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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
 GENEVA

DRAFT

CITRUS L. – Group 4

(a) **GRAPEFRUIT**

Citrus paradisi Macfad.

(b) **PUMMELO**

Citrus grandis (L.) Osbeck

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names: *

	<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
(a)	<i>Citrus paradisi</i> Macfad.	Grapefruit	Grapefruitier, Pomelo	Grapefruit, Paradiesapfel	Pomelo, Toronja
(b)	<i>Citrus grandis</i> (L.) Osbeck	Pummelo, Shaddock	Pamplemoussier	Pampelmuse, Riesorange	Pummelo

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as the "General Introduction") and its associated "TGP" documents.

Other associated documents :

CITRUS L. –GROUP1: TG/MANDA **
CITRUS L. –GROUP2: TG/ORANG **
CITRUS L. –GROUP3: TG/LEM -LIM **
CITRUS L. –GROUP5: TG/PONCI **

* 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.]

** Final relevant TG's reference to be inserted in due time.

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1. SubjectoftheseGuidelines

1.1 The following Test Guidelines have been developed from the standard Citrus Test Guidelines template. In particular, the Table of Characteristics has been selected from the overall set of citrus characteristics presented in the Annex.

1.2 These Test Guidelines apply to all varieties of the following group of the genus *Citrus* L.(Rutaceae), and their hybrids:

Group 4. GRAPEFRUIT AND PUMMELO AND THEIR HYBRIDS

Citrus paradisi Macfad.(Grapefruit) –GRA
Citrus grandis (L.)Osbeck(Pummelo) –PUM
Grapefruit x Pummelo Hybrids –HGP

1.3 In the case of hybrids between species within the genus *Citrus* L., the Test Guidelines to be used should be those for which the overall appearance of fruit is most suited. However, if the variety cannot be clearly distinguished from all varieties covered by other Test Guidelines, those other Test Guidelines should also be used to examine the variety.

1.4 In the case of hybrids between species within the genus *Citrus* L., where the variety is clearly distinguishable from all other varieties covered by other Test Guidelines, it may still be necessary to use additional citrus characteristics to examine the variety. In these circumstances it is appropriate to use characteristics from the Test Guidelines covering the parent species, or to select characteristics from the overall set of citrus characteristics presented in the Annex.

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 bud sticks of 6 to 10 mm diameter (one year old), each cut just behind a typical fruit or, if required by the competent authorities, one-year-old grafted trees. In the case of rootstock varieties, rooted cuttings or polyembryonic seeds may be required in addition.

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

10 bud sticks sufficient to establish 10 plants or,
if required by the competent authorities,
10 one-year-old grafted trees.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease. It should preferably not be obtained from *in vitro* propagation. If it has been produced by *in vitro* propagation this fact must be stated by the applicant.

2.5 The plant material must 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 *Duration of Tests*

The minimum duration of tests should normally be two independent growing cycles and must be sufficient for the trees under test to bear a satisfactory crop of fruit in at least two growing periods.

3.2 *Testing Place*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be seen at that place, the variety may be tested at an additional place.

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. Where necessary for the examination of fruit varieties, a standard specified rootstock should be used for each group.

3.3.2 All observations should be made on plants of the same age not less than 3 years old. The age of the plants should be specified.

3.3.3 Information on examining particular characteristics:

3.3.3.1 The table of characteristics provides notes which indicate the recommendations for observing characteristics as follows:

- a Growth habit: The observation on the growth habit of the tree should be made immediately after harvest.
- b Young leaf: All observations on the young leaf should be made on actively growing spring flush. [Not applicable for Groups 1 (Mandarin) and 2 (Oranges).]
- c Leaf: All observations on the leaf should be made on fully developed leaves on the middle third of the youngest spring flush branch sections not showing signs of active growth.
- d Flower: Unless otherwise indicated, all observations on the flower bud and the flower should be made on the terminal flower bud and flower, at the time of full flowering of the variety.

All observations on the open flower should be made on the first day of opening.

- e Flowerbud : All observations on the flower bud should be made when the petal tips are just visible. [Not applicable for Groups 1 (Mandarin), 2 (Oranges) and 5 (Trifoliate Orange).]
- f Fruit: Unless otherwise indicated, all observations on the fruit should be made on the main fruiting of the year. All observations on the fruit should be made at the stage of optimum ripeness. This stage should be determined by the ratio: total soluble solids/acid content of juice. The fruit should be tested weekly and harvested as soon as this stage has been reached.

All fruits for observations should be taken from the periphery of the tree and fruit misformed as a result of clustering should not be sampled.
- g Fruit surface and fruit rind : All observations on the fruit surface and on the fruit rind should be made at the middle, between the base and apex of the fruit.
- h Fruit flesh : All observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.
- i Seed: All observations on these seeds should be made on the fresh seed.

3.4 *Test Design*

3.4.1 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.

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

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

Unless otherwise indicated, all observations determined by measuring or counting should be made on 5 plants or 2 parts taken from each of 5 plants.

3.6 *Additional Tests*

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 *General Recommendations*

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

4.1.2 Consistent Differences

The minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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*

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:

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 tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness is 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 others 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 trials so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Fruit:length(characteristic33)
- (b) Fruit:diameter(characteristic34)
- (c) Fruitsurface:predominantcolor(characteristic50)
- (d) Fruit:maincolorofflesh(characteristic66)
- (e) Timeofmaturityoffruitforconsumption(characteristic92).

5.5 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. Each example variety is followed by the abbreviation of its group in brackets.

6.5 Legend

- (+) See Explanations on the Table of Characteristics in Chapter 8.
- (*) Asterisked characteristic – see section 6.1.2
- QL Qualitative characteristic – see section 6.3
- QN Quantitative characteristic – see section 6.3
- PQ Pseudo-Quantitative characteristic – see section 6.3
- c#. Corresponding number of characteristic in the citrus overall table of characteristics
- a** to **i** Method of Examination – see section 3.3.3.1

6.6 Abbreviations

- GRA: *Citrus paradisi* Macfad. (Grapefruit)
- PUM: *Citrus grandis* (L.) Osbeck (Pummelo)
- HGP: Grapefruit x Pummelo Hybrids

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

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	Ploidy	Ploïdie	Ploidie	Ploidía		
QL	diploid	diploïde	diploid	diploide		2
	triploid	triploïde	triploid	triploide		3
c1.	tetraploid	tetraploïde	tetraploid	tetraploide		4
2. (*)	Tree: growth habit	Arbre: port	Baum: Wuchstyp	Árbol: porte		
PQ	a upright	droit	aufrecht	erguido		1
	spreading	étalé	breitbuschig	abierto		2
c2.	drooping	retombant	hängend	colgante		3
3.	Tree: density of spines	Arbre: densité des épines	Baum: Dichte der Stacheln	Árbol: densidad de las espinas		
QN	absent or sparse	absentes ou éparses	fehlend oder locker	ausente o laxa		1
	intermediate	intermédiaires	mittel	media		2
c3.	dense	denses	dicht	densa		3
4.	Tree: length of spines	Arbre: longueur des épines	Baum: Länge der Stacheln	Árbol: longitud de las espinas		
QN	short	courtes	kurz	cortas		3
	medium	moyennes	mittel	medias		5
c4.	long	longues	lang	largas		7
5. (*)	Young leaf: presence of anthocyanin coloration	Jeune feuille: présence de pigmentation anthocyanique	Jungblatt: Vorhandensein der Anthocyanfärbung	Hoja joven: presencia de pigmentación antocianica		
QL	b absent	absente	fehlend	ausente		1
c6.	present	présente	vorhanden	presente		9

•
 MoE=Method of Examination

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
6.	Youngleaf:intensity ofanthocyanin coloration	Jeunefeuille:intensitédelapigmentationanthocyanique	Jungblatt:Intensität derAnthocyanfärbung	Hojajoven:intensidaddelapigmentaciónantociánica		
QN b	weak	faible	gering	débil		3
	medium	moyenne	mittel	media		5
c7.	strong	forte	stark	fuerte		7
7.	Leafblade:length (apicalleafletincase ofcompoundleaf)	Limbe:longueur (folioleapicaleen casdefeuille composée)	Blattspreite:Länge (apikalesTeilblatt beizusammen - gesetztemBlatt)	Limbo:longitud (folioloatípicoen casodehoja compuesta)		
QN c	short	court	kurz	corto		3
	medium	moyen	mittel	medio		5
c10.	long	long	lang	largo		7
8.	Leafblade:width (as for 7)	Limbe:largeur (commepour7)	Blattspreite:Breite (wiefür 7)	Limbo:anchura (comopara 7)		
QN c	narrow	étroit	schmal	estrecho		3
	medium	moyen	mittel	medio		5
c11.	broad	large	breit	ancho		7
9.	Leafblade:ratio length/width(as for 7)	Limbe:rapport longueur/largeur (commepour7)	Blattspreite:Ver - hältnisLänge/Breite (wiefür 7)	Limbo:relación longitud/anchura (comopara 7)		
QN c	small	faible	klein	pequeño		3
	medium	moyen	mittel	medio		5
c12.	large	élevé	groß	grande		7
10.	Leafblade:shapein crosssection(as for 7)	Limbe:formeen sectiontransversale (commepour7)	Blattspreite:Form imQuerschnitt(wie für 7)	Limbo:formaen seccióntransversal (comopara 7)		
QN c	straightorweakly concave	droitoulégèremment concave	geradeoderleicht konkav	rectooligeramente cóncavo		1
	intermediate	intermédiaire	mittel	intermedio		2
c17.	stronglyconcave	fortementconcave	starkkonkav	fuertementecóncavo		3

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
11.		Leafblade:twisting	Limbe:torsion	Blattspreite: Drehung	Limbo:torsión		
QN	c	absentorweak	absenteoufaible	fehlendodergering	ausenteodébil		1
		intermediate	intermédiaire	mittel	media		2
c18.		strong	forte	stark	fuerte		3
12.		Leafblade: blistering	Limbe:cloûre	Blattspreite: Blasigkeit	Limbo:abullon ado oampollado		
QN	c	absentorweak	absenteoufaible	fehlendodergering	ausenteodébil		1
		intermediate	intermédiaire	mittel	medio		2
c19.		strong	forte	stark	fuerte		3
13.		Leafblade:intensity ofgreencolor	Limbe:intensitéde lacouleur rte	Blattspreite: Intensitätder Grünfärbung	Limbo:intensidad delcolorverde		
QN	c	light	claire	hell	claro		3
		medium	moyenne	mittel	medio		5
c20.		dark	foncée	dunkel	oscuro		7
14.		Leafblade: pubescenceon lower side	Limbe:pilositésur laface inférieure	Blattspreite: Behaarungander Unterseite	Limbo:pubescencia enelenvés		
QN	c	absentorweak	absenteoufaible	fehlendodergering	ausenteodébil		1
		intermediate	intermédiaire	mittel	media		2
c21.		strong	forte	stark	fuerte		3
15.		Leafblade:undula - tionofmargin	Limbe:ondulation dubord	Blattspreite: Randwellung	Limbo:ondulación delborde		
QN	c	absentorweak	absenteoufaible	fehlendodergering	ausenteodébil		1
		intermediate	intermédiaire	mittel	media		2
c22.		strong	forte	stark	fuerte		3

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
16.		Leafblade:incisions ofmargin	Limbe:incisionsdu bord	Blattspreite:Randeinschnitte	Limbo:incisiones delborde		
PQ	c	absent	absentes	fehlend	ausentes		1
		crenate	crénelées	gekerbt	crenadas		2
c23.		dentate	dentelées	gezähnt	dentadas		3
17.		Leafblade:shapeof apex	Limbe:formede l'extrémité	Blattspreite:Form derSpitze	Limbo:formadel ápice		
(+)							
PQ	c	acuminate	acuminée	zugespitzt	acuminado		1
		acute	pointue	spitz	agudo		2
		obtuse	obtuse	stumpf	obtuso		3
c24.		rounded	arrondie	abgerundet	redondeado		4
18.		Leafblade: emarginationattip	Limbe:échancrure àl'extrémité	Blattspreite:Rand - einschnitteander Spitze	Limbo:emarginado enlapartesuperior		
(+)							
QL	c	absent	absente	fehlend	ausente		1
c25.		present	présente	vorhanden	presente		9
19.		Petiole:length	Pétiole:longueur	Blattstiel:Länge	Pecíolo:longitud		
QN	c	short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
c26.		long	long	lang	largo		7
20.		Petiole:presenceof wings	Pétiole:présence d'ailes	Blattstiel:Vor - handenseinvon Flügeln	Pecíolo:presencia dealas		
QL	c	absent	absentes	fehlend	ausentes		1
c27.		present	présentes	vorhanden	presentes		9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
21.	<u>Varietieswith petiolewidth presentonly :</u> Petiole:widthof wings	<u>Seulemmentles variétésprésentant desailesaupétiole :</u> Pétiole:largeurdes ailes	<u>NurSortenmit vorhandenenFlügel amBlattstiel :</u> Blattstiel:Breiteder Flügel	<u>Sólovariedadescon alaspresentesenel pecíolo:Pecíolo:</u> anchuradelasalas		
QN	c narrow	étroites	schmal	estrechas		3
	medium	moyennes	mittel	medias		5
c28.	broad	larges	breit	anchas		7
22.	Flowerbud: presenceof anthocyanin coloration	Boutonfloral: présencede pigmentation anthocyanique	Blütenknospe: Vorhandenseinder Anthocyanfärbung	Yemafloral: presenciade pigmentación antociánica		
QL	d absent	absente	fehlend	ausente		1
c29.	e present	présente	vorhanden	presente		9
23.	Flowerbud: intensityof anthocyanin coloration	Boutonfloral: intensitédela pigmentation anthocyanique	Blütenknospe: Intensitätder Anthocyanfärbung	Yemafloral: intensidadde pigmentación antociánica		
QN	d weak	faible	schwach	débil		3
	e medium	moyenne	mittel	media		5
c30.	strong	forte	stark	fuerte		7
24.	Flower:diameterof calyx	Fleur:diam ètredu calice	Blüte:Durchmesser desKelchs	Flor:diámetrodel cáliz		
QN	d small	petit	klein	pequeño	Nelruby,StarRuby	3
	medium	moyen	mittel	medio	Oroblanco	5
c31.	large	grand	groß	grande	Pomelit	7
25.	Flower:lengthof petal	Fleur:longueurdu pétale	Blüte:Längedes Blütenblattes	Flor:longituddel pétalo		
QN	d short	court	kurz	corto	Marsh,Nelruby, RubyHenninger	3
	medium	moyen	mittel	medio		5
c32.	long	long	lang	largo	Melogold,Pomelit	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
26.		Flower:width of petal	Fleur:largeur du pétale	Blüte:Breitedes Blütenblattes	Flor:anchuradel pétalo		
QN	d	narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
c33.		broad	large	breit	ancho	Melogold,Pomelit	7
27.		Flower:ratio length/width of petal	Fleur:rapport longueur/largeur du pétale	Blüte:Verhältnis Länge/Breitedes Blütenblattes	Flor:relación longitud/anchuradel pétalo		
QN	d	small	faible	klein	pequeño		3
		medium	moyen	mittel	medio		5
c34.		large	élevé	groß	grande		7
28.		Flower:length of stamens	Fleur:longueur des étamines	Blüte:Längeder Staubfäden	Flor:longitud delos estambres		
QN	d	short	courtes	kurz	cortos		3
		medium	moyennes	mittel	medios		5
c35.		long	longues	lang	largos		7
29.		Anther:color	Anthère:couleur	Anthere:Farbe	Antera:color		
PQ	d	white	blanc	weiß	blanco		1
		light yellow	jauneclair	hellgelb	amarilloclaro		2
c38.		medium yellow	jaunemoyen	mittelgelb	amarillomedio		3
30.		Anther:viable pollen	Anthère:pollen viable	Anthere:keimfähiger Pollen	Antera:polenviable		
QL	d	absent	absent	fehlend	ausente		1
c39.		present	présent	vorhanden	presente		9
31.		Style:length	Style:longueur	Griffel:Länge	Estilo:longitud		
QN	d	short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
c40.		long	long	lang	largo		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
32.	Infructescence: clustering of fruits	Fructification: formation de grappes	Fruchtstand: Früchte in Büscheln	Infructescencia: enracimado de los frutos		
QL	absent	absente	fehlend	ausente		1
c43.	present	présente	vorhanden	presente		9
33. (*)	Fruit: length	Fruit: longueur	Frucht: Länge	Fruto: longitud		
QN f	short	court	kurz	corto		3
	medium	moyen	mittel	medio	Ray Ruby	5
c44.	long	long	lang	largo	Pomelit	7
34. (*)	Fruit: diameter	Fruit: diamètre	Frucht: Durchmesser	Fruto: diámetro		
QN f	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio	Melogold	5
c45.	large	grand	groß	grande	Chandler	7
35. (*)	Fruit: ratio length/diameter	Fruit: rapport longueur/diamètre	Frucht: Verhältnis Länge/Durchmesser	Fruto: relación longitud/diámetro		
QN f	small	faible	klein	pequeño	Oro blanco	3
	medium	moyen	mittel	medio	Melogold	5
c46.	large	élevé	groß	grande		7
36. (*)	Fruit: position of broadest part	Fruit: position de la partie la plus large	Frucht: Position des breitesten Teils	Fruto: posición de la parte más amplia		
QN f	towards stalk end	vers l'extrémité pédunculaire	zum Stielende hin	hacia el extremo peduncular		1
	at middle	au milieu	in der Mitte	en el medio	Marsh	2
c47.	towards distal end	vers la partie distale	zum distalen Ende hin	hacia el extremo distal	Melogold	3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
37. (* (+)	Fruit:generalshape ofproximalpart (excludingneck, collaranddepressionatstalkend)	Fruit:forme généraledelapartie proximale(à l'exclusionducol,de lacolleretteetdela dépressionà l'extrémité pédonculaire)	Frucht:allgemeine Formdes proximalenTeils (ohneHals,Kragen undEinsenkungam Stielende)	Fruto:forma generaldelaparte proximal(excluido elcuello,elcollary ladepresióndel extremo peduncular)		
PQ	f flattened	aplatie	abgeflacht	aplanada	Oroblanco	1
	slightlyrounded	légèremetarrondie	leichtabgerundet	ligeramente redondeada	Marsh,Redblush	2
	stronglyrounded	fortementarrondie	starkabgerundet	fuertemente redondeada		3
c49.	tapered	effilée	verjüngt	afilada		4
38. (* (+)	<u>Varietieswithfruit neckabsentonly</u> : Fruit:presenceof depressionatstalk end	<u>Seulementles variétésdontlefruit neprésentepasde col:Fruit:présence d'unedépressionà l'extrémité pédonculaire</u>	<u>NurSortendiekein HalsamFrucht zeigen:Frucht: Vorhandenseineiner Einsenkungam Stielende</u>	<u>Sólovariedadescon frutosincuello : Fruto:presenciade unadepresiónenel extremopeduncular</u>		
QL	f absent	absente	fehlend	ausente		1
c50.	present	présente	vorhanden	presente	RayRuby	9
39.	<u>Varietieswithfruit neckabsentonly</u> : Fruit:depthof depressionatstalk end	<u>Seulementlesvariétésdontlefruit neprésentepasde col:Fruit:profondeurdeladépressionà l'extrémité pédonculaire</u>	<u>NurSortendiekein HalsamFrucht zeigen:Frucht: Tiefeder Einsenkungam Stielende</u>	<u>Sólovariedadescon frutosincuello : Fruto:profundidad deladepresiónenel extremopeduncular</u>		
QN	f shallow	peuprofonde	flach	pocoprofunda	Nelruby,RubyHenninger	3
	medium	moyenne	mittel	media	RayRuby	5
c51.	deep	profonde	tief	profunda		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
40.	Fruit: number of radial grooves at stalk end	Fruit: nombre de cannelures radiales à l'extrémité pédonculaire	Frucht: Anzahl radiale Furchen am Stielende	Fruto: número de acanaladuras radiales en el extremo peduncular		
QN f	absent or few	absentes ou peu nombreuses	fehlend oder sehr gering	ausente o bajo	Pomelit, RioRed	1
	intermediate	moyennement nombreuses	mittel	medio	Oroblanco	2
c57.	many	nombreuses	groß	alto		3
41.	Fruit: length of radial groove at stalk end	Fruit: longueur des cannelures radiales à l'extrémité pédonculaire	Frucht: Länge der radialen Furchen am Stielende	Fruto: longitud de las acanaladuras radiales en el extremo peduncular		
QN f	short	courtes	kurz	cortas	Oroblanco, RioRed	3
	medium	moyennes	mittel	medias		5
c58.	long	longues	lang	largas		7
42. (+)	Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)	Fruit: forme générale de la partie distale (à l'exclusion du mamelon, de la courbure du fruit secondaire et de la dépression à l'extrémité distale)	Frucht: allgemeine Form des distalen Teils (ohne Warze, Wölbung der sekundären Frucht und Einsenkung am distalen Ende)	Fruto: forma general de la parte distal (excluido el mamelón o pezón, el abultamiento de la ombligo y la depresión en el extremo distal)		
QN f	flattened	aplatie	abgeflacht	aplanada	Melogold, RayRuby	1
	slightly rounded	légèrement arrondie	leicht abgerundet	ligeramente redondeada	Marsh, Redblush	2
c64.	strongly rounded	fortement arrondie	stark abgerundet	fuertemente redondeada		3
43. (+)	Fruit: presence of depression at distal end	Fruit: présence d'une dépression à l'extrémité distale	Frucht: Vorhanden - sein der Einsenkung am distalen Ende	Fruto: presencia de una depresión en el extremo distal		
QL f	absent	absente	fehlend	ausente	Oroblanco, StarRuby	1
c65.	present	présente	vorhanden	presente	Melogold	9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
44.	Fruit:depth of depression at distal end	Fruit:profondeur de la dépression à l'extrémité distale	Frucht:Tiefeder Einsenkung am distalen Ende	Fruto:profundidad de la depresión en el extremo distal		
QN f	shallow	peu profonde	flach	poco profunda	Melogold	3
	medium	moyenne	mittel	media	Oroblanco	5
c66.	deep	profonde	tief	profunda		7
45.	Fruit:diameter of depression at distal end	Fruit:diamètre de la dépression à l'extrémité distale	Frucht:Durchmesser der Einsenkung am distalen Ende	Fruto:diámetro de la depresión en el extremo distal		
QN f	small	petit	klein	pequeña		3
	medium	moyen	mittel	media	Oroblanco	5
c67.	large	grand	groß	grande		7
46.	Fruit:presence of areola	Fruit:présence d'une aréole	Frucht:Vorhandensein der Areola	Fruto:presencia de una areola		
QL f	absent	absente	fehlend	ausente	Marsh,Pomelit	1
	incomplete	incomplète	unvollständig	incompleta		2
c70.	complete	complète	vollständig	completa		3
47.	Fruit:type of areola	Fruit:typed'aréole	Frucht:Typ der Areola	Fruto:tipode areola		
(+)						
QL f	smooth	régulière	glatt	lisa	Flame,RioRed	1
	grooved	cannelée	gerieft	acanalada		2
c71.	ridged	annelée	geringelt	acrestada		3
48.	Fruit:diameter of areola	Fruit:diamètre de l'aréole	Frucht:Durchmesser der Areola	Fruto:diámetro de la areola		
QN f	small	petit	klein	pequeña		3
	medium	moyen	mittel	media		5
c72.	large	grand	groß	grande		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
49.	Fruit:diameterof stylarscar	Fruit:diamètredela cicatricestylaire	Frucht: Durchmesserder Griffelnarbe	Fruto:diámetrode lacicatrizestilar		
QN	f small	petit	klein	pequeña		3
	medium	moyen	mittel	media		5
c73.	large	grand	groß	grande		7
50. (*)	Fruitsurface: predominantcolor	Fruit:couleur prédominanteàla surface	Fruchtoberfläche: Hauptfarbe	Superficedelfruto: colorpredominante		
PQ	f darkgreenishyellow	jauneverdâtrefoncé	dunkelgrünlichgelb	amarilloverdoso oscuro	Tahiti	1
	fg yellowgreen	vert-jaune	gelbgrün	verdeamarillento		2
	lightyellow	jauneclair	hellgelb	amarilloclaro	Melogold,Oroblanco, Pomelit	3
	mediumyellow	jaunemoyen	mittelgelb	amarillomedio	Marsh	4
	lightpink	rosepâle	hellrosa	rosaclaro	RubyHenninger	5
	mediumpink	rosemoyen	mittelrosa	rosamedio	OranRed	6
c82.	darkpink	rosefoncé	dunkelrosa	rosaoscuro	StarRuby	7
51.	Fruitsurface: glossiness	Surfacedufruit: brillance	Fruchtoberfläche: Glanz	Superficedelfruto: brillo		
QN	f absentorveryweak	absenteoutrèsfaible	fehlendodersehr gering	ausenteomuydébil		1
	g weak	faible	gering	débil		3
	medium	moyenne	mittel	medio		5
	strong	forte	stark	fuerte		7
c85.	verystrong	trèsforte	sehrstark	muyfuerte		9
52.	Fruitsurface: roughness	Surfacedufruit: rugosité	Fruchtoberfläche: Rauheit	Superficedelfruto: rugosidad		
QN	f smooth	lisse	glatt	lisa	Marsh	3
	g medium	intermédiaire	mittel	media	Oroblanco	5
c86.	rough	rugueuse	rauh	rugosa	Tahiti	7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
53.	Fruitsurface: size of oil glands	Surface du fruit: taille des glandes à huile	Fruchtoberfläche: Größe der Öldrüsen	Superficie del fruto: tamaño de las glándulas de aceite		
PQ	f all more or less the same size	toutes plus ou moins de la même taille	alle mehr oder weniger gleich groß	todo más o menos del mismo tamaño	Melogold	1
c87.	g larger ones interspersed by smaller ones	grandes et petites intercalées	größere vermisch mit kleineren	glándulas grandes intercaladas con otras más pequeñas	Star Ruby	2
54.	Fruitsurface: size of larger oil glands	Surface du fruit: taille des glandes à huile les plus grosses	Fruchtoberfläche: Größe der größeren Öldrüsen	Superficie del fruto: tamaño de las glándulas de aceite más grandes		
QN	f small	petites	klein	pequeñas	Marsh	3
	g medium	moyennes	mittel	medianas	Ruby Henninger	5
c88.	large	grosses	groß	grandes	Melogold	7
55.	Fruitsurface: conspicuousness of larger oil glands	Surface du fruit: netteté des glandes à huile les plus grosses	Fruchtoberfläche: Sichtbarkeit der größeren Öldrüsen	Superficie del fruto: visibilidad de las glándulas de aceite más grandes		
QN	f weak	faible	gering	débil	Marsh	3
	g medium	moyenne	mittel	media	Ray Ruby, Ruby Henninger	5
c89.	strong	forte	stark	fuerte	Chandler, Star Ruby	7
56.	Fruitsurface: presence of pitting and pebbling on oil glands	Surface du fruit: présence de grenure et de crépissure sur les glandes à huile	Fruchtoberfläche: Vorhandensein von Grübchen und Körnern	Superficie del fruto: presencia de picado y granulado en las glándulas de aceite		
PQ	f pitting and pebbling absent	grenure et crépissure absentes	Grübchen und Körner fehlend	picado y granulado ausentes		1
	g pitting absent, pebbling present	grenure absente, crépissure présente	Grübchen fehlend, Körner vorhanden	picado ausente, granulado presente	Tahiti	2
	pitting present, pebbling absent	grenure présente, crépissure absente	Grübchen vorhanden, Körner fehlend	picado presente, granulado ausente	Marsh	3
c90.	pitting and pebbling present	grenure et crépissure présentes	Grübchen und Körner vorhanden	picado y granulado presentes		4

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
57.		Fruitsurface: densityofpittingon oilglands	Surfacedufruit: densitédelagrenure surlesglandesà huile	Fruchtoberfläche: Dichteder Grübchenanden Öldrüsen	Superficialdefruto: densidaddelpicado enlasglándulasde aceite		
QN	f	sparse	éparse	locker	dispersa		3
	g	medium	moyenne	mittel	media	RayRuby	5
c91.		dense	dense	dicht	densa		7
58.		Fruitsurface:depth ofpittingonoil glands	Surfacedufruit: profondeurde la grenuresurles glandesà huile	Fruchtoberfläche: TiefederGrübchen andenÖldrüsen	Superficialdefruto: profundidaddel picadoenlas glándulasde aceite		
QN	f	shallow	peup rofonde	flach	pocoprofundo	Marsh	3
	g	medium	moyenne	mittel	medio	RayRuby	5
c92.		deep	profonde	tief	profundo		7
59.		Fruitsurface: densityofpebbling onoilglands	Surfacedufruit: densitéde la crépissuresurles glandesà huile	Fruchtoberfläche: DichtederKörner andenÖldrüsen	Superficialdefruto: densidadde granuladoenlas glándulasde aceite		
QN	f	sparse	éparse	locker	dispersa		3
	g	medium	moyenne	mittel	media		5
c93.		dense	dense	dicht	densa		7
60.		Fruitsurface: degreeofp ebbling onoilglands	Surfacedufruit: degréde crépissure surlesglandesà huile	Fruchtoberfläche: Gradder Körnerbildungan denÖldrüsen	Superficialdefruto: nivelede granulado enlasglándulasde aceite		
QN	f	weak	faible	gering	débil	StarRuby	3
	g	medium	moyen	mittel	medio		5
c94.		strong	fort	stark	fuerte	Tahiti	7
61. (*)		Fruitrind:thickness	Écorcedufruit: épaisseur	Fruchtschale:Dicke	Cortezadelfruto: espesor		
QN	f	thin	fine	dünn	delgada		3
	g	medium	moyenne	mittel	media	Flame	5
c95.		thick	épaisse	dick	gruesa	Oroblanco	7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
62. (*)	Fruit: rind: adherencetoflesh	Écorcedufruit: adhérenceàlachair	Fruchtschale: AnhaftenamFleisch	Cortezadelfruto: adherenciaaala pulpa		
QN	f weak	faible	gering	débil		3
	g medium	moyenne	mittel	media		5
c96.	strong	forte	stark	fuerte		7
63.	Fruit: color of albedo	Fruit: couleur de l'albédo	Frucht: Farbeder Albedo	Fruto: color del albedo		
PQ	f greenish	verdâtre	grünlich	verdoso	Marsh, Melogold, Oroblanco	1
	lightpink	rose pâle	hellrosa	rosaclaro	RayRuby, RedBlush, Ruby Henninger	2
c100.	pink	rose	rosa	rosa	StarRuby	3
64.	Fruit: differently colored specks in flesh	Fruit: taches de couleurs différentes dans la chair	Frucht: unter - schiedlich gefärbte Flecken am Fleisch	Fruto: manchas de distinto color en la pulpa		
QL	f absent	absentes	fehlend	ausentes	Marsh	1
c105.	h present	présentes	vorhanden	presentes		9
65.	Fruit: bicolored segments	Fruit: segments bicolores	Frucht: zweifarbige Segmente	Fruto: gajos bicolores		
QL	f absent	absents	fehlend	ausentes	Marsh, StarRuby	1
c106.	present	présents	vorhanden	presentes	Pomelit	9
66. (*)	Fruit: main color of flesh	Fruit: couleur prin - cipale de la chair	Frucht: Hauptfarbe des Fleisches	Fruto: color principal de la pulpa		
PQ	f whitish	blanchâtre	weißlich	blanquecino	Marsh, Melogold, Oroblanco	1
	h lightgreen	vert clair	hellgrün	verdeclaro	Tahiti	2
	lightpink	rose pâle	hellrosa	rosaclaro	RayRuby, RedBlush, Ruben, Ruby Henninger	3
	mediumpink	rose moyen	mittelrosa	rosamedio	Henderson	4
	darkpink	rose foncé	dunkelrosa	rosaoscuro	StarRuby	5
c107.	whitish and pink	blanchâtre et rose	weißlich und rosa	blanquecino y rosa	Pomelit	6

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
67.		Fruit:bitternessof flesh	Fruit:amertumedede lachair	Frucht:Bitterkeit desFleisches	Fruto:amargorde lapulpa		
QL	f	absent	absente	fehlend	ausente		1
c108.	h	present	présente	vorhanden	presente		9
68.		Fruit:fillingofcore	Fruit:structuredu cœur	Frucht:Ausfüllung desinneren Fruchtfleisches	Fruto:rellenodel huecocentral		
QN	f	absentorverysparse	absenteoutrèslâche	fehlend	ausenteomuylaxo		1
	h	sparse	lâche	locker	laxo	RayRuby,Ruben	3
		medium	intermédiaire	mittel	medio	Nelruby,StarRuby	5
		dense	dense	dicht	denso	Tahiti	7
c109.		verydense	trèsdense	sehrdicht	muydenso		9
69.		Fruit:diameterof core	Fruit:diamètredu cœur	Frucht:Durch - messerdesinneren Fruchtfleisches	Fruto:diámetrodel huecocentral		
QN	f	small	petit	klein	pequeño		3
	h	medium	moyen	mittel	medio	Henderson,RayRuby	5
c110.		large	grand	groß	grande	Chandler	7
70.		Fruit:presenceof rudimentary segments	Fruit:présencede segments rudimentaires	Frucht:Vorhanden - seinunvollständigen Segmente	Fruto:presenciade gajosrudimentarios		
QN	f	absentorweak	nulleoufaible	nullodergering	nulaodébil		1
	h	intermediate	intermédiaire	dazwischenliegend	intermedia		2
c111.		strong	forte	stark	fuerte		3
71.		Fruit:numberof welldeveloped segments	Fruit:nombrede segmentsbien développés	Frucht:Anzahlgut entwickelter Segmente	Fruto:númerode gajosbien desarrollados		
QN	f	few	peu	gering	bajo		3
	h	medium	moyen	mittel	medio		5
c112.		many	beaucoup	groß	alto		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
72.	Fruit:strengthof segmentwalls	Fruit:rigiditédes paroisdesse gments	Frucht:Stärkeder Segmentwände	Fruto:firmezade lasparedesdelos gajos		
QN	f weak	faible	schwach	débil		3
	h medium	moyenne	mittel	media		5
c114.	strong	forte	stark	fuerte		7
73.	Fruit:lengthofjuice vesicles	Fruit:longueurdes vésiculesdejus	Frucht:Längeder Saftbläschen	Fruto:longitudde lasvesículasdejugo		
QN	f short	courtes	kurz	corta		3
	h medium	moyennes	mittel	media		5
c115.	long	longues	lang	larga		7
74.	Fruit:thicknessof juicevesicles	Fruit:épaisseurd es vésiculesdejus	Frucht:Dickeder Saftbläschen	Fruto:grosordelas vesículasdejugo		
QN	f thin	fines	dünn	delgadas		3
	h medium	moyennes	mittel	medianas		5
c116.	thick	épaisses	dick	gruesas		7
75.	Fruit:conspicuous - nessofjuicevesicle walls	Fruit:nettetédes paroisdesvésicules dejus	Frucht:Sicht barkeit der Saftbläschenwände	Fruto:visibilidadde lasparedesdelas vesículasdejugo		
QN	f low	faible	gering	baja		3
	h medium	moyenne	mittel	media		5
c117.	high	forte	groß	alta		7
76.	Fruit:coherenceof juicevesicles	Fruit:adhérencedes vésiculesdejus	Frucht: Zusammenhaltder Saftbläschen	Fruto:coherenciade lasvesículasdejugo		
QN	f weak	faible	gering	débil		3
	h medium	moyenne	mittel	media		5
c118.	strong	forte	stark	fuerte		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedadesejemplo	Note/ Nota
77.	Fruit:juiciness	Fruit:succulence	Frucht:Saftigkeit	Fruto:suculencia		
QN f	low	faible	gering	baja		3
	medium	moyenne	mittel	media		5
c121.	high	élevée	groß	alta		7
78.	Fruitjuice:total solublesolids	Jusdufruit:t otalde solidessolubles	Fruchtsaft:Gesamt - gehaltdergelösten StoffedesSaftes	Jugodelfruto: sólidosolubles totales		
QN f	low	faible	niedrig	bajo		3
	medium	moyen	mittel	mediano		5
c122.	high	fort	hoch	alto		7
79.	Fruitjuice:acidity	Jusdufruit:acidité	Fruchtsaft:Säure	Jugodelfruto: acidez		
QN f	low	faible	gering	baja		3
	medium	moyenne	mittel	media		5
c123.	high	forte	stark	alta		7
80.	Fruit:strengthof fibre	Fruit:rigiditédes fibres	Frucht:Stärkeder Fasern	Fruto:vi gordela fibra		
QN f	weak	faible	schwach	débil		3
	medium	moyenne	mittel	medio		5
c124.	strong	forte	stark	fuerte		7
81.	Fruit:numberof seeds(controlled self-pollination)	Fruit:nombrede pépins(autopoli - nisationcontrôlée)	Frucht:Anzahl Samen(kontrollierte Selbstbefruchtung)	Fruto:númerode semillas(autopoli - nizacióncontrolada)		
QN f	absentorveryfew	absentsoutrèspou nombreux	fehlendodersehr gering	ausenteomuybajo	Melogold,Oroblanco,	1
	few	peunombreux	gering	bajo	Nelruby,RedBlush	3
	medium	moyennement nombreux	mittel	medio		5
	many	nombreux	groß	alto		7
c125.	verymany	trèsnombreux	sehrgroß	muyalto	Chandler,Tahiti	9

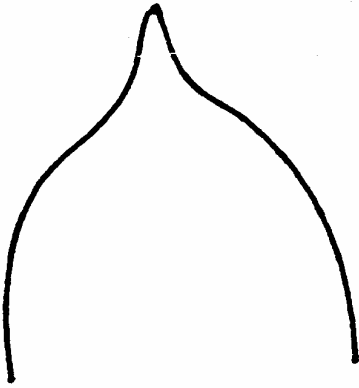
MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
82.	Fruit: number of seeds (open pollination)	Fruit: nombre de pépins (fécondation libre)	Frucht: Anzahl Samen (frei abblühend)	Fruto: número de semillas (polini - zación libre)		
(+)						
QN	f absent or very few	absent ou très peu nombreux	fehlend oder sehr gering	ausente o muy bajo		1
	few	peu nombreux	gering	bajo		3
	moderate	modérément nombreux	mittel	moderado		5
c126.	many	nombreux	groß	alto		7
83.	Seed: polyembryony	Pépin: polyembryonie	Samen: Polyembryonie	Semilla: poliembrionía		
(*)						
QL	i absent	absente	fehlend	ausente		1
c127.	present	présente	vorhanden	presente		9
84.	Seed: length	Pépin: longueur	Samen: Länge	Semilla: longitud		
QN	i short	court	kurz	corta	Flame	3
	medium	moyen	mittel	media	Nelruby	5
c128.	long	long	lang	larga	Chandler, Pomelit, Tahiti	7
85.	Seed: width	Pépin: largeur	Samen: Breite	Semilla: anchura		
QN	i narrow	étroit	schmal	estrecha		3
	medium	moyen	mittel	media	Henderson	5
c129.	broad	large	breit	ancha		7
86.	Seed: surface	Pépin: surface	Samen: Oberfläche	Semilla: superficie		
QL	i smooth	lisse	glatt	lisa		1
c130.	wrinkled	ridée	runzlig	arrugada		2
87.	Seed: prominence of wrinkles	Pépin: proéminence des rides	Samen: Ausprägung der Runzeln	Semilla: prominencia de las arrugas		
QN	i weak	faible	schwach	débil		3
	medium	moyenne	mittel	media		5
c131.	strong	forte	stark	fuerte		7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
88.	Seed:externalcolor	Pépin:couleur externe	Samen:Außenfarbe	Semilla:color externo		
PQ i	greenish	verdâtre	grünlich	verdoso		1
	whitish	blanchâtre	weißlich	blanquecino		2
	yellowish	jaunâtre	gelblich	amarillento		3
	pinkish	rosâtre	blaßrosa	rosado		4
c132.	brownish	brunâtre	bräunlich	amarronado		5
89.	Seed:color of inner seedcoat	Pépin:couleur du tégument interne	Samen:Farbe der inneren Samenschale	Semilla:color de la cubierta interna		
PQ i	white	blanc	weiß	blanco		1
	light yellow	jaune clair	hellgelb	amarillo claro		2
	light brown	marron clair	hellbraun	marrón claro		3
	medium brown	marron moyen	mittelbraun	marrón medio		4
	dark brown	marron foncé	dunkelbraun	marrón oscuro		5
	red	rouge	rot	rojo		6
c133.	purple	violet	purpur	púrpura		7
90.	<u>Polyembryonic varieties only</u> ;Seed: color of cotyledons	<u>Variétés poly - embryonnaires seulement</u> ;Pépin: couleurs des cotylédons	<u>Nur poly - embryonische Sorten</u> ;Samen: Farber der Kotyledonen	<u>Sólo variedades poli - embriónicas</u> ;Semilla: color de los cotiledones		
PQ i	white	blanc	weiß	blanco		1
	cream	crème	creme farben	crema		2
	light green	vert clair	hellgrün	verde claro		3
c134.	dark green	vert foncé	dunkelgrün	verde oscuro		4
91. (*)	Flowering habit	Floraison	Blühverhalten	Tipode floración		
QL	flowering once	une seule	einmal blühend	una floración		1
c135.	flowering more than once	plusieurs	mehrmals einmal blühend	más de una floración		2

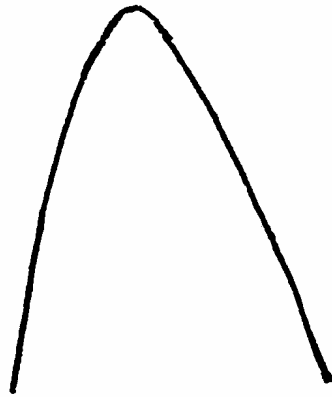
MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
92. (*)	Time of maturity of fruit for consumption	Époque de maturité du fruit pour la consommation	Zeitpunkt der Fruchtreife für den Genuß	Época de madurez del fruto para su consumo		
QN	early	précoce	früh	temprana		3
	medium	moyenne	mittel	media		5
c136.	late	tardive	spät	tardía		7
93. (*)	Fruit: parthenocarpy	Fruit: parthénocarpie	Frucht: Parthenokarpie	Fruto: partenocarpia		
QL	absent	absente	fehlend	ausente		1
c137.	present	présente	vorhanden	presente		9
94. (+)	Plant: self - incompatibility	Plante: auto - incompatibilité	Pflanze: Selbst - unverträglichkeit	Planta: auto - incompatibilidad		
QL	absent	absente	fehlend	ausente		1
c138.	present	présente	vorhanden	presente		9

8. ExplanationsontheTableofCharacteristics

Ad.17(c24.): Leafblade:shapeofapex



1
acuminate



2
acute

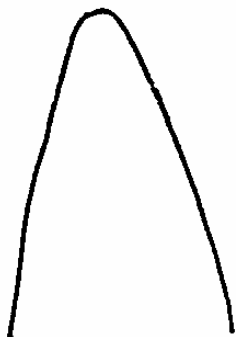


3
obtuse

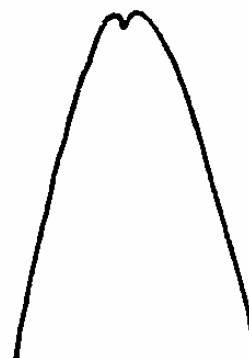


4
rounded

Ad. 18(c25.): Leafblade:emarginationattip

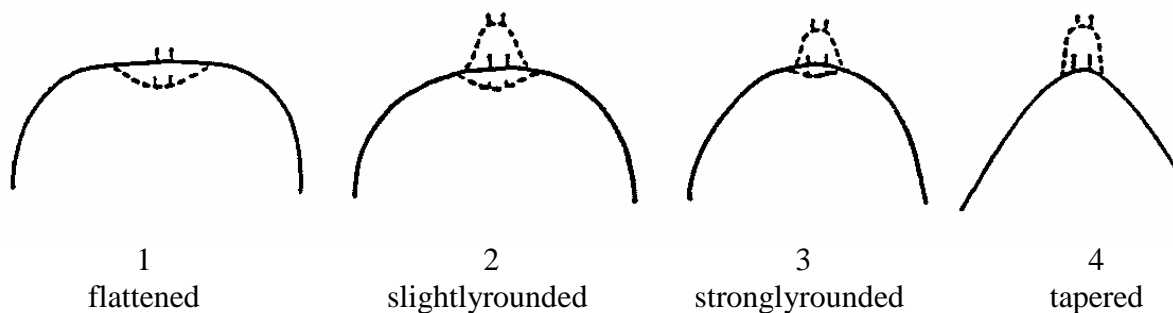


1
absent

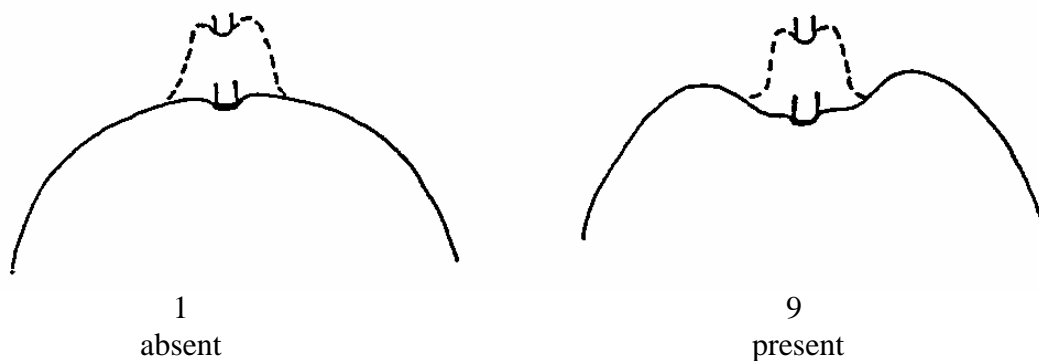


9
present

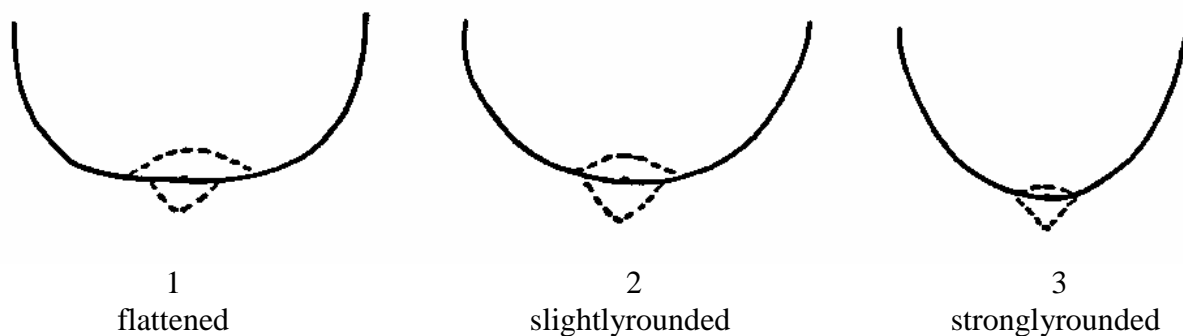
Ad.37(c49.): Fruit:generalshapeofproximalpart (excludingneck, collaranddepressionat stalkend)



Ad.38(c50.): Varietieswithfruitneckabsentonly:Fruit:presenceofdepressionatstalkend



Ad.42(c64.): Fruit: general shape of distal part (excluding nipple, bulging of navel and depressionatdistalend)



Ad.43(c65.):Fruit:presenceofdepressionatdistalend



1
absent



9
present

Ad.47(c71.):Fruit:typeofareola



1
smooth



2
grooved



3
ridged

Ad.82(c126.):Fruit:numberofseeds(openpollination)

Ad.94(c138.):Plant:self -incompatibility

LISTOFEXAMPLEVARIETIESFORLEMONSANDLIMES

Varietydenomination	Grouporspecies	Observations
Chandler		
Flame		
Henderson		
Marsh		
Melogold		
Nelruby		
OranRed		
Oroblanco		
Pomelit		
RayRuby		
RedBlush		
RioRed		
Ruben		
RubyHenninger		
StarRuby		
Tahiti		

9. Literature

Alexander D. MCE., 1983: "Some citrus species and varieties in Australia," Commonwealth Scientific and Industrial Research Organization, Australia, 64pp.

Berzal V., I. Porras, 1989: "Patrones y variedades de Pomelo". Consejería de Agricultura, Ganadería y Pesca de la Comunidad Autónoma de Murcia.

Blondel L., 1978: Botanical classification of species of the genus Citrus, *Fruits* 33 (11): pp. 695- 720.

Bono R., Soler, J. Fernandez de Cordova, L. 1986: "Variedades de agrinos cultivadas en España". Generalitat Valenciana, 70pp.

Damigella, P., Tribulato, E., Calabrese, F., Crescimanno, F.G., Continella, G., 1980: "Gli Agrumi," Cultivar. R.E.D.A., Roma, Italy, pp. 9 -70.

Ortiz Marcide, J.M., 1985: "Nomenclatura botánica de los cítricos". *Levante Agrícola* nº 259-260, pp. 71- 79.

Ortiz J. M., I. Porras, A. García Lidón, 1987: "El pomelo y sus variedades". *Levante Agrícola* nº 273 -274, p. 30.

Ray R., Walheim L., 1980: "Citrus: How to select, grow and enjoy," HP Books, Tucson, USA, pp. 41- 115.

Reuther W. (Editors), 1973. "The Citrus Industry," Volume III, University of California, Division of Agricultural Sciences, 528pp.

Reuther W., Batchelor L.D., Webber H.J. (Editors), 1968: "The Citrus Industry," Volume 11, University of California, Division of Agricultural Sciences, 398 pp.

Reuther W., Webber H.J., Batchelor L.D. (Editors), 1967: "The Citrus Industry," Volume 1, University of California, Division of Agricultural Sciences, 611 pp.

Saunt, J. 1990: "Citrus varieties of the world: an illustrated guide," Sinclair International Ltd., Norwich, England, 126pp.

Soler, J., 1999. Reconocimiento de variedades de cítricos en campo. Generalitat Valenciana. 187pp.

Spina, P., Russo, F., Geraci, G., Martelli, S., 1980: "Schede per il registro varietale dei fruttiferi I -ARANCIO e MANDARINO," Ministero Agricoltura e Foreste - S.O.I., Roma, Italy, 92pp.

Thornton, I.R., El-Zeftawi, B.M., 1983: "Culture of irrigated citrus fruits," Government Printer, State of Victoria, Australia, pp. 12 -25.

10. TechnicalQuestionnaire

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
		Applicationdate: (nottobefilledinbytheapplicant)
TECHNICALQUESTIONNAIRE tobecompletedinconnectionwithanapplicationforplantbreeders'rights		
1. SubjectoftheTechnicalQuestionnaire (a) <i>Citrusparadisi</i> Macfad.(Grapefruit) –GRA <input type="checkbox"/> (b) <i>Citrusgr andis</i> (L.)Osbeck(Pummelo) –PUM <input type="checkbox"/> (c) Hybrid –HGP: <input type="checkbox"/>		
2. Applicant:Name	<input style="width: 100%;" type="text"/>	
Address	<input style="width: 100%;" type="text"/>	
TelephoneNo.	<input style="width: 100%;" type="text"/>	
FaxNo.	<input style="width: 100%;" type="text"/>	
E-mailaddress	<input style="width: 100%;" type="text"/>	
Breeder(ifdifferent fromapplicant)	<input style="width: 100%;" type="text"/>	
3. Proposeddenominationandbreeder'sreference		
Proposeddenomination (ifavailable)	<input style="width: 100%;" type="text"/>	
Breeder'sreference	<input style="width: 100%;" type="text"/>	

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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4. Informationonthebreedingschemeandpropagationofthevariety

4.1 BreedingScheme

4.1.1 Varietyresultingfrom:

- (a) controlledcross
(pleasestateparentvarieties)
- (b) partiallyunknowncross
(pleasestateknownparentvariety(ies))
- (c) totallyunknowncross

4.1.2 Mutation
(pleasestateparentvariety)

4.1.3 Discovery
(pleasestatewhere,whenandhowdeveloped)

4.1.4 Other
(pleaseprovidedetails)

4.2 MethodofPropagatingtheVariety

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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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 one which best corresponds).

Characteristics	Example Varieties	Note
5.1 Fruit:length (33)		
short		3[]
medium	RayRuby	5[]
long	Pomelit	7[]
5.2 Fruit:diameter (34)		
small		3[]
medium	Melogold	5[]
large	Chandler	7[]
5.3 Fruitsurface:predominantcolor (50)		
darkgreenishyellow	Tahiti	1[]
yellowgreen		2[]
lightyellow	Melogold,Oroblanco, Pomelit	3[]
mediumyellow	Marsh	4[]
lightpink	RubyHenninger	5[]
mediumpink	OranRed	6[]
darkpink	StarRuby	7[]

TECHNICALQUESTIONNAIRE	Page{x}of{y}	ReferenceNumber:
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5.4 Fruit:maincolorofflesh			
(66)			
whitish	Marsh,Melogold,Oroblanco		1[]
lightgreen	Tahiti		2[]
lightpink	RayRuby,RedBlush, Ruben,RubyHenninger		3[]
mediumpink	Henderson		4[]
darkpink	StarRuby		5[]
whitishandpink	Pomelit		6[]
5.5 Timeofmaturityoffruitforconsumption			
(92)			
early			3[]
medium			5[]
late			7[]
5.6 Fruit:parthenocarp			
(93)			
absent			1[]
present			9[]

6. Similarvarietiesanddifferencesfromthesevarietie s

Denomination(s)of variety(ies)similar to yourcandidatevariety	Characteristic(s)in whichyourcandidate varietydiffersfrom thesimilarvariety(ies)	Describetheexpression ofthecharacteristic(s) forthe similar variety(ies)	Describetheexpress ion ofthecharacteristic(s) for your candidate variety
<i>(Example)</i>	<i>Fruitsurface: predominantcolor</i>	<i>lightpink</i>	<i>mediumpink</i>

TECHNICALQUESTIONNAIRE	Page {x} of {y}	ReferenceNumber:
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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 Special conditions for the examination of the variety

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

Yes No

7.2.2 If yes, please give details:

7.3 Other information

A representative color photograph 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.

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

Applicant's name

Signature

Date

[Annex follows]