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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CITRUS L. – Group 4

GRAPEFRUIT

and

PUMMELO

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:

[*See the list of alternative names and corresponding subgroups on page 2*]

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. – GROUP 1: TG/MANDA*
CITRUS L. – GROUP 2: TG/ORANG*
CITRUS L. – GROUP 3: TG/LEM-LIM*
CITRUS L. – GROUP 5: TG/PONCI*

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

GROUP 4 – ALTERNATIVE NAMES AND CORRESPONDING SUBGROUPS[**]

Latin	*Subroup*	*English*	*French*	*German*	*Spanish*
Citrus ampullacea hort. ex Tan.	GRA				
Citrus anonyma hort. ex Yu. Tan.	GRA				
Citrus asahikan hort. ex Tanaka	GRA				
Citrus aurantiaca hort. ex Tanaka	GRA				
Citrus flavicarpa hort. ex Tanaka	GRA				
Citrus glaberrima hort. ex Tanaka	GRA				
Citrus grandis (L.) Osbeck	PUM	Pummelo, Shaddock	Pamplemoussier	Pampelmuse	Pummelo
Citrus hassaku hort. ex Tanaka	GRA				
Citrus himekitsu Hort. ex Yu. Tan.	GRA				
Citrus hiroshimana hort. ex Yu. Tanaka	GRA				
Citrus intermedia hort. ex Tanaka	GRA				
Citrus iwaikan hort. ex Yu. Tanaka	GRA				
Citrus kotokan Hayata	GRA				
Citrus maxima (Burm.) Merr.	PUM				
Citrus medioglobosa hort. ex Tanaka	GRA				
Citrus miaray Wester	GRA				
Citrus mitsuharu Hort. ex Yu. Tanaka	GRA				
Citrus natsudaidai Hayata	GRA				
Citrus obovoidea hort. ex I. Takah	GRA				
Citrus omikanto hort. ex Yu. Tanaka	GRA				
Citrus otachibana hort. ex Yu. Tanaka	GRA				
Citrus panuban (Wester) Tanaka	PUM				
Citrus paradisi Macfad.	GRA	Grapefruit	Pomelo	Grapefruit	Pomelo, Toronja
Citrus paradisi Macfad. x *C. grandis* (L.) Osbeck	HGP				
Citrus pseudograndis hort. ex Shirai	PUM				
Citrus pseudogulgul hort. ex Shirai	PUM				
Citrus pseudoparadisi hort. ex Yu. Tanaka	GRA				
Citrus rugulosa hort. ex Tanaka	GRA				
Citrus suizabon Tan.	PUM				
Citrus sulcata hort. ex Tak.	GRA				
Citrus tengu hort. ex Tanaka	GRA				
Citrus tosa-asahi hort. ex Yu. Tanaka	GRA				
Citrus truncata hort. ex Tanaka	PUM				
Citrus yamabuki hort. ex Yu. Tanaka	GRA				
Citrus yuge-hyokan hort. ex Yu. Tanaka	GRA				

[**] 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 Web Site (www.upov.int), for the latest information.]

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1. Subject of these Guidelines

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

See page 2 for the list of species and their subgroups.

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., even 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 the characteristics from the Test Guidelines covering the parent species, or characteristics from the overall set of citrus characteristics, presented in the Annex, may be particularly useful.

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 in 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. For the purposes of these Test Guidelines, a growing cycle refers to the fruiting cycle.

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. In particular, a satisfactory crop of fruit must be produced in at least two fruiting cycles. 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 after planting. The age of the plants should be specified.

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 Plants 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 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 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) Fruit: length (characteristic 33)
(b) Fruit: diameter (characteristic 34)
(c) Fruit surface: predominant color (characteristic 50)
(d) Fruit: main color of flesh (characteristic 66)
(e) Time of maturity of fruit for consumption (characteristic 92).

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic. Each example variety is followed by the abbreviation of its subgroup in brackets.

6.5 Legend

(*) Asterisked characteristic – see section 6.1.2
(+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

QL Qualitative characteristic – see section 6.3
QN Quantitative characteristic – see section 6.3
PQ Pseudo-Qualitative characteristic – see section 6.3

c#. Corresponding number of characteristic in the citrus overall table of characteristics

(a)-(h) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1

6.6 Abbreviations

See page 2 for the list of species and their subgroups.

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

		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		upright	droit	aufrecht	erguido		1
		spreading	étalé	breitbuschig	abierto	Marsh (GRA)	2
c2.		drooping	retombant	hängend	colgante	Oroblanco (HGP)	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. **(*)**	**(a)**	**Young leaf: presence of anthocyanin coloration**	**Jeune feuille: présence de pigmentation anthocyanique**	**Junges Blatt: Vorhandensein von Anthocyanfärbung**	**Hoja joven: presencia de pigmentación antociánica**		
QL		absent	absente	fehlend	ausente		1
c6.		present	présente	vorhanden	presente		9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	**(a)**	**Young leaf: intensity of anthocyanin coloration**	**Jeune feuille: intensité de la pigmentation anthocyanique**	**Junges Blatt: Intensität der Anthocyanfärbung**	**Hoja joven: intensidad de la pigmentación antociánica**		
QN		weak	faible	gering	débil		3
		medium	moyenne	mittel	media		5
c7.		strong	forte	stark	fuerte		7
7.	**(b)**	**Leaf blade: length (apical leaflet in case of compound leaf)**	**Limbe: longueur (foliole apicale en cas de feuille composée)**	**Blattspreite: Länge (apikales Teilblatt bei zusammengesetztem Blatt)**	**Limbo: longitud (foliolo atípico en caso de hoja compuesta)**		
QN		short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
c10.		long	long	lang	largo		7
8.	**(b)**	**Leaf blade: width (as for 7)**	**Limbe: largeur (comme pour 7)**	**Blattspreite: Breite (wie für 7)**	**Limbo: anchura (como para 7)**		
QN		narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
c11.		broad	large	breit	ancho		7
9.	**(b)**	**Leaf blade: ratio length/width (as for 7)**	**Limbe: rapport longueur/largeur (comme pour 7)**	**Blattspreite: Verhältnis Länge/Breite (wie für 7)**	**Limbo: relación longitud/anchura (como para 7)**		
QN		small	faible	klein	pequeño		3
		medium	moyen	mittel	medio		5
c12.		large	élevé	groß	grande		7
10.	**(b)**	**Leaf blade: shape in cross section (as for 7)**	**Limbe: forme en section transversale (comme pour 7)**	**Blattspreite: Form im Querschnitt (wie für 7)**	**Limbo: forma en sección transversal (como para 7)**		
QN		straight or weakly concave	droit ou légèrement concave	gerade oder leicht konkav	recto o ligeramente cóncavo		1
		intermediate	intermédiaire	mittel	intermedio		2
c17.		strongly concave	fortement concave	stark konkav	fuertemente cóncavo		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	**(b)**	**Leaf blade: twisting**	**Limbe: torsion**	**Blattspreite: Drehung**	**Limbo: torsión**		
QN		absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		intermediate	intermédiaire	mittel	media		2
c18.		strong	forte	stark	fuerte		3
12.	**(b)**	**Leaf blade: blistering**	**Limbe: cloqûre**	**Blattspreite: Blasigkeit**	**Limbo: abullonado o ampollado**		
QN		absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		intermediate	intermédiaire	mittel	medio		2
c19.		strong	forte	stark	fuerte		3
13.	**(b)**	**Leaf blade: intensity of green color**	**Limbe: intensité de la couleur verte**	**Blattspreite: Intensität der Grünfärbung**	**Limbo: intensidad del color verde**		
QN		light	claire	hell	claro		3
		medium	moyenne	mittel	medio		5
c20.		dark	foncée	dunkel	oscuro		7
14.	**(b)**	**Leaf blade: pubescence on lower side**	**Limbe: pilosité sur la face inférieure**	**Blattspreite: Behaarung an der Unterseite**	**Limbo: pubescencia en el envés**		
QN		absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		intermediate	intermédiaire	mittel	media		2
c21.		strong	forte	stark	fuerte		3
15.	**(b)**	**Leaf blade: undulation of margin**	**Limbe: ondulation du bord**	**Blattspreite: Randwellung**	**Limbo: ondulación del borde**		
QN		absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		intermediate	intermédiaire	mittel	media		2
c22.		strong	forte	stark	fuerte		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16.	**(b)**	**Leaf blade: incisions of margin**	**Limbe: incisions du bord**	**Blattspreite: Randeinschnitte**	**Limbo: incisiones del borde**		
PQ		absent	absentes	fehlend	ausentes		1
		crenate	crénelées	gekerbt	crenadas		2
c23.		dentate	dentelées	gezähnt	dentadas		3
17.	**(b)**	**Leaf blade: shape of apex**	**Limbe: forme de l'extrémité**	**Blattspreite: Form der Spitze**	**Limbo: forma del ápice**		
(+)							
PQ		acuminate	acuminée	mit aufgesetzter Spitze	acuminado		1
		acute	pointue	spitz	agudo		2
		obtuse	obtuse	stumpf	obtuso		3
c24.		rounded	arrondie	abgerundet	redondeado		4
18.	**(b)**	**Leaf blade: emargination at tip**	**Limbe: échancrure à l'extrémité**	**Blattspreite: Einkerbung an der Spitze**	**Limbo: emarginado en la parte superior**		
(+)							
QL		absent	absente	fehlend	ausente		1
c25.		present	présente	vorhanden	presente		9
19.	**(b)**	**Petiole: length**	**Pétiole: longueur**	**Blattstiel: Länge**	**Pecíolo: longitud**		
QN		short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
c26.		long	long	lang	largo		7
20.	**(b)**	**Petiole: presence of wings**	**Pétiole: présence d'ailes**	**Blattstiel: Vorhandensein von Flügeln**	**Pecíolo: presencia de alas**		
QL		absent	absentes	fehlend	ausentes		1
c27.		present	présentes	vorhanden	presentes		9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21.	**(b)**	**<u>Varieties with petiole wings present only</u>: Petiole: width of wings**	**<u>Seulement les variétés présentant des ailes au pétiole</u>: Pétiole: largeur des ailes**	**<u>Nur Sorten mit vorhandenen Flügel am Blattstiel</u>: Blattstiel: Breite der Flügel**	**<u>Sólo variedades con alas presentes en el pecíolo</u>: Pecíolo: anchura de las alas**		
QN		narrow	étroites	schmal	estrechas		3
		medium	moyennes	mittel	medias		5
c28.		broad	larges	breit	anchas		7
22.	**(c)** **(d)**	**Flower bud: presence of anthocyanin coloration**	**Bouton floral: présence de pigmentation anthocyanique**	**Blütenknospe: Vorhandensein von Anthocyanfärbung**	**Yema floral: presencia de pigmentación antociánica**		
QL		absent	absente	fehlend	ausente		1
c29.		present	présente	vorhanden	presente		9
23.	**(c)** **(d)**	**Flower bud: intensity of anthocyanin coloration**	**Bouton floral: intensité de la pigmentation anthocyanique**	**Blütenknospe: Intensität der Anthocyanfärbung**	**Yema floral: intensidad de la pigmentación antociánica**		
QN		weak	faible	schwach	débil		3
		medium	moyenne	mittel	media		5
c30.		strong	forte	stark	fuerte		7
24.	**(c)**	**Flower: diameter of calyx**	**Fleur: diamètre du calice**	**Blüte: Durchmesser des Kelches**	**Flor: diámetro del cáliz**		
QN		small	petit	klein	pequeño	Nelruby (GRA), Star Ruby (GRA)	3
		medium	moyen	mittel	medio	Oroblanco (HGP)	5
c31.		large	grand	groß	grande	Pomelit (PUM)	7
25.	**(c)**	**Flower: length of petal**	**Fleur: longueur du pétale**	**Blüte: Länge des Blütenblattes**	**Flor: longitud del pétalo**		
QN		short	court	kurz	corto	Marsh (GRA), Nelruby (GRA), Ruby Henninger (GRA)	3
		medium	moyen	mittel	medio		5
c32.		long	long	lang	largo	Melogold (HGP), Pomelit (PUM)	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
26.	**(c)**	**Flower: width of petal**	**Fleur: largeur du pétale**	**Blüte: Breite des Blütenblattes**	**Flor: anchura del pétalo**		
QN		narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
c33.		broad	large	breit	ancho	Melogold (HGP), Pomelit (PUM)	7
27.	**(c)**	**Flower: ratio length/width of petal**	**Fleur: rapport longueur/largeur du pétale**	**Blüte: Verhältnis Länge/Breite des Blütenblattes**	**Flor: relación longitud/anchura del pétalo**		
QN		small	faible	klein	pequeño		3
		medium	moyen	mittel	medio		5
c34.		large	élevé	groß	grande		7
28.	**(c)**	**Flower: length of stamens**	**Fleur: longueur des étamines**	**Blüte: Länge der Staubfäden**	**Flor: longitud de los estambres**		
QN		short	courtes	kurz	cortos		3
		medium	moyennes	mittel	medios		5
c35.		long	longues	lang	largos		7
29.	**(c)**	**Anther: color**	**Anthère: couleur**	**Anthere: Farbe**	**Antera: color**		
PQ		white	blanc	weiß	blanco		1
		light yellow	jaune clair	hellgelb	amarillo claro		2
c38.		medium yellow	jaune moyen	mittelgelb	amarillo medio		3
30.	**(c)**	**Anther: viable pollen**	**Anthère: pollen viable**	**Anthere: keimfähiger Pollen**	**Antera: polen viable**		
QL		absent	absent	fehlend	ausente		1
c39.		present	présent	vorhanden	presente		9
31.	**(c)**	**Style: length**	**Style: longueur**	**Griffel: Länge**	**Estilo: longitud**		
QN		short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
c40.		long	long	lang	largo		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten 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. (*)	**(e)**	**Fruit: length**	**Fruit: longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN		short	court	kurz	corto		3
		medium	moyen	mittel	medio	Ray Ruby (GRA)	5
c44.		long	long	lang	largo	Pomelit (PUM)	7
34. (*)	**(e)**	**Fruit: diameter**	**Fruit: diamètre**	**Frucht: Durchmesser**	**Fruto: diámetro**		
QN		small	petit	klein	pequeño		3
		medium	moyen	mittel	medio	Melogold (HGP)	5
c45.		large	grand	groß	grande	Chandler (PUM)	7
35. (*)	**(e)**	**Fruit: ratio length/diameter**	**Fruit: rapport longueur/diamètre**	**Frucht: Verhältnis Länge/Durchmesser**	**Fruto: relación longitud/diámetro**		
QN		small	faible	klein	pequeño	Oroblanco (HGP)	3
		medium	moyen	mittel	medio	Melogold (HGP)	5
c46.		large	élevé	groß	grande		7
36. (*)	**(e)**	**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		towards stalk end	vers l'extrémité pédonculaire	zum Stielende hin	hacia el extremo peduncular		1
		at middle	au milieu	in der Mitte	en el medio	Marsh (GRA)	2
c47.		towards distal end	vers la partie distale	zum distalen Ende hin	hacia el extremo distal	Melogold (HGP)	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37. **(*)** **(+)**	**(e)**	**Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)**	**Fruit: forme générale de la partie proximale (à l'exclusion du col, de la collerette et de la dépression à l'extrémité pédonculaire)**	**Frucht: allgemeine Form des proximalen Teils (ohne Hals, Kragen und Einsenkung am Stielende)**	**Fruto: forma general de la parte proximal (excluido el cuello, el collar y la depresión del extremo peduncular)**		
PQ		flattened	aplatie	abgeflacht	aplanada	Oroblanco (HGP)	1
		slightly rounded	légèrement arrondie	leicht abgerundet	ligeramente redondeada	Marsh (GRA), Redblush (GRA)	2
		strongly rounded	fortement arrondie	stark abgerundet	fuertemente redondeada		3
c49.		tapered	effilée	spitz	afilada		4
38. **(*)** **(+)**	**(e)**	**<u>Only varieties without fruit neck</u>: Fruit: presence of depression at stalk end**	**<u>Seulement les variétés dont le fruit ne présente pas de col</u>: Fruit: présence d'une dépression à l'extrémité pédonculaire**	**<u>Nur Sorten ohne Fruchthals</u>: Frucht: Vorhandensein einer Einsenkung am Stielende**	**<u>Sólo variedades con fruto sin cuello</u>: Fruto: presencia de una depresión en el extremo peduncular**		
QL		absent	absente	fehlend	ausente		1
c53.		present	présente	vorhanden	presente	Ray Ruby (GRA)	9
39.	**(e)**	**<u>Only varieties without fruit neck</u>: Fruit: depth of depression at stalk end**	**<u>Seulement les variétés dont le fruit ne présente pas de col</u>: Fruit: profondeur de la dépression à l'extrémité pédonculaire**	**<u>Nur Sorten ohne Fruchthals</u>: Frucht: Tiefe der Einsenkung am Stielende**	**<u>Sólo variedades con fruto sin cuello</u>: Fruto: profundidad de la depresión en el extremo peduncular**		
QN		shallow	peu profonde	flach	poco profunda	Nelruby (GRA), Ruby Henninger (GRA)	3
		medium	moyenne	mittel	media	Ray Ruby (GRA)	5
c54.		deep	profonde	tief	profunda		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40.	**(e)**	**Fruit: number of radial grooves at stalk end**	**Fruit: nombre de cannelures radiales à l'extrémité pédonculaire**	**Frucht: Anzahl radialer Furchen am Stielende**	**Fruto: número de acanaladuras radiales en el extremo peduncular**		
QN		absent or few	absentes ou peu nombreuses	fehlend oder sehr gering	ausente o bajo	Pomelit (PUM), Rio Red (GRA)	1
		intermediate	moyennement nombreuses	mittel	medio	Oroblanco (HGP)	2
c57.		many	nombreuses	groß	alto		3
41.	**(e)**	**Fruit: length of radial grooves 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		short	courtes	kurz	cortas	Oroblanco (HGP), Rio Red (GRA)	3
		medium	moyennes	mittel	medias		5
c58.		long	longues	lang	largas		7
42.	**(e)**	**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 del ombligo y la depresión en el extremo distal)**		
(+)							
QN		flattened	aplatie	abgeflacht	aplanada	Melogold (HGP), Ray Ruby (GRA)	1
		slightly rounded	légèrement arrondie	leicht abgerundet	ligeramente redondeada	Marsh (GRA), Redblush (GRA)	2
c64.		strongly rounded	fortement arrondie	stark abgerundet	fuertemente redondeada		3
43.	**(e)**	**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		absent	absente	fehlend	ausente	Oroblanco (HGP), Star Ruby (GRA)	1
c65.		present	présente	vorhanden	presente	Melogold (HGP)	9

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
49.	**(e)**	**Fruit: diameter of stylar scar**	**Fruit: diamètre de la cicatrice stylaire**	**Frucht: Durchmesser der Griffelnarbe**	**Fruto: diámetro de la cicatriz estilar**		
QN		small	petit	klein	pequeña		3
		medium	moyen	mittel	media		5
c73.		large	grand	groß	grande		7
50.	**(e)**	**Fruit surface: predominant color**	**Fruit: couleur prédominante à la surface**	**Fruchtoberfläche: Hauptfarbe**	**Superficie del fruto: color predominante**		
(*)	**(f)**						
PQ		dark greenish yellow	jaune verdâtre foncé	dunkel grünlichgelb	amarillo verdoso oscuro	Tahiti (PUM)	1
		yellow green	vert-jaune	gelbgrün	verde amarillento		2
		light yellow	jaune clair	hellgelb	amarillo claro	Melogold (HGP), Oroblanco (HGP), Pomelit (PUM)	3
		medium yellow	jaune moyen	mittelgelb	amarillo medio	Marsh (GRA)	4
		light pink	rose pâle	hellrosa	rosa claro	Ruby Henninger (GRA)	5
		medium pink	rose moyen	mittelrosa	rosa medio	Oran Red (GRA)	6
c82.		dark pink	rose foncé	dunkelrosa	rosa oscuro	Star Ruby (GRA)	7
51.	**(e)**	**Fruit surface: glossiness**	**Surface du fruit: brillance**	**Fruchtoberfläche: Glanz**	**Superficie del fruto: brillo**		
	(f)						
QN		absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil		1
		weak	faible	gering	débil		3
		medium	moyenne	mittel	medio		5
		strong	forte	stark	fuerte		7
c85.		very strong	très forte	sehr stark	muy fuerte		9
52.	**(e)**	**Fruit surface: roughness**	**Surface du fruit: rugosité**	**Fruchtoberfläche: Rauheit**	**Superficie del fruto: rugosidad**		
	(f)						
QN		smooth	lisse	glatt	lisa	Marsh (GRA)	3
		medium	intermédiaire	mittel	media	Oroblanco (HGP)	5
c86.		rough	rugueuse	rauh	rugosa	Tahiti (PUM)	7

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
57.	**(e)** **(f)**	**<u>Varieties with pitting only</u>: Fruit surface: density of pitting on oil glands**	**<u>Variétés avec dépression seulement</u>: Surface du fruit: densité de la dépression sur les glandes à huile**	**<u>Nur Sorten mit Grübchen</u>: Fruchtoberfläche: Dichte der Grübchen an den Öldrüsen**	**<u>Sólo variedades con picado</u>: Superficie del fruto: densidad del picado en las glándulas de aceite**		
QN		sparse	éparse	locker	dispersa		3
		medium	moyenne	mittel	media	Ray Ruby (GRA)	5
c91.		dense	dense	dicht	densa		7
58.	**(e)** **(f)**	**<u>Varieties with pitting only</u>: Fruit surface: depth of pitting on oil glands**	**<u>Variétés avec dépression seulement</u>: Surface du fruit: profondeur de la dépression sur les glandes à huile**	**<u>Nur Sorten mit Grübchen</u>: Fruchtoberfläche: Tiefe der Grübchen an den Öldrüsen**	**<u>Sólo variedades con picado</u>: Superficie del fruto: profundidad del picado en las glándulas de aceite**		
QN		shallow	peu profonde	flach	poco profundo	Marsh (GRA)	3
		medium	moyenne	mittel	medio	Ray Ruby (GRA)	5
c92.		deep	profonde	tief	profundo		7
59.	**(e)** **(f)**	**<u>Varieties with pebbling only</u>: Fruit surface: density of pebbling on oil glands**	**<u>Variétés avec protubérance seulement</u>: Surface du fruit: densité de la protubérance sur les glandes à huile**	**<u>Nur Sorten mit Körnern</u>: Fruchtoberfläche: Dichte der Körner an den Öldrüsen**	**<u>Sólo variedades con granulado</u>: Superficie del fruto: densidad del granulado en las glándulas de aceite**		
QN		sparse	éparse	locker	dispersa		3
		medium	moyenne	mittel	media		5
c93.		dense	dense	dicht	densa		7
60.	**(e)** **(f)**	**<u>Varieties with pebbling only</u>: Fruit surface: degree of pebbling on oil glands**	**<u>Variétés avec protubérance seulement</u>: Surface du fruit: degré de protubérance sur les glandes à huile**	**<u>Nur Sorten mit Körnern</u>: Fruchtoberfläche: Grad der Körnerbildung an den Öldrüsen**	**<u>Sólo variedades con granulado</u>: Superficie del fruto: nivel de granulado en las glándulas de aceite**		
QN		weak	faible	gering	débil	Star Ruby (GRA)	3
		medium	moyen	mittel	medio		5
c94.		strong	fort	stark	fuerte	Tahiti (PUM)	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
61. **(*)**	**(e)** **(f)**	**Fruit rind: thickness**	**Écorce du fruit: épaisseur**	**Fruchtschale: Dicke**	**Corteza del fruto: espesor**		
QN		thin	fine	dünn	delgada		3
		medium	moyenne	mittel	media	Flame (GRA)	5
c95.		thick	épaisse	dick	gruesa	Oroblanco (HGP)	7
62. **(*)**	**(e)** **(f)**	**Fruit rind: adherence to flesh**	**Écorce du fruit: adhérence à la chair**	**Fruchtschale: Anhaften am Fleisch**	**Corteza del fruto: adherencia a la pulpa**		
QN		weak	faible	gering	débil		3
		medium	moyenne	mittel	media		5
c96.		strong	forte	stark	fuerte		7
63.	**(e)**	**Fruit: color of albedo**	**Fruit: couleur de l'albédo**	**Frucht: Farbe der Albedo**	**Fruto: color del albedo**		
PQ		greenish	verdâtre	grünlich	verdoso	Marsh (GRA), Melogold (HGP), Oroblanco (HGP)	1
		light pink	rose pâle	hellrosa	rosa claro	Ray Ruby (GRA), Redblush (GRA), Ruby Henninger (GRA)	2
c100.		pink	rose	rosa	rosa	Star Ruby (GRA)	3
64.	**(e)** **(g)**	**Fruit: differently colored specks in flesh**	**Fruit: taches de couleurs différentes dans la chair**	**Frucht: unterschiedlich gefärbte Flecken am Fleisch**	**Fruto: manchas de distinto color en la pulpa**		
QL		absent	absentes	fehlend	ausentes	Marsh (GRA)	1
c105.		present	présentes	vorhanden	presentes		9
65.	**(e)**	**Fruit: bicolored segments**	**Fruit: segments bicolores**	**Frucht: zweifarbige Segmente**	**Fruto: gajos bicolores**		
QL		absent	absents	fehlend	ausentes	Marsh (GRA), Star Ruby (GRA)	1
c106.		present	présents	vorhanden	presentes	Pomelit (PUM)	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
66. (*)	**(e) (g)**	**Fruit: main color of flesh**	**Fruit: couleur principale de la chair**	**Frucht: Hauptfarbe des Fleisches**	**Fruto: color principal de la pulpa**		
PQ		whitish	blanchâtre	weißlich	blanquecino	Marsh (GRA), Melogold (HGP), Oroblanco (HGP)	1
		light green	vert clair	hellgrün	verde claro	Tahiti (PUM)	2
		light pink	rose pâle	hellrosa	rosa claro	Ray Ruby (GRA), Redblush (GRA), Ruben (GRA), Ruby Henninger (GRA)	3
		medium pink	rose moyen	mittelrosa	rosa medio	Henderson (GRA)	4
		dark pink	rose foncé	dunkelrosa	rosa oscuro	Star Ruby (GRA)	5
c107.		whitish and pink	blanchâtre et rose	weißlich und rosa	blanquecino y rosa	Pomelit (PUM)	6
67.	**(e) (g)**	**Fruit: bitterness of flesh**	**Fruit: amertume de la chair**	**Frucht: Bitterkeit des Fleisches**	**Fruto: amargor de la pulpa**		
QL		absent	absente	fehlend	ausente		1
c108.		present	présente	vorhanden	presente		9
68.	**(e) (g)**	**Fruit: filling of core**	**Fruit : structure du cœur**	**Frucht: Ausfüllung des inneren Fruchtfleisches**	**Fruto: relleno del hueco central**		
QN		absent or very sparse	absente ou très lâche	fehlend oder sehr locker	ausente o muy laxo		1
		sparse	lâche	locker	laxo	Ray Ruby (GRA), Ruben (GRA)	3
		medium	intermédiaire	mittel	medio	Nelruby (GRA), Star Ruby (GRA)	5
		dense	dense	dicht	denso	Tahiti (PUM)	7
c109.		very dense	très dense	sehr dicht	muy denso		9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
69.	**(e) (g)**	**Fruit: diameter of core**	**Fruit: diamètre du cœur**	**Frucht: Durchmesser des inneren Fruchtfleisches**	**Fruto: diámetro del hueco central**		
QN		small	petit	klein	pequeño		3
		medium	moyen	mittel	medio	Henderson (GRA), Ray Ruby (GRA)	5
c110.		large	grand	groß	grande	Chandler (PUM)	7
70.	**(e) (g)**	**Fruit: presence of rudimentary segments**	**Fruit: présence de segments rudimentaires**	**Frucht: Vorhandensein von unvollständigen Segmenten**	**Fruto: presencia de gajos rudimentarios**		
QN		absent or weak	nulle ou faible	null oder gering	nula o débil		1
		intermediate	intermédiaire	mittel	intermedia		2
c111.		strong	forte	stark	fuerte		3
71.	**(e) (g)**	**Fruit: number of well developed segments**	**Fruit: nombre de segments bien développés**	**Frucht: Anzahl gut entwickelter Segmente**	**Fruto: número de gajos bien desarrollados**		
QN		few	peu	gering	bajo		3
		medium	moyen	mittel	medio		5
c112.		many	beaucoup	groß	alto		7
72.	**(e) (g)**	**Fruit: strength of segment walls**	**Fruit: rigidité des parois des segments**	**Frucht: Festigkeit der Segmentwände**	**Fruto: firmeza de las paredes de los gajos**		
QN		weak	faible	schwach	débil		3
		medium	moyenne	mittel	media		5
c114.		strong	forte	stark	fuerte		7
73.	**(e) (g)**	**Fruit: length of juice vesicles**	**Fruit: longueur des vésicules de jus**	**Frucht: Länge der Saftbläschen**	**Fruto: longitud de las vesículas de jugo**		
QN		short	courtes	kurz	corta		3
		medium	moyennes	mittel	media		5
c115.		long	longues	lang	larga		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
74.	**(e) (g)**	**Fruit: thickness of juice vesicles**	**Fruit: épaisseur des vésicules de jus**	**Frucht: Dicke der Saftbläschen**	**Fruto: grosor de las vesículas de jugo**		
QN		thin	fines	dünn	delgadas		3
		medium	moyennes	mittel	medianas		5
c116.		thick	épaisses	dick	gruesas		7
75.	**(e) (g)**	**Fruit: conspicuousness of juice vesicle walls**	**Fruit: netteté des parois des vésicules de jus**	**Frucht: Sichtbarkeit der Saftbläschenwände**	**Fruto: visibilidad de las paredes de las vesículas de jugo**		
QN		low	faible	gering	baja		3
		medium	moyenne	mittel	media		5
c117.		high	forte	groß	alta		7
76.	**(e) (g)**	**Fruit: coherence of juice vesicles**	**Fruit: adhérence des vésicules de jus**	**Frucht: Zusammenhalt der Saftbläschen**	**Fruto: coherencia de las vesículas de jugo**		
QN		weak	faible	gering	débil		3
		medium	moyenne	mittel	media		5
c118.		strong	forte	stark	fuerte		7
77.	**(e)**	**Fruit: juiciness**	**Fruit: succulence**	**Frucht: Saftigkeit**	**Fruto: contenido de jugo**		
QN		low	faible	gering	baja		3
		medium	moyenne	mittel	media		5
c121.		high	élevée	hoch	alta		7
78.	**(e)**	**Fruit juice: total soluble solids**	**Jus du fruit: total de solides solubles**	**Fruchtsaft: Gehalt an löslicher Trockensubstanz**	**Jugo del fruto: sólidos solubles totales**		
QN		low	faible	niedrig	bajo		3
		medium	moyen	mittel	mediano		5
c122.		high	fort	hoch	alto		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
79.	**(e)**	**Fruit juice: acidity**	**Jus du fruit: acidité**	**Fruchtsaft: Säure**	**Jugo del fruto: acidez**		
QN		low	faible	gering	baja		3
		medium	moyenne	mittel	media		5
c123.		high	forte	stark	alta		7
80.	**(e)**	**Fruit: strength of fibre**	**Fruit: rigidité des fibres**	**Frucht: Festigkeit der Fasern**	**Fruto: vigor de la fibra**		
QN		weak	faible	schwach	débil		3
		medium	moyenne	mittel	medio		5
c124.		strong	forte	stark	fuerte		7
81.	**(e)**	**Fruit: number of seeds (controlled manual self-pollination)**	**Fruit: nombre de pépins (autopollinisation manuelle contrôlée)**	**Frucht: Anzahl Samen (manuell kontrollierte Selbstbefruchtung)**	**Fruto: número de semillas (autopolinización manual controlada)**		
QN		absent or very few	absents ou très peu nombreux	fehlend oder sehr gering	ausente o muy bajo	Melogold (HGP), Oroblanco (HGP),	1
		few	peu nombreux	gering	bajo	Nelruby (GRA), Redblush (GRA)	3
		medium	moyennement nombreux	mittel	medio		5
		many	nombreux	groß	alto		7
c125.		very many	très nombreux	sehr groß	muy alto	Chandler (PUM), Tahiti (PUM)	9
82.	**(e)**	**Fruit: number of seeds (open pollination)**	**Fruit: nombre de pépins (fécondation libre)**	**Frucht: Anzahl Samen (frei abblühend)**	**Fruto: número de semillas (polinización libre)**		
QN		absent or very few	absents 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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
83. (*)	**(h)**	**Seed: polyembryony**	**Pépin: polyembryonnie**	**Samen: Polyembryonie**	**Semilla: poliembrionía**		
QL		absent	absente	fehlend	ausente		1
c127.		present	présente	vorhanden	presente		9
84.	**(h)**	**Seed: length**	**Pépin: longueur**	**Samen: Länge**	**Semilla: longitud**		
QN		short	court	kurz	corta	Flame (GRA)	3
		medium	moyen	mittel	media	Nelruby (GRA)	5
c128.		long	long	lang	larga	Chandler (PUM), Pomelit (PUM), Tahiti (PUM)	7
85.	**(h)**	**Seed: width**	**Pépin: largeur**	**Samen: Breite**	**Semilla: anchura**		
QN		narrow	étroit	schmal	estrecha		3
		medium	moyen	mittel	media	Henderson (GRA)	5
c129.		broad	large	breit	ancha		7
86.	**(h)**	**Seed: surface**	**Pépin: surface**	**Samen: Oberfläche**	**Semilla: superficie**		
QL		smooth	lisse	glatt	lisa		1
c130.		wrinkled	ridée	runzlig	arrugada		2
87.	**(h)**	**Seed: prominence of wrinkles**	**Pépin: proéminence des rides**	**Samen: Ausprägung der Runzeln**	**Semilla: prominencia de las arrugas**		
QN		weak	faible	schwach	débil		3
		medium	moyenne	mittel	media		5
c131.		strong	forte	stark	fuerte		7
88.	**(h)**	**Seed: external color**	**Pépin: couleur externe**	**Samen: Außenfarbe**	**Semilla: color externo**		
PQ		greenish	verdâtre	grünlich	verdoso		1
		whitish	blanchâtre	weißlich	blanquecino		2
		yellowish	jaunâtre	gelblich	amarillento		3
		pinkish	rosâtre	rosa	rosado		4
c132.		brownish	brunâtre	bräunlich	amarronado		5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
89.	**(h)**	**Seed: color of inner seed coat**	**Pépin: couleur du tégument interne**	**Samen: Farbe der inneren Samenschale**	**Semilla: color de la cubierta interna**		
PQ		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.	**(h)**	**Polyembryonic varieties only: Seed: color of cotyledons**	**Variétés poly-embryonnaires seulement: Pépin: couleur des cotylédons**	**Nur poly-embryonische Sorten: Samen: Farbe der Kotyledonen**	**Sólo variedades poli-embriónicas: Semilla: color de los cotiledones**		
PQ		white	blanc	weiß	blanco		1
		cream	crème	cremefarben	crema		2
		light green	vert clair	hellgrün	verde claro		3
c134.		dark green	vert foncé	dunkelgrün	verde oscuro		4
91. **(*)**		**Flowering habit**	**Floraison**	**Blühverhalten**	**Tipo de floración**		
QL		flowering once	une seule	einmal blühend	una floración		1
c135.		flowering more than once	plusieurs	mehr als einmal blühend	más de una floración		2
92. **(*)**		**Time of maturity of fruit for consumption**	**Époque de maturité du fruit pour la consommation**	**Zeitpunkt der Genußreife**	**Época de madurez del fruto para su consumo**		
QN		early	précoce	früh	temprana	Marsh (GRA)	3
		medium	moyenne	mittel	media		5
c136.		late	tardive	spät	tardía		7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
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-inkompatibilität**	**Planta: auto-incompatibilidad**		
QL	absent	absente	fehlend	ausente		1
c138.	present	présente	vorhanden	presente		9

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) Young leaf: Observations on the young leaf should be made on actively growing spring flush.
[Not applicable for Groups 1 (Mandarin) and 2 (Oranges).]

(b) Leaf: 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.

(c) Flower: Unless otherwise indicated, 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.

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

(d) Flower bud: Observations on the flower bud should be made when the petal tips are visible just before the opening of the bud.
[Not applicable for Groups 1 (Mandarin), 2 (Oranges) and 5 (Trifoliate Orange).]

(e) Fruit: Observations on the fruit should be made at the stage of optimum ripeness. The fruit should be tested weekly and harvested as soon as this stage has been reached.

All fruits for observation should be taken from the periphery of the tree and fruit misformed as a result of clustering should not be sampled.

(f) Fruit surface and fruit rind: Observations on the fruit surface and on the fruit rind should be made at the middle, between the base and apex of the fruit.

(g) Fruit flesh: Observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.

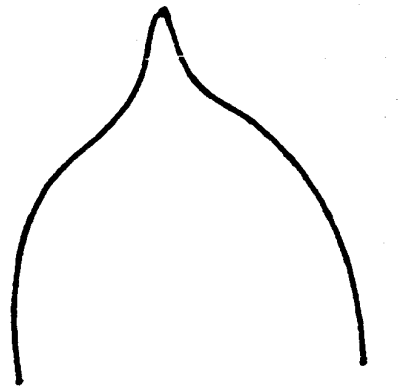
(h) Seed: Observations on the seed should be made on the fresh seed.

8.2 Explanations for individual characteristics

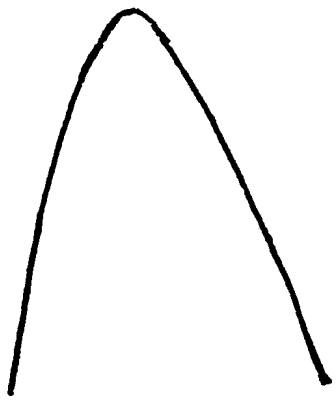
Ad. 2 (c2.): Tree: Growth habit

The observation on the growth habit of the tree should be made immediately after harvest.

Ad. 17 (c24.): Leaf blade: shape of apex

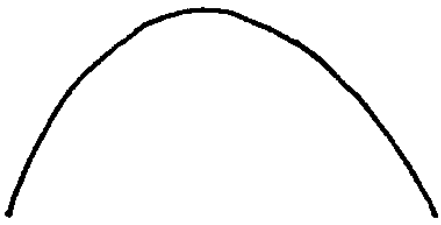


1
acuminate



2
acute

3
obtuse



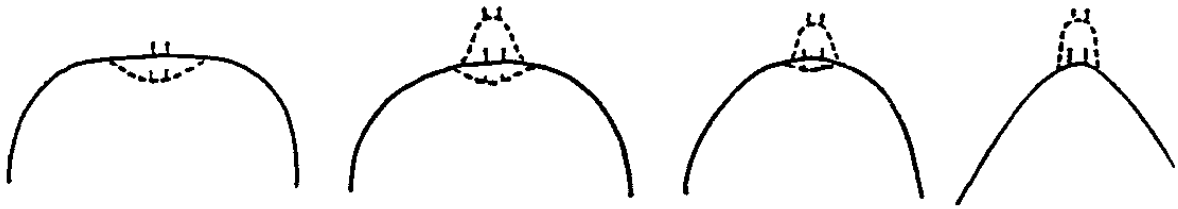
4
rounded

Ad. 18 (c25.): Leaf blade: emargination at tip

1
absent

9
present

Ad. 37 (c49.): Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)



1
flattened

2
slightly rounded

3
strongly rounded

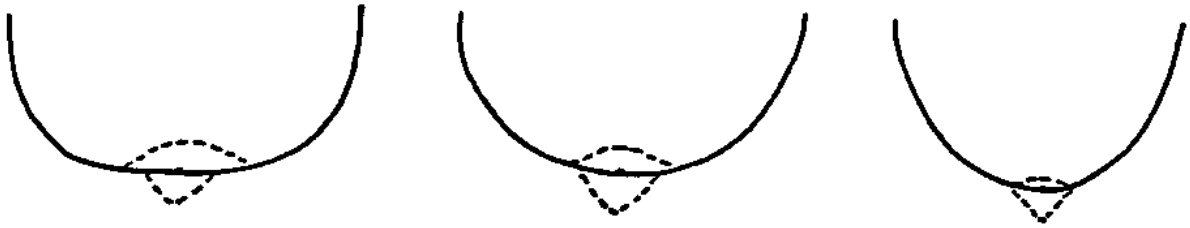
4
tapered

Ad. 38 (c53.): Only varieties without fruit neck: Fruit: presence of depression at stalk end

1
absent

9
present

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

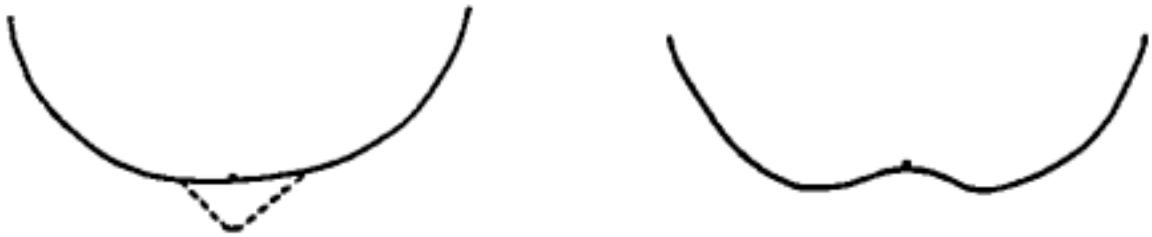


1
flattened

2
slightly rounded

3
strongly rounded

Ad. 43 (c65.): Fruit: presence of depression at distal end



1
absent

9
present

Ad. 47 (c71.): Fruit: type of areola

1
smooth

2
grooved

3
ridged

LIST OF EXAMPLE VARIETIES FOR GRAPEFRUIT AND PUMMELO

Variety denomination	Subgroup
Chandler	PUM
Flame	GRA
Henderson	GRA
Marsh	GRA
Melogold	HGP
Nelruby	GRA
Oran Red	GRA
Oroblanco	HGP
Pomelit	PUM
Ray Ruby	GRA
Redblush	GRA
Rio Red	GRA
Ruben	GRA
Ruby Henninger	GRA
Star Ruby	GRA
Tahiti	PUM

9. Literature

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

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 agrios cultivadas en España". Generalidad Valenciana, 70 pp.

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 Marcide, J.M., Porras, I., García Lidón, A., 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. (Editor), 1973: "The Citrus Industry," Volume III, University of California, Division of Agricultural Sciences, 528 pp.

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

Reuther W., Batchelor, L.D., Webber H.J. (Editors), 1967: "The Citrus Industry," Volume I, 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, 126 pp.

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

Spina, P., Russo, F., Geraci, G., Martelli, S., 1980: "Schede per ii registro varietale dei fruttiferi I-ARANCIO(d)MANDARINO," Ministro Agricoltura(d)Foreste - S.O.I., Roma, Italy, 92 pp.

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

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

(a) Subgroup: (i) GRA -- [ ]

(ii) PUM - [ ]

(iii) HGP -- [ ]

(b) Species (please specify): .....

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

4.1.1 Variety resulting from:

(a) controlled cross [ ]
(please state parent varieties)
(b) partially unknown cross [ ]
(please state known parent variety(ies))
(c) totally unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)

4.2 Method of Propagating the Variety

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 (33)	**Fruit: length**		
	short		3[ ]
	medium	Ray Ruby (GRA)	5[ ]
	long	Pomelit (PUM)	7[ ]
5.2 (34)	**Fruit: diameter**		
	small		3[ ]
	medium	Melogold (HGP)	5[ ]
	large	Chandler (PUM)	7[ ]
5.3 (50)	**Fruit surface: predominant color**		
	dark greenish yellow	Tahiti (PUM)	1[ ]
	yellow green		2[ ]
	light yellow	Melogold (HGP), Oroblanco (HGP), Pomelit (PUM)	3[ ]
	medium yellow	Marsh (GRA)	4[ ]
	light pink	Ruby Henninger (GRA)	5[ ]
	medium pink	Oran Red (GRA)	6[ ]
	dark pink	Star Ruby (GRA)	7[ ]

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

5.4 (66) Fruit: main color of flesh

whitish	Marsh (GRA), Melogold (HGP), Oroblanco (HGP)	1[ ]
light green	Tahiti (PUM)	2[ ]
light pink	Ray Ruby (GRA), Redblush (GRA), Ruben (GRA), Ruby Henninger (GRA)	3[ ]
medium pink	Henderson (GRA)	4[ ]
dark pink	Star Ruby (GRA)	5[ ]
whitish and pink	Pomelit (PUM)	6[ ]

5.5 (92) Time of maturity of fruit for consumption

early	Marsh (GRA)	3[ ]
medium		5[ ]
late		7[ ]

5.6 (93) Fruit: parthenocarpy

absent		1[ ]
present		9[ ]

6. Similar varieties and differences from these varieties

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 surface: predominant color*	*light pink*	*medium pink*

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 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]