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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

CITRUS L. – Group 1

MANDARINS

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 2: TG/202/1 - Oranges

CITRUS L. – GROUP 3: TG/203/1 – Lemons and Limes

CITRUS L. – GROUP 4: TG/204/1 – Grapefruit and Pummelo

CITRUS L. – GROUP 5: TG/83/4 – Trifoliate Orange

GROUP 1 – ALTERNATIVE NAMES AND CORRESPONDING SUBGROUPS*

<i>Latin</i>	<i>Subgroup</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Citrus amblycarpa</i> (Hassk.) Ochse	HMA				
<i>Citrus benikoji</i> hort. ex Tanaka	PMN				
<i>Citrus chuana</i> hort. ex Tseng	PMN				
<i>Citrus clementina</i> hort. ex Tan.	CLE	Clementine	Clémentinier	Clementine	Clementina
<i>Citrus crenatifolia</i> Lush.	PMN				
<i>Citrus deliciosa</i> Ten.	MMM	Mediterranean Mandarin	Mandarinier	Mandarine	Mandarina común
<i>Citrus depressa</i> Hayata	HMA				
<i>Citrus genshokan</i> (Hayata) hort. ex Tanaka	PMN				
<i>Citrus hainanensis</i> Tanaka	HMA				
<i>Citrus haniana</i> hort. ex Tseng	PMN				
<i>Citrus ichangensis</i> Swing. x <i>C. reticulata</i> Blanco	HMR	Ichandarin			
<i>Citrus ichangensis</i> Swing. x <i>C. unshiu</i> (Mak.) Marc.	HMR	Ichandarin			
<i>Citrus inflata</i> hort. ex Tanaka	HMA				
<i>Citrus inflatorugosa</i> hort. ex Tanaka	HMA				
<i>Citrus keraji</i> hort. ex Tanaka	HMA				
<i>Citrus leiocarpa</i> hort. ex Tanaka	HMA				
<i>Citrus lycopersicaeformis</i> (Lush.) hort. ex Tanaka	HMA				
<i>Citrus madurensis</i> Lour.	HMA	Calamondin			
<i>Citrus maxima</i> (Burm.) Merr. x <i>C. ichangensis</i> Swing.	HMR	Ichangelo			
<i>Citrus nippokoreana</i> Tanaka	HMA				
<i>Citrus nobilis</i> Lour.	HMA				
<i>Citrus oto</i> hort. ex Yu. Tanaka	HMA				
<i>Citrus paratangerina</i> hort. ex Tanaka	PMN				
<i>Citrus platymamma</i> hort. ex Tanaka	PMN				
<i>Citrus pseudo-aurantium</i> hort. ex Yu. Tanaka	HMA				
<i>Citrus pseudosunki</i> hort. ex Tanaka	HMA				
<i>Citrus reshni</i> hort. ex Tanaka	HMA				
<i>Citrus reticulata</i> Blanco	PMN	Tangerine	Mandarinier	Tangerine	Mandarina Ponkan
<i>Citrus reticulata</i> Blanco x <i>C. paradisi</i> Macfad	TNL	Tangelo	Tangelo	Tangelo	Tangelo
<i>Citrus reticulata</i> Blanco x <i>C. sinensis</i> (L.) Osb.	TNR	Tangor	Tangor	Tangor	Tangor

*

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.]

<i>Latin</i>	<i>Subgroup</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Citrus reticulata</i> Blanco x <i>Fortunella</i> sp.	HMR	Kumandarin			
<i>Citrus suavissima</i> hort. ex Tanaka	PMN				
<i>Citrus succosa</i> hort. ex Tanaka	PMN				
<i>Citrus suhuiensis</i> hort. ex Tanaka	PMN				
<i>Citrus sunki</i> (Hayata) hort. ex Tanaka	HMA				
<i>Citrus tangerina</i> hort. ex Tanaka	PMN				
<i>Citrus tardiferax</i> hort. ex Tanaka	PMN				
<i>Citrus tardiva</i> hort. ex Shirai	HMA				
<i>Citrus tarogayo</i> hort. ex Yu. Tanaka	HMA				
<i>Citrus temple</i> hort. ex Y. Tan. x <i>C. paradisi</i> Macfad	HMA	Siamelo			
<i>Citrus temple</i> hort. ex Yu. Tanaka	TNR				
<i>Citrus tumida</i> hort. ex Tanaka	HMA				
<i>Citrus unshiu</i> Marcow.	SAT	Satsuma	Satsuma	Satsuma	Satsuma
<i>Citrus yatsushiro</i> hort. ex Tanaka	HMA				
<i>Citrus yuko</i> hort. ex Tanaka	HMA				
Tangelo x <i>C. paradisi</i> Macfad	HMA	Tangelolo			
Tangor x <i>C. temple</i> hort. ex Y. Tan.	HMA	Tangorgelo			

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1. Subject of these Test 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 1: MANDARINS 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 three 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 28)
- (b) Fruit: diameter (characteristic 29)
- (c) Fruit: presence of neck (characteristic 34)
- (d) Fruit surface: predominant color(s) (characteristic 61)
- (e) Time of maturity of fruit for consumption (characteristic 108)

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
- QL Qualitative characteristic – see section 6.3
- QN Quantitative characteristic – see section 6.3
- PQ Pseudo-Qualitative characteristic – see section 6.3
- [###] Corresponding number of characteristic in the citrus overall table of characteristics (starting from 200)
- (a)-(f) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1
- (+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

6.6 *Abbreviation*

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	Ploidie	Ploidie	Ploidía		
QL	diploid	diploïde	diploid	diploide		2
	triploid	triploïde	triploid	triploide		3
[201]	tetraploid	tétraploïde	tetraploid	tetraploide		4
2. (*) (+)	Tree: growth habit	Arbre: port	Baum: Wuchstyp	Árbol: porte		
PQ	upright	droit	aufrecht	erguido	Marisol (CLE)	1
	spreading	étalé	breitbuschig	abierto	Clemenules (CLE)	2
[202]	drooping	retombant	hängend	colgante	Owari (SAT)	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	ausentes o laxa	Owari (SAT)	1
	intermediate	intermédiaires	mittel	media	Marisol (CLE)	2
[203]	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	Marisol (CLE)	3
	medium	moyennes	mittel	medias		5
[204]	long	longues	lang	largas		7
5.	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 (a)	short	court	kurz	corto	Común (MMN)	3
	medium	moyen	mittel	medio	Nova (HMA)	5
[210]	long	long	lang	largo	Kara (HMA)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
6.	Leaf blade: width (as for 5)	Limbe: largeur (comme pour 5)	Blattspreite: Breite (wie für 5)	Limbo: anchura (como para 5)		
QN (a)	narrow	étroit	schmal	estrecho	Común (MMN)	3
	medium	moyen	mittel	medio	Clemenules (CLE)	5
[211]	broad	large	breit	ancho	Page (HMA)	7
7.	Leaf blade: ratio length/width (as for 5)	Limbe: rapport longueur/largeur (comme pour 5)	Blattspreite: Verhältnis Länge/ Breite (wie für 5)	Limbo: relación longitud/anchura (como para 5)		
QN (a)	small	faible	klein	pequeña	Orlando (TNL)	3
	medium	moyen	mittel	media	Fino (CLE)	5
[212]	large	élevé	groß	grande	Clemenules (CLE)	7
8.	Leaf blade: shape in cross section (as for 5)	Limbe: forme en section transversale (comme pour 5)	Blattspreite: Form im Querschnitt (wie für 5)	Limbo: forma en sección transversal (como para 5)		
QN (a)	straight or weakly concave	droit ou légèrement concave	gerade oder leicht konkav	recto o ligeramente cóncavo	Owari (SAT)	1
	intermediate	intermédiaire	mittel	intermedio	Minneola (TNL)	2
[217]	strongly concave	fortement concave	stark konkav	fuertemente cóncavo		3
9.	Leaf blade: twisting	Limbe: torsion	Blattspreite: Drehung	Limbo: torsión		
QN (a)	absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
	intermediate	intermédiaire	mittel	media		2
[218]	strong	forte	stark	fuerte		3
10.	Leaf blade: blistering	Limbe: cloûre	Blattspreite: Blasigkeit	Limbo: abullonado o ampollado		
QN (a)	absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
	intermediate	intermédiaire	mittel	medio		2
[219]	strong	forte	stark	fuerte		3

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
11.	Leaf blade: green color	Limbe: couleur verte	Blattspreite: Grünfärbung	Limbo: color verde		
QN	(a) light	claire	hell	claro	Nova (HMA)	3
	medium	moyenne	mittel	medio	Owari (SAT)	5
[220]	dark	foncée	dunkel	oscuro	Oroval (CLE)	7
12.	Leaf blade: undulation of margin	Limbe: ondulation du bord	Blattspreite: Randwellung	Limbo: ondulación del borde		
QN	(a) absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
	intermediate	intermédiaire	mittel	media		2
[222]	strong	forte	stark	fuerte		3
13.	Leaf blade: incisions of margin	Limbe: incisions du bord	Blattspreite: Randeinschnitte	Limbo: incisiones del borde		
PQ	(a) absent	absentes	fehlend	ausentes		1
	crenate	crénelées	gekerbt	crenadas		2
[223]	dentate	dentelées	gezähnt	dentadas		3
14.	Leaf blade: shape of apex	Limbe: forme de l'extrémité	Blattspreite: Form der Spitze	Limbo: forma del ápice		
(+)						
PQ	(a) acuminate	acuminée	mit aufgesetzter Spitze	acuminado		1
	acute	pointue	spitz	agudo	Clemenules (CLE)	2
	obtuse	obtuse	stumpf	obtuso	Minneola (TNL)	3
[224]	rounded	arrondie	abgerundet	redondeado		4
15.	Leaf blade: emargination at tip	Limbe: échancrure à l'extrémité	Blattspreite: Einkerbung an der Spitze	Limbo: emarginado en la parte superior		
(+)						
QL	(a) absent	absente	fehlend	ausente		1
[225]	present	présente	vorhanden	presente		9

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
16.	Petiole: length	Pétiolo: longueur	Blattstiel: Länge	Pecíolo: longitud		
QN (a)	short	court	kurz	corto	Clemenules (CLE)	3
	medium	moyen	mittel	medio	Fortune (HMA)	5
[226]	long	long	lang	largo	Minneola (TNL)	7
17.	Petiole: presence of wings	Pétiolo: présence d'ailes	Blattstiel: Vorhandensein von Flügeln	Pecíolo: presencia de alas		
QL (a)	absent	absentes	fehlend	ausentes	Clemenules (CLE)	1
[227]	present	présentes	vorhanden	presentes	Owari (SAT)	9
18.	<u>Varieties with petiole wings present only:</u> Petiole: width of wings	<u>Seulement les variétés présentant des ailes au pétiolo:</u> Pétiolo: largeur des ailes	<u>Nur Sorten mit vorhandenen Flügeln am Blattstiel:</u> Blattstiel: Breite der Flügel	<u>Sólo variedades con alas presentes en el pecíolo:</u> Pecíolo: anchura de las alas		
QN (a)	narrow	étroites	schmal	estrechas	Owari (SAT)	3
	medium	moyennes	mittel	medias		5
[228]	broad	larges	breit	anchas		7
19.	Flower: diameter of calyx	Fleur: diamètre du calice	Blüte: Durchmesser des Kelches	Flor: diámetro del cáliz		
QN (b)	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio		5
[231]	large	grand	groß	grande		7
20.	Flower: length of petal	Fleur: longueur du pétale	Blüte: Länge des Blütenblattes	Flor: longitud del pétalo		
QN (b)	short	court	kurz	corto	Fino (CLE)	3
	medium	moyen	mittel	medio	Ellendale (TNR)	5
[232]	long	long	lang	largo	Owari (SAT)	7
21.	Flower: width of petal	Fleur: largeur du pétale	Blüte: Breite des Blütenblattes	Flor: anchura del pétalo		
QN (b)	narrow	étroit	schmal	estrecho	Clemenules (CLE)	3
	medium	moyen	mittel	medio	Ellendale (TNR)	5
[233]	broad	large	breit	ancho	Owari (SAT)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
22.	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 (b)	small	faible	klein	pequeña	Wilking (HMA)	3
	medium	moyen	mittel	media	Fino (CLE)	5
[234]	large	élevé	groß	grande	Page (HMA)	7
23.	Flower: length of stamens	Fleur: longueur des étamines	Blüte: Länge der Staubfäden	Flor: longitud de los estambres		
QN (b)	short	courtes	kurz	cortos	Encore (HMA)	3
	medium	moyennes	mittel	medios	Owari (SAT)	5
[235]	long	longues	lang	largos	Page (HMA)	7
24.	Anther: color	Anthère: couleur	Anthere: Farbe	Antera: color		
PQ (b)	white	blanc	weiß	blanco		1
	light yellow	jaune clair	hellgelb	amarillo claro	Owari (SAT)	2
[238]	medium yellow	jaune moyen	mittelgelb	amarillo medio	Fino (CLE)	3
25.	Anther: viable pollen	Anthère: pollen viable	Anthere: keim- fähiger Pollen	Antera: polen viable		
QL (b)	absent	absent	fehlend	ausente	Owari (SAT)	1
[239]	present	présent	vorhanden	presente		9
26.	Style: length	Style: longueur	Griffel: Länge	Estilo: longitud		
QN (b)	short	court	kurz	corto	Pixie (HMA)	3
	medium	moyen	mittel	medio	Fino (CLE)	5
[240]	long	long	lang	largo	Owari (SAT)	7
27.	Infructescence: clustering of fruits	Fructification: for- mation de grappes	Fruchtstand: Früchte in Büscheln	Infructescencia: arracimado de los frutos		
QL	absent	absente	fehlend	ausente		1
[243]	present	présente	vorhanden	presente		9

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
28. (*)	Fruit: length	Fruit: longueur	Frucht: Länge	Fruto: longitud		
QN	(c) short	court	kurz	corto	Wilking (HMA)	3
	medium	moyen	mittel	medio	Clemenules (CLE)	5
[244]	long	long	lang	largo	Minneola (TNL)	7
29. (*)	Fruit: diameter	Fruit: diamètre	Frucht: Durchmesser	Fruto: diámetro		
QN	(c) small	petit	klein	pequeño	Fino (CLE)	3
	medium	moyen	mittel	medio	Clemenules (CLE)	5
[245]	large	grand	groß	grande	Ortanique (TNR)	7
30. (*)	Fruit: ratio length/diameter	Fruit: rapport longueur/diamètre	Frucht: Verhältnis Länge/Durchmesser	Fruto: relación longitud/diámetro		
QN	(c) small	faible	klein	pequeña	Encore (HMA)	3
	medium	moyen	mittel	media	Clemenules (CLE)	5
[246]	large	élevé	groß	grande	Minneola (TNL)	7
31. (*)	Fruit: position of broadest part	Fruit: position de la partie la plus large	Frucht: Position des breitesten Teils	Fruto: posición de la parte más ancha		
QN	(c) 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	Clemenules (CLE)	2
[247]	towards distal end	vers la partie distale	zum distalen Ende hin	hacia el extremo distal		3
32. (+)	Fruit: shape in transverse section	Fruit: forme en section transverse	Frucht: Form im Querschnitt	Fruto: forma en sección transversal		
PQ	(c) circular	circulaire	rund	circular	Ortanique (TNR)	1
	somewhat angular	légèrement anguleuse	etwas kantig	ligeramente angular	Clemenules (CLE)	2
[248]	scalloped	dentelée	muschelförmig	festoneado		3

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
33. (*) (+)	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 (excluidos el cuello, el collar y la depresión del extremo peduncular)		
PQ	(c) flattened	aplatie	abgeflacht	aplanada	Clemenules (CLE)	1
	slightly rounded	légèrement arrondie	leicht abgerundet	ligeramente redondeada	Ortanique (TNR)	2
	strongly rounded	fortement arrondie	stark abgerundet	fuertemente redondeada		3
[249]	tapered	effilée	spitz	afilada		4
34. (*) (+)	Fruit: presence of neck	Fruit: présence d'un col	Frucht: Vorhandensein eines Halses	Fruto: presencia de cuello		
QL	(c) absent	absent	fehlend	ausente	Clemenules (CLE)	1
[250]	present	présent	vorhanden	presente		9
35.	<u>Necked varieties only:</u> Fruit: length of neck	<u>Seulement les variétés dont le fruit présente un col:</u> Fruit: longueur du col	<u>Nur Sorten mit Fruchthals:</u> Frucht: Länge des Halses	<u>Sólo variedades con fruto con cuello:</u> Fruto: longitud del cuello		
QN	(c) short	court	kurz	corto		3
	medium	moyen	mittel	medio		5
[251]	long	long	lang	largo		7
36.	<u>Necked varieties only:</u> Fruit: thickness of neck	<u>Seulement les variétés dont le fruit présente un col:</u> Fruit: épaisseur du col	<u>Nur Sorten mit Fruchthals:</u> Frucht: Dicke des Halses	<u>Sólo variedades con fruto con cuello:</u> Fruto: grosor del cuello		
QN	(c) thin	mince	dünn	delgado		3
	medium	moyen	mittel	medio		5
[252]	thick	épais	dick	grueso		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
37. (*) (+)	<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	(c) absent	absente	fehlend	ausente	Ortanique (TNR)	1
[253]	present	présente	vorhanden	presente	Marisol (CLE)	9
38.	<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	(c) shallow	peu profonde	flach	poco profunda		3
	medium	moyenne	mittel	media		5
[254]	deep	profonde	tief	profunda		7
39. (+)	Fruit: presence of constriction at stalk end	Fruit: présence d'un étranglement à l'extrémité pédonculaire	Frucht: Vorhandensein einer Einschnürung am Stielende	Fruto: presencia de un estrechamiento en el extremo peduncular		
QL	(c) absent	absent	fehlend	ausente	Clemenules (CLE)	1
[255]	present	présent	vorhanden	presente		9
40.	Fruit: expression of constriction at stalk end	Fruit: expression de l'étranglement à l'extrémité pédonculaire	Frucht: Ausprägung der Einschnürung am Stielende	Fruto: expresión del estrechamiento en el extremo peduncular		
QN	(c) weak	faible	gering	débil		3
	medium	moyenne	mittel	medio		5
[256]	strong	forte	stark	fuerte		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
41.	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	(c) absent or few	absentes ou peu nombreuses	fehlend oder sehr gering	ausentes o bajo	Nova (HMA)	1
	intermediate	moyennement nombreuses	mittel	medio	Clemenules (CLE)	2
[257]	many	nombreuses	groß	alto		3
42.	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	(c) short	courtes	kurz	cortas		3
	medium	moyennes	mittel	medias		5
[258]	long	longues	lang	largas		7
43.	<u>Necked varieties only:</u> Fruit: depression at stalk attachment	<u>Seulement les variétés dont le fruit présente un col:</u> Fruit: dépression à l'attache pédonculaire	<u>Nur Sorten mit Fruchthals:</u> Frucht: Einsenkung am Stielansatz	<u>Sólo variedades con fruto con cuello:</u> Fruto: depresión en la inserción peduncular		
QN	(c) absent or shallow	absente ou peu profonde	fehlend oder flach	ausente o poco profunda		1
	intermediate	intermédiaire	mittel	intermedia		2
[259]	deep	profonde	tief	profunda		3
44.	Fruit: presence of collar	Fruit: présence d'une corolle	Frucht: Vorhandensein eines Kragens	Fruto: presencia de un collar		
(+)						
QL	(c) absent	absente	fehlend	ausente	Clemenules (CLE)	1
[260]	present	présente	vorhanden	presente		9

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
45.	Fruit: height of collar	Fruit: hauteur de la corolle	Frucht: Höhe des Kragens	Fruto: altura del collar		
QN	(c) low	basse	niedrig	bajo		3
	medium	moyenne	mittel	medio		5
[261]	high	haute	hoch	alto		7
46.	Fruit: diameter of collar	Fruit: diamètre de la corolle	Frucht: Durchmesser des Kragens	Fruto: diámetro del collar		
QN	(c) small	petit	klein	pequeño		3
	medium	moyen	mittel	medio		5
[262]	large	grand	groß	grande		7
47.	Fruit: abscission layer between floral disc and fruit	Fruit: abscission entre le disque floral et le fruit	Frucht: Trennschicht zwischen Blütenscheibe und Frucht	Fruto: capa de abscisión entre el disco floral y el fruto		
QN	(c) absent or weakly developed	absente ou faiblement développée	fehlend oder schwach entwickelt	ausente o débilmente desarrollada		1
	intermediate	intermédiaire	mittel	intermedia		2
[263]	strongly developed	fortement développée	stark entwickelt	fuertemente desarrollada		3
48. (*) (+)	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 (excluidos el mamelón o pezón, el abultamiento del ombligo y la depresión en el extremo distal)		
QN	(c) flattened	aplatie	abgeflacht	aplanada	Clemenules (CLE)	1
	slightly rounded	légèrement arrondie	leicht abgerundet	ligeramente redondeada		2
[264]	strongly rounded	fortement arrondie	stark abgerundet	fuertemente redondeada		3

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
49. (*) (+)	Fruit: presence of depression at distal end	Fruit: présence d'une dépression à l'extrémité distale	Frucht: Vorhandensein einer Einsenkung am distalen Ende	Fruto: presencia de una depresión en el extremo distal		
QL (c)	absent	absente	fehlend	ausente	Ortanique (TNR)	1
[265]	present	présente	vorhanden	presente	Arrufatina (CLE)	9
50.	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 (c)	shallow	peu profonde	flach	poco profunda		3
	medium	moyenne	mittel	media		5
[266]	deep	profonde	tief	profunda		7
51.	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 (c)	small	petit	klein	pequeño		3
	medium	moyen	mittel	medio		5
[267]	large	grand	groß	grande		7
52. (*)	Fruit: presence of areola	Fruit: présence d'une aréole	Frucht: Vorhandensein einer Areola	Fruto: presencia de un areola		
QL (c)	absent	absente	fehlend	ausente	Nova (HMA)	1
	incomplete	incomplète	unvollständig	incompleta		2
[270]	complete	complète	vollständig	completa	Ortanique (TNR)	3
53. (+)	Fruit: type of areola	Fruit: type d'aréole	Frucht: Typ der Areola	Fruto: tipo de areola		
QL (c)	smooth	régulière	glatt	lisa		1
	grooved	cannelée	gerieft	acanalada		2
[271]	ridged	annelée	geringelt	acrestada		3

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
54.	Fruit: diameter of areola	Fruit: diamètre de l'aréole	Frucht: Durchmesser der Areola	Fruto: diámetro de la areola		
QN	(c) small	petit	klein	pequeño	Arrufatina (CLE)	3
	medium	moyen	mittel	medio	Owari (SAT)	5
[272]	large	grand	groß	grande	Ortanique (TNR)	7
55.	Fruit: diameter of stylar scar	Fruit: diamètre de la cicatrice styloïde	Frucht: Durchmesser der Griffelnarbe	Fruto: diámetro de la cicatriz estilar		
QN	(c) small	petit	klein	pequeño	Clemenules (CLE)	3
	medium	moyen	mittel	medio	Owari (SAT)	5
[273]	large	grand	groß	grande		7
56.	Fruit: persistence of style	Fruit: persistance du style	Frucht: Persistenz des Griffels	Fruto: persistencia del estilo		
PQ	(c) none	aucune	fehlend	ninguna		1
	partial	partielle	teilweise gegeben	parcial		2
[275]	total	totale	vollständig gegeben	total		3
57.	Fruit: presence of navel opening	Fruit: présence d'une ouverture du fruit secondaire	Frucht: Vorhandensein der Öffnung der sekundären Frucht	Fruto: presencia de un apertura del ombligo		
PQ	(c) absent	absente	fehlend	ausente	Clemenules (CLE)	1
	occasionally present	présente occasionnellement	zuweilen vorhanden	ocasionalmente presente	Fortune (HMA)	2
[276]	always present	toujours présente	immer vorhanden	siempre presente		3
58.	Fruit: diameter of navel opening	Fruit: diamètre de l'ouverture du fruit secondaire	Frucht: Durchmesser der Öffnung der sekundären Frucht	Fruto: diámetro de la apertura del ombligo		
QN	(c) small	petit	klein	pequeño	Ellendale (TNR)	3
	medium	moyen	mittel	medio	Fortune (HMA)	5
[277]	large	grand	groß	grande		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
59.	Fruit: presence of radial grooves at distal end	Fruit: présence de cannelures radiales à l'extrémité distale	Frucht: Vorhandensein radialer Furchen am distalen Ende	Fruto: presencia de acanaladuras radiales en el extremo distal		
QL	(c) absent	absentes	fehlend	ausentes		1
[279]	present	présentes	vorhanden	presentes		9
60.	Fruit: expression of radial grooves at distal end	Fruit: expression des cannelures radiales à l'extrémité distale	Frucht: Ausprägung der radialen Furchen am distalen Ende	Fruto: expresión de las acanaladuras radiales en el extremo distal		
QN	(c) weak	faible	gering	débil		3
	medium	moyenne	mittel	media		5
[280]	strong	forte	stark	fuerte		7
61. (*)	Fruit surface: predominant color(s)	Surface du fruit: couleur(s) prédominante(s)	Fruchtoberfläche: Hauptfarbe(n)	Superficie del fruto: color(es) predominante(s)		
PQ	(c) green	vert	grün	verde		1
	(d) yellow green	vert-jaune	gelbgrün	verde amarillento		2
	light yellow	jaune clair	hellgelb	amarillo claro		3
	medium yellow	jaune moyen	mittelgelb	amarillo medio	Mapo (TNL)	4
	yellow orange	orange-jaune	gelborange	naranja amarillento		5
	medium orange	orange moyen	mittelorange	naranja medio	Clemenules (CLE)	6
	dark orange	orange foncé	dunkelorange	naranja oscuro		7
	orange red	rouge orangé	orangerot	rojo anaranjado	Nova (HMA)	8
[282]	red	rouge	rot	rojo		9

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
62. (*)	Fruit surface: glossiness	Surface du fruit: brillance	Fruchtoberfläche: Glanz	Superficie del fruto: brillo		
QN	(c) absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Clemenules (CLE)	1
	(d) weak	faible	gering	débil		3
	medium	moyenne	mittel	medio	Afourer (TNR)	5
	strong	forte	stark	fuerte		7
[285]	very strong	très forte	sehr stark	muy fuerte		9
63.	Fruit surface: roughness	Surface du fruit: rugosité	Fruchtoberfläche: Rauheit	Superficie del fruto: rugosidad		
QN	(c) smooth	lisse	glatt	lisa	Murcott (TNR)	3
	(d) medium	intermédiaire	mittel	media	Clemenules (CLE)	5
[286]	rough	rugueuse	rauh	rugosa	Temple (HMA)	7
64.	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	(c) 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		1
[287]	(d) larger ones inter- spersed by smaller ones	grandes et petites intercalées	größere vermischt mit kleineren	glándulas grandes intercaladas con otras más pequeñas		2
65.	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	(c) small	petites	klein	pequeñas		3
	(d) medium	moyennes	mittel	medianas		5
[288]	large	grosses	groß	grandes		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
66.	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	(c) weak	faible	gering	débil	Clemenules (CLE)	3
	(d) medium	moyenne	mittel	media		5
[289]	strong	forte	stark	fuerte	Owari (SAT)	7
67.	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	(c) pitting and pebbling absent	dépression et protubérance absentes	Grübchen und Körner fehlend	picado y granulado ausentes		1
	(d) pitting absent, pebbling present	dépression absente, protubérance présente	Grübchen fehlend, Körner vorhanden	picado ausente, granulado presente		2
	pitting present, pebbling absent	dépression présente, protubérance absente	Grübchen vorhanden, Körner fehlend	picado presente, granulado ausente		3
[290]	pitting and pebbling present	dépression et protubérance présentes	Grübchen und Körner vorhanden	picado y granulado presentes		4
68.	<u>Varieties with fruit surface: pitting on oil glands present only: Fruit surface: density of pitting</u>	<u>Variétés avec surface du fruit: présence seulement de dépression sur les glandes à huile: Surface du fruit: densité de la dépression</u>	<u>Sorten mit Fruchtoberfläche: nur Grübchen an den Öldrüsen vorhanden: Fruchtoberfläche: Dichte der Grübchen</u>	<u>Variedades con superficie del fruto: presencia solamente de picado en las glándulas de aceite: Superficie del fruto: densidad del picado</u>		
QN	(c) sparse	éparse	locker	dispersa		3
	(d) medium	moyenne	mittel	media		5
[291]	dense	dense	dicht	densa		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
69.	<u>Varieties with fruit surface: pebbling on oil glands present only:</u> Fruit surface: density of pebbling	<u>Variétés avec surface du fruit: présence seulement de protubérance sur les glandes à huile:</u> Surface du fruit: densité de la protubérance	<u>Sorten mit Fruchtoberfläche: nur Körner an den Öldrüsen vorhanden:</u> Fruchtoberfläche: Dichte der Körner	<u>Variedades con superficie del fruto: presencia solamente de granulado en las glándulas de aceite:</u> Superficie del fruto: densidad del granulado		
QN	(c) sparse	éparse	locker	dispersa		3
	(d) medium	moyenne	mittel	media		5
[293]	dense	dense	dicht	densa		7
70.	<u>Varieties with fruit surface: pebbling on oil glands present only:</u> Fruit surface: degree of pebbling	<u>Variétés avec surface du fruit: présence seulement de protubérance sur les glandes à huile:</u> Surface du fruit: degré de protubérance	<u>Sorten mit Fruchtoberfläche: nur Körner an den Öldrüsen vorhanden:</u> Fruchtoberfläche: Grad der Körnerbildung	<u>Variedades con superficie del fruto: presencia solamente de granulado en las glándulas de aceite:</u> Superficie del fruto: nivel de granulado		
QN	(c) weak	faible	gering	débil		3
	(d) medium	moyen	mittel	medio		5
[294]	strong	fort	stark	fuerte		7
71. (*)	Fruit rind: thickness	Écorce du fruit: épaisseur	Fruchtschale: Dicke	Corteza del fruto: espesor		
QN	(c) thin	fine	dünn	delgada	Murcott (TNR)	3
	(d) medium	moyenne	mittel	media	Clemenules (CLE)	5
[295]	thick	épaisse	dick	gruesa	Minneola (TNL)	7
72. (*)	Fruit rind: adherence to flesh	Écorce du fruit: adhérence à la chair	Fruchtschale: Anhaften am Fleisch	Corteza del fruto: adherencia a la pulpa		
QN	(c) weak	faible	gering	débil	Clemenules (CLE)	3
	(d) medium	moyenne	mittel	media	Fortune (HMA)	5
[296]	strong	forte	stark	fuerte	Ortanique (TNR)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
73.	Fruit rind: strength	Écorce du fruit: rigidité	Fruchtschale: Festigkeit	Corteza del fruto: vigor		
QN	(c) weak	faible	gering	débil		3
	(d) medium	moyenne	mittel	medio		5
[297]	strong	forte	groß	fuerte		7
74.	Fruit rind: oiliness	Écorce du fruit: onctuosité	Fruchtschale: Öligkeit	Corteza del fruto: oleosidad		
QN	(c) dry	sèche	trocken	seca		3
	(d) medium	moyenne	mittel	mediana	Clemenules (CLE)	5
[298]	oily	grasse	ölig	oleosa	Ortanique (TNR)	7
75.	Fruit rind: conspicuousness of oil glands on inner surface	Écorce du fruit: netteté des glandes à huile sur la face interne	Fruchtschale: Sichtbarkeit der Öldrüsen an der inneren Oberfläche	Corteza del fruto: glándulas de aceite en la superficie interna		
QN	(c) absent or weakly conspicuous	absentes ou peu nettes	fehlend oder schwach sichtbar	ausentes o poco visibles		1
	(d) intermediate	moyennes	mittel	intermedias	Clemenules (CLE)	2
[299]	strongly conspicuous	très nettes	gut sichtbar	muy visibles		3
76.	Fruit: color of albedo	Fruit: couleur de l'albédo	Frucht: Farbe der Albedo	Fruto: color del albedo		
PQ	(c) greenish	verdâtre	grünlich	verdoso		1
	white	blanc	weiß	blanco	Clemenules (CLE)	2
	light yellow	jaune clair	hellgelb	amarillo claro	Murcott (TNR)	3
	light orange	orange clair	hellorange	naranja claro	Afourer (TNR)	4
	pink	rose	rosa	rosa		5
[300]	reddish	rougeâtre	rötlich	rojizo		6
77.	Fruit: density of albedo	Fruit: densité de l'albédo	Frucht: Dichte der Albedo	Fruto: densidad del albedo		
QN	(c) loose	faible	locker	laxo	Clemenules (CLE)	3
	medium	moyenne	mittel	medio	Fortune (HMA)	5
[301]	dense	dense	dicht	denso	Ortanique (TNR)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
78. (*)	Fruit: amount of albedo adhering to flesh (strands excluded)	Fruit: quantité d'albédo adhérent à la chair (à l'exclusion des brins)	Frucht: Umfang der am Fleisch anhaftenden Albedo (ohne Fasern)	Fruto: cantidad de albedo que se adhiere a la pulpa (excluidos los filamentos)		
QN	(c) absent or very small	absent ou très faible	fehlend oder sehr gering	ausente o muy pequeña	Clemenules (CLE)	1
	small	faible	gering	pequeña		3
	medium	moyenne	mittel	media		5
	large	forte	groß	grande		7
[302]	very large	très forte	sehr groß	muy grande		9
79.	Fruit: presence of albedo strands	Fruit: présence de brins d'albédo	Frucht: Vorhandensein von Albedofasern	Fruto: presencia de filamentos de albedo		
QL	(c) absent	absents	fehlend	ausentes		1
[303]	present	présents	vorhanden	presentes	Clemenules (CLE)	9
80.	Fruit: amount of albedo strands	Fruit: quantité de brins d'albédo	Frucht: Anzahl Albedofasern	Fruto: cantidad de filamentos de albedo		
QN	(c) small	faible	klein	baja		3
	medium	moyenne	mittel	media		5
[304]	large	forte	groß	alta		7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
81. (*)	Fruit: main color of flesh	Fruit: couleur principale de la chair	Frucht: Hauptfarbe des Fleisches	Fruto: color principal de la pulpa		
PQ	(c) whitish	blanchâtre	weißlich	blanquecino		1
	(e) light green	vert clair	hellgrün	verde claro		2
	light yellow	jaune clair	hellgelb	amarillo claro		3
	medium yellow	jaune moyen	mittelgelb	amarillo medio		4
	light orange	orange clair	hellorange	naranja claro		5
	medium orange	orange moyen	mittelorange	naranja medio	Clemenules (CLE)	6
	dark orange	orange foncé	dunkelorange	naranja oscuro		7
	red	rouge	rot	rojo		8
[307]	purple	violet	purpur	púrpura		9
82.	Fruit: filling of core	Fruit : structure du cœur	Frucht: Ausfüllung des inneren Fruchtfleisches	Fruto: relleno del hueco central		
QN	(c) absent or very sparse	absente ou très lâche	fehlend oder sehr locker	ausente o muy laxo	Fortune (HMA)	1
	(e) sparse	lâche	locker	laxo		3
	medium	intermédiaire	mittel	medio	Clemenules (CLE)	5
	dense	dense	dicht	denso	Murcott (TNR)	7
[309]	very dense	très dense	sehr dicht	muy denso		9
83.	Fruit: diameter of core	Fruit: diamètre du cœur	Frucht: Durchmesser des inneren Fruchtfleisches	Fruto: diámetro del hueco central		
QN	(c) small	petit	klein	pequeño	Murcott (TNR)	3
	(e) medium	moyen	mittel	medio	Clemenules (CLE)	5
[310]	large	grand	groß	grande	Hernandina (CLE)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
84.	Fruit: presence of rudimentary segments	Fruit: présence de segments rudimentaires	Frucht: Vorhandensein von unvollständigen Segmenten	Fruto: presencia de gajos rudimentarios		
QN	(c) absent or weak	nulle ou faible	fehlend oder schwach	nula o débil	Clemenules (CLE)	1
	(e) intermediate	intermédiaire	mittel	intermedia		2
[311]	strong	forte	stark	fuerte		3
85.	Fruit: number of well developed segments	Fruit: nombre de segments bien développés	Frucht: Anzahl gut entwickelter Segmente	Fruto: número de gajos bien desarrollados		
QN	(c) few	peu	gering	bajo	Oroval (CLE)	3
	(e) medium	moyen	mittel	medio	Ortanique (TNR)	5
[312]	many	beaucoup	groß	alto	Temple (HMA)	7
86.	Fruit: coherence of adjacent segment walls	Fruit: adhérence des parois des segments adjacents	Frucht: Zusammenhalt der nebeneinanderliegenden Segmentwände	Fruto: adherencia entre los gajos adyacentes		
QN	(c) weak	faible	gering	débil	Clemenules (CLE)	3
	(e) medium	moyenne	mittel	media	Fortune (HMA)	5
[313]	strong	forte	stark	fuerte		7
87.	Fruit: strength of segment walls	Fruit: rigidité des parois des segments	Frucht: Festigkeit der Segmentwände	Fruto: firmeza de las paredes de los gajos		
QN	(c) weak	faible	schwach	débil	Mapo (TNL)	3
	(e) medium	moyenne	mittel	media	Fino (CLE)	5
[314]	strong	forte	stark	fuerte	Oronules (CLE)	7
88.	Fruit: length of juice vesicles	Fruit: longueur des vésicules de jus	Frucht: Länge der Saftbläschen	Fruto: longitud de las vesículas de jugo		
QN	(c) short	courtes	kurz	corta	Wiling (HMA)	3
	(e) medium	moyennes	mittel	media		5
[315]	long	longues	lang	larga	Clemenules (CLE)	7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
89.	Fruit: thickness of juice vesicles	Fruit: épaisseur des vésicules de jus	Frucht: Dicke der Saftbläschen	Fruto: grosor de las vesículas de jugo		
QN	(c) thin	fines	dünn	delgadas	Clemenules (CLE)	3
	(e) medium	moyennes	mittel	medianas		5
[316]	thick	épaisses	dick	gruesas	Mapo (TNL)	7
90.	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	(c) low	faible	gering	baja		3
	(e) medium	moyenne	mittel	media		5
[317]	high	forte	stark	alta		7
91.	Fruit: coherence of juice vesicles	Fruit: adhérence des vésicules de jus	Frucht: Zusammenhalt der Saftbläschen	Fruto: coherencia de las vesículas de jugo		
QN	(c) weak	faible	gering	débil		3
	(e) medium	moyenne	mittel	media		5
[318]	strong	forte	stark	fuerte		7
92. (*)	Fruit: presence of navel (viewed internally)	Fruit: présence de fruit secondaire (vue interne)	Frucht: Vorhandensein von sekundären Früchten (von innen gesehen)	Fruto: presencia de ombligo (visto internamente)		
PQ	(c) absent or very rare	absent ou très rare	fehlend oder sehr selten	ausente o muy rara	Clemenules (CLE)	1
	occasionally present	présent occasionnellement	zuweilen vorhanden	ocasionalmente presente	Nova (HMA)	2
[319]	always present	toujours présent	immer vorhanden	siempre presente		3
93.	Fruit: size of navel (viewed internally)	Fruit: taille du fruit secondaire (vue interne)	Frucht: Größe der sekundären Frucht (von innen gesehen)	Fruto: tamaño del ombligo visto internamente		
QN	(c) small	petit	klein	pequeño		3
	medium	moyen	mittel	medio		5
[320]	large	grand	groß	grande		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
94.	Fruit: juiciness	Fruit: succulence	Frucht: Saftigkeit	Fruto: contenido de jugo		
QN	(c) low	faible	gering	bajo		3
	medium	moyenne	mittel	medio	Campeona (HMA)	5
[321]	high	élevée	hoch	alto	Marisol (CLE)	7
95.	Fruit juice: total soluble solids	Jus du fruit: quantité de solides solubles	Fruchtsaft: Gehalt an löslicher Trockensubstanz	Jugo del fruto: cantidad de sólidos solubles		
QN	(c) low	faible	niedrig	baja	Okitsu (SAT)	3
	medium	moyenne	mittel	media	Temple (HMA)	5
[322]	high	élevée	hoch	alta	Honey (HMA)	7
96.	Fruit juice: acidity	Jus du fruit: acidité	Fruchtsaft: Säure	Jugo del fruto: acidez		
QN	(c) low	faible	gering	baja	Hernandina (CLE)	3
	medium	moyenne	mittel	media	Clemenules (CLE)	5
[323]	high	forte	stark	alta	Fortune (HMA)	7
97.	Fruit: strength of fibre	Fruit: rigidité des fibres	Frucht: Festigkeit der Fasern	Fruto: vigor de la fibra		
QN	(c) weak	faible	schwach	débil		3
	medium	moyenne	mittel	medio		5
[324]	strong	forte	stark	fuerte		7
98.	Fruit: number of seeds (controlled manual self-pollination)	Fruit: nombre de pépins (autopollinisation manuelle contrôlée)	Frucht: Anzahl Samen (manuelle kontrollierte Selbstbestäubung)	Fruto: número de semillas (autopollinización manual controlada)		
QN	(c) absent or very few	absents ou très peu nombreux	fehlend oder sehr gering	ausentes o muy bajo	Clemenules (CLE)	1
	few	peu nombreux	gering	bajo		3
	medium	moyen	mittel	medio	Kara (HMA)	5
	many	nombreux	groß	alto		7
[325]	very many	très nombreux	sehr groß	muy alto	Común (MMN)	9

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
99.	Fruit: number of seeds (open pollination)	Fruit: nombre de pépins (fécondation libre)	Frucht: Anzahl Samen (frei abblühend)	Fruto: número de semillas (polinización libre)		
QN (c)	absent or very few	absents ou très peu nombreux	fehlend oder sehr gering	ausentes o muy bajo	Clemenules (CLE)	1
(+)	few	peu nombreux	gering	bajo	Ellendale (TNR)	3
	medium	moyen	mittel	medio		5
[326]	many	nombreux	groß	alto	Común (MMN)	7
100. (*)	Seed: polyembryony	Pépin: polyembryonie	Samen: Polyembryonie	Semilla: poliembrionía		
QL (f)	absent	absente	fehlend	ausente	Wilking (HMA)	1
[327]	present	présente	vorhanden	presente	Común (MMN)	9
101.	Seed: length	Pépin: longueur	Samen: Länge	Semilla: longitud		
QN (f)	short	court	kurz	corta	Temple (HMA)	3
	medium	moyen	mittel	media		5
[328]	long	long	lang	larga	Campeona (HMA)	7
102.	Seed: width	Pépin: largeur	Samen: Breite	Semilla: anchura		
QN (f)	narrow	étroit	schmal	estrecha	Temple (HMA)	3
	medium	moyen	mittel	media		5
[329]	broad	large	breit	ancha	Campeona (HMA)	7
103.	Seed: surface	Pépin: surface	Samen: Oberfläche	Semilla: superficie		
QL (f)	smooth	lisse	glatt	lisa	Kinow (HMA)	1
[330]	wrinkled	ridée	runzlig	rugosa	Wilking (HMA)	2

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
104.	<u>Varieties with seed: surface wrinkled only:</u> Seed: prominence of wrinkles	<u>Variétés avec pépin: surface ridée seulement:</u> Pépin: proéminence des rides	<u>Sorten mit Samen: nur runzlige Oberfläche:</u> Samen: Ausprägung der Runzeln	<u>Variedades con semilla: superficie solamente rugosa:</u> Semilla: prominencia de la rugosidad		
QN	(f) weak	faible	schwach	débil		3
	medium	moyenne	mittel	media		5
[331]	strong	forte	stark	fuerte		7
105.	Seed: external color	Pépin: couleur externe	Samen: Außenfarbe	Semilla: color externo		
PQ	(f) greenish	verdâtre	grünlich	verdoso	Kara (HMA)	1
	whitish	blanchâtre	weißlich	blanquecino		2
	yellowish	jaunâtre	gelblich	amarillento		3
	pinkish	rosâtre	rosa	rosado		4
[332]	brownish	brunâtre	bräunlich	amarronado		5
106.	Seed: color of inner seed coat	Pépin: couleur du tégument interne	Samen: Farbe der inneren Samenschale	Semilla: color de la cubierta interna		
PQ	(f) white	blanc	weiß	blanco		1
	light yellow	jaune clair	hellgelb	amarillo claro		2
	light brown	marron clair	hellbraun	marrón claro	Murcott (TNR)	3
	medium brown	marron moyen	mittelbraun	marrón medio		4
	dark brown	marron foncé	dunkelbraun	marrón oscuro		5
	red	rouge	rot	rojo		6
[333]	purple	violet	purpur	púrpura		7

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
107.	<u>Only varieties with seed: polyembryony present:</u> Seed: color of cotyledons	<u>Seulement variétés avec pépin: poly-embryonnie présente:</u> Pépin: couleur des cotylédons	<u>Nur Sorten mit Samen: Poly-embryonie vorhanden:</u> Samen: Farbe der Kotyledonen	<u>Sólo variedades con semilla: poli-embriónia presente:</u> Semilla: color de los cotiledones		
PQ	(f) white	blanc	weiß	blanco	Murcott (TNR)	1
	cream	crème	cremefarben	crema	Kara (HMA)	2
	light green	vert clair	hellgrün	verde claro	Común (MMN)	3
[334]	dark green	vert foncé	dunkelgrün	verde oscuro		4
108.	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	Okitsu (SAT)	3
	medium	moyenne	mittel	media	Clemenules (CLE)	5
[336]	late	tardive	spät	tardía	Murcott (TNR)	7
109.	Fruit: parthenocarpy	Fruit: parthénocarpie	Frucht: Parthenokarpie	Fruto: partenocarpia		
QL	absent	absente	fehlend	ausente	Temple (HMA)	1
[337]	present	présente	vorhanden	presente	Clemenules (CLE)	9
110.	Plant: self-incompatibility	Plante: auto-incompatibilité	Pflanze: Selbst-inkompatibilität	Planta: auto-incompatibilidad		
QL	absent	absente	fehlend	ausente	Ellendale (TNR)	1
[338]	present	présente	vorhanden	presente	Clemenules (CLE)	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) 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.
- (b) 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.

- (c) 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.

- (d) 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.

The observation on the oiliness of the fruit rind should be made, by peeling the fruit, within three to seven days after harvesting.

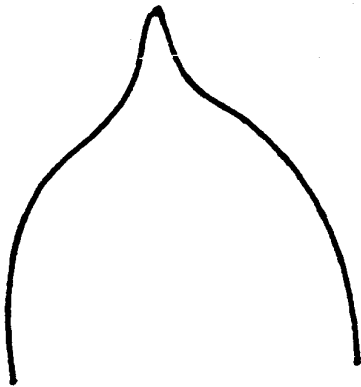
- (e) Fruit flesh: Observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.
- (f) Seed: Observations on the seed should be made on the fresh seed.

8.2 *Explanations for individual characteristics*

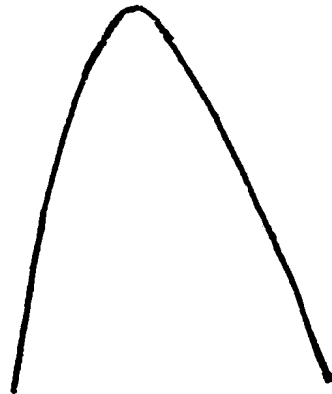
Ad. 2 ([202]): Tree: Growth habit

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

Ad. 14 ([224]): Leaf blade: shape of apex



1
acuminate



2
acute

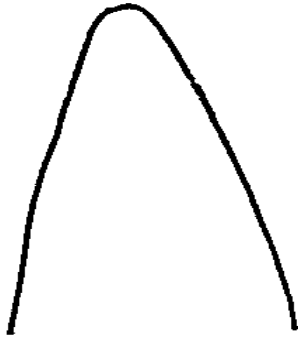


3
obtuse

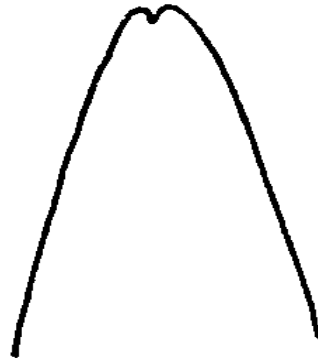


4
rounded

Ad. 15 ([225]): Leaf blade: emargination at tip

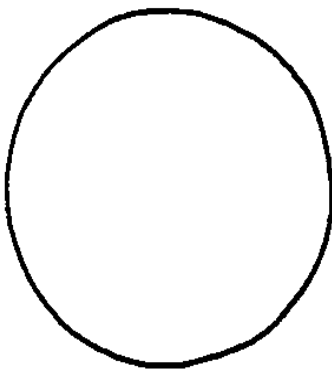


1
absent

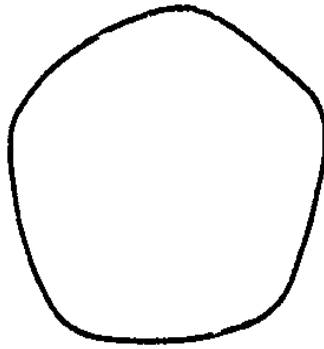


9
present

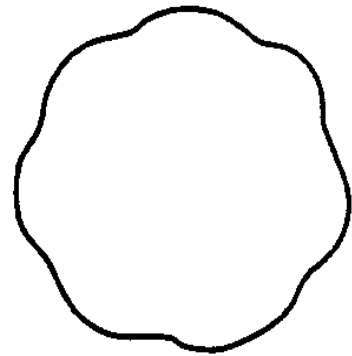
Ad. 32 ([248]): Fruit: shape in transverse section



1
circular

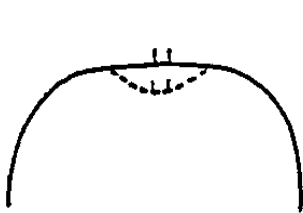


2
somewhat angular

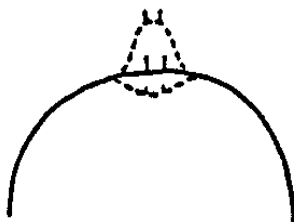


3
scalloped

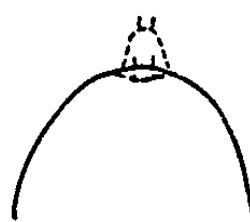
Ad. 33 ([249]): Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)



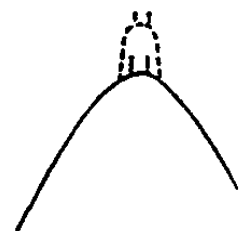
1
flattened



2
slightly rounded

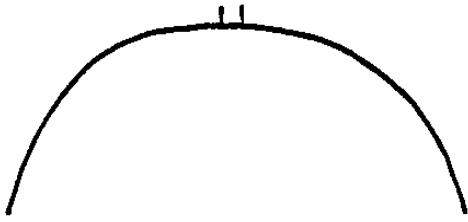


3
strongly rounded

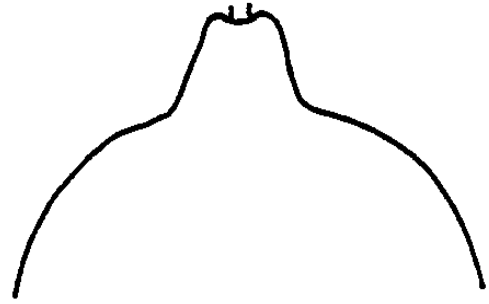


4
tapered

Ad. 34 ([250]): Fruit: presence of neck

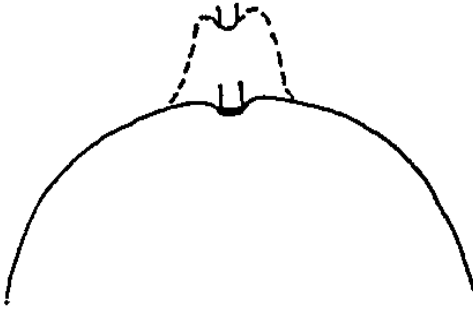


1
absent



9
present

Ad. 37 ([253]): Only varieties without fruit neck: Fruit: presence of depression at stalk end

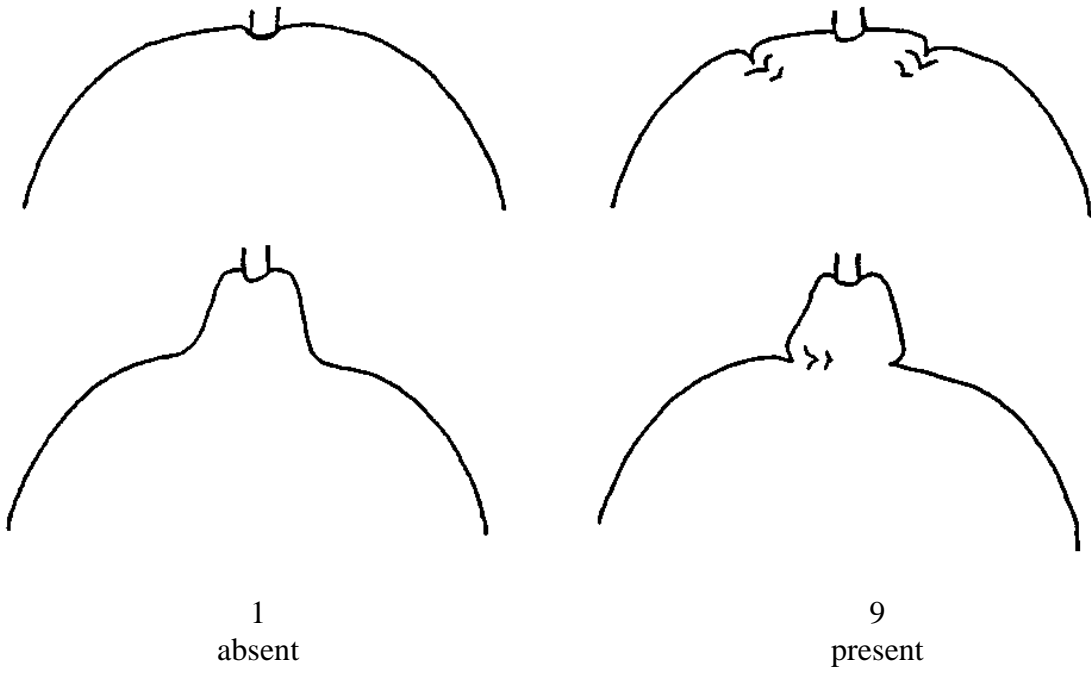


1
absent



9
present

Ad. 39 ([255]): Fruit: presence of constriction at stalk end



Ad. 44 ([260]): Fruit: presence of collar



Ad. 48 ([264]): 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. 49 ([265]): Fruit: presence of depression at distal end



1
absent



9
present

Ad. 53 ([271]): Fruit: type of areola



1
smooth



2
grooved



3
ridged

Ad. 98 ([325]): Fruit: number of seeds (controlled manual self-pollination)

Manual self-pollination is necessary to ensure a consistent production of seed.

Ad. 99 ([326]): Fruit: number of seeds (open pollination)

Open pollination means natural pollination between trees of the same variety.

Ad. 110 ([338]): Plant: self-incompatibility

A variety is self-incompatible when the fertile pollen of its own flower or of other flowers of the same variety is not able to fertilize the ovary.

LIST OF EXAMPLE VARIETIES FOR MANDARINS

Variety denomination	Subgroup	Observations	Associated indication
Afourer	TNR		Murcott Afourer
Arrufatina	CLE		
Campeona	HMA	<i>Citrus nobilis</i> Lour.	
Clemenules	CLE		Clementina de Nules
Comun	MMN		Wilowleaf, Avana, Mediterranea
Ellendale	TNR		
Encore	HMA	<i>Citrus nobilis</i> Lour. x <i>C. deliciosa</i> Ten.	
Fino	CLE		Clementina Fina
Fortune	HMA	<i>Citrus clementina</i> hort. ex Tan. x <i>C. tangerina</i> hort. ex Tan.	
Hernandina	CLE		
Honey	HMA	<i>Citrus nobilis</i> Lour. x <i>C. deliciosa</i> Ten.	
Kara	HMA	<i>Citrus unshiu</i> Marcow. x <i>C. nobilis</i> Lour.	
Kinow	HMA	<i>Citrus nobilis</i> Lour. x <i>C. deliciosa</i> Ten.	
Mapo	TNL		
Marisol	CLE		
Minneola	TNL	<i>Citrus paradisi</i> Macfad. x <i>C. tangerina</i> hort. ex Tan. Grapefruit Duncan x Mandarin Dancy	Honeybell
Murcott	TNR		
Nova	HMA	<i>Citrus clementina</i> hort. ex Tan. x Tangelo Orlando	Clemenvilla
Okitsu	SAT		
Orlando	TNL	<i>Citrus paradisi</i> Macfad. x <i>C. tangerina</i> hort. ex Tan. Grapefruit Duncan x Mandarin Dancy	Lake Tangelo
Oronules	CLE		
Oroval	CLE		
Ortanique	TNR		
Owari	SAT		
Page	HMA	Tangelo Minneola x <i>Citrus clementina</i> hort. ex Tan.	
Pixie	HMA	<i>Citrus nobilis</i> Lour. x <i>C. tangerina</i> hort. ex Tan.	
Temple	HMA	<i>Citrus temple</i> Ort. ex Yu. Tanaka	
Wilking	HMA	<i>Citrus nobilis</i> Lour. x <i>C. deliciosa</i> Ten.	

9. Literature

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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

4.3 Virus status

4.3.1 The plant material is virus-free []

4.3.2 The plant material is virus tested []
(indicate against which viruses:
.....)

4.3.3 The virus status is unknown []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
5.1 Fruit: length (28)		
short	Wilking (HMA)	3[]
medium	Clemenules (CLE)	5[]
long	Minneola (TNL)	7[]
5.2 Fruit: diameter (29)		
small	Fino (CLE)	3[]
medium	Clemenules (CLE)	5[]
large	Ortanique (TNR)	7[]
5.3 Fruit: presence of neck (34)		
absent	Clemenules (CLE)	1[]
present		9[]
5.4 Fruit surface: predominant color(s) (61)		
green		1[]
yellow green		2[]
light yellow		3[]
medium yellow	Mapo (TNL)	4[]
yellow orange		5[]
medium orange	Clemenules (CLE)	6[]
dark orange		7[]
orange red	Nova (HMA)	8[]
red		9[]

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Characteristics	Example Varieties	Note
5.5 Fruit: main color of flesh (81)		
whitish		1[]
light green		2[]
light yellow		3[]
medium yellow		4[]
light orange		5[]
medium orange	Clemenules (CLE)	6[]
dark orange		7[]
red		8[]
purple		9[]
5.6 Time of maturity of fruit for consumption (108)		
early	Okitsu (SAT)	3[]
medium	Clemenules (CLE)	5[]
late	Murcott (TNR)	7[]
5.7 Fruit: parthenocarpy (109)		
absent	Temple (HMA)	1[]
present	Clemenules (CLE)	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
<i>(Example)</i>	<i>Fruit surface: predominant color(s)</i>	<i>medium orange</i>	<i>dark orange</i>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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7. Additional information which may help in the examination of the variety

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

Yes [] No []

If yes, please provide details:.....
.....

7.2 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 []

If yes, please provide 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

[Annex follows]