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

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| <p><b>AVOCADO</b> *</p> <p>UPOV Code: PERSE_AME</p> <p><i>Persea americana</i> Mill.</p> |
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**GUIDELINES**  
**FOR THE CONDUCT OF TESTS**  
**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

Alternative Names:\*

| <i>Botanical name</i>         | <i>English</i> | <i>French</i> | <i>German</i> | <i>Spanish</i>  |
|-------------------------------|----------------|---------------|---------------|-----------------|
| <i>Persea americana</i> Mill. | Avocado        | Avocatier     | Avocado       | Aguacate, Palto |

The purpose of these guidelines (“Test Guidelines”) is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

**ASSOCIATED DOCUMENTS**

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

\* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website ([www.upov.int](http://www.upov.int)), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Persea americana* Mill.

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 graft sticks.

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

8 graft sticks, sufficient to produce 8 trees.

The rootstock to be used is specified by the competent authority.

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.1.2 The growing cycle is considered to be the period ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting of fruit.”

3.2 *Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 *Conditions for Conducting the Examination*

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

### 3.4 *Test Design*

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

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

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

Unless otherwise indicated, all observations should be made on 5 plants or parts taken from each of 5 plants. In the case of parts of plants, the number to be taken from each of the plants should be 2.

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

#### 4.1.3 Clear Differences

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

## 4.2 *Uniformity*

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

4.2.2 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 5 plants, no off-types are allowed.

## 4.3 *Stability*

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

## 5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Leaf blade: anise aroma (characteristic 18);
- (b) Ripe fruit: color (characteristic 49);
- (c) Ripe fruit: thickness of skin (characteristic 50);
- (d) Time of fruit maturity for harvesting (characteristic 67).

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.

### 6.5 *Legend*

(\*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

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

(+) See Explanations on the Table of Characteristics in Chapter 8.2

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

|                         | English   | français  | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------------|---|---|--|--|--|---------------|
| <b>1.</b><br>(*)<br>(+) | <b>Tree: growth habit</b>                         | <b>Arbre: port</b>                                      | <b>Baum: Wuchsform</b>                                   | <b>Árbol: porte</b>                                    |  |               |
| <b>PQ</b>               | upright   | dressé  | aufrecht   | erecto   | Bacon, Zutano  | 1             |
|                         | spreading   | étalé   | auseinanderfallend                                       | abierto  | Fuerte, Hass   | 2             |
|                         | semi drooping                                     | demi-retombant  | halbhängend  | semicolgante   | Colín V-33   | 3             |
|                         | drooping  | retombant   | hängend  | colgante   |  | 4             |
| <b>2.</b><br>(*)        | <b>Young shoot: color</b>                         | <b>Jeune tige: couleur</b>                              | <b>Junger Trieb: Farbe</b>                               | <b>Brote joven: color</b>                              |  |               |
| <b>PQ (a)</b>           | yellow green                                      | vert jaune  | gelbgrün   | verde amarillento                                      | Collinson  | 1             |
|                         | green   | verte   | grün   | verde  | Benedict, G-22, Teague   | 2             |
|                         | reddish   | rougeâtre   | rötlich  | rojizo   | Duke 6   | 3             |
| <b>3.</b>               | <b>Young shoot: color of lenticels</b>            | <b>Jeune tige: couleur des lenticelles</b>              | <b>Junger Trieb: Farbe der Lentizellen</b>               | <b>Brote joven: color de las lenticelas</b>            |  |               |
| <b>PQ (a)</b>           | yellow  | jaunes  | gelb   | amarillo   |  | 1             |
|                         | green   | vertes  | grün   | verde  | Collinson, G-22  | 2             |
|                         | red   | rouges  | rot  | rojo   | Benedict, Duke 6   | 3             |
|                         | purple  | violettes   | purpurn  | púrpura  |  | 4             |
| <b>4.</b>               | <b>Young leaf: color of pubescence of petiole</b> | <b>Jeune feuille: couleur de la pilosité du pétiole</b> | <b>Junges Blatt: Farbe der Behaarung des Blattstiels</b> | <b>Hoja joven: color de la pubescencia del peciolo</b> |  |               |
| <b>PQ (a)</b>           | white   | blanche   | weiß   | blanco   | Edranol  | 1             |
| <b>(b)</b>              | yellow  | jaune   | gelb   | amarillo   | Duke 6   | 2             |
|                         | brown   | brune   | braun  | marrón   |  | 3             |
|                         | red brown   | brun rouge  | rotbraun   | marrón rojizo  | Fuerte   | 4             |

|           | English                                 | français  | deutsch                                       | español                                     | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-----------|---|---|---|---|--|---------------|
| <b>5.</b> | <b>Shoot: length of internode</b>       | <b>Tige: longueur de l'entre-nœud</b>             | <b>Trieb: Länge des Internodiums</b>          | <b>Brote: longitud del internodo</b>        |  |               |
| (+)       |   |   |   |   |  |               |
| <b>QN</b> | short                                   | court   | kurz  | corto                                       | San Martín   | 1             |
|           | intermediate                            | intermédiaire                                     | mittel  | intermedio                                  | Fuerte, Hass   | 2             |
|           | long                                    | long  | lang  | largo                                       |  | 3             |
| <b>6.</b> | <b>Leaf: attitude relative to shoot</b> | <b>Feuille: orientation par rapport à la tige</b> | <b>Blatt: Haltung im Verhältnis zum Trieb</b> | <b>Hoja: porte en relación con el brote</b> |  |               |
| <b>QN</b> | (c) upwards                             | vers le haut                                      | aufwärts gerichtet                            | hacia arriba                                | G-6  | 1             |
|           | outwards                                | perpendiculaire                                   | abstehend                                     | perpendicular                               | Hass   | 2             |
|           | downwards                               | vers le bas                                       | abwärts gerichtet                             | hacia abajo                                 |  | 3             |
| <b>7.</b> | <b>Leaf blade: length</b>               | <b>Limbe: longueur</b>                            | <b>Blattspreite: Länge</b>                    | <b>Limbo: longitud</b>                      |  |               |
| <b>QN</b> | (c) very short                          | très court  | sehr kurz                                     | muy corto                                   | San Martín   | 1             |
|           | short                                   | court   | kurz  | corto                                       | Fuchsia, Puebla, Topa Topa   | 3             |
|           | medium                                  | moyen   | mittel  | medio                                       | Choquette, Colín V-33, Fuerte  | 5             |
|           | long                                    | long  | lang  | largo                                       | Barker   | 7             |
|           | very long                               | très long   | sehr lang                                     | muy largo                                   | Encinos  | 9             |
| <b>8.</b> | <b>Leaf blade: width</b>                | <b>Limbe: largeur</b>                             | <b>Blattspreite: Breite</b>                   | <b>Limbo: anchura</b>                       |  |               |
| <b>QN</b> | (c) very narrow                         | très étroit                                       | sehr schmal                                   | muy estrecho                                | Duke 7, San Martín   | 1             |
|           | narrow                                  | étroit  | schmal  | estrecho                                    | Hass, Thomas   | 3             |
|           | medium                                  | moyen   | mittel  | medio                                       | Choquette, Fuerte  | 5             |
|           | broad                                   | large   | breit   | ancho                                       | Monroe, Pollock  | 7             |
|           | very broad                              | très large  | sehr breit                                    | muy ancho                                   | Encinos, G755c   | 9             |



|            | English  | français                                    | deutsch  | español                                   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|--|---|--|---|--|---------------|
| <b>9.</b>  | <b>Leaf blade: ratio length/width</b>          | <b>Limbe: rapport longueur/largeur</b>      | <b>Blattspreite: Verhältnis Länge/Breite</b>         | <b>Limbo: relación longitud/anchura</b>   |  |               |
| <b>QN</b>  | (c) very small                                 | très petit                                  | sehr klein   | muy pequeña                               | Santana  | 1             |
|            | small  | petit                                       | klein  | pequeña                                   | G755c  | 3             |
|            | medium   | moyen                                       | mittel   | media                                     | Choquette  | 5             |
|            | large  | grand                                       | groß   | grande                                    | Mike, Pinkerton  | 7             |
|            | very large                                     | très grand                                  | sehr groß  | muy grande                                | Reed   | 9             |
| <b>10.</b> | <b>Leaf blade: shape</b>                       | <b>Limbe: forme</b>                         | <b>Blattspreite: Form</b>                            | <b>Limbo: forma</b>                       |  |               |
| (+)        |  |   |  |   |  |               |
| <b>PQ</b>  | (c) lanceolate                                 | lancéolé                                    | lanzettlich  | lanceolada                                | Collinson  | 1             |
|            | ovate  | ovale                                       | eiförmig   | oval                                      | Teague   | 2             |
|            | elliptic                                       | elliptique                                  | elliptisch   | elíptica                                  | Duke   | 3             |
|            | circular                                       | circulaire                                  | rund   | circular                                  | Santana  | 4             |
|            | obovate  | obovale                                     | verkehrt eiförmig                                    | oboval                                    | Dilly  | 5             |
| <b>11.</b> | <b>Leaf blade: shape of apex</b>               | <b>Limbe: forme du sommet</b>               | <b>Blattspreite: Form der Spitze</b>                 | <b>Limbo: forma del ápice</b>             |  |               |
| (+)        |  |   |  |   |  |               |
| <b>PQ</b>  | (c) acuminate                                  | acuminé                                     | zugespitzt   | acuminada                                 | Fuerte   | 1             |
|            | acute  | pointu                                      | spitz  | aguda                                     | Hass   | 2             |
|            | rounded  | arrondi                                     | abgerundet   | redondeada                                | Santana  | 3             |
| <b>12.</b> | <b>Leaf blade: twisting along whole length</b> | <b>Limbe: torsion sur toute la longueur</b> | <b>Blattspreite: Verdrehung auf der ganzen Länge</b> | <b>Limbo: torsión en toda la longitud</b> |  |               |
| (+)        |  |   |  |   |  |               |
| <b>QL</b>  | (c) absent                                     | absente                                     | fehlend  | ausente                                   | Fuerte   | 1             |
|            | present  | présente                                    | vorhanden  | presente                                  | Zutano   | 9             |
| <b>13.</b> | <b>Leaf blade: twisting of apex</b>            | <b>Limbe: torsion du sommet</b>             | <b>Blattspreite: Verdrehung der Spitze</b>           | <b>Limbo: torsión del ápice</b>           |  |               |
| (+)        |  |   |  |   |  |               |
| <b>QL</b>  | (c) absent                                     | absente                                     | fehlend  | ausente                                   | Fuerte   | 1             |
|            | present  | présente                                    | vorhanden  | presente                                  | Collinson  | 9             |

|            | English   | français  | deutsch   | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|---|---|---|---|--|---------------|
| <b>14.</b> | <b>Leaf blade: undulation of margin</b>                   | <b>Limbe: ondulation du bord</b>                            | <b>Blattspreite: Wellung des Randes</b>                     | <b>Limbo: ondulación del borde</b>                            |  |               |
| (+)        |   |   |   |   |  |               |
| <b>QN</b>  | (c) absent or very weak                                   | nulle ou très faible  | fehlend oder sehr gering                                    | ausente o muy débil   | Duke   | 1             |
|            | weak  | faible  | gering  | débil   | Frazer   | 3             |
|            | medium  | moyenne   | mittel  | media   | Ettinger   | 5             |
|            | strong  | forte   | stark   | fuerte  | Pinkerton  | 7             |
|            | very strong   | très forte  | sehr stark  | muy fuerte  | Arturo   | 9             |
| <b>15.</b> | <b>Leaf blade: relief of venation on upper surface</b>    | <b>Limbe: relief de la nervation sur la face supérieure</b> | <b>Blattspreite: Art der Aderung auf der Oberseite</b>      | <b>Limbo: relieve de la nervadura en la parte superior</b>    |  |               |
| <b>QN</b>  | (c) sunken  | en creux  | eingesunken   | hundido   | G755c, Topa Topa   | 1             |
|            | level   | plan  | intermediär   | plano   | Duke 7, Fuerte   | 2             |
|            | raised  | proéminente   | vorgewölbt  | protuberante  | Edranol, Frazer, Teague  | 3             |
| <b>16.</b> | <b>Leaf blade: number of secondary veins</b>              | <b>Limbe: nombre de nervures secondaires</b>                | <b>Blattspreite: Anzahl sekundärer Adern</b>                | <b>Limbo: número de nervios secundarios</b>                   |  |               |
| <b>QN</b>  | (c) few   | petit   | gering  | bajo  | Aguilar, Hass, Mike  | 1             |
|            | intermediate  | intermédiaire   | mittel  | intermedio  | Duke 7, Fuerte, Pinkerton  | 2             |
|            | many  | grand   | groß  | elevado   | Encinos, G755c   | 3             |
| <b>17.</b> | <b>Leaf blade: density of pubescence on lower surface</b> | <b>Limbe: densité de la pilosité sur la face inférieure</b> | <b>Blattspreite: Dichte der Behaarung an der Unterseite</b> | <b>Limbo: densidad de la pubescencia en la parte inferior</b> |  |               |
| <b>QN</b>  | (b) absent or sparse                                      | absente ou épars  | fehlend oder locker   | ausente o laxa  | Hass   | 1             |
|            | (c) medium  | moyenne   | mittel  | media   | Edranol  | 2             |
|            | dense   | dense   | dicht   | alta  | Duke   | 3             |
| <b>18.</b> | <b>Leaf blade: anise aroma</b>                            | <b>Limbe: arôme anisé</b>                                   | <b>Blattspreite: Anisaroma</b>                              | <b>Limbo: aroma de anís</b>                                   |  |               |
| <b>QN</b>  | (c) absent or weak  | absent ou faible  | fehlend oder gering   | ausente o débil   | Hass, Reed   | 1             |
|            | medium  | moyen   | mittel  | medio   | Duke 7   | 2             |
|            | strong  | fort  | stark   | fuerte  | Thomas   | 3             |

|               | English                                  | français                                      | deutsch                                   | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------|--|---|---|--|--|---------------|
| <b>19.</b>    | <b>Petiole: length</b>                   | <b>Pétiole: longueur</b>                      | <b>Blattstiel: Länge</b>                  | <b>Pecíolo: longitud</b>                       |  |               |
| <b>QN</b> (+) | (c) very short                           | très court                                    | sehr kurz                                 | muy corto                                      | San Martín   | 1             |
|               | short                                    | court   | kurz                                      | corto  | Aguilar, Reed  | 3             |
|               | medium                                   | moyen   | mittel                                    | medio  | Frazer, G755c, Mike  | 5             |
|               | long                                     | long  | lang                                      | largo  | Encinos, Hass  | 7             |
|               | very long                                | très long                                     | sehr lang                                 | muy largo                                      | Fuerte   | 9             |
| <b>20.</b>    | <b>Inflorescence: length of axis</b>     | <b>Inflorescence: longueur de l'axe</b>       | <b>Blütenstand: Länge der Achse</b>       | <b>Inflorescencia: longitud del eje</b>        |  |               |
| <b>QN</b> (+) | (d) short                                | court   | kurz                                      | corto  | Bacon  | 3             |
|               | medium                                   | moyen   | mittel                                    | medio  | Fuerte   | 5             |
|               | long                                     | long  | lang                                      | largo  | Pinkerton  | 7             |
| <b>21.</b>    | <b>Inflorescence: color of lenticels</b> | <b>Inflorescence: couleur des lenticelles</b> | <b>Blütenstand: Farbe der Lentizellen</b> | <b>Inflorescencia: color de las lenticelas</b> |  |               |
| <b>QL</b> (+) | (d) green                                | vertes  | grün                                      | verde  | Topa Topa  | 1             |
|               | red                                      | rouges  | rot                                       | rojo   | Teague   | 2             |
| <b>22.</b>    | <b>Inflorescence: flowering type</b>     | <b>Inflorescence: type floral</b>             | <b>Blütenstand: Blühtyp</b>               | <b>Inflorescencia: tipo de floración</b>       |  |               |
| <b>QL</b> (+) | (d) type A                               | type A  | Typ A                                     | tipo A   | Hass   | 1             |
|               | type B                                   | type B  | Typ B                                     | tipo B   | Colín V-33, Fuerte   | 2             |
| <b>23.</b>    | <b>Flower: nectary</b>                   | <b>Fleur: nectaire</b>                        | <b>Blüte: Nektarium</b>                   | <b>Flor: nectario</b>                          |  |               |
| <b>QL</b> (+) | (e) sessile                              | sessile                                       | ungestielt                                | sésil  | Ettinger   | 1             |
|               | stalked                                  | à pédoncules                                  | gestielt                                  | con pedúnculo                                  | Fuerte   | 2             |
| <b>24.</b>    | <b>Flower: style</b>                     | <b>Fleur: style</b>                           | <b>Blüte: Griffel</b>                     | <b>Flor: estilo</b>                            |  |               |
| <b>QL</b> (+) | (e) straight                             | droit   | gerade                                    | recto  | Fuerte   | 1             |
|               | kinked                                   | coudé   | geknickt                                  | acodado  | Collinson  | 2             |

|            | English  | français   | deutsch  | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|--|--|--|---|--|---------------|
| <b>25.</b> | <b>Flower: pollen</b>                                | <b>Fleur: pollen</b>                                     | <b>Blüte: Pollen</b>                                   | <b>Flor: polen</b>  |  |               |
| (+)        |  |  |  |   |  |               |
| <b>QL</b>  | absent   | absent   | fehlend  | ausente   | Collinson  | 1             |
|            | present  | présent  | vorhanden  | presente  | Aguilar, Fuerte, Hass  | 9             |
| <b>26.</b> | <b>Sepal: pubescence of inner surface</b>            | <b>Sépale: pilosité de la face interne</b>               | <b>Kelchblatt: Behaarung an der Innenseite</b>         | <b>Sépalo: pubescencia de la parte interna</b>                |  |               |
| <b>QL</b>  | (b) absent   | absente  | fehlend  | ausente   | Pollock  | 1             |
|            | (e) present  | présente   | vorhanden  | presente  | Duke, Hass   | 9             |
| <b>27.</b> | <b>Sepal: density of pubescence of inner surface</b> | <b>Sépale: densité de la pilosité de la face interne</b> | <b>Kelchblatt: Dichte der Behaarung der Innenseite</b> | <b>Sépalo: densidad de la pubescencia de la parte interna</b> |  |               |
| <b>QN</b>  | (b) sparse   | faible   | locker   | laxa  | Hass   | 3             |
|            | (e) medium   | moyenne  | mittel   | media   |  | 5             |
|            | dense  | forte  | dicht  | elevada   | Duke   | 7             |
| <b>28.</b> | <b>Mature fruit: length</b>                          | <b>Fruit à maturité de cueillette: longueur</b>          | <b>Erntereife Frucht: Länge</b>                        | <b>Fruto maduro: longitud</b>                                 |  |               |
| <b>QN</b>  | (f) very short                                       | très court   | sehr kurz  | muy corto   | Mexicola, Northrup   | 1             |
|            | short  | court  | kurz   | corto   | Dickinson, Edranol, Fuerte   | 3             |
|            | medium   | moyen  | mittel   | medio   | Avis, Hellen   | 5             |
|            | long   | long   | lang   | largo   | Cellon's Hawaii Seedling   | 7             |
|            | very long  | très long  | sehr lang  | muy largo   | Lima Late, Telsen  | 9             |
| <b>29.</b> | <b>Mature fruit: diameter</b>                        | <b>Fruit à maturité de cueillette: diamètre</b>          | <b>Erntereife Frucht: Durchmesser</b>                  | <b>Fruto maduro: diámetro</b>                                 |  |               |
| <b>QN</b>  | (f) very small                                       | très petit   | sehr klein   | muy pequeño   | Mexicola, Northrup   | 1             |
|            | small  | petit  | klein  | pequeño   | Dickinson, Edranol, Fuerte   | 3             |
|            | medium   | moyen  | mittel   | medio   | Avis, Hellen   | 5             |
|            | large  | gros   | groß   | grande  | Cellon's Hawaii Seedling   | 7             |
|            | very large   | très gros  | sehr groß  | muy grande  | Lima Late, Telsen  | 9             |

|                   | English  | français  | deutsch   | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------|--|---|---|---|--|---------------|
| <b>30.</b><br>(*) | <b>Mature fruit: ratio length/diameter</b>               | <b>Fruit à maturité de cueillette: rapport longueur/diamètre</b>                            | <b>Erntereife Frucht: Verhältnis Länge/Durchmesser</b>                | <b>Fruto maduro: relación longitud/diámetro</b>       |  |               |
| <b>QN</b> (f)     | very small   | très petit  | sehr klein  | muy pequeña   | Trapp  | 1             |
|                   | small  | petit   | klein   | pequeña   | Monroe   | 3             |
|                   | medium   | moyen   | mittel  | media   | Carlsbad, Lima Late, Topa Topa   | 5             |
|                   | large  | grand   | groß  | grande  | #86  | 7             |
|                   | very large   | très grand  | sehr groß   | muy grande  | Telsen   | 9             |
| <b>31.</b><br>(+) | <b>Mature fruit: shape of stalk end</b>                  | <b>Fruit à maturité de cueillette: forme à l'extrémité pédonculaire</b>                     | <b>Erntereife Frucht: Form des Stielendes</b>                         | <b>Fruto maduro: forma del extremo peduncular</b>     |  |               |
| <b>PQ</b> (f)     | pointed  | pointu  | spitz   | en punta  | Dickinson, Frazer  | 1             |
|                   | narrowly rounded   | arrondi étroit  | schmal abgerundet   | redondeado estrecho                                   | Carlsbad, Edranol, Sharwil   | 2             |
|                   | broadly rounded  | arrondi large   | breit abgerundet  | redondeado ancho                                      | Esther, Hashimoto, Nimlioh   | 3             |
|                   | truncate   | tronqué   | stumpf  | truncada  | Lamb Hass, Mayo, Puebla  | 4             |
| <b>32.</b><br>(+) | <b>Mature fruit: presence of neck</b>                    | <b>Fruit à maturité de cueillette: présence d'un collet</b>                                 | <b>Erntereife Frucht: Vorhandensein eines Halses</b>                  | <b>Fruto maduro: cuello</b>                           |  |               |
| <b>QL</b> (f)     | absent   | absent  | fehlend   | ausente   | Hashimoto, Hass, Lamat   | 1             |
|                   | present  | présent   | vorhanden   | presente  | Akbal, Fuerte, Horshim   | 9             |
| <b>33.</b><br>(+) | <b>Mature fruit: presence of depression at stalk end</b> | <b>Fruit à maturité de cueillette: présence d'une dépression à l'extrémité pédonculaire</b> | <b>Erntereife Frucht: Vorhandensein einer Einsenkung am Stielende</b> | <b>Fruto maduro: depresión del extremo peduncular</b> |  |               |
| <b>QL</b> (f)     | absent   | absente   | fehlend   | ausente   | Jim, Sharwil, Wurtz  | 1             |
|                   | present  | présente  | vorhanden   | presente  | Maxima, Simmonds, Trapp  | 9             |

|            | English   | français  | deutsch   | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|---|---|---|--|--|---------------|
| <b>34.</b> | <b>Mature fruit:<br/>diameter of stalk<br/>attachment</b> | <b>Fruit à maturité de<br/>cueillette: diamètre<br/>de la fixation<br/>pédonculaire</b> | <b>Erntereife Frucht:<br/>Durchmesser des<br/>Stielansatzes</b> | <b>Fruto maduro:<br/>diámetro de la<br/>inserción<br/>peduncular</b>                   |  |               |
| <b>(+)</b> |   |   |   |  |  |               |
| <b>QN</b>  | <b>(f)</b> small  | petit   | klein   | pequeño  | Frazer   | 3             |
|            | medium  | moyen   | mittel  | medio  | Fuerte   | 5             |
|            | large   | grand   | groß  | grande   | Encinos  | 7             |
| <b>35.</b> | <b>Mature fruit:<br/>position of stalk</b>                | <b>Fruit à maturité de<br/>cueillette: position<br/>du pédoncule</b>                    | <b>Erntereife Frucht:<br/>Sitz des Stiels</b>                   | <b>Fruto maduro:<br/>posición del<br/>pedúnculo</b>                                    |  |               |
| <b>QN</b>  | <b>(f)</b> along axis                                     | le long de l'axe  | entlang der Achse   | a lo largo del eje   | G-22, Nabal, Simmonds  | 1             |
|            | slightly oblique  | légèrement oblique  | leicht seitlich   | ligeramente oblicuo  | Fuerte, Rincon   | 2             |
|            | strongly oblique  | fortement oblique   | stark seitlich  | muy oblicuo  | Hayes, Whitsell  | 3             |
| <b>36.</b> | <b>Mature fruit: shape<br/>at styler region</b>           | <b>Fruit à maturité de<br/>cueillette: forme de<br/>la région stylaire</b>              | <b>Erntereife Frucht:<br/>Form in der<br/>Griffelregion</b>     | <b>Fruto maduro:<br/>forma de la parte en<br/>la que se encuentran<br/>los estilos</b> |  |               |
| <b>(+)</b> |   |   |   |  |  |               |
| <b>PQ</b>  | <b>(f)</b> pointed  | pointue   | spitz   | en punta   | Lamat, Mexicola  | 1             |
|            | rounded   | arrondie  | abgerundet  | redondeada   |  | 2             |
|            | flattened   | aplatie   | eben  | aplanada   | Dade, Stewart, Trapp   | 3             |
|            | slightly depressed  | légèrement déprimée   | leicht eingesenkt   | ligeramente<br>deprimida   | Gordo, Irving, Nimlioh   | 4             |
|            | deeply depressed  | profondément<br>déprimée  | tief eingesenkt   | muy deprimida  | Duke   | 5             |
| <b>37.</b> | <b>Mature fruit:<br/>conspicuousness of<br/>lenticels</b> | <b>Fruit à maturité de<br/>cueillette: netteté<br/>des lenticelles</b>                  | <b>Erntereife Frucht:<br/>Ausprägung der<br/>Lentizellen</b>    | <b>Fruto maduro:<br/>presencia de<br/>lenticelas</b>                                   |  |               |
| <b>QN</b>  | <b>(f)</b> inconspicuous or<br>weak                       | peu nettes  | undeutlich oder<br>gering                                       | imperceptible o débil  | Topa Topa  | 1             |
|            | medium  | moyennement nettes  | mittel  | media  | Fuerte   | 2             |
|            | strong  | très nettes   | deutlich  | elevada  | Carlsbad, Stewart  | 3             |

|                | English                                 | français   | deutsch   | español                                      | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|----------------|---|--|---|--|--|---------------|
| <b>38.</b>     | <b>Mature fruit: size of lenticels</b>  | <b>Fruit à maturité de cueillette: taille des lenticelles</b>  | <b>Erntereife Frucht: Größe der Lentizellen</b> | <b>Fruto maduro: tamaño de lenticelas</b>    |  |               |
| <b>QN (f)</b>  | small                                   | petites  | klein   | pequeño                                      | Rincon   | 3             |
|                | medium                                  | moyennes   | mittel  | medio  | Fuerte, Stewart  | 5             |
|                | large                                   | grandes  | groß  | grande                                       | Ettinger   | 7             |
| <b>39.</b>     | <b>Mature fruit: color of lenticels</b> | <b>Fruit à maturité de cueillette: couleur des lenticelles</b> | <b>Erntereife Frucht: Farbe der Lentizellen</b> | <b>Fruto maduro: color de las lenticelas</b> |  |               |
| <b>PQ (f)</b>  | cream                                   | crème  | cremefarben                                     | crema  | Biscayne Seedling  | 1             |
|                | yellow                                  | jaunes   | gelb  | amarillo                                     | Fuerte   | 2             |
|                | light green                             | vert pâle  | hellgrün  | verde claro                                  | Akbal  | 3             |
|                | brown                                   | brunes   | braun   | marrón                                       | Aycock Red 3, Carlsbad   | 4             |
| <b>40.</b>     | <b>Mature fruit: glossiness</b>         | <b>Fruit à maturité de cueillette: brillance</b>               | <b>Erntereife Frucht: Glanz</b>                 | <b>Fruto maduro: brillo</b>                  |  |               |
| <b>QN (f)</b>  | absent or weak                          | absente ou faible  | fehlend oder gering                             | ausente o débil                              | Fuerte, Horshim  | 1             |
|                | medium                                  | moyenne  | mittel  | medio  | Ettinger, Zutano   | 2             |
|                | strong                                  | forte  | stark   | fuerte                                       | Simmonds, Topa Topa  | 3             |
| <b>41. (*)</b> | <b>Mature fruit: surface</b>            | <b>Fruit à maturité de cueillette: surface</b>                 | <b>Erntereife Frucht: Oberfläche</b>            | <b>Fruto maduro: superficie</b>              |  |               |
| <b>QN (f)</b>  | very smooth                             | très lisse   | sehr glatt                                      | muy lisa                                     | Duke, Simmonds, Topa Topa  | 1             |
|                | smooth                                  | lisse  | glatt   | lisa   | Bacon, Ettinger  | 3             |
|                | medium                                  | moyenne  | mittel  | media  | Alboyce, Fuerte, Horshim   | 5             |
|                | rough                                   | rugueuse   | rauh  | rugosa                                       | Hass, Whitsell   | 7             |
|                | very rough                              | très rugueuse  | sehr rauh                                       | muy rugosa                                   | Dickinson  | 9             |

|            | English  | français   | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|--|--|--|--|--|---------------|
| <b>42.</b> | <b>Mature fruit:<br/>persistence of<br/>perianth</b>                     | <b>Fruit à maturité<br/>de cueillette:<br/>persistance<br/>du périlanthe</b>     | <b>Erntereife Frucht:<br/>Ausdauern der<br/>Blütenhülle</b>  | <b>Fruto maduro:<br/>persistencia del<br/>perianto</b>                                   |  |               |
| <b>QN</b>  | <b>(f)</b> absent or weak  | absente ou faible  | fehlend oder gering  | ausente o débil  | Hass   | 1             |
|            | medium   | moyenne  | mittel   | media  | Colín V-33, Lypps  | 2             |
|            | strong   | forte  | stark  | fuerte   | Irving, Jim  | 3             |
| <b>43.</b> | <b>PediceL: thickness<br/>compared to<br/>peduncle (at<br/>junction)</b> | <b>Pédicelle: épaisseur<br/>par rapport<br/>au pédoncule (à<br/>la jonction)</b> | <b>Fruchtstiel: Dicke<br/>im Verhältnis zum<br/>Stiel des<br/>Fruchtstandes<br/>(an der<br/>Verbindungsstelle)</b> | <b>PediceLo: grosor en<br/>comparación con el<br/>pedúnculo (en la<br/>intersección)</b> |  |               |
| <b>QL</b>  | <b>(g)</b> same  | même épaisseur   | gleich   | igual  | Ettinger, Simmonds   | 1             |
|            | thicker  | plus épais   | dicker   | mayor  | Collinson, Dade  | 2             |
| <b>44.</b> | <b>PediceL: length</b>   | <b>Pédicelle: longueur</b>   | <b>Fruchtstiel: Länge</b>  | <b>PediceLo: longitud</b>  |  |               |
| <b>QN</b>  | <b>(g)</b> short   | court  | kurz   | corto  | Pollock  | 3             |
|            | medium   | moyen  | mittel   | medio  | Fuerte   | 5             |
|            | long   | long   | lang   | largo  | G-22, Hass   | 7             |
| <b>45.</b> | <b>PediceL: shape</b>  | <b>Pédicelle: forme</b>  | <b>Fruchtstiel: Form</b>   | <b>PediceLo: forma</b>   |  |               |
| <b>QL</b>  | <b>(g)</b> cylindrical   | cylindrique  | zylindrisch  | cilíndrica   | Horshim, Iriet, Teague   | 1             |
|            | conical  | conique  | kegelförmig  | cónica   | Dunedin, Edranol, Monroe   | 2             |
| <b>46.</b> | <b>PediceL: “nailhead”</b>   | <b>Pédicelle: en forme<br/>de tête de clou</b>                                   | <b>Fruchtstiel:<br/>„Nagelkopfform“</b>  | <b>PediceLo: “cabeza<br/>de clavo”</b>   |  |               |
| <b>QL</b>  | <b>(g)</b> absent  | absente  | fehlend  | ausente  | Duke, Edranol, Wurtz   | 1             |
|            | present  | présente   | vorhanden  | presente   | Maxima, Pollock  | 9             |



|            | English                                  | français   | deutsch                                   | español                                    | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|--|--|---|--|--|---------------|
| <b>47.</b> | <b>Pedidel: color</b>                    | <b>Pédicelle: couleur</b>  | <b>Fruchtstiel: Farbe</b>                 | <b>Pedicelo: color</b>                     |  |               |
| <b>PQ</b>  | (g) yellow                               | jaune  | gelb                                      | amarillo                                   | Aycock Red 3, Duke   | 1             |
|            | yellow green                             | vert jaune   | gelbgrün                                  | verde amarillento                          | Hass, Iriet  | 2             |
|            | green                                    | vert   | grün                                      | verde                                      | Alboyce, Lamat   | 3             |
|            | green brown                              | brun vert  | grünbraun                                 | marrón verdoso                             | Horshim  | 4             |
|            | reddish                                  | rougeâtre  | rötlich                                   | rojizo                                     | Wurtz  | 5             |
| <b>48.</b> | <b>Pedidel: surface</b>                  | <b>Pédicelle: surface</b>  | <b>Fruchtstiel:<br/>Oberfläche</b>        | <b>Pedicelo: superficie</b>                |  |               |
| <b>QL</b>  | (g) smooth                               | lisse  | glatt                                     | lisa                                       | Duke, Ferdyn, Topa Topa  | 1             |
|            | wrinkled                                 | ridée  | gerieft                                   | arrugada                                   | Edranol, Ettinger  | 2             |
| <b>49.</b> | <b>Ripe fruit: color</b>                 | <b>Fruit à maturité de<br/>consommation:<br/>couleur</b>                     | <b>Reife Frucht: Farbe</b>                | <b>Fruto maduro:<br/>color</b>             |  |               |
| <b>PQ</b>  | (h) yellow green                         | vert jaune   | gelbgrün                                  | verde amarillo                             | Melendez   | 1             |
|            | light green                              | vert clair   | hellgrün                                  | verde claro                                | Marsheline, Mayo   | 2             |
|            | medium green                             | vert moyen   | mittelgrün                                | verde medio                                | Greengold, Rincon, Zutano  | 3             |
|            | dark green                               | vert foncé   | dunkelgrün                                | verde oscuro                               | Ahaheim, Colín V-33,<br>Edranol  | 4             |
|            | reddish                                  | rougeâtre  | rötlich                                   | rojizo                                     | Los Moros  | 5             |
|            | medium purple                            | violet moyen   | mittelpurpurn                             | púrpura medio                              |  | 6             |
|            | dark purple or black                     | violet foncé ou noir   | dunkelpurpurn oder<br>schwarz             | púrpura oscuro o<br>negro                  | Hass, Topa Topa  | 7             |
| <b>50.</b> | <b>Ripe fruit: thickness<br/>of skin</b> | <b>Fruit à maturité de<br/>consommation:<br/>épaisseur de<br/>l'épiderme</b> | <b>Reife Frucht: Dicke<br/>der Schale</b> | <b>Fruto maduro:<br/>grosor de la piel</b> |  |               |
| <b>QN</b>  | (h) very thin                            | très fin   | sehr dünn                                 | muy fina                                   | Mexicola, Topa Topa  | 1             |
|            | moderately thin                          | modérément fin   | mäßig dünn                                | moderadamente fina                         | Colín V-33, Fuerte   | 3             |
|            | medium                                   | moyen  | mittel                                    | media                                      | Edranol  | 5             |
|            | moderately thick                         | modérément épais   | mäßig dick                                | moderadamente<br>gruesa                    | Hass   | 7             |
|            | very thick                               | très épais   | dick                                      | muy gruesa                                 | Dickinson  | 9             |

|            | English   | français   | deutsch   | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|---|--|---|--|--|---------------|
| <b>51.</b> | <b>Ripe fruit:<br/>consistency of skin</b>            | <b>Fruit à maturité de<br/>consommation:<br/>consistance de<br/>l'épiderme</b>                   | <b>Reife Frucht:<br/>Konsistenz der<br/>Schale</b>                    | <b>Fruto maduro:<br/>consistencia de la<br/>piel</b>           |  |               |
| (+)        |   |  |   |  |  |               |
| <b>QL</b>  | <b>(h)</b> membranous                                 | membraneux   | membranartig  | membranosa   | Ettinger, Teague,<br>Topa Topa   | 1             |
|            | leathery  | coriace  | lederartig  | áspera   | Edranol, Pollock, Santana  | 2             |
|            | corky   | liégeux  | korkartig   | rugosa   | G-22, Nabal  | 3             |
| <b>52.</b> | <b>Ripe fruit:<br/>adherence of skin to<br/>flesh</b> | <b>Fruit à maturité de<br/>consommation:<br/>adhérence de<br/>l'épiderme à<br/>la chair</b>      | <b>Reife Frucht:<br/>Anhaften der Schale<br/>am Fleisch</b>           | <b>Fruto maduro:<br/>adherencia de la<br/>piel a la pulpa</b>  |  |               |
| (+)        |   |  |   |  |  |               |
| <b>QN</b>  | <b>(h)</b> weak                                       | faible   | gering  | débil  | Edranol, Fuerte  | 1             |
|            | intermediate  | intermédiaire  | mittel  | intermedia   | Sharwil  | 2             |
|            | strong  | forte  | stark   | fuerte   | Ettinger, Nabal, Teague  | 3             |
| <b>53.</b> | <b>Ripe fruit: main<br/>color of flesh</b>            | <b>Fruit à maturité de<br/>consommation:<br/>couleur principale<br/>de la chair</b>              | <b>Reife Frucht:<br/>Hauptfarbe des<br/>Fleisches</b>                 | <b>Fruto maduro:<br/>color principal de la<br/>pulpa</b>       |  |               |
| <b>PQ</b>  | <b>(h)</b> whitish                                    | blanchâtre   | weißlich  | blanquecino  | Hazzard  | 1             |
|            | cream   | crème  | cremefarben   | crema  | Bacon, Ettinger, Zutano  | 2             |
|            | yellow  | jaune  | gelb  | amarillo   | Hayes, Nabal   | 3             |
|            | light green   | vert clair   | hellgrün  | verde claro  | G-6, San Miguel  | 4             |
| <b>54.</b> | <b>Ripe fruit: color of<br/>layer next to skin</b>    | <b>Fruit à maturité de<br/>consommation:<br/>couleur de la zone<br/>proche de<br/>l'épiderme</b> | <b>Reife Frucht: Farbe<br/>der Fleischschicht<br/>nahe der Schale</b> | <b>Fruto maduro:<br/>color de la capa<br/>pegada a la piel</b> |  |               |
| <b>PQ</b>  | <b>(h)</b> light green                                | vert clair   | hellgrün  | verde claro  | Santana  | 1             |
|            | medium green  | vert moyen   | mittelgrün  | verde medio  | Hass, Sharwil, Sir Prize   | 2             |
|            | yellow green  | vert jaune   | gelbgrün  | verde amarillento  | Duke   | 3             |

|               | English   | français   | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------|---|--|--|--|--|---------------|
| <b>55.</b>    | <b>Ripe fruit: width of layer next to skin</b>        | <b>Fruit à maturité de consommation: largeur de la zone proche de l'épiderme</b> | <b>Reife Frucht: Breite der Fleischschicht nahe der Schale</b> | <b>Fruto maduro: anchura de la capa pegada a la piel</b> |  |               |
| <b>QN (h)</b> | narrow  | étroite  | schmal   | estrecha   | Duke, Santana  | 3             |
|               | medium  | moyenne  | mittel   | media  | Colín V-33, Fuerte, Santana  | 5             |
|               | broad   | large  | breit  | ancha  | Edranol, Reed, Whitsell  | 7             |
| <b>56.</b>    | <b>Ripe fruit: conspicuousness of fibers in flesh</b> | <b>Fruit à maturité de consommation: netteté des fibres dans la chair</b>        | <b>Reife Frucht: Ausprägung der Fasern im Fleisch</b>          | <b>Fruto maduro: presencia de fibras en la pulpa</b>     |  |               |
| <b>QL (h)</b> | inconspicuous   | peu nettes   | undeutlich   | imperceptibles   | Fuerte, Santana  | 1             |
|               | conspicuous   | nettes   | deutlich   | presentes  | Edranol, Ettinger, Ryan  | 2             |
| <b>57.</b>    | <b>Ripe fruit: consistency of flesh</b>               | <b>Fruit à maturité de consommation: consistance de la chair</b>                 | <b>Reife Frucht: Konsistenz des Fleisches</b>                  | <b>Fruto maduro: consistencia de la pulpa</b>            |  |               |
| <b>PQ (h)</b> | watery  | aqueuse  | wäßrig   | acuosa   | Simmonds   | 1             |
|               | buttery   | beurrée  | buttrig  | grasienta  | Fuerte, Hass   | 2             |
|               | dry   | sèche  | trocken  | seca   | Fundación II   | 3             |
|               | granular  | granuleuse   | körnig   | granulosa  |  | 4             |
| <b>58.</b>    | <b>Ripe fruit: anise aroma of flesh</b>               | <b>Fruit à maturité de consommation: arôme anisé de la chair</b>                 | <b>Reife Frucht: Anisaroma des Fleisches</b>                   | <b>Fruto maduro: aroma de anís de la pulpa</b>           |  |               |
| <b>QL (h)</b> | absent  | absent   | fehlend  | ausente  | Aguilar, Hass, Lamb Hass   | 1             |
|               | present   | présent  | vorhanden  | presente   | Mexicola   | 9             |

|               | English   | français   | deutsch  | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------|---|--|--|---|--|---------------|
| <b>59.</b>    | <b>Ripe fruit: ratio fruit length/seed length</b>         | <b>Fruit à maturité de consommation: rapport longueur du fruit/longueur du noyau</b> | <b>Reife Frucht: Verhältnis Länge der Frucht/Länge des Kerns</b> | <b>Fruto maduro: relación longitud del fruto/longitud de la semilla</b> |  |               |
| <b>QN (h)</b> | very small  | très petit   | sehr klein   | muy pequeña   | Toltec   | 1             |
|               | small   | petit  | klein  | pequeña   | Bacon, Ettinger  | 3             |
|               | medium  | moyen  | mittel   | media   | Hashimoto, Hass, Lamat   | 5             |
|               | large   | grand  | groß   | grande  | T181   | 7             |
|               | very large  | très grand   | sehr groß  | muy grande  | Carlsbad   | 9             |
| <b>60.</b>    | <b>Seed: shape in longitudinal section (lateral view)</b> | <b>Noyau: forme en section longitudinale (vue latérale)</b>                          | <b>Kern: Form im Längsschnitt</b>                                | <b>Semilla: forma en sección longitudinal (vista lateral)</b>           |  |               |
| <b>(+)</b>    |   |  |  |   |  |               |
| <b>PQ (h)</b> | triangular  | triangulaire   | dreieckig  | triangular  | Simmonds, Telsen, Zutano   | 1             |
|               | ovate   | ovale  | eiförmig   | oval  | Anaheim, Colín V-33, Rincon  | 2             |
|               | elliptic  | elliptique   | elliptisch   | elíptica  | Jan Boyce, Lima Late, Topa Topa  | 3             |
|               | circular  | circulaire   | rund   | circular  | Lamat, Lamb Hass, Mayapan  | 4             |
|               | oblate  | aplatis  | breitrund  | achatada  | Hayes, McDonald, Suardia   | 5             |
|               | depressed oblate  | aplatis déprimé  | eingesenkt breitrund   | achatada deprimida  | Carlsbad, Nowels   | 6             |
| <b>61.</b>    | <b>Seed: shape in cross section</b>                       | <b>Noyau: forme en section transversale</b>  | <b>Kern: Form im Querschnitt</b>                                 | <b>Semilla: forma en sección transversal</b>                            |  |               |
| <b>QL (h)</b> | circular  | circulaire   | rund   | circular  | Fuerte   | 1             |
|               | elliptic  | elliptique   | elliptisch   | elíptica  | Ryan   | 2             |

|               | English  | français   | deutsch   | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------|--|--|---|---|--|---------------|
| <b>62.</b>    | <b>Seed coat:<br/>adherence to flesh</b>         | <b>Téguments:<br/>adhérence à la chair</b>       | <b>Samenschale:<br/>Anhaften am<br/>Fleisch</b>   | <b>Tegumento:<br/>adherencia a la<br/>pulpa</b>   |  |               |
| <b>QN (h)</b> | absent or weak                                   | nulle ou faible                                  | fehlend oder gering                               | ausente o débil                                   | Zutano   | 1             |
|               | medium   | moyenne  | mittel  | media   | Northrup, Topa Topa  | 2             |
|               | strong   | forte  | stark   | fuerte  | Colín V-33, Fuerte, Hass   | 3             |
| <b>63.</b>    | <b>Seed coat:<br/>adherence to<br/>cotyledon</b> | <b>Téguments:<br/>adhérence<br/>au cotylédon</b> | <b>Samenschale:<br/>Anhaften am<br/>Keimblatt</b> | <b>Tegumento:<br/>adherencia al<br/>cotiledón</b> |  |               |
| <b>QN (h)</b> | absent or weak                                   | nulle ou faible                                  | fehlend oder gering                               | ausente o débil                                   | Akbal, Aycocock Red #3,<br>Hardee                                      | 1             |
|               | medium   | moyenne  | mittel  | medio   | Dade   | 2             |
|               | strong   | forte  | stark   | fuerte  | Hass, Fuerte   | 3             |
| <b>64.</b>    | <b>Seed coat: surface</b>                        | <b>Téguments: surface</b>                        | <b>Samenschale:<br/>Oberfläche</b>                | <b>Tegumento:<br/>superficie</b>                  |  |               |
| <b>QN (h)</b> | smooth or slightly<br>wrinkled                   | lisse ou légèrement<br>ridée                     | glatt oder leicht<br>gerieft                      | lisa o ligeramente<br>arrugada                    | Hass   | 1             |
|               | moderately wrinkled                              | modérément ridée                                 | mäßig gerieft                                     | moderadamente<br>arrugada                         | Lula   | 2             |
|               | strongly wrinkled                                | fortement ridée                                  | stark gerieft                                     | muy arrugada                                      | Trapp  | 3             |
| <b>65.</b>    | <b>Cotyledon: surface</b>                        | <b>Cotylédon: surface</b>                        | <b>Keimblatt:<br/>Oberfläche</b>                  | <b>Cotiledón:<br/>superficie</b>                  |  |               |
| <b>QL (h)</b> | smooth   | lisse  | glatt   | lisa  | Bacon  | 1             |
|               | wrinkled   | ridée  | gerieft   | arrugada  | Collinson  | 2             |
| <b>66.</b>    | <b>Time of beginning<br/>of flowering</b>        | <b>Époque du début de<br/>la floraison</b>       | <b>Zeitpunkt des<br/>Blühbeginns</b>              | <b>Época de inicio de la<br/>floración</b>        |  |               |
| <b>QN</b>     | early  | précoce  | früh  | precoz  | Duke   | 3             |
|               | medium   | moyenne  | mittel  | media   | Fuerte   | 5             |
|               | late   | tardive  | spät  | tardía  | Hass   | 7             |

|                     | English                                      | français   | deutsch                                    | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------------|--|--|--|---|--|---------------|
| <b>67.<br/>(* )</b> | <b>Time of fruit maturity for harvesting</b> | <b>Époque de maturité de cueillette des fruits</b> | <b>Zeitpunkt der Erntereife der Frucht</b> | <b>Época de madurez del fruto para la cosecha</b> |  |               |
| <b>QN (f)</b>       | very early                                   | très précoce                                       | sehr früh                                  | muy precoz  | Topa Topa  | 1             |
|                     | early  | précoce  | früh                                       | precoz  | Ettinger   | 3             |
|                     | medium                                       | moyenne  | mittel                                     | media   | Fuerte   | 5             |
|                     | late   | tardive  | spät                                       | tardía  | Hass, Ryan   | 7             |
|                     | very late                                    | très tardive                                       | sehr spät                                  | muy tardía  | Reed   | 9             |
| <b>68.</b>          | <b>Seed multiple sprouting</b>               | <b>Polyembryonie</b>                               | <b>Mehrkeimigkeit</b>                      | <b>Germinación múltiple de semillas</b>           |  |               |
| <b>QL</b>           | absent                                       | absente  | fehlend                                    | ausente   | Hass   | 1             |
|                     | present                                      | présente   | vorhanden                                  | presente  | Lula   | 9             |

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

- (a) Young shoot / Young leaf: All observations on the young shoot and young leaf should be made on the current season's growth, during a period of active growth (flush).
- (b) Pubescence: All observations on pubescence should be made with the aid of a magnifying glass.
- (c) Leaf: Unless otherwise indicated, all observations on the leaf should be made on mature leaves from branches which are neither bearing fruit nor showing signs of new flush on the outside of the tree. They should be made in the middle third of the current season's growth.
- (d) Inflorescence: All observations on the inflorescence should be made at the time of full flowering.
- (e) Flower: All observations on the flower should be made during female opening. To determine the flowering type of a variety, the average night and day minimum temperatures should not be below 15 °C and 25 °C, respectively.
- (f) Mature fruit: The mature fruit is defined as the fruit ready for harvesting.
- (g) Pedicel: All observations on the pedicel should be made on mature fruits.
- (h) Ripe fruit, seed, cotyledon: observations on the ripe fruit, seed and cotyledon which should be made when the fruit is ready for eating.

8.2 *Explanations for individual characteristics*

Ad. 1: Tree: growth habit



1  
upright



2  
spreading



3  
semi drooping

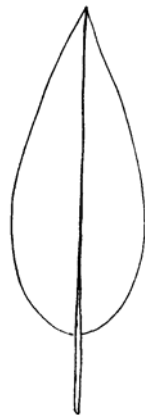


4  
drooping

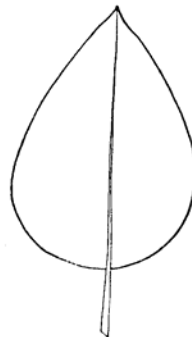
Ad. 5: Shoot: length of internode

To be observed on the middle part of the shoot, after the current season's growth has stopped.

Ad. 10: Leaf blade: shape



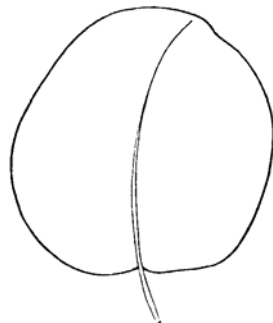
1  
lanceolate



2  
ovate



3  
elliptic



4  
circular



5  
obovate



Ad. 11: Leaf blade: shape of apex



1  
acuminate



2  
acute



3  
rounded

Ad. 12: Leaf blade: twisting along whole length

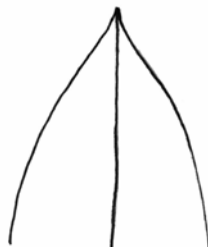


1  
absent

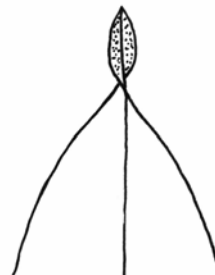


9  
present

Ad. 13: Leaf blade: twisting of apex



1  
absent



9  
present

Ad. 14: Leaf blade: undulation of margin



1  
absent or very weak



3  
weak



5  
medium

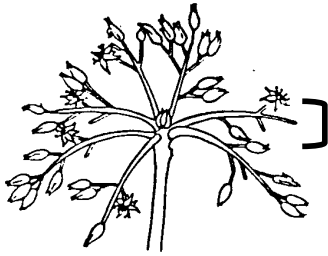


7  
strong



9  
very strong

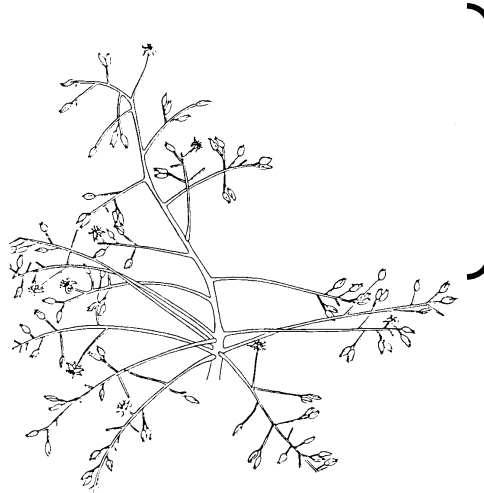
Ad. 20: Inflorescence: length of axis



3  
short



5  
medium



7  
long

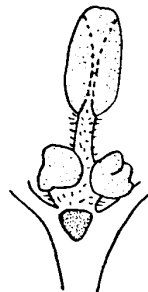
Ad. 22: Inflorescence: flowering type

A flower from inflorescence

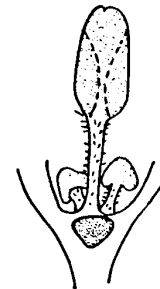
| Type  | A    | B                                 |                                   |
|-------|------|-----------------------------------|-----------------------------------|
| Day 1 | a.m. | open with female parts functional | closed                            |
|       | p.m. | closed                            | open with female parts functional |
| Day 2 | a.m. | closed                            | open with male parts functional   |
|       | p.m. | open with male parts functional   | closed                            |

Observations should be carried out according to Ish-Am, G. and D. Eisikowitch. 1991: New insight into avocado flowering in relation to its pollination. California Avocado Society Yearbook 75: 125-137.

Ad. 23: Flower: nectary



1  
sessile



2  
stalked

Ad. 24: Flower: style



1  
straight

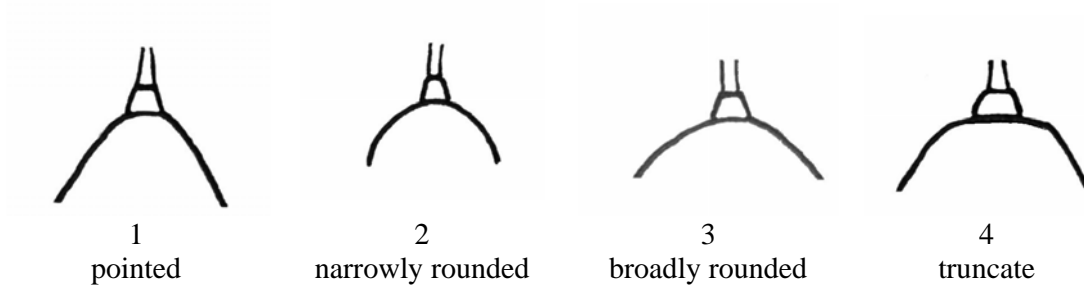


2  
kinked

Ad. 25: Flower: pollen

Observations on the pollen should be made at anther dehiscence of the male stage flower.

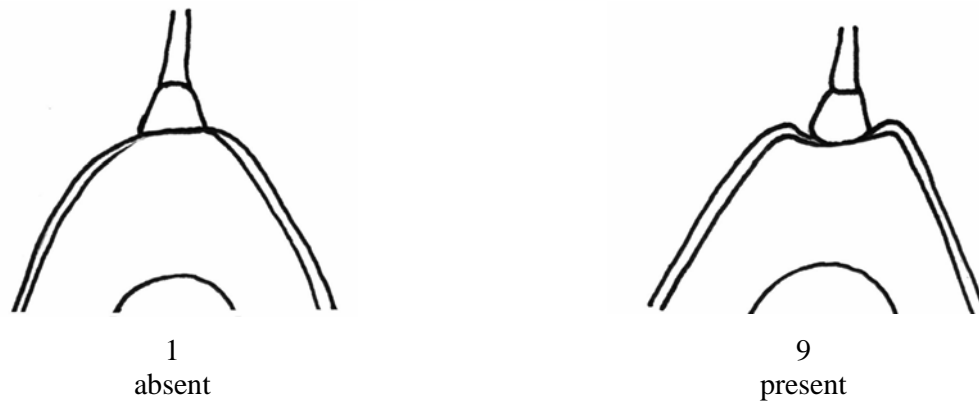
Ad. 31: Mature fruit: shape of stalk end



Ad. 32: Mature fruit: presence of neck



Ad. 33: Mature fruit: presence of depression at stalk end



Ad. 34: Mature fruit: diameter of stalk attachment



3  
small

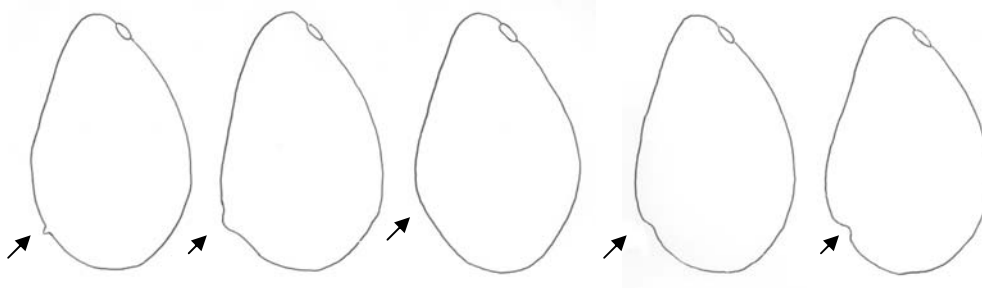


5  
medium



7  
large

Ad. 36: Mature fruit: shape at styler region



1  
pointed

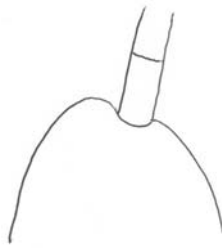
2  
rounded

3  
flattened

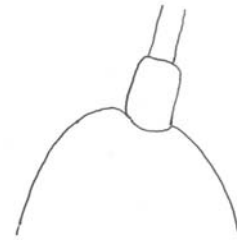
4  
slightly  
depressed

5  
deeply  
depressed

Ad. 43: Pedicel: thickness compared to peduncle (at junction)

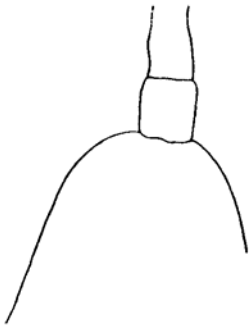


1  
same

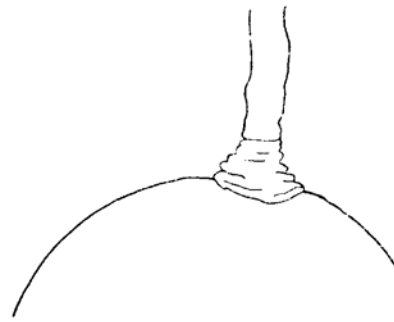


2  
thicker

Ad. 45: Pedicel: shape

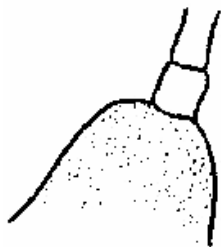


1  
cylindrical

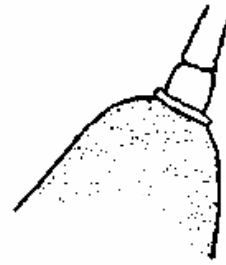


2  
conical

Ad. 46: Pedicel: "nailhead"



1  
absent



9  
present

Ad. 51: Ripe fruit: consistency of skin

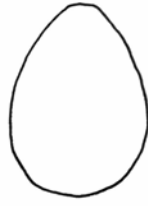
Ad. 52: Ripe fruit: adherence of skin to flesh

Should be evaluated by peeling the ripe fruit with the aid of the fingers.

Ad. 60: Seed: shape in longitudinal section (lateral view)



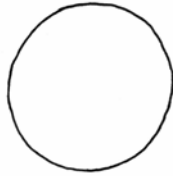
1  
triangular



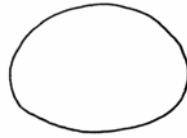
2  
ovate



3  
elliptic



4  
circular



5  
oblate



6  
depressed oblate



9. Literature

Avilán Rovira, L.; Avilán Rodríguez, L. A., 1997: Sistema de Información de las fichas de variedades de aguacate del banco de germoplasma – CENIAP. Manual de Usuario y Disco. Fondo Nacional de Investigaciones Agropecuarias, Centro Nacional de Investigaciones Agropecuarias-IICA/CReA/PROCIANDINO/FRUTHEX. Serie D No. 34. Maracay, Venezuela. 19 p.

Barrientos-Priego, A. F.; Ben-Ya'acov, A. D.; de la Cruz-Torres, E.; López-López, L.; Bufler, G.; Borys, M. W., 1991: Descriptores para aguacate-Descriptors for avocado. Fundación Salvador Sánchez Colín-CICTAMEX, S. C. Coatepec Harinas, Estado de México. México 69 p.

IPGRI, 1995: Descriptors for Avocado (*Persea americana* Mill.). International Genetic Resources Institute (IPGRI-FAO). Rome, Italy. 52 p.

Ish-Am, G.; Eisikowitch, D., 1991: New insight into avocado flowering in relation to its pollination. California Avocado Society Yearbook 75: 125-137. (Can be downloaded at [www.avocadosource.com](http://www.avocadosource.com))

10. Technical Questionnaire

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

|  |   |
|--|---|
|  | Application date:<br>(not to be filled in by the applicant) |
|--|---|

TECHNICAL QUESTIONNAIRE  
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 Botanical Name

1.2 Common Name

2. Applicant

Name

Address

Telephone No.

Fax No.

E-mail address

Breeder (if different from applicant)

3. Proposed denomination and breeder's reference

Proposed denomination   
(if available)

Breeder's reference

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

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

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

4.1.2 Mutation  [ ]  
(please state parent variety)

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

4.1.4 Other  [ ]  
(please provide details)

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

- (a) grafting  [ ]
- (b) layering (clonal)  [ ]
- (c) other (state method)  [ ]

4.2.2 Seed  [ ]

4.2.3 Other  [ ]  
(please provide details)

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

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

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 |
|---|------------------------------|------|
| <b>5.1 Young shoot: color</b><br><b>(2)</b>       |                              |      |
| yellow green                                      | Collinson                    | 1[ ] |
| green   | Benedict, G-22, Teague       | 2[ ] |
| reddish   | Duke 6                       | 3[ ] |
| <b>5.2 Leaf blade: anise aroma</b><br><b>(18)</b> |                              |      |
| absent or weak                                    | Hass, Reed                   | 1[ ] |
| medium  | Duke 7                       | 2[ ] |
| strong  | Thomas                       | 3[ ] |
| <b>5.3 Pedicel: shape</b><br><b>(45)</b>          |                              |      |
| cylindrical                                       | Horshim, Iriet, Teague       | 1[ ] |
| conical   | Dunedin, Edranol, Monroe     | 2[ ] |
| <b>5.4 Pedicel: "nailhead"</b><br><b>(46)</b>     |                              |      |
| absent  | Duke, Edranol, Wurtz         | 1[ ] |
| present   | Maxima, Pollock              | 9[ ] |
| <b>5.5 Ripe fruit: color</b><br><b>(49)</b>       |                              |      |
| yellow green                                      | Melendez                     | 1[ ] |
| light green                                       | Marsheline, Mayo             | 2[ ] |
| medium green                                      | Greengold, Rincon, Zutano    | 3[ ] |
| dark green  | Ahaheim, Colín V-33, Edranol | 4[ ] |
| reddish   | Los Moros                    | 5[ ] |
| medium purple                                     |                              | 6[ ] |
| dark purple or black                              | Hass, Topa Topa              | 7[ ] |

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

| Characteristics                                       | Example Varieties   | Note |
|---|---------------------|------|
| <b>5.6 Ripe fruit: thickness of skin (50)</b>         |                     |      |
| very thin   | Mexicola, Topa Topa | 1[ ] |
| moderately thin                                       | Colín V-33, Fuerte  | 3[ ] |
| medium  | Edranol             | 5[ ] |
| moderately thick                                      | Hass                | 7[ ] |
| very thick  | Dickinson           | 9[ ] |
| <b>5.7 Time of fruit maturity for harvesting (67)</b> |                     |      |
| very early  | Topa Topa           | 1[ ] |
| early   | Ettinger            | 3[ ] |
| medium  | Fuerte              | 5[ ] |
| late  | Hass, Ryan          | 7[ ] |
| very late   | Reed                | 9[ ] |

6. Similar varieties and differences from these varieties

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

| Denomination(s) of variety(ies) similar to your candidate variety | Characteristic(s) in which your candidate variety differs from the similar variety(ies) | Describe the expression of the characteristic(s) for the <b>similar</b> variety(ies) | Describe the expression of the characteristic(s) for <b>your</b> candidate variety |
|---|---|--|--|
| <i>Example</i>  | <i>Mature fruit: stalk cavity</i>   | <i>e.g. note 1</i>   | <i>note 9</i>  |
|   |   | <i>e.g. absent</i>   | <i>present</i>   |

Comments:

|                         |                 |                   |
|-------------------------|-----------------|-------------------|
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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 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.

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

|                         |                 |                   |
|-------------------------|-----------------|-------------------|
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9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

- |   |         |        |
|---|---------|--------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma)    | Yes [ ] | No [ ] |
| (b) Chemical treatment (e.g. growth retardant, pesticide) | Yes [ ] | No [ ] |
| (c) Tissue culture  | Yes [ ] | No [ ] |
| (d) Other factors   | Yes [ ] | No [ ] |

Please provide details for where you have indicated "yes".

.....

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

Applicant's name

Signature

Date

[End of document]