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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

CUCUMBER, GHERKIN

UPOV Code: CUCUM_SAT

Cucumis sativus L.

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Cucumis sativus L.	Cucumber, Gherkin	Concombre, Cornichon	Gurke	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 for seed-propagated varieties, or in the form of plants for vegetatively propagated varieties.

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

1,500 seeds for seed-propagated varieties, or
50 plants for 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 on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test.

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) 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		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		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		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	**(a)**	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	**(a)**	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	**(a)**	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	**(a)**	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	**(a)**	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
9.	**VG**	**Leaf blade: blistering**	**Limbe: cloqûre**	**Blattspreite: Blasigkeit**	**Limbo: abullonado**		
QN	**(a)**	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

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.	**VG**	**Leaf blade: undulation of margin**	**Limbe: ondulation du bord**	**Blattspreite: Wellung des Randes**	**Limbo: ondulación del borde**		
QN	**(a)**	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	**(a)**	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
13. (*) (+)	**VG**	**Plant: sex expression**	**Plante: expression du sexe**	**Pflanze: Geschlechts-verteilung**	**Planta: expresión del sexo**		
QL	**(b)**	monoecious	monoïque	monözisch	monóica	Hokus	1
		subgynoecious	sous-monoïque	subgynözisch	subginóica	Toska 70	2
		gynoecious	gynoïque	gynözisch	ginóica	Farbio, Sandra, Wilma	3
		hermaphrodytic	hermaphrodite	hermaphroditisch	hermafrodita	Sunsweet	4

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
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	**(b)**	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
		predominantly 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	**(b)**	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
17. (*)	**MS/ VG**	**Fruit: length**	**Fruit: longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(c)**	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

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	**MS/ VG**	**Fruit: diameter**	**Fruit: diamètre**	**Frucht: Durchmesser**	**Fruto: diámetro**		
QN	**(c)**	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	**(c)**	very small	très petit	sehr klein	muy pequeña	Sunsweet	1
		small	petit	klein	pequeña	Akord, Sonate	3
		medium	moyen	mittel	media	Jazzer, Picobello, 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	**(c)**	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
21. (+)	**VG**	**Fruit: shape in transverse section**	**Fruit: forme en section transversale**	**Frucht: Form im Querschnitt**	**Fruto: forma en sección transversal**		
QN	**(c)**	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

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22. (*) (+)	**VG**	**Fruit: shape of stem end**	**Fruit: forme de la base**	**Frucht: Form des Stielendes**	**Fruto: forma de la base**		
PQ	**(c)**	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	**(c)**	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	**(c)**	acute	pointu	spitz	aguda	Dardos	1
		obtuse	obtus	stumpf	obtusa	Reno	2
		rounded	arrondi	abgerundet	redondeada	Bellissima	3
		truncate	tronqué	gerade	truncada	Medusa	4
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 al estado de comercialización**		
PQ		white	blanche	weiß	blanco	Bonneuil	1
		yellow	jaune	gelb	amarillo	Gele Tros	2
		green	verte	grün	verde	Corona	3

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	**VG**	**Excluding white varieties: Fruit: intensity of ground color of skin (as for 25)**	**À l'exclusion des variétés blanches: Fruit: intensité de la couleur de fond de l'épiderme (comme pour 25)**	**Ohne weiße Sorten: Frucht: Intensität der Grundfarbe der Epidermis (wie unter 25)**	**Excepto variedades de color blanco: Fruto: intensidad del color de fondo de la epidermis (como para el carácter. 25)**		
QN		light	claire	hell	clara		3
		medium	moyenne	mittel	media		5
		dark	foncée	dunkel	oscura		7
27. (*) (+)	**VG**	**Fruit: ribs**	**Fruit: cannelures**	**Frucht: Rippen**	**Fruto: acostillado**		
QN	**(c)**	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	**(c)**	absent	absentes	fehlend	ausentes	Corona, Hana	1
		present	présentes	vorhanden	presentes	Nabil, Silor	9
29. (*) (+)	**VG**	**Fruit: creasing**	**Fruit: plissement**	**Frucht: Faltung**	**Fruto: arrugamiento**		
QL	**(c)**	absent	absent	fehlend	ausente	Jazzer	1
		present	présent	vorhanden	presente	Corona, Nabil	9
30.	**VG**	**Fruit: degree of creasing**	**Fruit: degré de plissement**	**Frucht: Stärke der Faltung**	**Fruto: grado de arrugamiento**		
QN	**(c)**	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

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31. (*) (+)	**VG**	**Fruit: type of vestiture**	**Fruit: type de pilosité**	**Frucht: Art des Besatzes**	**Fruto: tipo de cobertura**		
QL	**(c)**	hairs only	poils seulement	nur Haare	sólo pelos	Silor	1
		hairs and prickles	poils et épines	Haare und Stacheln	pelos y espinas	De Bourbonne, De Massy	2
		prickles only	épines seulement	nur Stacheln	sólo espinas	Corona, Jazzer	3
32.	**VG**	**Fruit: density of vestiture**	**Fruit: densité de la pilosité**	**Frucht: Dichte des Besatzes**	**Fruto: densidad de la cobertura**		
QN	**(c)**	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	**(c)**	white	blanche	weiß	blanco	Jazzer	1
		light brown	brun clair	hellbraun	marrón claro	Akito	2
		dark brown	brun foncé	dunkelbraun	marrón oscuro	Satina	3
34. (*)	**VG**	**Fruit: warts**	**Fruit: verrues**	**Frucht: Warzen**	**Fruto: verrugas**		
QL	**(c)**	absent	absentes	fehlend	ausentes	Diana	1
		present	présentes	vorhanden	presentes	Chinese Slangen, Dumex, Regal	9

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
35.	**VG**	**Fruit: size of warts**	**Fruit: taille des verrues**	**Frucht: Größe der Warzen**	**Fruto: tamaño de las verrugas**		
QN	**(c)**	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	**(c)**	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: punteado**		
QL	**(c)**	absent	absentes	fehlend	ausentes	Sensation	1
		present	présentes	vorhanden	presentes	Delicatesse, Hanpaku-Fushinari, Sagami-Fanpaku, White Sun	9
38. **(+)**	**VG**	**Fruit: distribution of dots**	**Fruit: répartition des mouchetures**	**Frucht: Verteilung der Punkte**	**Fruto: distribución del punteado**		
PQ	**(c)**	in bands only	par zones uniquement	nur in Banden	sólo en bandas	Vert petit de Paris	1
		predominantly in bands	essentiellement par zones	überwiegend in Banden	más concentrados en bandas	Levina	2
		evenly distributed	uniformément réparties	gleichmäßig verteilt	distribuidos de manera uniforme	Sagami-Fanpaku	3

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
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 punteado**		
PQ	**(c)**	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	außer 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 del punteado**		
(+)							
QN	**(c)**	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
41.	**VG**	**Fruit: glaucosity**	**Fruit: glaucescence**	**Frucht: Bereifung**	**Fruto: glauescencia**		
(+)							
QN	**(c)**	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

		English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
42.	**VG/ MS**	**Fruit: length of peduncle**	**Fruit: longueur du pédoncule**	**Frucht: Länge des Stieles**	**Fruto: longitud del pedúnculo**		
QN	**(c)**	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 ripeness**	**Fruit: couleur de fond de l'épiderme à maturité physiologique**	**Frucht: Grundfarbe der Epidermis zum Zeitpunkt der physiologischen Reife**	**Fruto: color de fondo de la epidermis en la madurez fisiológica**		
(+)							
PQ		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 a la *Cladosporium cucumerinum* (Ccu)**		
(+)							
QL		absent	absente	fehlend	ausente	Pepinex 69	1
		present	présente	vorhanden	presente	Maketmore 76	9
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
		moderately resistant	résistance moyenne	mäßig 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
		moderately resistant	résistance moyenne	mäßig resistent	intermedia	Flamingo	2
		highly resistant	forte résistance	hochresistent	alta	Cordoba	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
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
	moderately resistant	résistance moyenne	mäßig 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	Cerrucho, Goya, Pepinova	1
	present	présente	vorhanden	presente	Corona, Cumlaude, Edona	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
50. **(+)**	**Resistance to Zucchini Yellow Mosaic Virus (ZYMV)**	**Résistance au virus de la mosaïque jaune de la courgette**	**Resistenz gegen Zucchinigelbmosaikvirus (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) Leaf blade: observations on the leaf blade should be made on a fully developed leaf blade, from the 7th node upwards
(b) Flowers: all observations on the flowers should be made on flowers between the 5th and the 15th node.
(c) Fruit: all observations on the fruit 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. 1: Cotyledon: bitterness

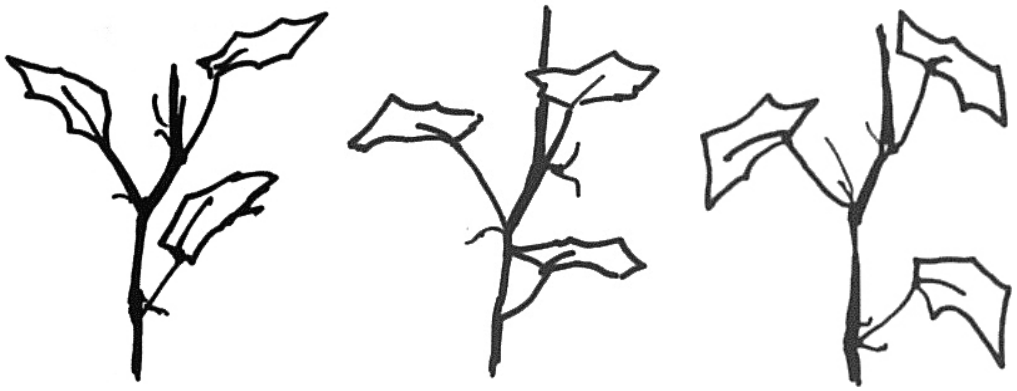
The bitterness of the cotyledon should be observed by tasting just before the development of the first true leaf.

Ad. 3: Plant: total length of first 15 internodes

To be observed when the relevant part of the main stem is fully developed.

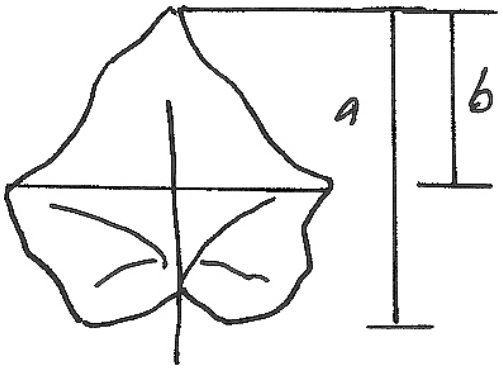
Ad. 4. Leaf blade: attitude

To be observed only for staked, vertically grown varieties.



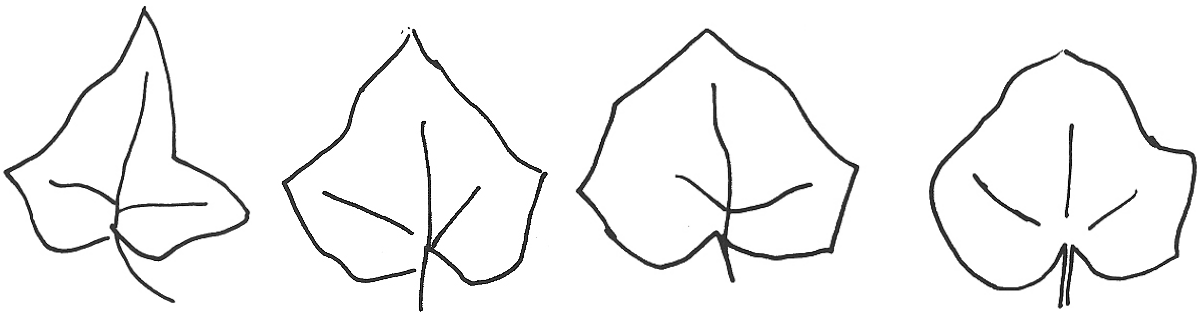
1	2	3
erect	horizontal	drooping

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 on the plant have both male and female flowers, with more male than female flowers on each node.	Hokus	1
subgynoecious	All the nodes have female flowers, as well as a few male flowers. Under certain conditions (light, warmth, chemical treatment), none or very few male flowers will develop on the nodes.	Toska 70	2
gynoecious	All the nodes have only female flowers. Under certain conditions (darkness, cold, chemical treatment), a few male flowers will develop.	Farbio, Sandra, Wilma	3
hermaphrodytic	All the nodes have hermaphroditic and male flowers	Sunsweet	4

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

Where there are more than 50% of nodes with one flower or two flowers, the state of expression is predominantly one or predominantly two, respectively. In other cases, the state is that which represents the highest percentage.

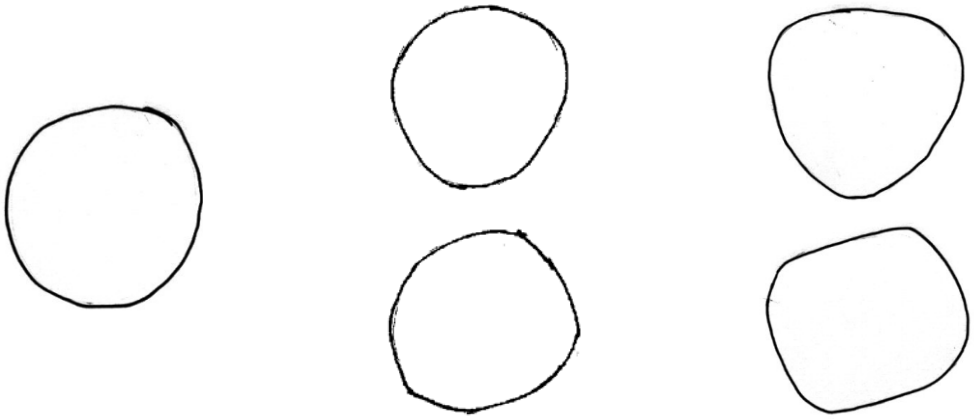
Ad. 15: Ovary: color of vestiture

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

Ad. 16: Parthenocarpy

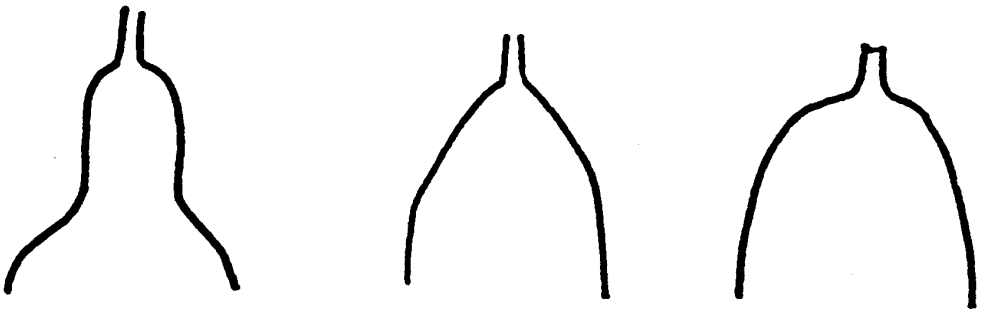
The development of the fruit without pollination should be observed under circumstances where pollination by insects (bees, bumblebees, etc.) is not possible; for example, in an insect-free greenhouse or at a time of the year when insects are not active.

Ad. 21: Fruit: shape in transverse section



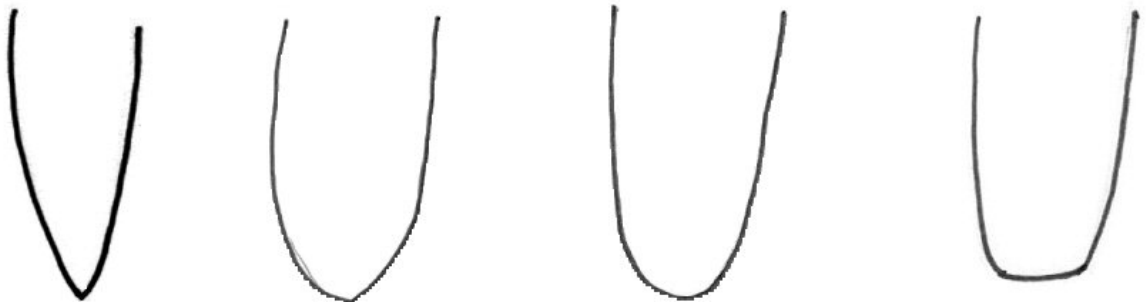
1 round | 2 round to angular | 3 angular

Ad. 22: Fruit: shape of stem end



1 necked | 2 acute | 3 obtuse

Ad. 24: Fruit: shape of calyx end

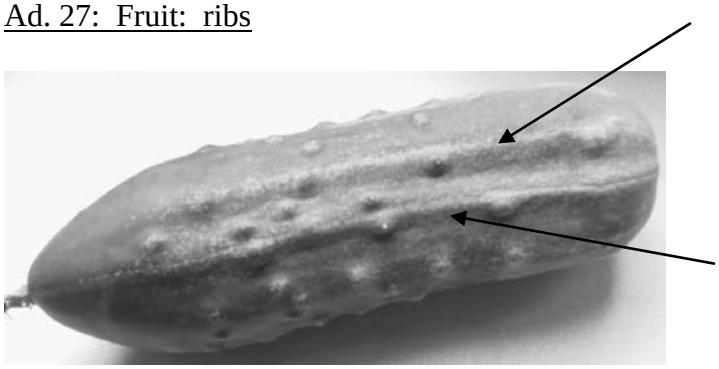


1	2	3	4
acute	obtuse	rounded	truncate

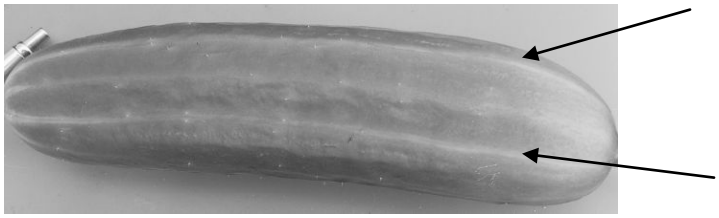
Ad. 25: Fruit: ground color of skin at market stage

Market stage is considered to be the stage when the fruits have reached their desired length in relation to the post-harvest use of the fruit (slicing, table cucumber, gherkin etc). Market stage is, in general, reached well before the physiological ripeness of the fruit (see Ad. 43).

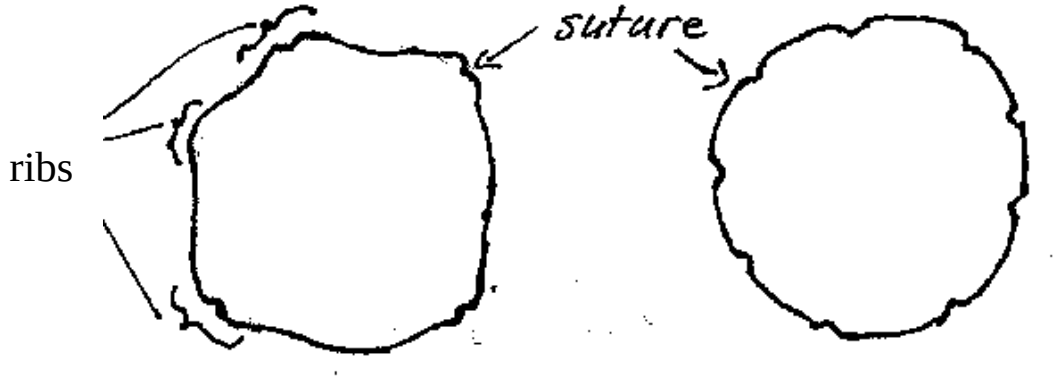
Ad. 27: Fruit: ribs



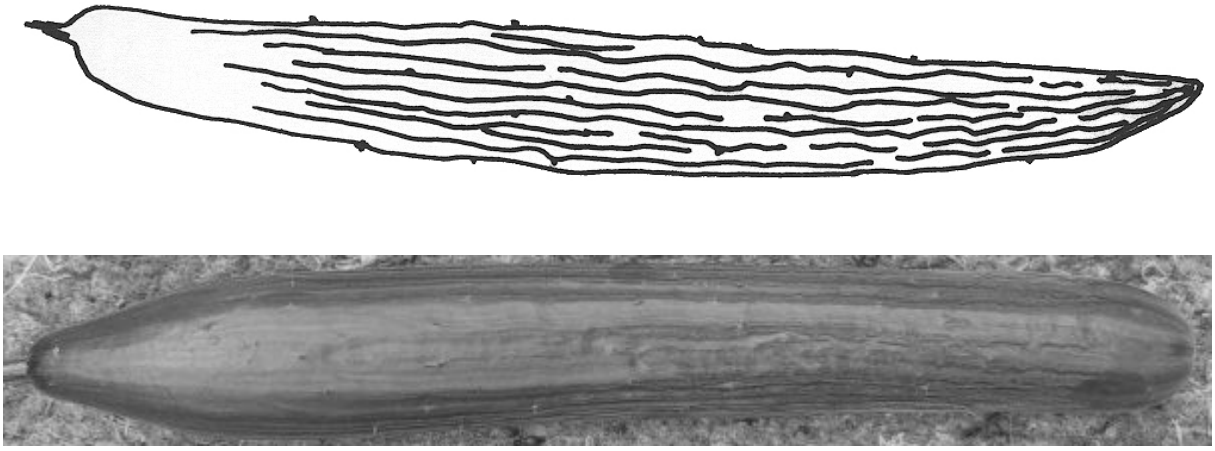
Ad. 28: Fruit: sutures



Sutures are slightly depressed in relation to the fruit surface.



Ad. 29: Fruit: creasing



Ad. 31: Fruit: type of vestiture

Ad. 36: Fruit: length of stripes

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

Ad. 38: Fruit: distribution of dots

1
in bands only

2
predominantly in bands

3
evenly distributed

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 is a whitish or grayish waxy layer which can be removed by rubbing.

Ad. 43: Fruit: ground color of skin at physiological ripeness

The fruit is at physiological ripeness when it is fully developed and mature and there are no further changes to the color of the skin, before the fruit starts to rot.

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 0.5×10^5 spores/ml. To be kept for a maximum of 4 days in a refrigerator at 4°C.

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

Raising the plants

Sowing:	In potting soil or compost
Temperature:	22/20°C (day/night)
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 3 cm.
Method of inoculation:	Spray spore suspension on leaves

Special conditions after inoculation

Temperature:	22/20°C (day/night)
Light:	At least 16 hours
Special conditions:	Plastic cover placed over the plants. The plastic cover is closed during the first three days and thereafter slightly opened during the daytime.

Duration of test

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

Standard varieties: Resistance absent: Pepinex 69
Resistance present: Maketmore 76

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

Method

Maintenance of disease

Type of medium:	On susceptible living plants
Remarks:	Greenhouse to be kept 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 or compost
Temperature:	22/20°C (day/night)
Light:	At least 16 hours
Number of plants:	30 plants per sample

Inoculation

Growth stage of plants:	Fully developed cotyledons
Method of inoculation:	Mechanical inoculation, by rubbing the cotyledons using carborundum powder. Carborundum powder to be washed away after inoculation.

Special conditions after inoculation

Temperature:	22/20°C (day/night)
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 leaf	

2. Moderately 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 or compost
Temperature: 22/20°C (day/night)
Light: At least 16 hours
Number of plants: 30 plants per sample

Inoculation

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

Special conditions after inoculation

Temperature: 20/20°C (day/night)
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. Moderately 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. Moderately 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. Suspension to be used immediately.

Raising the plants

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

Inoculation

Growth stage of plants:	First two leaves fully developed
Method of inoculation:	Spray spore suspension on leaves.

Special conditions after inoculation

Temperature:	22/20°C (day/night)
Light:	16 hours
Relative humidity:	100%, 48 hours after inoculation
Special conditions:	Plastic cover placed over the plants. The plastic cover is closed during the first three days and thereafter slightly opened during the daytime.

Duration of test

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

Scheme of observations:

Susceptible:	Large lesions with abundant spore production, leaf tissue becoming necrotic within 5 days.
Moderately resistant:	Medium lesions, period of tissue yellowing prolonged to beyond 10 days.
Highly resistant:	Small downy mildew lesions, round tissue in the center becoming necrotic, no visual spore production.

Standard varieties:	Susceptible:	Pepinex 69, SMR 58
	Moderately 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 0.5×10^5 spores/ml. To be kept for a maximum of 4 days in a refrigerator at 4°C

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

Raising the plants

Sowing:	In potting soil or compost
Temperature:	22/20°C (day/night)
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 3 cm.
Method of inoculation:	Spray spore suspension on leaves

Special conditions after inoculation

Temperature:	25/15°C (day/night)
Light:	At least 16 hours
Special conditions:	Plastic cover placed over the plants. The plastic cover is closed during the first three days and thereafter slightly opened during the daytime.

Duration of test

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

Scheme of observation:

1. Susceptible

   a. cotyledons and first leaf dead, plant with greatly reduced growth
   b. cotyledons dead or strongly infected, first leaf weakly infected, plant with greatly reduced growth

2. Resistant

   a. cotyledons heavily infected, first leaf not infected, plant with normal growth
   b. cotyledons and first leaf not infected, plant with normal growth

Standard varieties:

Susceptible: Pepinova (1a) and Cerrucho, Goya (1b)
Resistant: Cumlaude, Edona (2a) and Corona (2b)

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 inoculum which has been stored for a maximum of 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:	Greenhouse
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 Resistant: Tornac
Remark:	Resistant varieties may have 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 inoculum which has been stored for a maximum of 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:	Greenhouse
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 Resistant: Dina

Remark:	Resistant varieties may have a slight discoloration of the veins of older leaves. Susceptible varieties have systemic mosaic symptoms.

9. Literature

Angelor, D., Krastera, L., 2000: Selecting downy mildew-resistant short-fruited cucumbers, Acta Horticulturae No. 510.

Grubben, G.J.H., Denton, O.A., 2004: Plant Resources of Tropical Africa 2. Vegetables, Prota Foundation, Wageningen, NL.

Harrison, B.E., Masefield, G.B., Wallis, M., 1969: The Oxford Book of Food Plants, Oxford University Press, GB.

Kristkova, E., Lebeda, A., Vinter, V., Blahousek, O., 2003: Genetic resources of the genus *Cucumis* and their morphological description, Hort. Sci. 30 (1), p. 14-42, Prague, CZ.

Messiaen, C.M., Blancard, D., Rouxel, F., Lafon, R., 1991 : Les maladies des plantes maraîchères, INRA, Paris, FR.

Recommended Codes for Pest Organisms in Vegetable Crops, 2004, ISF.

Tapley, W.T., Enzie, W.D., Eseltine, G.P. van, 1937: The Vegetables of New York, New York State Agricultural Experiment Station, US.

Vilmorin-Andrieux, M.M., The Vegetable Garden, John Murray (Publishers), Ltd., London, GB.

Wehner, Todd C., Vegetable Cultivar Descriptions for North America, Dept. of Horticultural Science, North Carolina University, Raleigh, US.

Xie, J., Wehner, T.C., Gene List 2001 for cucumber, Dept. of Horticultural Science, North Carolina University, Raleigh, US.

10. Technical Questionnaire

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	Application date: (not to be filled in by the applicant)

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

1. Subject of the Technical Questionnaire

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	

[#]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)

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 [ ]

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

	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 [ ]
	hairs and prickles	De Bourbonne, De Massy	2 [ ]
	prickles only	Corona, Jazzer	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[ ]
	moderately resistant	Gardon	2[ ]
	highly resistant	Hokus, Naf	3[ ]
5.11 (46)	**Resistance to powdery mildew (*Podosphaera xanthii*) (Sf)**		
	susceptible	Corona	1[ ]
	moderately resistant	Flamingo	2[ ]
	highly resistant	Cordoba	3[ ]

	Characteristics	Example Varieties	Note
5.12 (48)	**Resistance to Corynespora blight and target leaf pot (*Corynespora cassiicola*) (Cca)**		
	absent	Cerrucho, Goya, Pepinova	1 [ ]

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

	present	Corona, Cumlaude, Edona	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:

[#]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)

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”.

……

[#] 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:

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]