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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

POMEGRANATE

UPOV Code: PUNIC_GRA

Punica granatum L.

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Punica granatum L.	Pomegranate	Grenadier	Granatapfel	Granado

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 *Punica granatum* 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 one-year-old rooted cuttings.

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

5 one-year-old rooted cuttings.

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

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

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

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. Trees should only be pruned in the year of planting to ensure good branch formation.

3.3.2 In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

3.3.3 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 in Chapter 8.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 plants.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts taken from each of 5 plants and any other observations made on all plants in the test. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of 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 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no 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 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) Corolla: color (characteristic 17)
(b) Fruit: width (characteristic 23)
(c) Fruit: over color (characteristic 26)
(d) Aril: main color (characteristic 35)
(e) Seed: hardness (characteristic 38)
(f) Time of maturity for consumption (characteristic 40)

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:

State	Note
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:

State	Note
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

(*)	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 4.1.5
(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
1. **(*)** **(+)**	**VG**	**Plant: vigor**	**Plante : vigueur**	**Pflanze: Wuchsstärke**	**Planta: vigor**		
QN	**(a)**	weak	faible	gering	débil		3
		medium	moyenne	mittel	medio	Wonderful	5
		strong	forte	stark	fuerte	Mollar de Elche	7
2. **(+)**	**VG**	**Plant: growth habit**	**Plante : port**	**Pflanze: Wuchsform**	**Planta: hábito de crecimiento**		
PQ	**(a)**	upright	dressé	aufrecht	erguido		1
		spreading	étalé	breitwüchsig	abierto		3
		weeping	pleureur	lang überhängend	llorón		5
3.	**VG**	**Plant: intensity of grey color of main branches**	**Plante : intensité de la couleur grise des principales branches**	**Pflanze: Intensität der Graufärbung der Hauptzweige**	**Planta: intensidad de color gris de las ramas principales**		
QN	**(a)**	light	claire	hell	claro		1
		medium	moyenne	mittel	medio		2
		dark	foncée	dunkel	oscuro		3
4. **(+)**	**VG**	**Plant: number of one-year-old shoots ending in thorns**	**Plante : nombre de rameaux d'un an finissant en épines**	**Pflanze: Anzahl einjähriger Triebe, die mit Dornen abschließen**	**Planta: número de ramas de un año terminadas en espina**		
QN	**(a)**	none or very few	aucun ou très petit	keine oder sehr wenige	ninguna o muy pocas		1
		few	petit	wenige	pocas		2
		medium	moyen	mittel	medias		3
		many	grand	viele	muchas		4
5. **(+)**	**VG**	**Young shoot: predominant number of leaves per node**	**Jeune rameau : nombre prédominant de feuilles par nœud**	**Jungtrieb: vorwiegende Anzahl Blätter pro Knoten**	**Rama joven: número predominante de hojas por nudo**		
QN		two	deux	zwei	dos	Mollar de Elche	1
		three	trois	drei	tres		2
		more than three	plus de trois	mehr als drei	más de tres	Porfianca	3
6.	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(b)**	short	court	kurz	corto	Mollar de Elche, Porfianca	3
		medium	moyen	mittel	medio	Valenciano	5
		long	long	lang	largo	Borde, Wonderful	7
7.	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(b)**	narrow	étroit	schmal	estrecho	Wonderful	3
		medium	moyen	mittel	medio		5
		broad	large	breit	ancho	Borde, Mollar de Elche	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8. **(+)**	**VG/ MS**	**Leaf blade: ratio length/width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación longitud/anchura**		
QN	**(b)**	low	bas	klein	bajo	Mollar de Albatera	3
		medium	moyen	mittel	medio	Borde	5
		high	elevé	groß	alto	Tendral	7
9. **(+)**	**VG**	**Leaf blade: shape of apex excluding tip**	**Limbe : forme du sommet, pointe exclue**	**Blattspreite: Form der Spitze ohne aufgesetzte Spitze**	**Limbo: forma del ápice excluyendo la punta**		
QN	**(b)**	strongly acute	très aigu	sehr spitz	fuertemente agudo		1
		moderately acute	modérément aigu	mäßig spitz	moderadamente agudo	Wonderful	2
		right angled	à angle droit	rechtwinklig	en ángulo recto	Acco, Tendral	3
		moderately obtuse	modérément obtus	mäßig stumpf	moderadamente obtuso	Mollar de Elche	4
		strongly obtuse	très obtus	stark stumpf	fuertemente obtuso		5
10.	**VG**	**Leaf blade: intensity of green color**	**Limbe : intensité de la couleur verte**	**Blattspreite: Intensität der Grünfärbung**	**Limbo: intensidad del color verde**		
QN	**(b)**	light	vert clair	hell	claro		3
		medium	vert moyen	mittel	medio		5
		dark	vert foncé	dunkel	oscuro		7
11. **(*)**	**VG/ MS**	**Petiole: length**	**Pétiole : longueur**	**Blattstiel: Länge**	**Peciolo: longitud**		
QN	**(b)**	short	court	kurz	corto	Borde	3
		medium	moyen	mittel	medio	Wonderful	5
		long	long	lang	largo	Tendral	7
12. **(*)**	**VG**	**Petiole: anthocyanin coloration**	**Pétiole : pigmentation anthocyanique**	**Blattstiel: Anthocyanfärbung**	**Peciolo: pigmentación antociánica**		
QN	**(b)**	weak	faible	gering	débil	Acco	3
		medium	moyenne	mittel	media	Mollar de Elche	5
		strong	forte	stark	fuerte	Borde, Tendral	7
13. **(+)**	**VG/ MS**	**Calyx: length**	**Calice : longueur**	**Kelch: Länge**	**Cáliz: longitud**	.	
QN	**(c)**	short	court	kurz	corto	Malisi	3
		medium	moyen	mittel	medio	Hicaz Nar	5
		long	long	lang	largo		7
14. **(*)** **(+)**	**VG/ MS**	**Calyx: width**	**Calice : largeur**	**Kelch: Breite**	**Cáliz: anchura**		
QN	**(c)**	narrow	étroit	schmal	estrecho	Malisi	3
		medium	moyen	mittel	medio	Mollar de Elche, Porfianca, Valenciana	5
		broad	large	breit	ancho	Wonderful	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. **(+)**	**VG/ MS**	**Calyx: ratio length/width**	**Calice : rapport longueur/largeur**	**Kelch: Verhältnis Länge/Breite**	**Cáliz: relación longitud/anchura**		
QN	**(c)**	low	bas	klein	bajo	Wonderful	3
		medium	moyen	mittel	medio	Black	5
		high	elevé	groß	alto	Bhagwa	7
16. **(+)**	**VG**	**Calyx: color**	**Calice : couleur**	**Kelch: Farbe**	**Cáliz: color**		
PQ	**(c)**	orange	orange	orange	naranja	Mollar de Elche, Valenciana	1
		orange red	rouge orangé	orangerot	rojo anaranjado	Wonderful	2
		medium red	rouge moyen	mittelrot	rojo medio		3
		dark red	rouge foncé	dunkelrot	rojo oscuro		4
17. **(*)** **(+)**	**VG**	**Corolla: color**	**Corolle : couleur**	**Krone: Farbe**	**Corola: color**		
PQ	**(c)**	white	blanche	weiß	blanco		1
		pink	rose	rosa	rosa		2
		light orange	orange clair	hellorange	naranja claro	Borde	3
		medium orange	orange moyen	mittelorange	naranja medio	Mollar de Elche, Wonderful	4
		orange red	rouge orangé	orangerot	rojo anaranjado		5
		medium red	rouge moyen	mittelrot	rojo medio		6
18. **(*)** **(+)**	**VG/ MS**	**Petal: length**	**Pétale : longueur**	**Blütenblatt: Länge**	**Pétalo: longitud**		
QN	**(c)**	short	court	kurz	corto	Mollar de Elche, Valenciana	3
		medium	moyen	mittel	medio	Hicaz Nar	5
		long	long	lang	largo		7
19. **(+)**	**VG/ MS**	**Petal: width**	**Pétale : largeur**	**Blütenblatt: Breite**	**Pétalo: anchura**		
QN	**(c)**	narrow	étroit	schmal	estrecho	Black, Hicaz Nar	3
		medium	moyen	mittel	medio	Rosh Hapered, Tendral	5
		broad	large	breit	ancho		7
20.	**VG**	**Petal: surface**	**Pétale : surface**	**Blütenblatt: Oberfläche**	**Pétalo: superficie**		
QN	**(c)**	smooth or slightly wrinkled	lisse ou légèrement ridée	glatt oder leicht gerieft	liso a ligeramente arrugado		1
		moderately wrinkled	modérément ridée	mäßig gerieft	moderadamente arrugado	Bahgwa, Mollar de Elche	3
		strongly wrinkled	fortement ridée	stark gerieft	fuertemente arrugado	Malisi, Rosh Hapered	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. **(+)**	**VG**	**One-year-old shoot: predominant number of flowers per node**	**Rameau d'un an : nombre prédominant de fleurs par nœud**	**Einjähriger Trieb: vorwiegende Anzahl Blüten pro Knoten**	**Brotes de un año: número predominante de flores por nudo**		
QN		one	un	eins	uno		1
		two	deux	zwei	dos		2
		three	trois	drei	tres		3
		more than three	plus de trois	mehr als drei	más de tres		4
22. **(*)** **(+)**	**VG/ MS**	**Fruit: length**	**Fruit : longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(d)**	short	court	kurz	corto		3
		medium	moyen	mittel	medio	Borde	5
		long	long	lang	largo	Wonderful	7
23. **(*)** **(+)**	**VG/ MS**	**Fruit: width**	**Fruit : largeur**	**Frucht: Breite**	**Fruto: anchura**		
QN	**(d)**	narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio	Borde	5
		broad	large	breit	ancho	Mollar de Elche, Wonderful	7
24. **(+)**	**VG/ MS**	**Fruit: ratio length/width**	**Fruit : rapport longueur/largeur**	**Frucht: Verhältnis Länge/Breite**	**Fruto: relación longitud/anchura**		
QN	**(d)**	low	bas	klein	bajo	Rosh Hapered	3
		medium	moyen	mittel	medio	Wonderful	5
		high	elevé	groß	alto	Valenciana	7
25. **(*)** **(+)**	**VG/ MS**	**Fruit: length of crown**	**Fruit : longueur de la couronne**	**Frucht: Länge der Krone**	**Fruto: longitud de la corona**		
QN	**(d)**	short	courte	kurz	corto		3
		medium	moyenne	mittel	medio	Mollar de Elche	5
		long	longue	lang	largo	Wonderful	7
26. **(*)**	**VG**	**Fruit: over color**	**Fruit : couleur du lavis**	**Frucht: Deckfarbe**	**Fruto: color superficial**		
PQ	**(d)**	orange	orange	orange	naranja	Mollar de Albatera, Mollar de Elche	1
		orange red	rouge orangé	orangerot	rojo anaranjado		2
		pink	rose	rosa	rosa		3
		pink red	rose rouge	rosarot	rojo rosáceo	Valenciano	4
		medium red	rouge moyen	mittelrot	rojo medio	Acco	5
		red purple	rouge pourpre	rotpurpurn	rojo púrpura		6
		purple	pourpre	purpurn	púrpura	Kamel	7
		dark purple	pourpre foncé	dunkelpurpurn	púrpura oscuro		8

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27.	**VG**	**Fruit: extent of over color**	**Fruit : ampleur de la couleur du lavis**	**Frucht: Ausdehnung der Deckfarbe**	**Fruto: extensión del color superficial**		
QN	**(d)**	very small	très petite	sehr gering	muy pequeño		1
		small	petite	gering	pequeño	Wonderful	3
		medium	moyenne	mittel	medio	Tendral, Valenciano	5
		large	grande	groß	grande		7
		very large	très grande	sehr groß	muy grande	Acco, Bhagwa, Black	9
28. **(*)** **(+)**	**VG**	**Fruit: shape in cross section**	**Fruit : forme en section transversale**	**Frucht: Form im Querschnitt**	**Fruto: forma en sección transversal**		
QN	**(d)**	circular	circulaire	kreisförmig	circular	Borde, Wonderful	1
		circular to angular	circulaire à angulaire	kreisförmig bis eckig	circular a angular	Malisi	2
		angular	angulaire	eckig	angular	Bhagwa, Valenciano	3
29. **(+)**	**VG/ MS**	**Fruit: thickness of skin**	**Fruit : épaisseur de l'épiderme**	**Frucht: Dicke der Schale**	**Fruto: espesor de la corteza**		
QN	**(d)**	thin	mince	dünn	delgada	Acco, Valenciano, Wonderful	3
		medium	moyen	mittel	media		5
		thick	épais	dick	gruesa	Kamel	7
30. **(*)** **(+)**	**VG/ MS**	**Fruit: sweetness**	**Fruit : goût sucré**	**Frucht: Süße**	**Fruto: dulzura**		
QN	**(d)**	low	faible	gering	baja		3
		medium	moyen	mittel	media	Rosh Hapered, Valenciano	5
		high	fort	hoch	alta		7
31. **(+)**	**VG/ MS**	**Fruit: acidity**	**Fruit : acidité**	**Frucht: Säure**	**Fruto: acidez**		
QN	**(d)**	low	faible	gering	baja	Mollar de Elche, Valenciano	3
		medium	moyenne	mittel	media	Acco, Wonderful	5
		high	forte	hoch	alta		7
32. **(*)** **(+)**	**VG/ MS**	**Fruit: juiciness**	**Fruit : jutosité**	**Frucht: Saftigkeit**	**Fruto: suculencia**		
QN	**(d)**	low	faible	gering	baja	Wonderful	3
		medium	moyenne	mittel	media	Mollar de Elche	5
		high	forte	hoch	alta	Valenciano	7
33. **(+)**	**VG/ MS**	**Aril: length**	**Arille : longueur**	**Samenmantel: Länge**	**Arilo: longitud**		
QN	**(e)**	short	court	kurz	corto		1
		medium	moyen	mittel	medio	Acco	2
		long	long	lang	largo	Mollar de Elche	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. **(+)**	**VG/ MS**	**Aril: width**	**Arille : largeur**	**Samenmantel: Breite**	**Arilo: anchura**		
QN	**(e)**	narrow	étroit	schmal	estrecho		1
		medium	moyen	mittel	medio	Acco, Wonderful	2
		broad	large	breit	ancho	Piñón tierno de Ojós	3
35. **(*)** **(+)**	**VG**	**Aril: main color**	**Arille : couleur principale**	**Samenmantel: Hauptfarbe**	**Arilo: color principal**		
PQ	**(e)**	white	blanc	weiß	blanco	Mollar de Elche	1
		light pink	rose clair	hellrosa	rosa claro	Valenciano	2
		medium pink	rose moyen	mittelrosa	rosa medio	Tendral	3
		dark pink	rose foncé	dunkelrosa	rosa oscuro		4
		light red	rouge clair	hellrot	rojo claro		5
		medium red	rouge moyen	mittelrot	rojo medio		6
		dark red	rouge foncé	dunkelrot	rojo oscuro	Wonderful	7
36. **(+)**	**VG/ MS**	**Seed: length**	**Graine : longueur**	**Samen: Länge**	**Semilla: longitud**		
QN	**(e)**	short	courte	kurz	corta	Valenciano	1
		medium	moyenne	mittel	media	Mollar de Elche	2
		long	longue	lang	larga		3
37. **(+)**	**VG/ MS**	**Seed: width**	**Graine : largeur**	**Samen: Breite**	**Semilla: anchura**		
QN	**(e)**	narrow	étroite	schmal	estrecha		1
		medium	moyenne	mittel	media	Mollar de Elche, Wonderful	2
		broad	large	breit	ancha		3
38. **(*)** **(+)**	**VG**	**Seed: hardness**	**Graine : dureté**	**Samen: Härte**	**Semilla: dureza**		
QN	**(e)**	soft	molle	weich	blanda	Mollar de Elche, Valenciano	1
		medium	moyenne	mittel	media	Wonderful	2
		hard	dure	hart	dura	Borde	3
39. **(*)** **(+)**	**VG/ MG**	**Time of beginning of flowering**	**Époque de début de floraison**	**Zeitpunkt des Blühbeginns**	**Época de comienzo de la floración**		
QN		early	précoce	früh	temprana	Valenciano	3
		medium	moyenne	mittel	media	Mollar de Elche, Wonderful	5
		late	tardive	spät	tardía		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40. (*) (+)	**VG/ MG**	**Time of maturity for consumption**	**Époque de maturité pour la consommation**	**Zeitpunkt der Genußreife**	**Época de maduración para el consumo**		
QN		early	précoce	früh	temprana	Valenciano	3
		medium	moyenne	mittel	media	Mollar de Elche, Wonderful	5
		late	tardive	spät	tardía		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) Observations on the plant should be made in the dormant season, when there are no leaves on the tree.

(b) Observations on the leaf should be made on mature leaves on the middle third of the branch from current season's shoots and on nodes with a low number of leaves.

(c) Observations on the flower should be made on the hermaphrodite flowers at the time of full flowering and on fully opened flowers. Time of full flowering is when at least 75 % of flowers are fully open.

(d) Observations on the fruit should be made on 10 fruits at full maturity for consumption.

(e) Observations on the seed should be made on fresh seeds on fruits at full maturity for consumption.

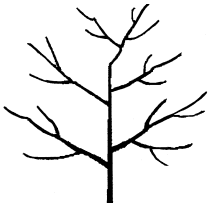
8.2 Explanations for individual characteristics

Ad. 1: Plant: vigor

The vigor of the plant should be considered as the overall abundance of vegetative growth at the top of the plants.

Ad. 2: Plant: growth habit

1
upright



3
spreading

5
weeping

Ad. 4: Plant: number of one-year-old shoots ending in thorns

Observations on the one-year old shoot should be made in the dormant season, unless otherwise indicated.

Ad. 5: Young shoot: predominant number of leaves per node

Observations on young shoots should be made on the middle third of the branch.

Ad. 8: Leaf blade: ratio length/width

3
low

5
medium

7
high

Ad. 9: Leaf blade: shape of apex excluding tip

1
strongly acute

2
moderately acute

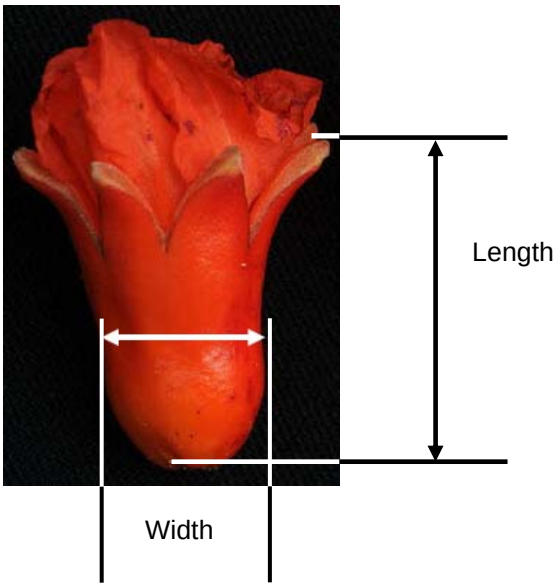
3
right angled

4
moderately obtuse

5
strongly obtuse

Ad. 13: Calyx: length
Ad. 14: Calyx: width

Calyx width should be observed approximately in the middle of calyx length.



Ad. 15: Calyx: ratio length/width

3
low

5
medium

7
high

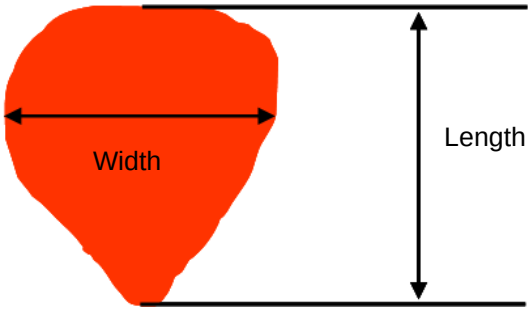
Ad. 16: Calyx: color

The color of the calyx should be observed when the sepals are closed.

Ad. 17: Corolla: color

The color of the corolla should be observed when the flower is fully open.

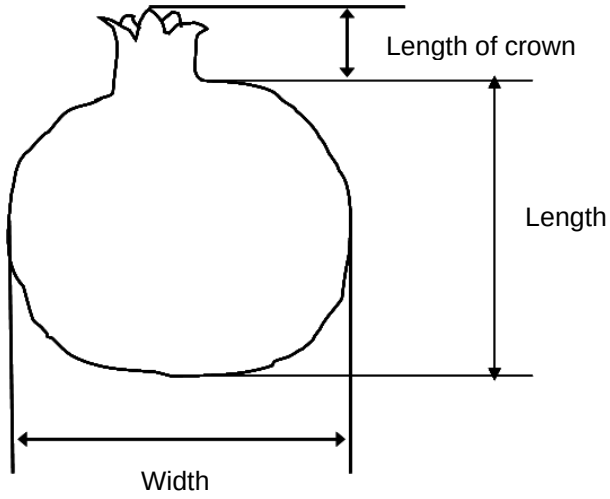
Ad. 18: Petal: length
Ad. 19: Petal: width



Ad. 21: One-year-old shoot: predominant number of flowers per node

Observations should be made on the hermaphrodite flowers at the time of full flowering.

Ad. 22: Fruit: length
Ad. 23: Fruit: width
Ad. 25: Fruit: length of crown



Ad. 24: Fruit: ratio length/width

3
low

5
medium

7
high

Ad. 28: Fruit: shape in cross section

1
circular

2
circular to angular

3
angular

Ad. 29: Fruit: thickness of skin

Observations should be made at the end of the lobules of arils, see arrows in the picture below.

Ad. 30: Fruit: sweetness

The sweetness is determined by using a refractometer. The measured unit is the degree Brix (º Brix).

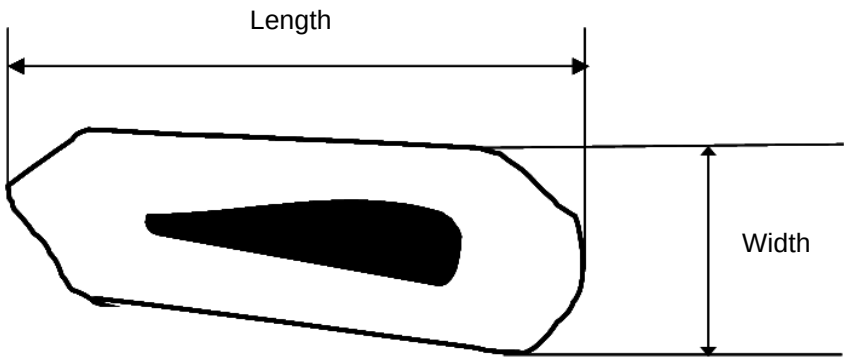
Ad. 31: Fruit: acidity

The acidity is considered as free acids content, and is determined by titration of a juice sample.

Ad. 32: Fruit: juiciness

Juiciness is considered as the percentage of juice of total fruit weight.

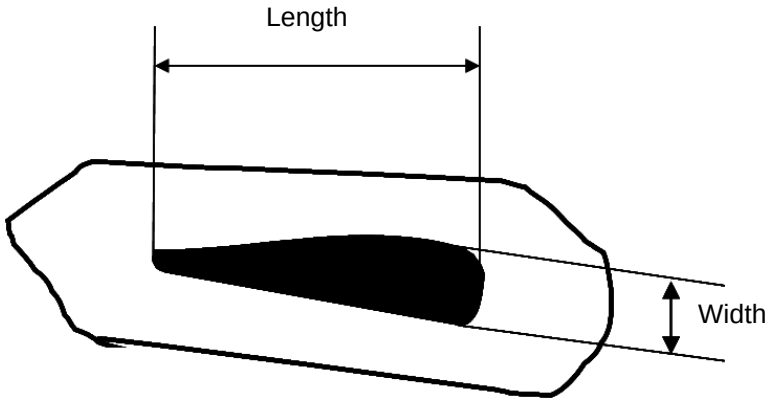
Ad. 33: Aril: length
Ad. 34: Aril: width



Ad. 35: Aril: main color

The main color is the color with the largest surface area.

Ad. 36: Seed: length
Ad. 37: Seed: width



Ad. 38: Seed: hardness

Hardness of tegmen is assessed by chewing the arils. Soft means easy to chew. Hard means difficult to chew.

Ad. 39: Time of beginning of flowering

The beginning of flowering is considered as the time when 25% of the flowers are fully open.

Ad. 40: Time of maturity for consumption

The time of maturity is considered as the time when more than 75% of the fruits are fully colored.

9. Literature

Holland, D., Hatib, K., Bar-Ya'akov, I., 2009: Pomegranate: Botany, Horticulture, Breeding. In: Horticultural Reviews. Volume 35. Ed. Janick, J. John Wiley and Sons, Inc. Hoboken. New Jersey, US, pp. 127-191.

Melgarejo, P., Salazar, D., 2003: Tratado de fruticultura para zonas áridasy semiáridas. Volumen II. Algarrobo, grandado y jinjolero. AMV. Ediciones Mundiprensa.

Morton, J., 1987: Pomegranate. In: Fruits of warm climates. Ed. Morton, J. Miami FL. pp. 352-355.

Özgüven, A., 2006: Proceedings of the First International Symposium on Pomegranate and Minor Mediterranean Fruits. Acta Horticulturae 818. Adana, TR.

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	*Punica granatum* L.
1.2 Common name	Pomegranate

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..) x (……..……..)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..) x (……..……..)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

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

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

4.2.3 Other [ ]
(please provide details)

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (17)	**Corolla: color**		
	white		1[ ]
	pink		2[ ]
	light orange	Borde	3[ ]
	medium orange	Mollar de Elche, Wonderful	4[ ]
	orange-red		5[ ]
	medium red		6[ ]
5.2 (23)	**Fruit: width**		
	very narrow		1[ ]
	very narrow to narrow		2[ ]
	narrow		3[ ]
	narrow to medium		4[ ]
	medium	Borde	5[ ]
	medium to broad		6[ ]
	broad	Mollar de Elche, Wonderful	7[ ]
	broad to very broad		8[ ]
	very broad		9[ ]
5.3 (26)	**Fruit: over color**		
	orange	Mollar de Albatera, Mollar de Elche	1[ ]
	orange red		2[ ]
	pink		3[ ]
	pink red	Valenciano	4[ ]
	medium red	Acco	5[ ]
	red purple		6[ ]
	purple	Kamel	7[ ]
	dark purple		8[ ]

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

	Characteristics	Example Varieties	Note
5.4 (35)	**Aril: main color**		
	white	Mollar de Elche	1[ ]
	light pink	Valenciano	2[ ]
	medium pink	Tendral	3[ ]
	dark pink		4[ ]
	light red		5[ ]
	medium red		6[ ]
	dark red	Wonderful	7[ ]
5.5 (38)	**Seed: hardness**		
	soft	Mollar de Elche, Valenciano	1[ ]
	medium	Wonderful	2[ ]
	hard	Borde	3[ ]
5.6 (40)	**Time of maturity for consumption**		
	very early		1[ ]
	very early to early		2[ ]
	early	Valenciano	3[ ]
	early to medium		4[ ]
	medium	Mollar de Elche, Wonderful	5[ ]
	medium to late		6[ ]
	late		7[ ]
	late to very late		8[ ]
	very late		9[ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Fruit: over color*	*orange*	*orange red*

Comments:

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

[#]7. Additional information which may help in the examination of the variety

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

What is this variety used for?

Fruit [ ] Ornamental [ ]

A representative color image 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.

[#] 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:

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]