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TG/61/7(proj. 3)
ORIGINAL: English
DATE: 2006-10-20

UPOV

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

GENEVA

# DRAFT

**CUCUMBER, GHERKIN** *

UPOV Code: CUCUM_SAT

*Cucumis sativus* L.

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by experts from the Netherlands*

*to be considered by the Enlarged Editorial Committee at its meeting to be held in Geneva, Switzerland, on January 9, 2007*

Alternative Names:*

| *Botanical name* | *English* | *French* | *German* | *Spanish* |
|---|---|---|---|---|
| *Cucumis sativus* L. | Cucumber, Gherkin | Concombre, Cornichon | Gurken | Pepino, Pepinillo |

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), for the latest information.]

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## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Cucumis sativus* L.

## 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 submitted:
- in the form of seed in the case of seed-propagated varieties, or
- in the form of plants in the case of vegetatively propagated varieties.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:
- 1,500 seeds in the case of seed-propagated varieties, or
- 50 plants in the case of vegetatively propagated varieties.

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, 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*

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

### 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*

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.

3.3.2 The recommended method of observing the characteristic is indicated by the following key in the second column of the Table of Characteristics:

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

*3.4 Test Design*

3.4.1 Each test should be designed to result in a total of at least 40 plants in the open or 20 plants in the greenhouse, and should be divided between two or more replicates.

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 20 plants or parts taken from each of 20 plants.

*3.6 Additional Tests*

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

## 4. Assessment of Distinctness, Uniformity and Stability

*4.1 Distinctness*

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The 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 The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 For the assessment of uniformity of varieties other than cross-pollinated varieties, a population standard of 1 % and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 40 plants, 2 off-types are allowed. In the case of a sample size of 20 plants, 1 off-type is 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) Cotyledon: bitterness (characteristic 1)
(b) Plant: sex expression (characteristic 13)
(c) Ovary: color of vestiture (characteristic 15)
(c) Fruit: parthenocarpy (characteristic 16)
(d) Fruit: length (characteristic 17)
(e) Fruit: ground color of skin at market stage (characteristic 25)

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

MG, MS, VG, VS: See Chapter 3.3.2

(a)-(e) 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/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **1. (*)** | **VG** | **Cotyledon: bitterness** | **Cotylédon : amertume** | **Keimblatt: Bitterstoff** | **Cotiledón: amargor** | | |
| **QL** | **(a)** | absent | absente | fehlend | ausente | Rocket GS, Sandra | 1 |
| | | present | présente | vorhanden | presente | Farbio | 9 |
| **2. (*)** | **VG** | **Plant: growth type** | **Plante : type de croissance** | **Pflanze: Wuchstyp** | **Planta: porte** | | |
| **QL** | **(b)** | determinate | déterminée | begrenzt wachsend | determinado | Bush Crop, Shachal | 1 |
| | | indeterminate | indéterminée | unbegrenzt wachsend | indeterminado | Corona, Levina | 2 |
| **3.** | **MG** | **Plant: total length of first 15 internodes** | **Plante : longueur totale des 15 premiers entrenœuds** | **Pflanze: Gesamtlänge der ersten 15 Internodien** | **Planta: longitud total de los primeros 15 entrenudos** | | |
| **QN** | **(b)** | very short | très courte | sehr kurz | muy corta | | 1 |
| | | short | courte | kurz | corta | Kora, Maram, Naf | 3 |
| | | medium | moyenne | mittel | media | Marketmore | 5 |
| | | long | longue | lang | larga | Avir, Nimbus, Pepinex 69 | 7 |
| | | very long | très longue | sehr lang | muy larga | Cerrucho | 9 |
| **4. (+)** | **VG** | **Leaf blade: attitude** | **Limbe : port** | **Blattspreite: Haltung** | **Limbo: porte** | | |
| **QN** | **(c)** | erect | dressé | aufrecht | erecto | Akito | 1 |
| | | horizontal | horizontal | waagerecht | horizontal | Jazzer | 2 |
| | | drooping | retombant | hängend | colgante | Nabil | 3 |
| **5. (+)** | **VG/ MS** | **Leaf blade: length** | **Limbe : longueur** | **Blattspreite: Länge** | **Limbo: longitud** | | |
| **QN** | **(c)** | short | court | kurz | larga | Adam | 3 |
| | | medium | moyen | mittel | media | Briljant | 5 |
| | | long | long | lang | corta | Corona | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **6.** **(+)** | **VG/ MS** | **Leaf blade: ratio length of terminal lobe/length of blade** | **Limbe : rapport longueur du lobe terminal/ longueur du limbe** | **Blattspreite: Verhältnis Länge des Endlappens/Länge der Spreite** | **Limbo: relación longitud del lóbulo terminal/longitud del limbo** | | |
| **QN** | **(c)** | very small | très petit | sehr klein | muy pequeña | Delikatess | 1 |
| | | small | petit | klein | pequeña | Galileo | 3 |
| | | medium | moyen | mittel | media | Corona | 5 |
| | | large | grand | groß | grande | Melody | 7 |
| | | very large | très grand | sehr groß | muy grande | Defense | 9 |
| **7.** **(+)** | **VG** | **Leaf blade: shape of apex of terminal lobe** | **Limbe : forme de la pointe du lobe terminal** | **Blattspreite: Form der Spitze des Endlappens** | **Limbo: forma del ápice del lóbulo terminal** | | |
| **PQ** | **(c)** | acute | aiguë | spitz | aguda | Delikatess | 1 |
| | | right-angled | à angle droit | rechteckig | en ángulo recto | Hana | 2 |
| | | obtuse | obtuse | stumpf | obtusa | Melody | 3 |
| | | rounded | arrondie | abgerundet | redondeada | Jazzer | 4 |
| **8.** | **VG** | **Leaf blade: intensity of green color** | **Limbe : intensité de la couleur verte** | **Blattspreite: Intensität der Grünfärbung** | **Limbo: intensidad del color verde** | | |
| **QN** | **(c)** | light | claire | hell | clara | De Russie | 3 |
| | | medium | moyenne | mittel | media | Rocket GS, Stereo | 5 |
| | | dark | foncée | dunkel | oscura | Marketmore, Sandra, Tokyo Slicer | 7 |
| | | very dark | très foncée | sehr dunkel | muy oscura | Akito | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **9.** | **VG** | **Leaf blade: blistering** | **Limbe : cloqûre** | **Blattspreite: Blasigkeit** | **Limbo: abullonado** | | |
| **QN** | **(c)** | absent or very weak | nulle ou très faible | fehlend oder sehr gering | ausente o muy débil | Silor | 1 |
| | | weak | faible | gering | débil | Pepinex 69, Rocket GS | 3 |
| | | medium | moyenne | mittel | medio | Monir | 5 |
| | | strong | forte | stark | fuerte | Tokyo Slicer | 7 |
| | | very strong | très forte | sehr stark | muy fuerte | | 9 |
| **10.** | **VG** | **Leaf blade: undulation of margin** | **Limbe : ondulation du bord** | **Blattspreite: Wellung des Randes** | **Limbo: ondulación del borde** | | |
| **QN** | **(c)** | absent or weak | nulle ou faible | fehlend oder gering | ausente o débil | Jazzer | 1 |
| | | moderate | modérée | mittel | moderada | | 2 |
| | | strong | forte | stark | fuerte | Tokyo Slicer | 3 |
| **11.** | **VG** | **Leaf blade: dentation of margin** | **Limbe : denture du bord** | **Blattspreite: Zähnung des Randes** | **Limbo: dentado del margen** | | |
| **QN** | **(c)** | very weak | très faible | sehr gering | muy débil | Jazzer | 1 |
| | | weak | faible | gering | débil | Hana, Silor | 3 |
| | | medium | moyenne | mittel | medio | Susan | 5 |
| | | strong | forte | stark | fuerte | Travito | 7 |
| | | very strong | très forte | sehr stark | muy fuerte | Moneta | 9 |
| **12.** | **MG** | **Time of development of female flowers (80% of plants with at least one female flower)** | **Époque de développement des fleurs femelles (80% des plantes avec au moins une fleur femelle)** | **Zeitpunkt der Bildung weiblicher Blüten (80 % der Pflanzen mit mindestens einer weiblichen Blüte)** | **Época de desarrollo de flores femeninas (80% de plantas con una flor femenina como mínimo)** | | |
| **QN** | | early | précoce | früh | temprana | Avir | 3 |
| | | medium | moyenne | mittel | media | | 5 |
| | | late | tardive | spät | tardía | Fin de Meaux, Riesenschäl | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **13. (*) (+)** | **VG** | **Plant: sex expression** | **Plante : expression du sexe** | **Pflanze: Geschlechts-verteilung** | **Planta: expresión del sexo** | | |
| **QL** | **(d)** | monoecoius | monoïque | einhäusig | monóica | Hokus | 1 |
| | | subgynoecious | sous-monoïque | subgynözisch | subginóica | Toska 70 | 2 |
| | | gynoecious | gynoïque | gynözisch | ginóica | Farbio, Sandra, Wilma | 3 |
| | | hermaphrodytic | hermaphrodite | zwittrig | hermafrodita | Sunsweet | 4 |
| **14. (+)** | **VG** | **Plant: number of female flowers per node** | **Plante : nombre de fleurs femelles par nœud** | **Pflanze: Anzahl weiblicher Blüten je Knoten** | **Planta: número de flores femeninas por nudo** | | |
| **QN** | **(d)** | predominantly one | essentiellement une | vorwiegend eine | predominantemente una | Dasher, Faraón | 1 |
| | | predominantly one or two | essentiellement une ou deux | vorwiegend eine oder zwei | predominantemente una o dos | Brunex, Marumba | 2 |
| | | predominantly two | essentiellement deux | vorwiegend zwei | predominantemente dos | Corona | 3 |
| | | predominantly two or three | essentiellement deux ou trois | vorwiegend zwei oder drei | predominantemente dos o tres | Tempo | 4 |
| | | predominatly three or four | essentiellement trois ou quatre | vorwiegend drei oder vier | predominantemente tres o cuatro | Tornac | 5 |
| | | predominantly four or five | essentiellement quatre ou cinq | vorwiegend vier oder fünf | predominantemente cuatro o cinco | Melody | 6 |
| | | predominantly more than five | essentiellement plus de cinq | vorwiegend mehr als fünf | predominantemente más de cinco | Olympos | 7 |
| **15. (+)** | **VG** | **Ovary: color of vestiture** | **Ovaire : couleur de la pilosité** | **Fruchtknoten: Farbe des Besatzes** | **Ovario: color de la cobertura** | | |
| **QL** | **(d)** | white | blanche | weiß | blanco | Jazzer | 1 |
| | | black | noire | schwarz | negro | Vert petit de Paris | 2 |
| **16. (*) (+)** | **VG** | **Parthenocarpy** | **Parthénocarpie** | **Parthenokarpie** | **Partenocarpia** | | |
| **QL** | | absent | absente | fehlend | ausente | Toska 70 | 1 |
| | | present | présente | vorhanden | presente | Farbio, Rocket GS, Sandra, Wilma | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **17. (*) (+)** | **MS/ VG** | **Fruit: length** | **Fruit : longueur** | **Frucht: Länge** | **Fruto: longitud** | | |
| **QN** | **(e)** | very short | très court | sehr kurz | muy corta | De Russie, Sunsweet | 1 |
| | | short | court | kurz | corta | | 3 |
| | | medium | moyen | mittel | media | Gemini, Jazzer | 5 |
| | | long | long | lang | larga | Corona | 7 |
| | | very long | très long | sehr lang | muy larga | | 9 |
| **18.** | **MS/ VG** | **Fruit: maximum diameter** | **Fruit : diamètre maximum** | **Frucht: maximaler Durchmesser** | **Fruto: diámetro máximo** | | |
| **QN** | **(e)** | small | petit | klein | pequeño | Picobello, Wilma | 3 |
| | | medium | moyen | mittel | medio | Corona, Diamant | 5 |
| | | large | grand | groß | grande | Delikatess, Riesenschäl, | 7 |
| **19. (*)** | **MS/ VG** | **Fruit: ratio length/diameter** | **Fruit : rapport longueur/diamètre** | **Frucht: Verhältnis Länge/Durchmesser** | **Fruto: relación longitud/diámetro** | | |
| **QN** | **(e)** | very small | très petit | sehr klein | muy pequeña | Sunsweet | 1 |
| | | small | petit | klein | pequeña | Akord, Sonate | 3 |
| | | medium | moyen | mittel | media | Picobello, Jazzer, Wilma | 5 |
| | | large | grand | groß | grande | Corona | 7 |
| | | very large | très grand | sehr groß | muy grande | Kyoto 3 Feet | 9 |
| **20.** | **VG** | **Fruit: core diameter in relation to diameter of fruit** | **Fruit : diamètre du cœur par rapport au diamètre du fruit** | **Frucht: Kernhaus-durchmesser im Verhältnis zum Fruchtdurchmesser** | **Fruto: diámetro del corazón en relación con el diámetro del fruto** | | |
| **QN** | **(e)** | very small | très petit | sehr klein | muy pequeño | | 1 |
| | | small | petit | klein | pequeño | Riesenschäl, Telepathy | 3 |
| | | medium | moyen | mittel | medio | Corona | 5 |
| | | large | grand | groß | grande | Vert petit de Paris | 7 |
| | | very large | très grand | sehr groß | muy grande | Sunsweet | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **21. (+)** | **VG** | **Fruit: shape in transverse section** | **Fruit : forme en section transversale** | **Frucht: Form im Querschnitt** | **Fruto: forma en sección transversal** | | |
| **QN** | **(e)** | round | arrondie | rund | redonda | Telepathy , Susan | 1 |
| | | round to angular | arrondie à anguleuse | rund bis winklig | entre redonda y angular | Dasher | 2 |
| | | angular | anguleuse | winklig | angular | Anico, Gele Tros, Regal, | 3 |
| **22. (*) (+)** | **VG** | **Fruit: shape of stem end** | **Fruit : forme de la base** | **Frucht: Form des Stielendes** | **Fruto: forma de la base** | | |
| **PQ** | **(e)** | necked | avec col | mit Hals | en forma de cuello | Sandra, Tasty Green | 1 |
| | | acute | pointue | spitz | aguda | De Massy | 2 |
| | | obtuse | obtuse | stumpf | obtusa | Maram, Score | 3 |
| **23.** | **VG** | **Only necked varieties: Fruit: length of neck** | **Seulement les variétés à col : Fruit : longueur du col** | **Nur Sorten mit Hals: Frucht: Länge des Halses** | **Sólo variedades con cuello: Fruto: longitud del cuello** | | |
| **QN** | **(e)** | very short | très court | sehr kurz | muy corta | | 1 |
| | | short | court | kurz | corta | Saskia | 3 |
| | | medium | moyen | mittel | media | Corona, Telepathy | 5 |
| | | long | long | lang | larga | Kamaron | 7 |
| | | very long | très long | sehr lang | muy larga | Tasty Green | 9 |
| **24. (+)** | **VG** | **Fruit: shape of calyx end** | **Fruit : forme du sommet** | **Frucht: Form des Kelchendes** | **Fruto: forma del extremo del cáliz** | | |
| **PQ** | **(e)** | acute | pointu | spitz | aguda | Dardos | 1 |
| | | obtuse | obtus | stumpf | obtusa | Reno | 2 |
| | | rounded | arrondi | abgerundet | redondeada | Bellissima | 3 |
| | | truncate | tronqué | gerade | truncada | Medusa | 4 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **25. (*)** | **VG** | **Fruit: ground color of skin at market stage** | **Fruit : couleur de fond de l'épiderme à maturité commerciale** | **Frucht: Grundfarbe der Epidermis zum Zeitpunkt der Marktreife** | **Fruto: color de fondo de la epidermis en la etapa de comercialización** | | |
| **QL** | **(e)** | white | blanche | weiß | blanco | Bonneuil | 1 |
| | | yellow | jaune | gelb | amarillo | Gele Tros | 2 |
| | | green | verte | grün | verde | Corona | 3 |
| **26.** | **VG** | **Only varieties with yellow and green ground color of skin: Fruit: intensity of ground color of skin** | **Seulement les variétés à couleur de fond de l'épiderme jaune et verte : Fruit : intensité de la couleur de fond de l'épiderme** | **Nur Sorten mit gelber und grüner Grundfarbe der Epidermis: Frucht: Intensität der Grundfarbe der Epidermis** | **Sólo variedades con color de fondo de la epidermis amarillo y verde: Fruto: intensidad del color de fondo de la epidermis** | | |
| **QN** | **(e)** | light | claire | hell | clara | | 3 |
| | | medium | moyenne | mittel | media | | 5 |
| | | dark | foncée | dunkel | oscura | | 7 |
| **27. (*) (+)** | **VG** | **Fruit: ribs** | **Fruit : cannelures** | **Frucht: Rippen** | **Fruto: nervadura** | | |
| **QN** | **(e)** | absent or weak | absentes ou faibles | fehlend oder gering | ausente o débil | Darius, Diana | 1 |
| | | medium | moyennes | mittel | media | Sprint | 2 |
| | | strong | fortes | stark | fuerte | Vert petit de Paris | 3 |
| **28. (*) (+)** | **VG** | **Fruit: sutures** | **Fruit : sutures** | **Frucht: Rillen** | **Fruto: suturas** | | |
| **QL** | **(e)** | absent | absentes | fehlend | ausentes | Corona, Hana | 1 |
| | | present | présentes | vorhanden | presentes | Dongji-chungnang, Nabil, Silor | 9 |
| **29. (*) (+)** | **VG** | **Fruit: creasing** | **Fruit : plissement** | **Frucht: Faltung** | **Fruto: arrugamiento** | | |
| **QL** | **(e)** | absent | absent | fehlend | ausente | Jazzer | 1 |
| | | present | présent | vorhanden | presente | Corona, Nabil | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **30.** | **VG** | **Fruit: degree of creasing** | **Fruit : degré de plissement** | **Frucht: Stärke der Faltung** | **Fruto: grado de arrugamiento** | | |
| **QN** | **(e)** | very weak | très faible | sehr gering | muy débil | Silor | 1 |
| | | weak | faible | gering | débil | Nabil | 3 |
| | | medium | moyen | mittel | medio | Corona, Galileo | 5 |
| | | strong | fort | stark | fuerte | Grizzly | 7 |
| | | very strong | très fort | sehr stark | muy fuerte | Suyo Long | 9 |
| **31. (*) (+)** | **VG** | **Fruit: type of vestiture** | **Fruit : type de pilosité** | **Frucht: Art des Besatzes** | **Fruto: tipo de cobertura** | | |
| **QL** | **(e)** | hairs only | poils seulement | nur Haare | sólo pelos | Silor | 1 |
| | | prickles only | épines seulement | nur Stacheln | sólo espinas | Corona, Jazzer | 2 |
| | | hairs and prickles | poils et épines | Haare und Stacheln | pelos y espinas | De Bourbonne, De Massy | 3 |
| **32.** | **VG** | **Fruit: density of vestiture** | **Fruit : densité de la pilosité** | **Frucht: Dichte des Besatzes** | **Fruto: densidad de la cobertura** | | |
| **QN** | **(e)** | very sparse | très lâche | sehr locker | muy baja | Vert petit de Paris | 1 |
| | | sparse | lâche | locker | baja | | 3 |
| | | medium | moyenne | mittel | media | Tasty Green | 5 |
| | | dense | dense | dicht | alta | Silor, Suyo Long | 7 |
| | | very dense | très dense | sehr dicht | muy alta | Moneta, Parmel | 9 |
| **33. (*)** | **VG** | **Only varieties with white ovary vestiture (char. 15): Fruit: color of vestiture** | **Seulement les variétés à pilosité des ovaires blanche (car. 15) : Fruit : couleur de la pilosité** | **Nur Sorten mit weißem Fruchtknotenbesatz (Merkmal 15): Frucht: Farbe des Besatzes** | **Sólo variedades con color blanco de la cobertura del ovario (carácter 15): Fruto: color de la cobertura** | | |
| **PQ** | **(e)** | white | blanche | weiß | blanco | Jazzer | 1 |
| | | light brown | brun clair | hellbraun | marrón claro | Akito | 2 |
| | | dark brown | brun foncé | dunkelbraun | marrón oscuro | Satina | 3 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **34. (*)** | **VG** | **Fruit: warts** | **Fruit : verrues** | **Frucht: Warzen** | **Fruto: verrugas** | | |
| **QL** | **(e)** | absent | absentes | fehlend | ausentes | Diana | 1 |
| | | present | présentes | vorhanden | presentes | Dumex, Regal, Chinese Slangen | 9 |
| **35.** | **VG** | **Fruit: size of warts** | **Fruit : taille des verrues** | **Frucht: Größe der Warzen** | **Fruto: tamaño de las verrugas** | | |
| **QN** | **(e)** | very small | très petites | sehr klein | muy pequeño | Parmel | 1 |
| | | small | petites | klein | pequeño | Jazzer | 3 |
| | | medium | moyennes | mittel | medio | Regal | 5 |
| | | large | grandes | groß | grande | Chinese Slangen | 7 |
| | | very large | très grandes | sehr groß | muy grande | Tasty Green | 9 |
| **36. (+)** | **VG** | **Fruit: length of stripes** | **Fruit : longueur des rayures** | **Frucht: Länge der Streifen** | **Fruto: longitud de las estrías** | | |
| **QN** | **(e)** | absent or very short | absentes ou très courtes | fehlend oder sehr kurz | ausentes o muy corta | | 1 |
| | | short | courtes | kurz | corta | Astrea | 3 |
| | | medium | moyennes | mittel | media | Breso | 5 |
| | | long | longues | lang | larga | Pioneer, Tokyo Slicer | 7 |
| | | very long | très longues | sehr lang | muy larga | Suyo Long | 9 |
| **37. (*)** | **VG** | **Fruit: dots** | **Fruit : mouchetures** | **Frucht: Punkte** | **Fruto: lunares** | | |
| **QL** | **(e)** | absent | absentes | fehlend | ausentes | Sensation | 1 |
| | | present | présentes | vorhanden | presentes | Delicatesse, Hanpaku-Fushinari, Sagami-Fanpaku, White Sun | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **38.** | **VG** | **Fruit: distribution of dots** | **Fruit : répartition des mouchetures** | **Frucht: Verteilung der Punkte** | **Fruto: distribución de los lunares** | | |
| **PQ** | **(e)** | in bands only | par zones uniquement | nur in Banden | sólo en bandas | Vert petit de Paris | 1 |
| | | more concentrated in bands | plus concentrées par zones | mehr in Banden konzentriert | más concentrados en bandas | Levina | 2 |
| | | evenly distributed | uniformément réparties | gleichmäßig verteilt | distribuidos de manera uniforme | Sagami-Fanpaku | 3 |
| **39.** | **VG** | **Fruit: length of fruit containing dots** | **Fruit : longueur du fruit présentant des mouchetures** | **Frucht: Länge der Frucht mit Punkten** | **Fruto: longitud de la porción del fruto que presenta lunares** | | |
| **PQ** | | distal $^1/_3$ | $^1/_3$ de la longueur | distal $^1/_3$ | distal $^1/_3$ | | 1 |
| | | distal ½ | ½ de la longueur | distal ½ | distal ½ | | 2 |
| | | distal $^2/_3$ | $^2/_3$ de la longueur | distal $^2/_3$ | distal $^2/_3$ | | 3 |
| | | excluding area around peduncle | à l'exclusion de la zone autour du pédoncule | ohne Zone um den Fruchtstiel | excluida el área alrededor del pedúnculo | | 4 |
| | | whole length | toute la longueur | ganze Länge | longitud total | | 5 |
| **40.** **(+)** | **VG** | **Fruit: density of dots** | **Fruit : densité des mouchetures** | **Frucht: Dichte der Punkte** | **Fruto: densidad de los lunares** | | |
| **QN** | **(e)** | very sparse | très lâche | sehr locker | muy baja | | 1 |
| | | sparse | lâche | locker | baja | Raider | 3 |
| | | medium | moyenne | mittel | media | Le Généreux | 5 |
| | | dense | dense | dicht | alta | Mesa, Paro | 7 |
| | | very dense | très dense | sehr dicht | muy alta | Carnito, Hanpaku-Fushinari, White Sun | 9 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **41.** | **VG** | **Fruit: glaucosity** | **Fruit : glaucescence** | **Frucht: Bereifung** | **Fruto: glauescencia** | | |
| **(+)** | | | | | | | |
| **QN** | **(e)** | absent or very weak | nulle ou très faible | fehlend oder sehr gering | ausente o muy débil | Corona | 1 |
| | | weak | faible | gering | débil | Crispina, Joen-bakdadaki | 3 |
| | | medium | moyenne | mittel | media | Jazzer, Nakdong-chungjang | 5 |
| | | strong | forte | stark | fuerte | Dongji-chungjang | 7 |
| | | very strong | très forte | sehr stark | muy fuerte | | 9 |
| **42.** | **VG/ MS** | **Fruit: length of peduncle** | **Fruit : longueur du pédoncule** | **Frucht: Länge des Stieles** | **Fruto: longitud del pedúnculo** | | |
| **QN** | **(e)** | short | court | kurz | corta | Admirable | 3 |
| | | medium | moyen | mittel | media | Femdan | 5 |
| | | long | long | lang | larga | Pepinex 69 | 7 |
| **43.** | **VG** | **Fruit: ground color of skin at physiological ripening** | **Fruit : couleur de fond de l'épiderme à maturité physiologique** | **Frucht: Grundfarbe der Epidermis bei physiologischer Reife** | **Fruto: color de fondo de la epidermis en la madurez fisiológica** | | |
| **PQ** | **(e)** | white | blanche | weiß | blanco | | 1 |
| | | yellow | jaune | gelb | amarillo | | 2 |
| | | green | verte | grün | verde | | 3 |
| | | orange | orange | orange | anaranjado | | 4 |
| | | brown | brune | braun | marrón | Vert petit de Paris | 5 |
| **44.** | | **Resistance to *Cladosporium cucumerinum* (Ccu)** | **Résistance à *Cladosporium cucumerinum* (Ccu)** | **Resistenz gegen *Cladosporium cucumerinum* (Ccu)** | **Resistencia al *Cladosporium cucumerinum* (Ccu)** | | |
| **(+)** | | | | | | | |
| **QL** | | absent | absente | fehlend | ausente | Pepinex 69 | 1 |
| | | present | présente | vorhanden | presente | Maketmore 76 | 9 |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|
| **45.** **(+)** | **Resistance to Cucumis Mosaic Virus (CMV)** | **Résistance au virus de la mosaïque du concombre** | **Resistenz gegen Gurkenmosaikvirus (CMV)** | **Resistencia al virus del mosaico del pepino (CMV)** | | |
| **QN** | susceptible | sensibilité | anfällig | susceptible | Gele Tros | 1 |
| | intermediate resistant | résistance intermédiaire | intermediär resistent | intermedia | Gardon | 2 |
| | highly resistant | forte résistance | hochresistent | alta | Hokus, Naf | 3 |
| **46.** **(+)** | **Resistance to powdery mildew (*Podosphaera xanthii*) (Sf)** | **Résistance à l'oïdium (*Podosphaera xanthii*) (Sf)** | **Resistenz gegen Echten Mehltau (*Podosphaera xanthii*) (Sf)** | **Resistencia al mildiú blanco (*Podosphaera xanthii*) (Sf)** | | |
| **QN** | susceptible | sensibilité | anfällig | susceptible | Corona | 1 |
| | intermediate resistant | résistance intermédiaire | intermediär resistent | intermedia | Flamingo | 2 |
| | highly resistant | forte résistance | hochresistent | alta | Cordoba | 3 |
| **47.** **(+)** | **Resistance to downy mildew (*Pseudoperonospora cubensis*) (Pc)** | **Résistance au mildiou (*Pseudoperonospora cubensis*) (Pc)** | **Resistenz gegen Falschen Mehltau (*Pseudoperonospora cubensis*) (Pc)** | **Resistencia al mildiú velloso del pepino (*Pseudoperonospora cubensis* (Pc))** | | |
| **QN** | susceptible | sensibilité | anfällig | susceptible | Pepinex 69, SMR 58 | 1 |
| | intermediate resistant | résistance intermédiaire | intermediär resistent | intermedia | Poinsett | 2 |
| | highly resistant | forte résistance | hochresistent | alta | | 3 |
| **48.** **(+)** | **Resistance to Corynespora blight and target leaf spot (*Corynespora cassiicola*) (Cca)** | **Résistance à la pourriture corynespora et à la septoriose (*Corynespora cassiicola*) (Cca)** | **Resistenz gegen Corynespora-Blattfleckenkrankheit(?) (*Corynespora cassiicola*) (Cca)** | **Resistencia a la mancha foliar (*Corynespora cassiicola*) (Cca)** | | |
| **QL** | absent | absente | fehlend | ausente | Tornac | 1 |
| | present | présente | vorhanden | presente | Corona | 9 |
| **49.** **(+)** | **Resistance to Cucumber Vein Yellowing Virus (CVYV)** | **Résistance au virus du jaunissement des nervures du concombre** | **Resistenz gegen Cucumber Vein Yellowing Virus (CVYV)** | **Resistencia al virus de las venas amarillas del pepino (CVYV)** | | |
| **QL** | absent | absente | fehlend | ausente | Corona | 1 |
| | present | présente | vorhanden | presente | Tornac | 9 |

| | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|
| **50.**<br>**(+)** | **Resistance to Zucchini Yellow Mosaic Virus (ZYMV)** | **Résistance au virus de la mosaïque jaune de la courgette** | **Resistenz gegen Zucchinigelbmosaik virus (ZYMV)** | **Resistencia al virus del mosaico amarillo del calabacín (ZYMV)** | | |
| **QL** | absent | absente | fehlend | ausente | Corona | 1 |
| | present | présente | vorhanden | presente | Dina | 9 |

## 8. Explanations on the Table of Characteristics

### *8.1 Explanations covering several characteristics*

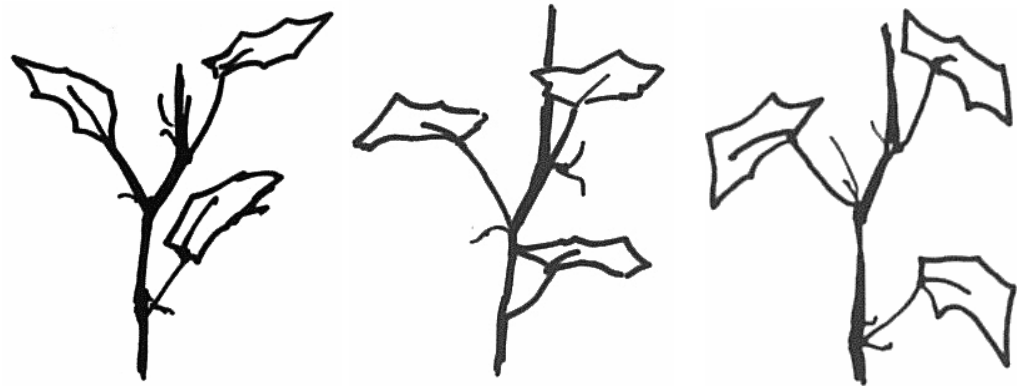
Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) Cotyledon: bitterness should be observed just before the development of the first true leaf, by tasting
(b) Plant: Should be observed when the concerned part of the main stem is fully developed
(c) Leaf blade: should be observed on fully developed leaf blade, from the 7th node upwards
(d) Plant: all observations on flowering should be made between the 5th and the 15th node.
(e) Fruit: all observations on the fruits should, except when stated otherwise, be made on fruits around 14 days after flowering, between the 5th and 15th node.

### *8.2 Explanations for individual characteristics*

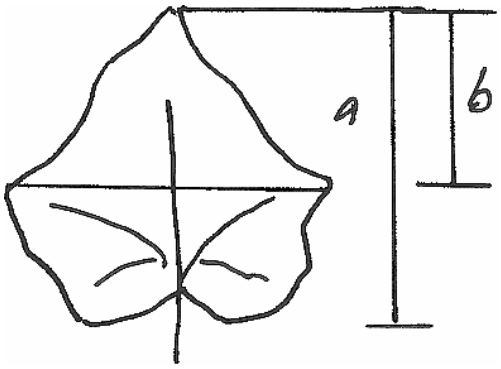
Ad. 4. Leaf blade: attitude

To be observed only for staked, vertically grown varieties.



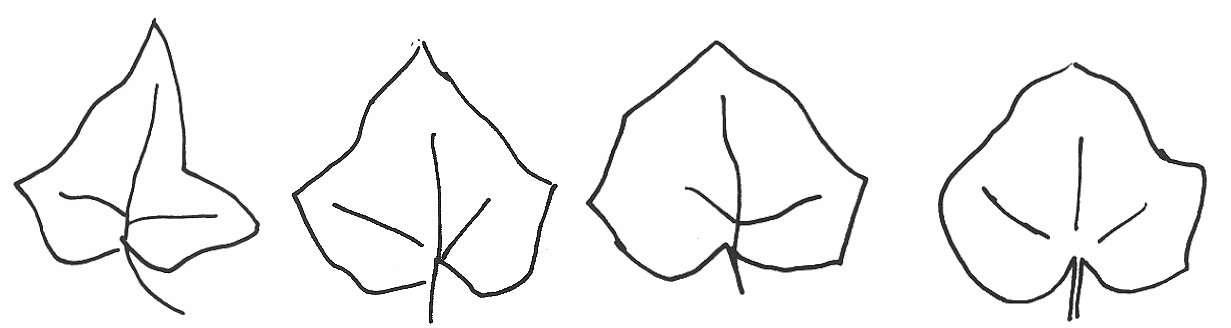
| 1 | 2 | 3 |
|---|---|---|
| erect | horizontal | drooping |

Ad. 5: Leaf blade: length
Ad. 6: Leaf blade: ratio length of terminal lobe/length of blade




a = length of blade
b = length of terminal lobe

Ad. 7: Leaf blade: shape of apex of terminal lobe



| 1 | 2 | 3 | 4 |
|---|---|---|---|
| acute | right-angled | obtuse | rounded |

Ad. 13: Plant: sex expression

| | | | |
|---|---|---|---|
| monoecious | All the nodes with mixed flowering, per node more male then female flowers OR plants with an alternation of few nodes with only male flowers and few nodes with only female flowers. | Hokus | 1 |
| subgynoecious | All the nodes with female flowers, none or a few male flowers per node | Toska 70 | 2 |
| gynoecious | All the nodes with female flowers, very rarely a node with a few male flowers | Farbio, Sandra, Wilma | 3 |
| hermaphrodytic | All the nodes with hermaphrodite and male flowers | Sunsweet | 4 |

Ad. 14: Plant: number of female flowers per node

Predominantly means more than 50%.

Ad. 15: Ovary: color of vestiture

The color of the vestiture should be observed before flower drop.

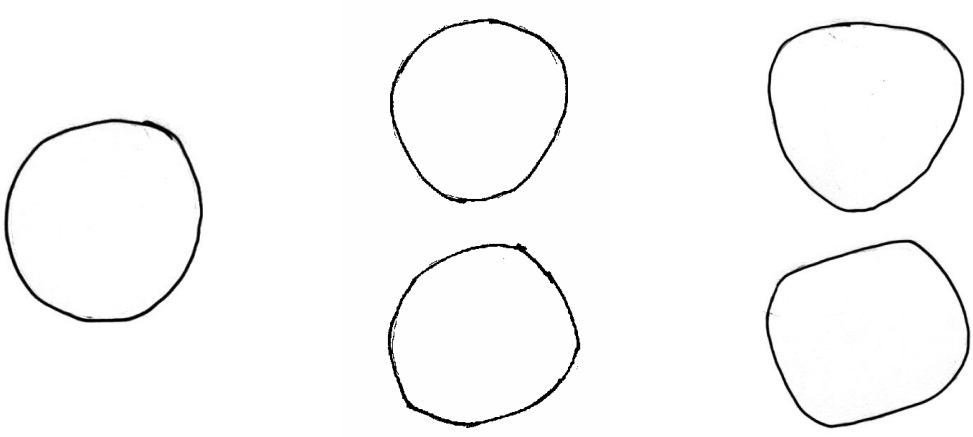
Ad. 16: Parthenocarpy

The development of the fruit without pollination should be observed under circumstances where pollination by insects (bees, bumblebees, etc.) is not possible: in an insect free glasshouse or at a time of the year when no insects are active.

Ad. 17: Fruit: length

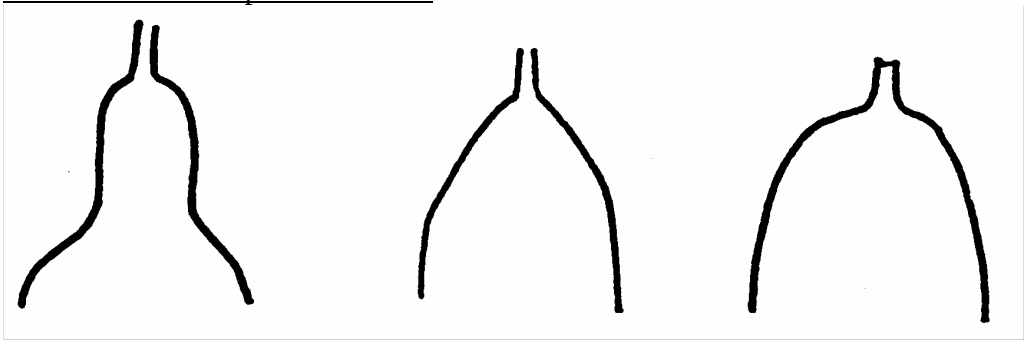
Because this characteristic covers the full range from the shortest to the longest fruit type, this means that there is no even distribution over the characteristic. It also means that varieties with the same state, still may be distinct based on a significant fruit length difference.

Ad. 21:: Fruit: shape in transverse section



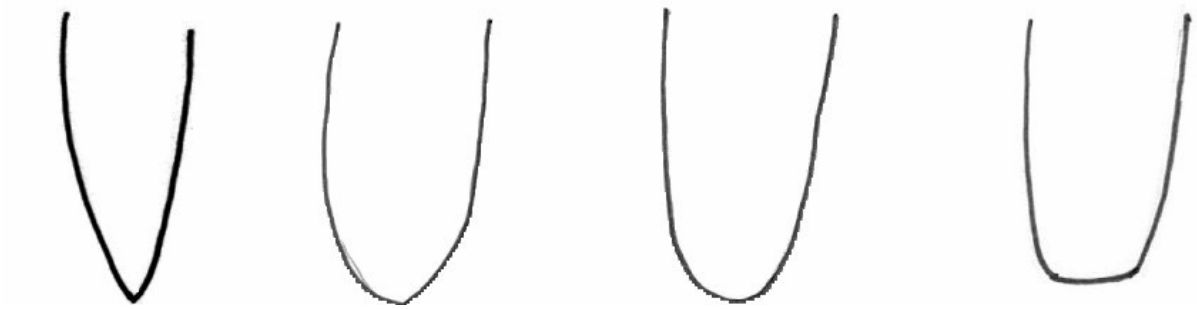
| 1 | 2 | 3 |
|---|---|---|
| round | round to angular | angular |

Ad. 22: Fruit: shape of stem end



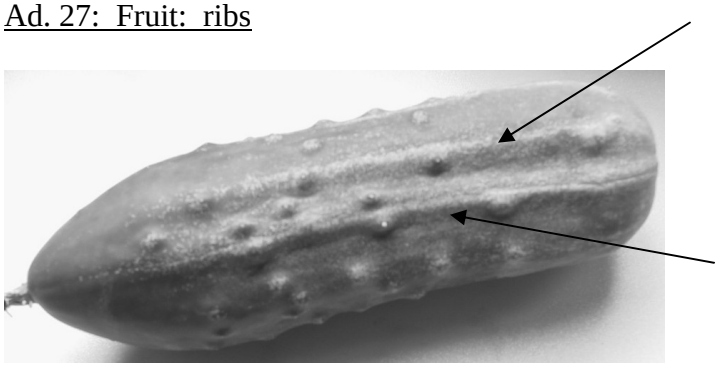
| 1 | 2 | 3 |
|---|---|---|
| necked | acute | obtuse |

Ad. 24: Fruit: shape of calyx end

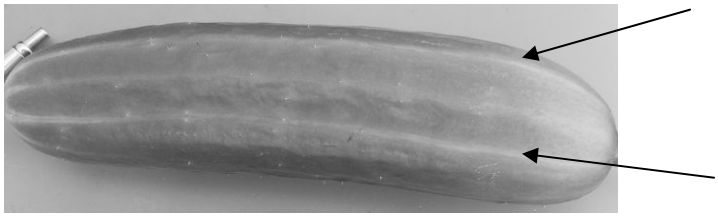


| 1 | 2 | 3 | 4 |
|---|---|---|---|
| acute | obtuse | rounded | truncate |

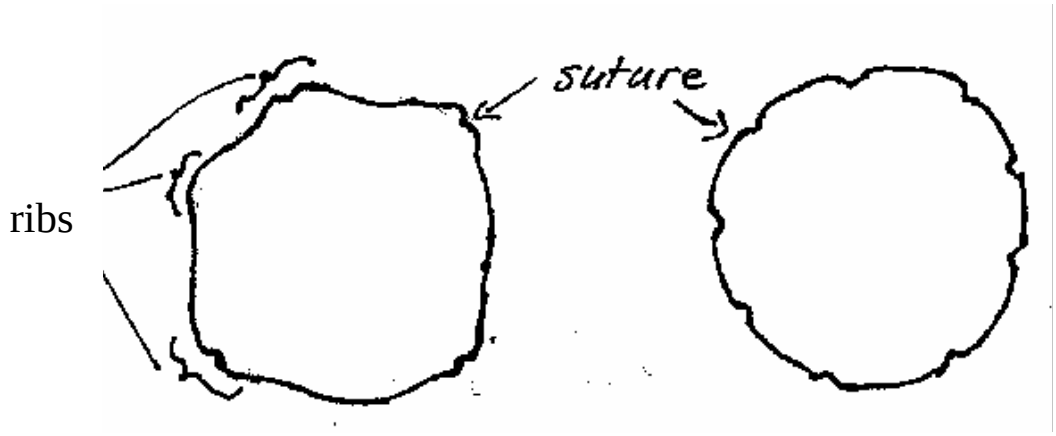
Ad. 27: Fruit: ribs



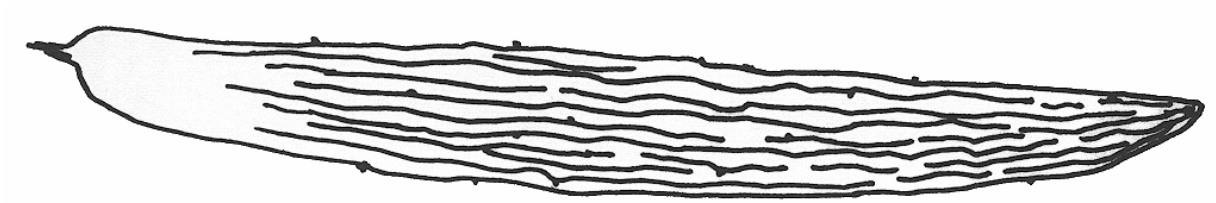
Ad. 28: Fruit: sutures

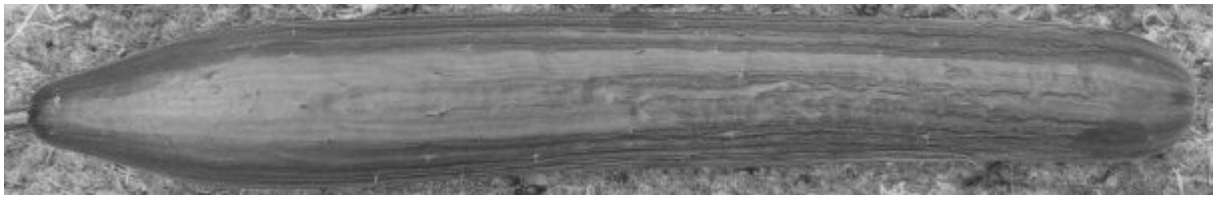


Sutures are slightly depressed in relation to the fruit surface.



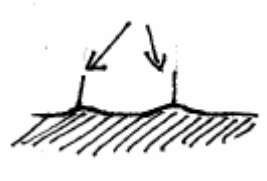

Ad. 29: Fruit: creasing





Ad. 31: Fruit: type of vestiture

hairs



prickles

Ad. 36: Fruit: length of stripes

Stripes are characterized by color and not by a depression of the fruit surface.

Ad. 40: Fruit: density of dots

The density of dots should be observed in the areas with dots present and not on the fruit as a whole.

Ad. 41: Fruit: glaucosity

Glaucosity: the fact that the surface of an organ is coated with a whitish or grayish waxy layer which can be removed by rubbing.

Ad. 44: Resistance to *Cladosporium cucumerinum* (Ccu)

Method

Maintenance of disease

| | |
|---|---|
| Type of medium: | PDA (Potato Dextrose Agar) |
| Special conditions: | 7-8 days in the dark at 20°C |
| Remarks: | The spore suspension should have a concentration of $0.5 \times 10^5$ spores/ml. Keep maximum 4 days in refrigerator at 4°C. |
| Preparation of inoculum: | Scrape off the fungus from the PDA medium, collect it in a beaker and filter it through a cheese cloth. |

Raising the plants

| | |
|---|---|
| Sowing: | In potting soil |
| Temperature: | 22/20°C (d/n) |
| Light: | At least 16 hours |
| Number of plants: | 30 plants per sample |

Inoculation

| | |
|---|---|
| Growth stage of plants: | The plants should have a first leaf with a diameter of three centimeters. |
| Method of inoculation: | Spraying of spore suspension on leaves |

Special conditions after inoculation

| | |
|---|---|
| Temperature: | 22/20°C (d/n) |
| Light: | At least 16 hours |
| Special conditions: | A plastic cover over the plants. Closed during the first three days. Then slightly open at daytime. |

Duration of test

- From sowing to inoculation: 12 days
- From inoculation to last reading: 6-8 days

| | |
|---|---|
| Standard varieties: | Resistance absent: Pepinex 69<br>Resistance present: Marketmore 76 |

Ad. 45: Resistance to Cucumis Mosaic Virus (CMV)

Method

Maintenance of disease

| | |
|---|---|
| Type of medium: | On susceptible living plants |
| Remarks: | Keep the greenhouse free from aphids |

| | |
|---|---|
| Preparation of inoculum: | Mix freshly infected leaves with water. Prepare a solution with a concentration of 1:15 (inoculum: water). |

Raising the plants

| | |
|---|---|
| Sowing: | In potting soil |
| Temperature: | 22/20°C (d/n) |
| Light: | At least 16 hours |
| Number of plants: | 30 plants per sample |

Inoculation

| | |
|---|---|
| Growth stage of plants: | Fully developed cotyledons |
| Method of inoculation: | Mechanical, by rubbing the cotyledons. Use carborundum powder and wash it away after inoculation. |

Special conditions after inoculation

| | |
|---|---|
| Temperature: | 22/18°C (d/n) |
| Light: | 16 hours |

Duration of test

| | |
|---|---|
| - From sowing to inoculation: | 6-7 days |
| - From inoculation to last reading: | 10-14 days |

Scheme of observation:

1. Susceptible:

| | | |
|---|---|---|
| II | restricted growth, cotyledon slightly blistered, leaves completely mottled | Gele Tros |
| III | curled leaves, heavy mosaic symptoms over whole leave | |

2. Intermediate resistant

| | | |
|---|---|---|
| IV | curled leaves, slight mosaic symptoms | Gardon |
| V | slightly curled leaves, slight mosaic symptoms, many necrotic spots | |
| VI | leaves not curled, vague mosaic symptoms, few necrotic spots | |

3. Highly resistant

| | | |
|---|---|---|
| VII | very few virus symptoms, very few necrotic spots | |
| VIII | no symptoms | Hokus, Naf |

Ad. 46: Resistance to powdery mildew *(Podosphaera xanthii)* (Sf)

Method

Maintenance of disease

Type of medium: On susceptible living plants

Preparation of inoculum: Wash the spores from the infected leaves and prepare a suspension with a concentration of $10^5$ spores/ml. Filter the suspension through a cheese-cloth before infecting the plants.

Raising the plants

| | |
|---|---|
| Sowing: | In potting soil |
| Temperature: | 22/20°C (d/n) |
| Light: | At least 16 hours |
| Number of plants: | 30 plants per sample |

Inoculation

| | |
|---|---|
| Growth stage of plants: | Fully developed cotyledons |
| Method of inoculation: | Spraying of spore suspension on leaves: the first, the second and the fifth day after planting out. |

Special conditions after inoculation

| | |
|---|---|
| Temperature: | 20/20°C (d/n) |
| Light: | 16 hours |

Duration of test

| | |
|---|---|
| - From sowing to inoculation: | 7, 8 and 11 days |
| - From inoculation to last reading: | 12 days |

Scheme of observation

1. Susceptible: hypocotyls and cotyledons infected, first leaf strongly infected, high sporulation.
2. Intermediate resistant: hypocotyls not infected, cotyledons and first leaf moderately infected with moderate sporulation, moderate colonization.
3. Highly resistant: hypocotyls and cotyledons not infected, first leaf very weakly or not infected, few colonies, very weak sporulation.

Standard varieties:
1. Susceptible: Corona
2. Intermediate resistant: Flamingo
3. Highly resistant: Cordoba

Ad. 47: Resistance to downy mildew (*Pseudoperonospora cubensis*) (Pc)

Method

Maintenance of disease

Type of medium: On susceptible living plants

Preparation of inoculum: Wash the spores from the infected leaves with cold distilled water and prepare a suspension. Use it immediately.

Raising the plants

Sowing: In potting soil
Temperature: 22/20°C (d/n)
Light: At least 16 hours
Number of plants: 30 plants per sample

Inoculation

Growth stage of plants: Two first leaves fully developed
Method of inoculation: Spraying of spore suspension on leaves.

Special conditions after inoculation

Temperature: 22/20°C (d/n)
Light: 16 hours
Relative humidity: 48 hours after inoculation 100%
Special conditions: A plastic cover over the plants. Closed during the first three days, then slightly open during daytime.

Duration of test

- From sowing to inoculation: 20 days
- From inoculation to last reading: ± 10 days

Scheme of observations:

Susceptible: Lesions large with abundant spore production leaf tissue becoming necrotic within 5 days.
Intermediate resistant: Lesions medium, period of tissue yellowing prolonged to beyond 10 days.
Highly resistant: Downy mildew lesions small, round tissue in the center becoming necrotic, no visual spore production.

Standard varieties: Susceptible: Pepinex 69, SMR 58
Intermediate resistant: Poinsett
Highly resistant:

Ad. 48: Resistance to Corynespora blight and target leaf spot (*Corynespora cassiicola*) (Cca)

Method

Maintenance of disease

| | |
|---|---|
| Type of medium: | PDA (Potato Dextrose Agar) |
| Special conditions: | 12-14 days in the dark at 20°C |
| Remarks: | The spore suspension should have a concentration of 0.5 x $10^5$ spores/ml. Keep maximum 4 days in refrigerator at 4°C |

Preparation of inoculum: Scrape off the fungus from the nutrient medium, collect it in a beaker and filter it through a cheese cloth.

Raising the plants

| | |
|---|---|
| Sowing: | In potting soil |
| Temperature: | 22/20°C (d/n) |
| Light: | At least 16 hours |
| Number of plants: | 30 plants per sample |

Inoculation

| | |
|---|---|
| Growth stage of plants: | The plants should have a first leaf with a diameter of three centimeters |
| Method of inoculation: | Spraying of spore suspension on leaves |

Special conditions after inoculation

| | |
|---|---|
| Temperature: | 25/15°C (d/n) |
| Light: | At least 16 hours |
| Special conditions: | A plastic cover over the plants. Closed during the first three days. Then slightly open at daytime. |

Duration of test

- From sowing to inoculation: 12-13 days
- From inoculation to last reading: 8-10 days

Standard varieties: Resistance absent: Tornac
Resistance present: Corona

Ad. 49: Resistance to Cucumber Vein Yellowing Virus (CVYV)

Method

Maintenance of isolate

| | |
|---|---|
| Type of medium: | On susceptible living plants |
| Special conditions: | Fresh inoculum or stored for maximum 3 months at -20˚C |

Execution of test

| | |
|---|---|
| Growth stage of plants: | Appearance of first leaf |
| Temperature: | 16 to 30˚C |
| Light: | 16 hours |
| Growing method: | Glasshouse |
| Method of inoculation: | Mechanical, by rubbing of cotyledons |
| Duration of test: | From inoculation to reading: 14 days |
| Number of plants tested: | At least 15 plants |
| Standard varieties: | Susceptible: Corona<br>Resistant: Tornac |
| Remark: | Resistant varieties may give a slight discoloration of the veins of older leaves |

Ad. 50: Resistance to Zucchini Yellow Mosaic Virus (ZYMV)

Method

Maintenance of isolate

| | |
|---|---|
| Type of medium: | On susceptible living plants |
| Special conditions: | Fresh inoculum or stored for maximum 6 months at - 20˚C |

Execution of test

| | |
|---|---|
| Growth stage of plants: | Appearance of first leaf |
| Temperature: | 23 to 25˚C day and night |
| Light: | 16 hours |
| Growing method: | Glasshouse |
| Method of inoculation: | Mechanical, by rubbing of cotyledons |
| Duration of test: | From inoculation to reading: 14 days |
| Number of plants tested: | At least 15 plants |
| Standard varieties: | Susceptible: Corona<br>Resistant: Dina |
| Remark: | Resistant varieties may give a slight discoloration of the veins of older leaves. Susceptible varieties give systemic mosaic symptoms. |

## 9. Literature

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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 | *Cucumis sativus* L. |
| 1.2 Common name | Cucumber, Gherkin |

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

4.1.3 Other [ ]
(please provide details)

[#] 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: |
|---|---|---|

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties (including inbred lines)

(a) Self-pollination [ ]

(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]
(please provide details)

4.2.2 Vegetatively propagated varieties

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.3 Other [ ]
(please provide details)

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.1 (1)** | **Cotyledon: bitterness** | | |
| | absent | Rocket GS, Sandra | 1 [ ] |
| | present | Farbio | 9 [ ] |
| **5.2 (13)** | **Plant: sex expression** | | |
| | monoecoius | Hokus | 1 [ ] |
| | subgynoecious | Toska 70 | 2 [ ] |
| | gynoecious | Farbio, Sandra, Wilma | 3 [ ] |
| | hermaphrodytic | Sunsweet, | 4 [ ] |
| **5.3 (15)** | **Ovary: color of vestiture** | | |
| | white | Jazzer | 1 [ ] |
| | black | Vert petit de Paris | 2 [ ] |
| **5.4 (16)** | **Parthenocarpy** | | |
| | absent | Toska 70 | 1 [ ] |
| | present | Farbio, Rocket GS, Sandra, Wilma | 9 [ ] |
| **5.5 (17)** | **Fruit: length** | | |
| | very short | De Russie, Sunsweet | 1 [ ] |
| | short | | 3 [ ] |
| | medium | Gemini, Jazzer | 5 [ ] |
| | long | Corona | 7 [ ] |
| | very long | | 9 [ ] |

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

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.6 (22)** | **Fruit: shape of stem end** | | |
| | necked | Sandra, Tasty Green | 1 [ ] |
| | acute | De Massy | 2 [ ] |
| | obtuse | Maram, Score | 3 [ ] |
| **5.7 (25)** | **Fruit: ground color of skin at market stage** | | |
| | white | Bonneuil | 1 [ ] |
| | yellow | Gele Tros | 2 [ ] |
| | green | Corona | 3 [ ] |
| **5.8 (31)** | **Fruit: type of vestiture** | | |
| | hairs only | Silor | 1 [ ] |
| | prickles only | Corona, Jazzer | 2 [ ] |
| | hairs and prickles | De Bourbonne,De Massy | 3 [ ] |
| **5.9 (44)** | **Resistance to *Cladosporium cucumerinum* (Ccu)** | | |
| | absent | Pepinex 69 | 1[ ] |
| | present | Maketmore 76 | 9[ ] |
| **5.10 (45)** | **Resistance to Cucumis Mosaic Virus (CMV)** | | |
| | susceptible | Gele Tros | 1[ ] |
| | intermediate resistant | Gardon | 2[ ] |
| | highly resistant | Hokus, Naf | 3[ ] |
| **5.11 (46)** | **Resistance to powdery mildew (*Podosphaera xanthii*) (Sf)** | | |
| | susceptible | Corona | 1[ ] |
| | intermediate resistant | Flamingo | 2[ ] |
| | highly resistant | Cordoba | 3[ ] |

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

| | Characteristics | Example Varieties | Note |
|---|---|---|---|
| **5.12 (48)** | **Resistance to Corynespora blight and target leaf pot (*Corynespora cassiicola*) (Cca)** | | |
| | absent | Tornac | 1 [ ] |
| | present | Corona | 9 [ ] |
| **5.13 (49)** | **Resistance to Cucumber Vein Yellowing Virus (CVYV)** | | |
| | absent | Corona | 1 [ ] |
| | present | Tornac | 9 [ ] |

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

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 **similar** variety(ies) | Describe the expression of the characteristic(s) for **your** candidate variety |
|---|---|---|---|
| *Example* | *Cotyledon: bitterness* | *absent* | *present* |
| | | | |
| | | | |

Comments:

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

[#]7. Additional information which may help in the examination of the variety

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

7.3.1 Main use

(a) Processing [ ]
(b) Fresh market [ ]
(c) other [ ]
(please provide details)

7.3.2 Type of culture

(a) Greenhouse, staked [ ]
(b) Greenhouse, non staked
(c) In the open,, staked [ ]
(d) In the open, non staked
(c) other [ ]
(please provide details)

7.3.3 Fruit type

(a) Gherkin [ ]

(b) Cucumber
(i) Beth Alpha [ ]
(ii) Dutch type [ ]
(iii) American Slicer [ ]
(iv) Asian [ ]
(v) other [ ]
(c) other [ ]
(please provide details)

[#] 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: |
|---|---|---|

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. 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]