



TG/326/1

ORIGINAL: English

DATE: 2018-09-20

## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## PEPINO\*

UPOV Code(s): SOLAN\_MUR

*Solanum muricatum* Aiton

## 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>Solanum muricatum</i> Aiton, <i>Solanum muricatum</i> L'Hér. ex Ait.	Pepino, Melon-pear	Pépino, Poire-melon	Pepino, Melonenbirne,	Pepino, Pepino dulce, Peramelón

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](http://www.upov.int)), for the latest information.]

TABLE OF CONTENTS	PAGE
1. SUBJECT OF THESE TEST GUIDELINES.....	<u>3</u>
2. MATERIAL REQUIRED.....	<u>3</u>
3. METHOD OF EXAMINATION.....	<u>3</u>
3.1 Number of Growing Cycles.....	<u>3</u>
3.2 Testing Place.....	<u>3</u>
3.3 Conditions for Conducting the Examination.....	<u>3</u>
3.4 Test Design.....	<u>3</u>
3.5 Additional Tests.....	<u>3</u>
4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY.....	<u>4</u>
4.1 Distinctness.....	<u>4</u>
4.2 Uniformity.....	<u>5</u>
4.3 Stability.....	<u>5</u>
5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL.....	<u>5</u>
6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS.....	<u>6</u>
6.1 Categories of Characteristics.....	<u>6</u>
6.2 States of Expression and Corresponding Notes.....	<u>6</u>
6.3 Types of Expression.....	<u>6</u>
6.4 Example Varieties.....	<u>6</u>
6.5 Legend.....	<u>7</u>
7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES.....	<u>8</u>
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS.....	<u>13</u>
8.1 Explanations covering several characteristics.....	<u>13</u>
8.2 Explanations for individual characteristics.....	<u>13</u>
9. LITERATURE.....	<u>20</u>
10. TECHNICAL QUESTIONNAIRE.....	<u>21</u>

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Solanum muricatum* Aiton.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of plants.

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

25 plants

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.2 *Testing Place*

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

3.3 *Conditions for Conducting the Examination*

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.

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 20 plants, which should be divided between at least 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 *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 10 plants or parts of plants taken from each of 10 plants and any other observations made on all plants in the test, disregarding any off-type plants.

###### 4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the 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 20 plants, 1 off-type is allowed.

#### 4.3 *Stability*

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

### 5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Leaf: type (characteristic 4)
- (b) Fruit: ground color (characteristic 14)
- (c) Fruit: area of stripes (characteristic 15)
- (d) Fruit: shape in longitudinal section (characteristic 19)
- (e) Fruit: color of flesh (characteristic 23)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by \*) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 *States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

<i>State</i>	<i>Note</i>
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

<i>State</i>	<i>Note</i>
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

6.3 *Types of Expression*

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

6.4 *Example Varieties*

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

6.5 Legend

		English	français	deutsch	español	Example Varieties Exemples Beispielsorten 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)-(c) 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
<b>1. (*)</b>	<b>QN</b>	<b>MS/VG</b>	<b>(a)</b>				
	<b>Plant: height</b>	<b>Plante : hauteur</b>	<b>Pflanze: Höhe</b>	<b>Planta: altura</b>			
	short	basse	niedrig	baja			3
	medium	moyenne	mittel	media	Gold No.1		5
	tall	haute	hoch	alta	Monrou Dance		7
<b>2.</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>(a)</b>			
	<b>Stem: anthocyanin coloration</b>	<b>Tige : pigmentation anthocyanique</b>	<b>Stengel: Anthocyanfärbung</b>	<b>Tallo: pigmentación antociánica</b>			
	absent or weak	absente ou faible	fehlend oder gering	ausente o leve	Appulinmimi		1
	medium	moyenne	mittel	media	Gold No.1		2
	strong	forte	stark	intensa	Gold Boy		3
<b>3.</b>	<b>QN</b>	<b>VG</b>	<b>(a)</b>				
	<b>Stem: pubescence</b>	<b>Tige : pubescence</b>	<b>Stengel: Behaarung</b>	<b>Tallo: pubescencia</b>			
	absent or sparse	absente ou lâche	fehlend oder locker	ausente o escasa			1
	medium	moyenne	mittel	media	Monrou Dance		2
	dense	dense	dicht	densa	Gold No.1		3
<b>4. (*)</b>	<b>QL</b>	<b>VG</b>	<b>(+)</b>	<b>(a)</b>			
	<b>Leaf: type</b>	<b>Feuille : type</b>	<b>Blatt: Typ</b>	<b>Hoja: tipo</b>			
	simple	simple	einfach	simple	Gold No.1		1
	compound	composée	zusammengesetzt	compuesta	Helloevening		2
<b>5. (*)</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(a)</b>			
	<b>Leaf: length</b>	<b>Feuille : longueur</b>	<b>Blatt: Länge</b>	<b>Hoja: longitud</b>			
	short	courte	kurz	corta			3
	medium	moyenne	mittel	media	Gold No.1		5
	long	longue	lang	larga	Appulinmimi		7
<b>6. (*)</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(a)</b>			
	<b>Leaf: width</b>	<b>Feuille : largeur</b>	<b>Blatt: Breite</b>	<b>Hoja: anchura</b>			
	narrow	étroite	schmal	estrecha			3
	medium	moyenne	mittel	media	Gold No.1		5
	broad	large	breit	ancha			7

	English		français		deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
<b>7.</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>(a)</b>				
	<b>Leaf: intensity of anthocyanin coloration of midrib</b>	<b>Feuille : intensité de la pigmentation anthocyanique de la nervure médiane</b>	<b>Blatt: Intensität der Anthocyanfärbung der Mittelrippe</b>	<b>Hoja: intensidad de la pigmentación antocianica del nervio central</b>				
	absent or weak	absente ou faible	fehlend oder gering	ausente o leve	Monrou Dance		1	
	medium	moyenne	mittel	media	Helloevening		2	
	strong	forte	stark	intensa			3	
<b>8. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>	<b>(a)</b>				
	<b>Leaf blade: shape</b>	<b>Limbe : forme</b>	<b>Blattspreite: Form</b>	<b>Limbo: forma</b>				
	broad lanceolate	lancéolé large	breit lanzettlich	lanceolado ancho	Gold No.1		1	
	medium lanceolate	lancéolé moyen	mittel lanzettlich	lanceolado medio			2	
	circular	circulaire	kreisförmig	circular			3	
	elliptic	elliptique	elliptisch	elíptico	Gold Boy		4	
<b>9.</b>	<b>QN</b>	<b>VG</b>		<b>(a)</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>				
	light	claire	hell	claro			1	
	medium	moyenne	mittel	medio			3	
	dark	foncée	dunkel	oscuro	Gold No.1		5	
<b>10.</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(a)</b>				
	<b>Inflorescence: number of flowers</b>	<b>Inflorescence : nombre de fleurs</b>	<b>Blütenstand: Anzahl der Blüten</b>	<b>Inflorescencia: número de flores</b>				
	few	petit	gering	bajo			1	
	medium	moyen	mittel	medio	Gold No.1		2	
	many	grand	groß	alto	Helloevening		3	
<b>11.</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(a)</b>				
	<b>Flower: width</b>	<b>Fleur : largeur</b>	<b>Blüte: Breite</b>	<b>Flor: anchura</b>				
	narrow	étroite	schmal	estrecha			1	
	medium	moyenne	mittel	media	Gold No.1		3	
	broad	large	breit	ancha			5	
<b>12. (*)</b>	<b>PQ</b>	<b>VG</b>		<b>(a)</b>				
	<b>Flower: color of upper side</b>	<b>Fleur : couleur de la face supérieure</b>	<b>Blüte: Farbe der Oberseite</b>	<b>Flor: color de la cara superior</b>				
	white	blanc	weiß	blanco			1	
	white and light purple	blanc et pourpre clair	weiß und hellpurpurn	blanco y púrpura claro			2	
	white and medium purple	blanc et pourpre moyen	weiß und mittelpurpurn	blanco y púrpura medio	Gold No.1		3	
	white and dark purple	blanc et pourpre foncé	weiß und dunkelpurpurn	blanco y púrpura oscuro			4	

	English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo		Note/ Nota
<b>13. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>								
	<b>Young fruit: ground color of skin</b>	<b>Jeune fruit : couleur de fond de l'épiderme</b>	<b>Junge Frucht: Grundfarbe der Schale</b>		<b>Fruto joven: color de fondo de la piel</b>						
	white	blanc	weiß		blanco		Helloevening				1
	yellow	jaune	gelb		amarillo						2
	light green	vert clair	hellgrün		verde claro		Gold No.1				3
	medium green	vert moyen	mittelgrün		verde medio		Monrou Dance				4
	dark green	vert foncé	dunkelgrün		verde oscuro						5
<b>14. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>		<b>(b)</b>						
	<b>Fruit: ground color</b>	<b>Fruit : couleur de fond</b>	<b>Frucht: Grundfarbe</b>		<b>Fruto: color de fondo</b>						
	white	blanc	weiß		blanco						1
	light yellow	jaune clair	hellgelb		amarillo claro		Gold Boy				2
	medium yellow	jaune moyen	mittelgelb		amarillo medio		Gold No.1				3
	orange	orange	orange		naranja						4
	purple	pourpre	purpurn		púrpura						5
<b>15. (*)</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>		<b>(b)</b>						
	<b>Fruit: area of stripes</b>	<b>Fruit : surface des stries</b>	<b>Frucht: Fläche der Streifen</b>		<b>Fruto: superficie que ocupan las rayas</b>						
	absent or very small	absente ou très petite	fehlend oder sehr klein		nula o muy pequeña						1
	small	petite	klein		pequeña		Gold No.1				3
	medium	moyenne	mittel		media						5
	large	grande	groß		grande		Appulinmimi				7
<b>16. (*)</b>	<b>PQ</b>	<b>VG</b>			<b>(b)</b>						
	<b>Fruit: color of stripes</b>	<b>Fruit : couleur des stries</b>	<b>Frucht: Farbe der Streifen</b>		<b>Fruto: color de las rayas</b>						
	light purple	pourpre clair	hellpurpurn		púrpura claro						1
	medium purple	pourpre moyen	mittelpurpurn		púrpura medio		Gold No.1				2
	dark purple	pourpre foncé	dunkelpurpurn		púrpura oscuro		Appulinmimi				3
	greyish purple	pourpre grisâtre	graupurpurn		púrpura grisáceo						4
<b>17. (*)</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>		<b>(c)</b>						
	<b>Fruit: length</b>	<b>Fruit : longueur</b>	<b>Frucht: Länge</b>		<b>Fruto: longitud</b>						
	short	court	kurz		corto						3
	medium	moyen	mittel		medio		Gold No.1				5
	long	long	lang		largo						7

	English		français		deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
<b>18. (*)</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(c)</b>				
	<b>Fruit: diameter</b>	<b>Fruit : diamètre</b>	<b>Frucht: Durchmesser</b>	<b>Fruto: diámetro</b>				
	small	petit	klein	pequeño				3
	medium	moyen	mittel	medio	Gold No.1			5
	large	grand	groß	grande				7
<b>19. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>	<b>(c)</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>				
	broad ovate	ovale large	breit eiförmig	oval ancho				1
	medium ovate	ovale moyen	mittel eiförmig	oval medio	Monrou Dance			2
	circular	circulaire	kreisförmig	circular	Gold No.1			3
	oblong	oblong	rechteckig	oblongo				4
	elliptic	elliptique	elliptisch	elíptico				5
<b>20. (*)</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>(c)</b>				
	<b>Fruit: depth of stalk cavity</b>	<b>Fruit : profondeur de la cavité du pédoncule</b>	<b>Frucht: Tiefe der Stielhöhle</b>	<b>Fruto: profundidad de la cavidad peduncular</b>				
	shallow	peu profonde	flach	poco profunda	Gold No.1			1
	medium	moyenne	mittel	media	Appulinmimi			3
	deep	profonde	tief	profunda				5
<b>21. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b>	<b>(c)</b>				
	<b>Fruit: shape of apex</b>	<b>Fruit : forme de l'extrémité</b>	<b>Frucht: Form der Spitze</b>	<b>Fruto: forma del ápice</b>				
	acute	aiguë	spitz	agudo	Monrou Dance			1
	rounded	arrondie	abgerundet	redondeado	Gold No.1			2
	truncate	tronquée	abgestumpft	truncado				3
	retuse	rétuse	eingedrückt	retuso				4
<b>22.</b>	<b>QN</b>	<b>MS/VG</b>	<b>(+)</b>	<b>(c)</b>				
	<b>Fruit: calyx size</b>	<b>Fruit : taille du calice</b>	<b>Frucht: Kelchgrösse</b>	<b>Fruto: tamaño del cáliz</b>				
	small	petit	klein	pequeño				3
	medium	moyen	mittel	medio	Gold No.1			5
	large	grand	groß	grande				7

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>23.</b>	<b>(*)</b>	<b>PQ</b>	<b>VG</b>		<b>(c)</b>			
		<b>Fruit: color of flesh</b>	<b>Fruit : couleur de la chair</b>	<b>Frucht: Farbe des Fleisches</b>	<b>Fruto: color de la pulpa</b>			
		white	blanc	weiß	blanco			1
		green	vert	grün	verde			2
		yellowish green	vert jaunâtre	gelblich grün	verde amarillento	Monrou Dance		3
		light yellow	jaune clair	hellgelb	amarillo claro			4
		medium yellow	jaune moyen	mittelgelb	amarillo medio	Gold No.1		5
		orange	orange	orange	naranja			6
<b>24.</b>		<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>(c)</b>			
		<b>Fruit: firmness of flesh</b>	<b>Fruit : fermeté de la chair</b>	<b>Frucht: Festigkeit des Fleisches</b>	<b>Fruto: firmeza de la pulpa</b>			
		soft	souple	weich	blanda	Monrou Dance		3
		medium	moyenne	mittel	media	Gold No.1		5
		firm	ferme	fest	firme			7
<b>25.</b>	<b>(*)</b>	<b>QN</b>	<b>MS</b>		<b>(c)</b>			
		<b>Time of harvest maturity</b>	<b>Époque de maturité de récolte</b>	<b>Zeitpunkt der Erntereife</b>	<b>Época de madurez para la cosecha</b>			
		early	précoce	früh	temprana	Helloevening		3
		medium	moyenne	mittel	media	Gold No.1		5
		late	tardive	spät	tardía	Appulinmimi		7

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 at the time of flowering of the second inflorescence.
- (b) Observations should be made on fully developed fruits before the color change due to ripening.
- (c) Observations should be made at harvest maturity.

8.2 *Explanations for individual characteristics*

Ad. 2: Stem: anthocyanin coloration

The anthocyanin coloration of the stem should be observed in the middle third of the primary stem.

Ad. 4: Leaf: type

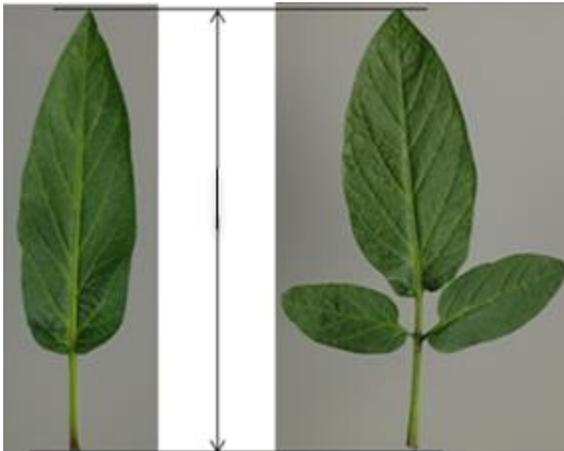


1  
simple

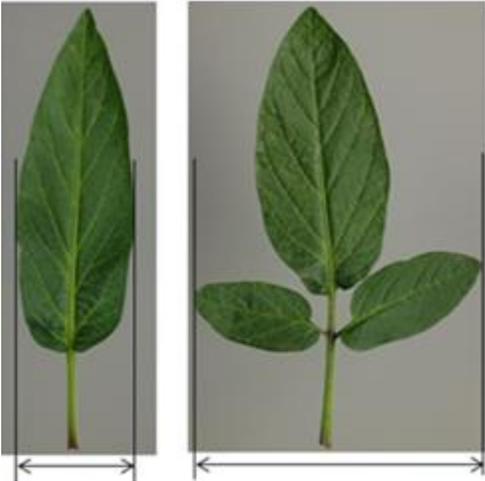


2  
compound

Ad. 5: Leaf: length



Ad. 6: Leaf: width



Ad. 7: Leaf: intensity of anthocyanin coloration of midrib

The anthocyanin coloration of the midrib should be observed on the lower side of the leaf.

Ad. 8: Leaf blade: shape

In the case of varieties with compound leaves, observation should be made on the terminal leaflet.

	← broadest part →	
	below middle	at middle
width (ratio length/width)		
narrow (high)	 2 medium lanceolate	
medium (medium)	 1 broad lanceolate	 4 elliptic
broad (low)		 3 circular

Ad. 10: Inflorescence: number of flowers

The total number of flowers should be assessed, including flower buds, open flowers, and faded flowers.

one to five

six to ten

more than ten

1  
few

2  
medium

3  
many

Ad. 11: Flower: width



Ad. 13: Young fruit: ground color of skin

Observations should be made 20-30 days after the opening of the flower and before development of stripes.

Ad. 14: Fruit: ground color

The ground color is the first color to appear chronologically during the development of the plant part. Other colors may develop in time in the form of stripes. The ground color is not always the color occupying the largest surface area of the plant part concerned.

Ad. 15: Fruit: area of stripes

The area of stripes should be recorded in relation to the total surface area of the fruit.



1  
absent or very small



3  
small

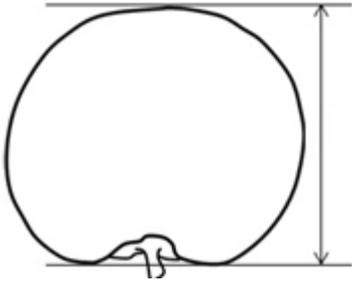


5  
medium



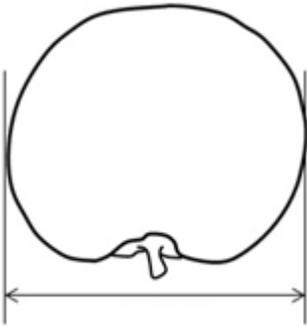
7  
large

Ad. 17: Fruit: length



Ad. 18: Fruit: diameter

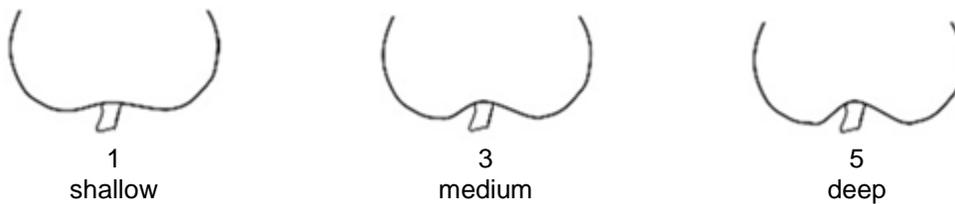
The diameter of the fruit should be observed at the broadest part.



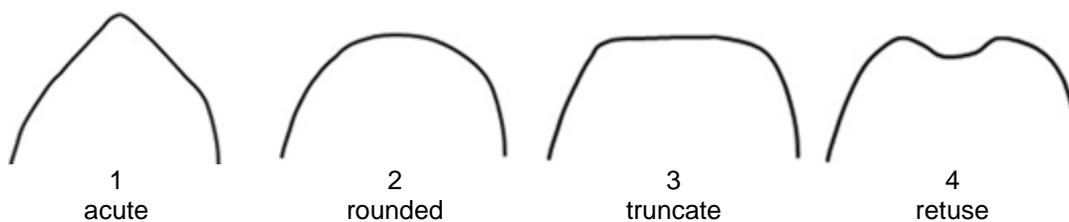
Ad. 19: Fruit: shape in longitudinal section

width (ratio length/width)	← broadest part →		
	below middle	at middle	
narrow (high)	 2 medium ovate	 4 oblong	 5 elliptic
medium (medium)	 1 broad ovate		
broad (low)		 3 circular	

Ad. 20: Fruit: depth of stalk cavity

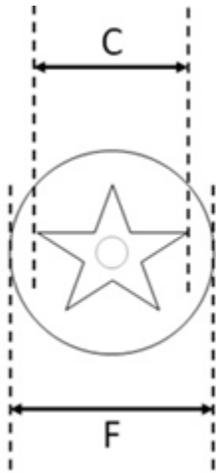


Ad. 21: Fruit: shape of apex



Ad. 22: Fruit: calyx size

The calyx size should be assessed by the ratio of "the calyx width / the maximum diameter of fruit".



calyx size compared to diameter of fruit =  $C/F$

Ad. 24: Fruit: firmness of flesh

The firmness should be assessed by hand by pressing the center of the flesh of the fruit which is cut to half horizontally.

9. Literature

Bioversity, 2004: Descriptors for Pepino (*Solanum muricanum*). Bioversity International.

Ministry of Agriculture, Forestry & Fisheries of Japan., 2013: National Test Guidelines for Pepino.

Sakata, Y., 1988: Nougyou-gijutsu-taiei Yasai-hen 11. Shadanhojin Nousan-gyoson-bunkakyokai. Tokyo, JP, pp. 551-555

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

1.2 Common name

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

#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)

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

- (a) Cuttings
- (b) *In vitro* propagation
- (c) Other (state method)

4.2.2 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
<b>5.1 Leaf: type</b> <b>(4)</b>		
simple	Gold No.1	1 [ ]
compound	Holloevening	2 [ ]
<b>5.2 Fruit: ground color</b> <b>(14)</b>		
white		1 [ ]
light yellow	Gold Boy	2 [ ]
medium yellow	Gold No.1	3 [ ]
orange		4 [ ]
purple		5 [ ]
<b>5.3 Fruit: area of stripes</b> <b>(15)</b>		
absent or very small		1 [ ]
very small to small		2 [ ]
small	Gold No.1	3 [ ]
small to medium		4 [ ]
medium		5 [ ]
medium to large		6 [ ]
large	Appulinmimi	7 [ ]
large to very large		8 [ ]
very large		9 [ ]
<b>5.4 Fruit: shape in longitudinal section</b> <b>(19)</b>		
broad ovate		1 [ ]
medium ovate	Monrou Dance	2 [ ]
circular	Gold No.1	3 [ ]
oblong		4 [ ]
elliptic		5 [ ]

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

Characteristics	Example Varieties	Note
<b>5.5 Fruit: color of flesh</b> <b>(23)</b>		
white		1 [ ]
green		2 [ ]
yellowish green	Monrou Dance	3 [ ]
light yellow		4 [ ]
medium yellow	Gold No.1	5 [ ]
orange		6 [ ]

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 <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>circular</i>	<i>elliptic</i>
Comments:			



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]