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| **INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS** | | |
| GENEVA | | |

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| *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 – Oranges

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

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

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

GROUP 1 – ALTERNATIVE NAMES AND CORRESPONDING SUBGROUPS[[1]](#footnote-1)\*

| *Latin* | *Subgroup* | *English* | *French* | *German* | *Spanish* |
| --- | --- | --- | --- | --- | --- |
| *Citrus amblycarpa* (Hassk.) Ochse | HMA |  |  |  |  |
| *Citrus benikoji* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus chuana* hort. ex Tseng | PMN |  |  |  |  |
| *Citrus clementina* hort. ex Tan. | CLE | Clementine | Clémentinier | Clementine | Clementina |
| *Citrus crenatifolia* Lush. | PMN |  |  |  |  |
| *Citrus deliciosa* Ten. | MMM | Mediterranean Mandarin | Mandarinier | Mandarine | Mandarina común |
| *Citrus depressa* Hayata | HMA |  |  |  |  |
| *Citrus genshokan* (Hayata) hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus hainanensis* Tanaka | HMA |  |  |  |  |
| *Citrus haniana* hort. ex Tseng | PMN |  |  |  |  |
| *Citrus ichangensis* Swing. x *C. reticulata* Blanco | HMR | Ichandarin |  |  |  |
| *Citrus ichangensis* Swing. x *C. unshiu* (Mak.) Marc. | HMR | Ichandarin |  |  |  |
| *Citrus inflata* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus inflatorugosa* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus keraji* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus leiocarpa* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus lycopersicaeformis* (Lush.)hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus madurensis* Lour. | HMA | Calamondin |  |  |  |
| *Citrus maxima* (Burm.) Merr. x *C. ichangensis* Swing. | HMR | Ichangelo |  |  |  |
| *Citrus nippokoreana* Tanaka | HMA |  |  |  |  |
| *Citrus nobilis* Lour. | HMA |  |  |  |  |
| *Citrus oto* hort. ex Yu. Tanaka | HMA |  |  |  |  |
| *Citrus paratangerina* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus platymamma* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus pseudo-aurantium* hort. ex Yu. Tanaka | HMA |  |  |  |  |
| *Citrus pseudosunki* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus reshni* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus reticulata* Blanco | PMN | Tangerine | Mandarinier | Tangerine | Mandarina Ponkan |
| *Citrus reticulata* Blanco x *C. paradisi* Macfad | TNL | Tangelo | Tangelo | Tangelo | Tangelo |
| *Citrus reticulata* Blanco x *C. sinensis* (L.) Osb. | TNR | Tangor | Tangor | Tangor | Tangor |
| *Citrus reticulata* Blanco x *Fortunella* sp. | HMR | Kumandarin |  |  |  |
| *Citrus suavissima* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus succosa* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus suhuiensis* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus sunki (Hayata)* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus tangerina* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus tardiferax* hort. ex Tanaka | PMN |  |  |  |  |
| *Citrus tardiva* hort. ex Shirai | HMA |  |  |  |  |
| *Citrus tarogayo* hort. ex Yu. Tanaka | HMA |  |  |  |  |
| *Citrus temple* hort. ex Y. Tan. x *C. paradisi* Macfad | HMA | Siamelo |  |  |  |
| *Citrus temple* hort. ex Yu. Tanaka | TNR |  |  |  |  |
| *Citrus tumida* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus unshiu* Marcow. | SAT | Satsuma | Satsuma | Satsuma | Satsuma |
| *Citrus yatsushiro* hort. ex Tanaka | HMA |  |  |  |  |
| *Citrus yuko* hort. ex Tanaka | HMA |  |  |  |  |
| Tangelo x *C. paradisi* Macfad | HMA | Tangelolo |  |  |  |
| Tangor x *C. temple* hort. ex Y. Tan. | HMA | Tangorgelo |  |  |  |

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ANNEX: OVERALL TABLE OF CHARACTERISTICS

# 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.

# 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.

# 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.

# 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.

# 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.

# 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.

# 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 |
| **[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 |
| 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: cloqûre** | **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 |
| **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 |
| 16. |  | Petiole: length | **Pétiole: 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 | **Pétiole: 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. |  | Varieties with peti­ole wings present only: Petiole: width of wings | **Seulement les variétés présentant des ailes au pétiole: Pétiole: largeur des ailes** | **Nur Sorten mit vor­handenen Flügeln am Blattstiel: Blatt­stiel: Breite der Flügel** | **Sólo variedades con alas presentes en el pecíolo: 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 |
| 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: keim­fähiger Pollen | Antera: polen viable |  |  |
| **QN** | **(b)** | absent or very low | absent ou très faible | fehlend oder sehr gering | ausente o muy bajo | Owari (SAT) | 1 |
|  |  | low | faible | gering | bajo |  | 3 |
|  |  | medium | moyen | mittel | medio | Marisol (CLE) | 5 |
|  |  | high | élevé | hoch | alto | Murcott (HMA) | 7 |
| **[339]** |  | very high | très élevé | sehr hoch | muy alto | Fortune (HMA) | 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: for­mation de grappes** | **Fruchtstand: Früchte in Büscheln** | **Infructescencia: arracimado de los frutos** |  |  |
| **QL** |  | absent | absente | fehlend | ausente |  | 1 |
| **[243]** |  | present | présente | vorhanden | presente |  | 9 |
| 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 |
| 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. |  | Necked varieties only: Fruit: length of neck | Seulement les varié­tés dont le fruit pré­sente un col: Fruit: longueur du col | Nur Sorten mit Fruchthals: Frucht: Länge des Halses | Sólo variedades con fruto con cuello: Fruto: longitud del cuello |  |  |
| **QN** | **(c)** | short | court | kurz | corto |  | 3 |
|  |  | medium | moyen | mittel | medio |  | 5 |
| **[251]** |  | long | long | lang | largo |  | 7 |
| 36. |  | Necked varieties only: Fruit: thickness of neck | Seulement les varié­tés dont le fruit pré­sente un col: Fruit: épaisseur du col | Nur Sorten mit Fruchthals: Frucht: Dicke des Halses | Sólo variedades con fruto con cuello: Fruto: grosor del cuello |  |  |
| **QN** | (c) | thin | mince | dünn | delgado |  | 3 |
|  |  | medium | moyen | mittel | medio |  | 5 |
| **[252]** |  | thick | épais | dick | grueso |  | 7 |
| 37. (\*) (+) |  | **Only varieties without fruit neck: Fruit: presence of depression at stalk end** | **Seulement les varié­tés dont le fruit ne présente pas de col: Fruit: présence d’une dépression à l’extrémité pédonculaire** | **Nur Sorten ohne Fruchthals: Frucht: Vorhandensein einer Einsenkung am Stielende** | **Sólo variedades con fruto sin cuello: 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. |  | **Only varieties without fruit neck: Fruit: depth of depression at stalk end** | **Seulement les varié­tés dont le fruit ne présente pas de col: Fruit: profondeur de la dépression à l’extrémité pédonculaire** | **Nur Sorten ohne Fruchthals: Frucht: Tiefe der Einsenkung am Stielende** | **Sólo variedades con fruto sin cuello: 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 |
| 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. |  | Necked varieties only: Fruit: depression at stalk attachment | Seulement les va­riétés dont le fruit présente un col: Fruit: dépression à l’attache pédonculaire | Nur Sorten mit Fruchthals: Frucht: Einsenkung am Stielansatz | Sólo variedades con fruto con cuello: 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 |
| 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 |
| 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 |
| 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 stylaire** | **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 occasionnellemnent | 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 |
| 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 |
| 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 inter­spersed 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 |
| 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. |  | Varieties with fruit surface: pitting on oil glands present only: Fruit surface: density of pitting | Variétés avec sur­face du fruit: pré­sence seulement de dépression sur les glandes à huile: Sur­face du fruit: den­sité de la dépression | Sorten mit Frucht­oberfläche: nur Grübchen an den Öldrüsen vorhan­den: Fruchtober­fläche: Dichte der Grübchen | Variedades con superficie del fruto: presencia solamente de picado en las glándulas de aceite: Superficie del fruto: densidad del picado |  |  |
| **QN** | **(c)** | sparse | éparse | locker | dispersa |  | 3 |
|  | **(d)** | medium | moyenne | mittel | media |  | 5 |
| **[291]** |  | dense | dense | dicht | densa |  | 7 |
| 69. |  | Varieties with fruit surface: pebbling on oil glands present only: Fruit surface: density of pebbling | Variétés avec sur­face du fruit: pré­sence seulement de protubérance sur les glandes à huile: Surface du fruit: densité de la protubérance | Sorten mit Frucht­oberfläche: nur Körner an den Öldrüsen vorhan­den: Fruchtober­fläche: Dichte der Körner | Variedades con superficie del fruto: presencia solamente de granulado en las glándulas de aceite: 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. |  | **Varieties with fruit surface: pebbling on oil glands present only: Fruit surface: degree of pebbling** | **Variétés avec sur­face du fruit: pré­sence seulement de protubérance sur les glandes à huile: Surface du fruit: degré de pro­tubérance** | **Sorten mit Frucht­oberfläche: nur Körner an den Öl­drüsen vorhanden: Fruchtoberfläche: Grad der Körner­bildung** | **Variedades con superficie del fruto: presencia solamente de granulado en las glándulas de aceite: 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 |
| 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 |
| 78. (\*) |  | Fruit: amount of albedo adhering to flesh (strands excluded) | **Fruit: quantité d’albédo adhérant 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 |
| 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 |
| 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 | Wilking (HMA) | 3 |
|  | **(e)** | medium | moyennes | mittel | media |  | 5 |
| **[315]** |  | long | longues | lang | larga | Clemenules (CLE) | 7 |
| 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 |
| 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 (autopoli­nización 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 |
| 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: polyembryonnie** | **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 |
| 104. |  | Varieties with seed: surface wrinkled only: Seed: promi­nence of wrinkles | Variétés avec pépin: surface ridée seu­lement: Pépin: pro­éminence des rides | Sorten mit Samen: nur runzlige Ober­fläche: Samen: Ausprägung der Runzeln | Variedades con semilla: superficie solamente rugosa: 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 |
| 107. |  | Only varieties with seed: polyembryony present: Seed: color of cotyledons | Seulement variétés avec pépin: poly­embryonnie pré­sente: Pépin: couleur des cotylédons | Nur Sorten mit Samen: Poly­embryonie vor­handen: Samen: Farbe der Kotyledonen | Sólo variedades con semilla: poli­embrionía presente: 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: Selbst­inkompatibilität** | **Planta: auto­incompatibilidad** |  |  |
| **QL** |  | absent | absente | fehlend | ausente | Ellendale (TNR) | 1 |
| **[338]** |  | present | présente | vorhanden | presente | Clemenules (CLE) | 9 |

# 

# 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 | 2 |
| acuminate | acute |
|  | |
| 3 | 4 |
| obtuse | rounded |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

Ad. 25 ([339]): Anther: viable pollen

Method to determine the percentage of viable pollen:

The pollen should be collected when the petals begin to open (but with the anthers closed). The anthers should be introduced into a Petri dish and placed inside a silica gel dryer at room temperature, for 20-48 hours of darkness. When the anthers are open they should be moved to an 8 ºC chamber with a 70‑80 % Relative Humidity for one hour. Afterwards, the pollen should be brushed onto a microscope slide with 2 ml of Brewbacker medium (Brewbaker and Kwack. 1963). Finally, the microscope slide should be placed in a 24 ºC chamber with a 75 % RH for 20 hours.

The percentage of pollen fertility is calculated as the average of germinated pollen grains observed with a binocular in 15 visual fields from 2 different microscope slides.

(Brewbaker, J.L. and Kwack, B.H. 1963. The essential role of calcium ion in pollen germination and pollen tube growth. Amer. Jour. Botany. 50: 859-865.)

Percentage range indication for the states of expression:

|  |  |  |
| --- | --- | --- |
| Example varieties | Note | Range |
| Owari (SAT) | 1 | ≤ 7% |
|  | 2 | > 7 ≤ 14% |
|  | 3 | > 14 ≤ 21% |
|  | 4 | > 21 ≤ 28% |
| Marisol (CLE) | 5 | > 28 ≤ 35% |
|  | 6 | > 35 ≤ 45% |
| Murcott (HMA) | 7 | > 45 < 55% |
|  | 8 | > 55 < 65% |
| Fortune (HMA) | 9 | ≥ 65% |

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

|  |  |  |
| --- | --- | --- |
|  | | |
| 1 | 2 | 3 |
| circular | somewhat angular | scalloped |

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 1 | 2 | 3 | 4 |
| flattened | slightly rounded | strongly rounded | tapered |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

Ad. 48 ([264]): Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)

|  |  |  |
| --- | --- | --- |
|  | | |
| 1 | 2 | 3 |
| flattened | slightly rounded | strongly rounded |

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

|  |  |
| --- | --- |
|  | |
| 1 | 9 |
| absent | present |

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

|  |  |  |
| --- | --- | --- |
|  | | |
| 1 | 2 | 3 |
| smooth | grooved | 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 | *Citrus nobilis* Lour. |  |
| Clemenules | CLE |  | Clementina de Nules |
| Comun | MMN |  | Wilowleaf, Avana, Mediterranea |
| Ellendale | TNR |  |  |
| Encore | HMA | *Citrus nobilis* Lour. x *C. deliciosa* Ten. |  |
| Fino | CLE |  | Clementina Fina |
| Fortune | HMA | *Citrus clementina* hort. ex Tan. x *C. tangerina* hort. ex Tan. |  |
| Hernandina | CLE |  |  |
| Honey | HMA | *Citrus nobilis* Lour. x *C. deliciosa* Ten. |  |
| Kara | HMA | *Citrus unshiu* Marcow. x *C. nobilis* Lour. |  |
| Kinow | HMA | *Citrus nobilis* Lour. x *C. deliciosa* Ten. |  |
| Mapo | TNL |  |  |
| Marisol | CLE |  |  |
| Minneola | TNL | *Citrus paradisi* Macfad. x *C. tangerina* hort. ex Tan.  Grapefruit Duncan x Mandarin Dancy | Honeybell |
| Murcott | TNR |  |  |
| Nova | HMA | *Citrus clementina* hort. ex Tan. x Tangelo Orlando | Clemenvilla |
| Okitsu | SAT |  |  |
| Orlando | TNL | *Citrus paradisi* Macfad. x *C. tangerina* hort. ex Tan.  Grapefruit Duncan x Mandarin Dancy | Lake Tangelo |
| Oronules | CLE |  |  |
| Oroval | CLE |  |  |
| Ortanique | TNR |  |  |
| Owari | SAT |  |  |
| Page | HMA | Tangelo Minneola x *Citrus clementina* hort. ex Tan. |  |
| Pixie | HMA | *Citrus nobilis* Lour. x *C. tangerina* hort. ex Tan. |  |
| Temple | HMA | *Citrus temple* Ort. ex Yu. Tanaka |  |
| Wilking | HMA | *Citrus nobilis* Lour. x *C. deliciosa* Ten. |  |

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# 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) CLE [ ] (v) TNL [ ]   (ii) MMN [ ] (vi) TNR [ ]  (iii) PMN [ ] (vii) HMA [ ]  (iv) SAT [ ]  (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 | | |  | | | | | |  | |
|  | | |  | | | | | |  | |
| 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 [ ] | | | | | | | | | | |
| 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 (28) | Fruit: length | | | | | |  | | |  |
|  | short | | | | | | Wilking (HMA) | | | 3[ ] |
|  | medium | | | | | | Clemenules (CLE) | | | 5[ ] |
|  | long | | | | | | Minneola (TNL) | | | 7[ ] |
| 5.2 (29) | Fruit: diameter | | | | | |  | | |  |
|  | small | | | | | | Fino (CLE) | | | 3[ ] |
|  | medium | | | | | | Clemenules (CLE) | | | 5[ ] |
|  | large | | | | | | Ortanique (TNR) | | | 7[ ] |
| 5.3 (34) | Fruit: presence of neck | | | | | |  | | |  |
|  | absent | | | | | | Clemenules (CLE) | | | 1[ ] |
|  | present | | | | | |  | | | 9[ ] |
| 5.4 (61) | Fruit surface: predominant color(s) | | | | | |  | | |  |
|  | 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[ ] |
|  | Characteristics | | | | | | Example Varieties | | | Note |
| 5.5 (81) | Fruit: main color of flesh | | | | | |  | | |  |
|  | 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 (108) | Time of maturity of fruit for consumption | | | | | |  | | |  |
|  | early | | | | | | Okitsu (SAT) | | | 3[ ] |
|  | medium | | | | | | Clemenules (CLE) | | | 5[ ] |
|  | late | | | | | | Murcott (TNR) | | | 7[ ] |
| 5.7 (109) | Fruit: parthenocarpy | | | | | |  | | |  |
|  | 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 | | |
| *(Example)* | | *Fruit surface:  predominant color(s)* | | | *medium orange* | | | *dark orange* | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
|  | | | | | | | | | | |
| 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 Date | | | | | | | | | | |

[Annex follows]

[see pdf version]

[End of document]

1. \* 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.] [↑](#footnote-ref-1)