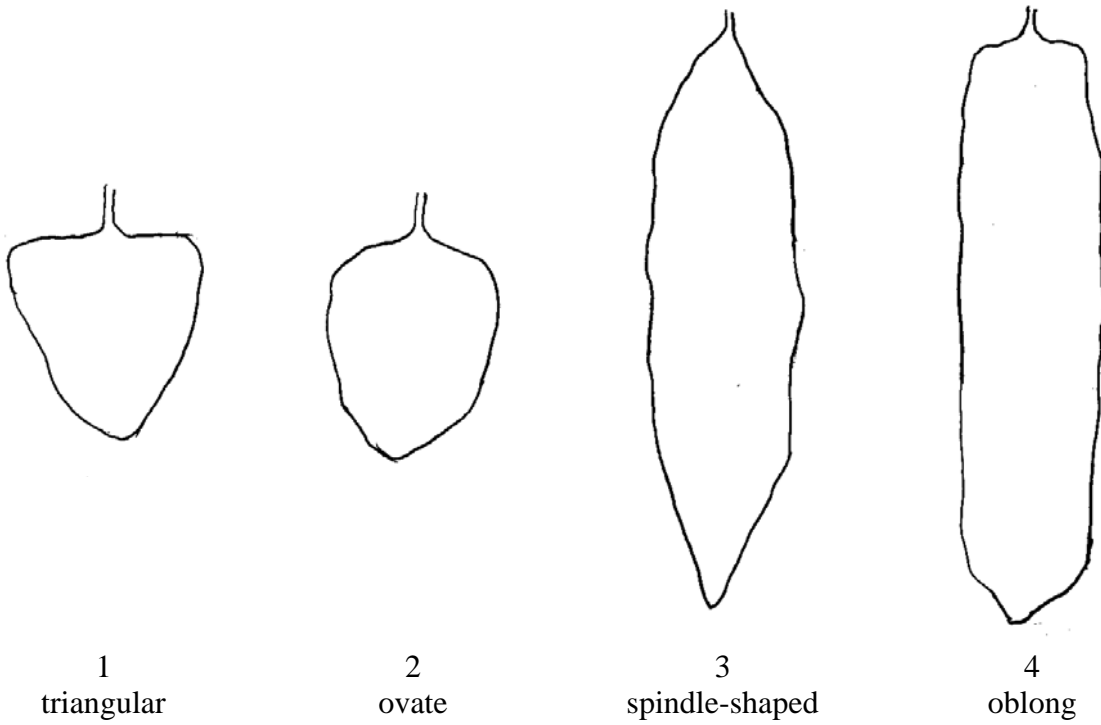


2  
medium

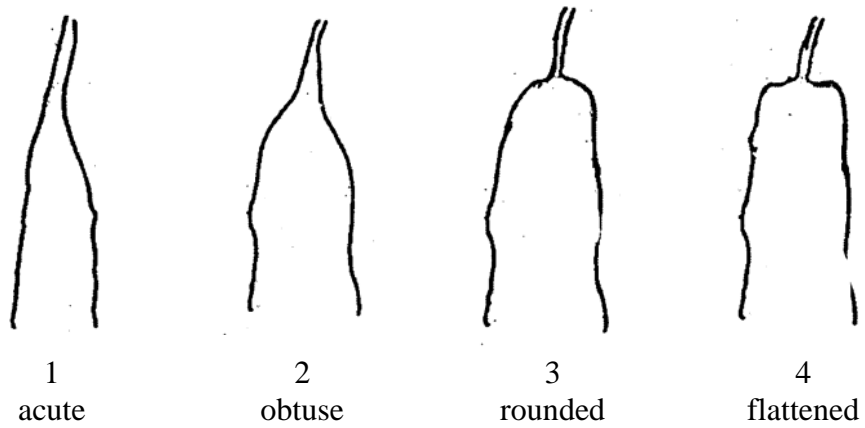


3  
large

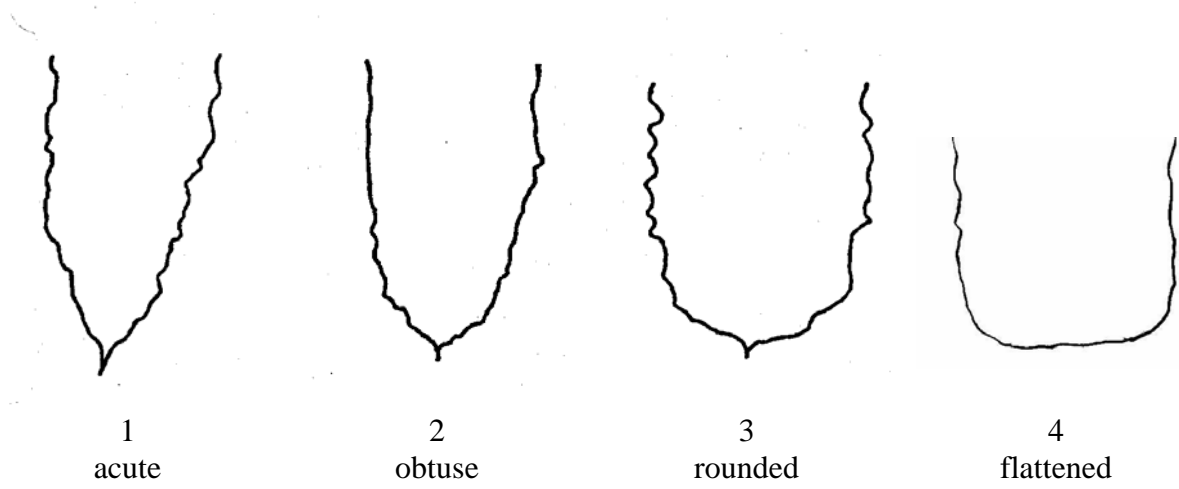
Ad. 16: Fruit: shape in longitudinal section



Ad. 18: Fruit: shape of base



Ad. 19: Fruit: shape of apex

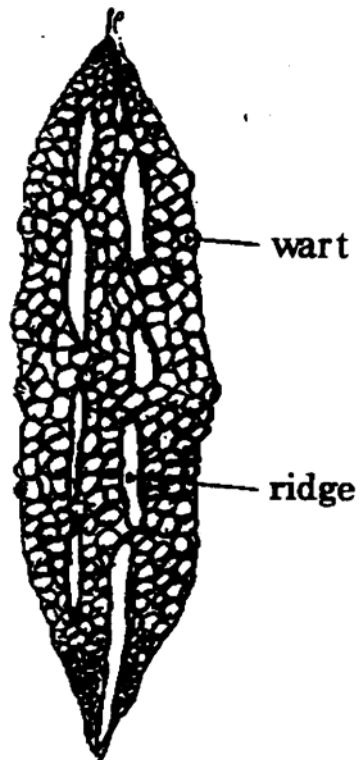


Ad. 20: Fruit: number of warts

Ad. 21: Wart: size

Ad. 22: Wart: shape of top

Ad. 24: Fruit: length of ridge





Ad. 25: Fruit: color of skin at ripe stage

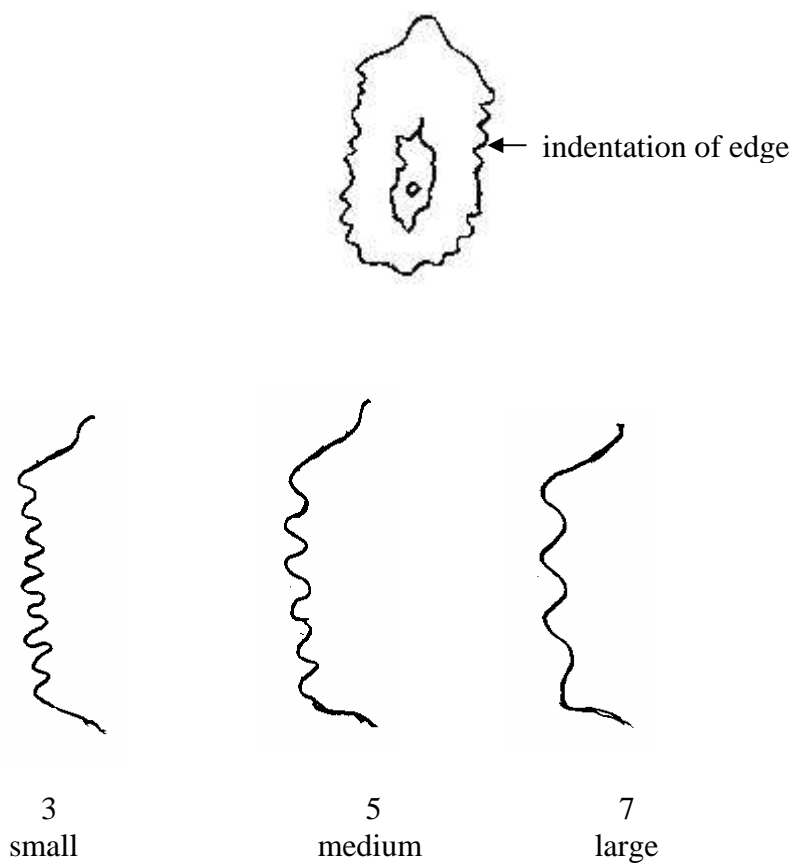
Observations should be made when the fruit left on the plant has turned completely yellow, orange or reddish orange.

Ad. 26: Fruit: bitterness

Ad. 27: Fruit: intensity of bitterness

The bitterness of the fruit should be observed by tasting the flesh of the middle part of the fruit at harvest maturity (see Chapter 8.1 (d)).

Ad. 30: Seed: indentation of edge



Ad. 31: Time of physiological maturity

The time of physiological maturity is when the fruit is fully developed.

9. Literature

Higa, T., Momordica L., 1991: The Grand Dictionary of Horticulture, Vol. 3. 303, Shougakkan, JP.

Inoue, Y., 1983: Turureishi, Encyclopedia of Horticulture, Vol. 11, 293-240, Seibundo-Shinkousha, JP.

Larkom, J., 1991: Bitter gourd, Oriental Vegetables 87-89, Jon Murry, UK.

Ministry of Agriculture, Forestry & Fisheries, 1981: National Test Guideline for Bitter Gourd.

Phillips, R., Rix, M., 1993: Bitter Cucumber, Vegetables 198-199, Pan Books, UK.

Sakamoto, M., 1988: Nigauri, Nogyo-Gijutu-Taikai-Vegetable Vol.11, 473-480, Nosangyoson-Bunka-Kyokai, JP.

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="Momordica charantia L."/>	
1.2 Common name	<input type="text" value="Bitter Gourd"/>	
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 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 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination [ ]  
(i) population [ ]  
(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]  
(please provide details)

4.2.2 Vegetatively propagated varieties [ ]

4.2.3 Other [ ]  
(please provide details)

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
<b>5.1 Leaf blade: number of lobes (8)</b>		
five lobes		1[ ]
seven lobes	Sadowara-shiro-naga	2[ ]
nine lobes		3[ ]
<b>5.2 Fruit: length (14)</b>		
short	Okinawa-tandai	3[ ]
medium	Okinawa-ao-chunaga	5[ ]
long	Sadowara-shiro-naga	7[ ]
<b>5.3 Fruit: diameter (15)</b>		
small	Miyazaki-shiro-naga	3[ ]
medium	Onaga-nishaku	5[ ]
large	Okinawa-ao-naga	7[ ]
<b>5.4 Fruit: shape in longitudinal section (16)</b>		
triangular		1[ ]
ovate		2[ ]
spindle-shaped	Okinawa-ao-naga	3[ ]
oblong	Sadowara-shiro-naga	4[ ]
<b>5.5 Fruit: color of skin (17)</b>		
white	Shiro-reishi	1[ ]
light green	Sadowara-shiro-naga	2[ ]
medium green	Onaga-nishaku	3[ ]
dark green	Okinawa-ao-naga	4[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
Characteristics		Example Varieties	Note
<b>5.6</b> <b>(21)</b>	<b>Wart: size</b>		
	small	Okinawa-ao-chunaga	3[ ]
	medium	Miazaki-shiro-naga	5[ ]
	large	Sadowara-shiro-naga	7[ ]

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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example:</i>	<i>Fruit: shape in longitudinal section</i>	<i>spindle-shaped</i>	<i>oblong</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

7.3.1 Main use

- (a) fruit [ ]
  - (b) young shoot/leaves [ ]
  - (c) medicinal [ ]
- (please provide details)

7.3.2 A representative color photograph of the fruit of the variety should accompany the Technical Questionnaire.

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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



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".

.....

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]