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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

MELON *

UPOV Code: CUCUM_MEL

Cucumis melo L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Cucumis melo L.	Melon	Melon	Melone	Melón

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 melo* 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 supplied in the form of seed.

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

100 g or 2000 seeds.

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

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.

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

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 20 plants, which 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 self-pollinated varieties, vegetatively propagated varieties and hybrid 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 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 stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

4.3.3 Where appropriate, or in cases of doubt, the stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

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) Inflorescence: sex expression (at full flowering) (characteristic 12)
(b) Fruit: shape in longitudinal section (characteristic 28)
(c) Fruit: ground color of skin (characteristic 29)
(d) Fruit: warts (characteristic 38)
(e) Fruit: grooves (characteristic 43)
(f) Fruit: cork formation (characteristic 48)
(g) Fruit: main color of flesh (characteristic 54)
(h) Seed: length (characteristic 60)
(i) Seed: color (characteristic 63)
(j) Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom), Race 0 (Fom: 0) (characteristic 69.1)
(k) Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom), Race 1 (Fom: 1) (characteristic 69.2)
(l) Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom), Race 2 (Fom: 2) (characteristic 69.3)

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: See Chapter 3.3

(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**	**Seedling: length of hypocotyl**	**Plantule: longueur de l'hypocotyle**	**Keimpflanze: Länge des Hypokotyls**	**Plántula: longitud del hipocótilo**		
QN	**(a)**	very short	très court	sehr kurz	muy corto	Golden Crispy	1
		short	court	kurz	corto	Arava, Clipper	3
		medium	moyen	mittel	medio	Doral, Futuro	5
		long	long	lang	largo	Bimbo, Ronda	7
		very long	très long	sehr lang	muy largo	Noy	9
2.	**VG**	**Seedling: size of cotyledon**	**Plantule: taille du cotylédon**	**Keimpflanze: Größe der Keimblätter**	**Plántula: tamaño del cotiledón**		
QN	**(a)**	very small	très petit	sehr klein	muy pequeño	Golden Crispy	1
		small	petit	klein	pequeño	Candy, Lunasol	3
		medium	moyen	mittel	medio	Futuro, Sancho	5
		large	grand	groß	grande	Bimbo, Nicolás	7
		very large	très grand	sehr groß	muy grande	Noy	9
3.	**VG**	**Seedling: intensity of green color of cotyledon**	**Plantule: intensité de la couleur verte du cotylédon**	**Keimpflanze: Intensität der Grünfärbung der Keimblätter**	**Plántula: intensidad del color verde del cotiledón**		
QN	**(a)**	light	clair	hell	claro	Bimbo, Lucas	3
		medium	moyen	mittel	medio	Candy, Piel de Sapo	5
		dark	foncé	dunkel	oscuro	Clipper, Lunasol	7
4.	**VG**	**Leaf blade: size**	**Limbe: taille**	**Blattspreite: Größe**	**Limbo: tamaño**		
QN	**(b)**	small	petit	klein	pequeño	Geaprince, Lunasol	3
		medium	moyen	mittel	medio	Candy, Total	5
		large	grand	groß	grande	Don, Sucrero	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5.	**VG**	**Leaf blade: intensity of green color**	**Limbe: intensité de la couleur verte**	**Blattspreite: Intensität der Grünfärbung**	**Limbo: intensidad del color verde**		
QN	**(b)**	light	clair	hell	claro	Fimel, Yuma	3
		medium	moyen	mittel	medio	Doral, Galia	5
		dark	foncé	dunkel	oscuro	Gama, Gustal	7
6. **(+)**	**VG**	**Leaf blade: development of lobes**	**Limbe: développement des lobes**	**Blattspreite: Ausprägung der Lappen**	**Limbo: desarrollo de los lóbulos**		
QN	**(b)**	weak	faible	gering	débil	Boule d'or	3
		medium	moyen	mittel	medio	Piel de Sapo	5
		strong	fort	stark	fuerte	Galia	7
7. **(+)**	**VG**	**Leaf blade: length of terminal lobe**	**Limbe: longueur du lobe terminal**	**Blattspreite: Länge des Endlappens**	**Limbo: longitud del lóbulo terminal**		
QN	**(b)**	short	court	kurz	corto	Perlita	3
		medium	moyen	mittel	medio	Clipper, Gama	5
		long	long	lang	largo	Gustal, Primal	7
8.	**VG**	**Leaf blade: dentation of margin**	**Limbe: dentelure du bord**	**Blattspreite: Randzähnung**	**Limbo: dentado del margen**		
QN	**(b)**	weak	faible	gering	débil	Clipper, Védrantais	3
		medium	moyenne	mittel	medio	De Cavaillon espagnol, Piel de Sapo	5
		strong	forte	stark	fuerte	Boule d'or, Portoluz	7
9.	**VG**	**Leaf blade: blistering**	**Limbe: cloqûre**	**Blattspreite: Blasigkeit**	**Limbo: abullonado**		
QN	**(b)**	weak	faible	gering	débil	Galia	3
		medium	moyenne	mittel	medio	Costa	5
		strong	forte	stark	fuerte	Haros	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.	**VG**	**Petiole: attitude**	**Pétiole: port**	**Blattstiel: Haltung**	**Pecíolo: porte**		
QN	**(b)**	erect	dressé	aufrecht	erecto	Alfredo	1
		semi-erect	demi-dressé	halbaufrecht	semierecto	Peko	3
		horizontal	horizontal	waagerecht	horizontal	Creso	5
11.	**VG/ MS**	**Petiole: length**	**Pétiole: longueur**	**Blattstiel: Länge**	**Pecíolo: longitud**		
QN	**(b)**	short	court	kurz	corto	Costa	3
		medium	moyen	mittel	medio	Arava, Sancho	5
		long	long	lang	largo	Goldgen	7
12. (*)	**VG**	**Inflorescence: sex expression (at full flowering)**	**Inflorescence: expression du sexe (en pleine floraison)**	**Blütenstand: Geschlechts-verteilung (bei Vollblüte)**	**Inflorescencia: expresión del sexo (en plena floración)**		
QL		monoecious	monoïque	monözisch	monócico	Alpha, Categoría	1
		andromonoecious	andromonoïque	andromonözisch	andromonócico	Piel de Sapo	2
13. (+)	**VG**	**Young fruit: hue of green color of skin**	**Jeune fruit: teinte de couleur verte de l'épiderme**	**Junge Frucht: Farbton der Grünfärbung der Schale**	**Fruto joven: tonalidad del color verde de la piel**		
PQ	**(c)**	whitish green	vert blanchâtre	weißlichgrün	verde blanquecino	Geasol	1
		yellowish green	vert jaunâtre	gelblichgrün	verde amarillento	Fimel	2
		green	vert	grün	verde	Lucas	3
		greyish green	vert grisâtre	gräulichgrün	verde grisáceo	Spanglia	4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14. (*)	**VG**	**Young fruit: intensity of green color of skin**	**Jeune fruit: intensité de la couleur verte de l'épiderme**	**Junge Frucht: Intensität der Grünfärbung der Schale**	**Fruto joven: intensidad del color verde de la piel**		
QN	**(c)**	very light	très clair	sehr hell	muy clara	Solarking	1
		light	clair	hell	clara	Fimel	3
		medium	moyen	mittel	media	Eros	5
		dark	foncé	dunkel	oscura	Galia	7
		very dark	très foncé	sehr dunkel	muy oscura	Edén	9
15.	**VG**	**Young fruit: density of dots**	**Jeune fruit: densité des points**	**Junge Frucht: Dichte der Punkte**	**Fruto joven: densidad de los puntos**		
QN	**(c)**	absent or very sparse	nulle ou très lâche	fehlend oder sehr locker	ausente o muy baja	Solarking	1
		sparse	lâche	locker	baja	Fimel	3
		medium	moyenne	mittel	media	Lucas	5
		dense	dense	dicht	densa	Arava	7
		very dense	très dense	sehr dicht	muy densa	Edén	9
16.	**VG**	**Young fruit: size of dots**	**Jeune fruit: taille des points**	**Junge Frucht: Größe der Punkte**	**Fruto joven: tamaño de los puntos**		
QN	**(c)**	small	petits	klein	pequeño	Lucas	3
		medium	moyens	mittel	medio	Arava	5
		large	grands	groß	grande	Spanglia	7
17.	**VG**	**Young fruit: contrast of dot color/ground color**	**Jeune fruit: contraste couleur des points/couleur de fond**	**Junge Frucht: Kontrast Farbe der Punkte/Grundfarbe**	**Fruto joven: contraste del color de los puntos/color del fondo**		
QN	**(c)**	weak	faible	gering	débil	Lucas	3
		medium	moyen	mittel	medio	Arava	5
		strong	fort	stark	fuerte	Total	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18.	**VG**	**Young fruit: conspicuousness of groove coloring**	**Jeune fruit: netteté de la coloration du sillon**	**Junge Frucht: Deutlichkeit der Färbung der Furchen**	**Fruto joven: evidencia de conspicuidad de los surcos**		
QN	**(c)**	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Solarking	1
		weak	faible	gering	débil	Geaprince, Total	3
		medium	moyenne	mittel	media	Gama	5
		strong	forte	stark	fuerte	Clipper, Galia	7
		very strong	très forte	sehr stark	muy fuerte	Nembo	9
19.	**VG**	**Young fruit: intensity of groove coloring**	**Jeune fruit: intensité de la coloration du sillon**	**Junge Frucht: Intensität der Färbung der Furchen**	**Fruto joven: intensidad del color de los surcos**		
QN	**(c)**	light	claire	hell	clara		3
		medium	moyenne	mittel	media	Gama, Topper	5
		dark	foncée	dunkel	oscura	Century, Drake	7
20.	**VG/ MS**	**Young fruit: length of peduncle**	**Jeune fruit: longueur du pédoncule**	**Junge Frucht: Länge des Stiels**	**Fruto joven: longitud del pedúnculo**		
QN	**(c)**	short	court	kurz	corto	Lince Haros	3
		medium	moyen	mittel	medio	Arava, Romeo	5
		long	long	lang	largo	Corín	7
21.	**VG/ MS**	**Young fruit: thickness of peduncle 1 cm from fruit**	**Jeune fruit: grosseur du pédoncule à 1 cm du fruit**	**Junge Frucht: Dicke des Stiels 1 cm von der Ansatzstelle der Frucht**	**Fruto joven: grosor del pedúnculo 1 cm a partir del fruto**		
QN	**(c)**	thin	fin	dünn	delgado	Solarking	3
		medium	moyen	mittel	medio	Geaprince, Védrantais	5
		thick	gros	dick	grueso	Charentais, Doral	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22.	**VG**	**Young fruit: extension of darker area around peduncle**	**Jeune fruit: taille de la zone plus foncée autour du pédoncule**	**Junge Frucht: Ausdehnung der dunkleren Zone um den Stiel**	**Fruto joven: extensión del área más oscura alrededor del pedúnculo**		
QN	**(c)**	absent or very small	absente ou très petite	fehlend oder sehr klein	ausente o muy pequeña	Doral	1
		small	petite	klein	pequeña	Boule d'or	3
		medium	moyenne	mittel	media	Mirasol Geaprince	5
		large	large	groß	grande		7
23. **(+)**	**VG**	**Fruit: change of skin color from young fruit to maturity**	**Fruit: changement de couleur de l'épiderme du jeune fruit au fruit à maturité**	**Frucht: Änderung der Farbe der Schale von der jungen Frucht bis zur Reife**	**Fruto: cambio de color de la piel del fruto joven a la madurez**		
QN		early in fruit development	au début du développement du fruit	früh in der Fruchtentwicklung	a principios del desarrollo del fruto	Alpha, Charantais, Clipper	1
		late in fruit development	tardivement lors du développement du fruit	spät in der Fruchtentwicklung	a finales del desarrollo del fruto	Amarillo Oro, Galia	2
		very late in fruit development or no change	très tardivement lors du développement du fruit ou sans changement	sehr spät in der Fruchtentwicklung	muy al final del desarrollo del fruto o sin cambios	Futuro, Piel de Sapo	3
24. **(*)**	**VG/ MS**	**Fruit: length**	**Fruit: longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(d)**	very short	très court	sehr kurz	muy corto	Doublon, Golden Crispy	1
		short	court	kurz	corto	Topper, Védrantais	3
		medium	moyen	mittel	medio	Marina, Spanglia	5
		long	long	lang	largo	Categoría, Toledo	7
		very long	très long	sehr lang	muy largo	Katsura Giant, Valdivia	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25. (*)	**VG/ MS**	**Fruit: diameter**	**Fruit: diamètre**	**Frucht: Durchmesser**	**Fruto: diámetro**		
QN	**(d)**	very narrow	très étroit	sehr klein	muy estrecho	Banana, Golden Crispy	1
		narrow	étroit	klein	estrecho	Alpha, Maestro	3
		medium	moyen	mittel	medio	Categoría, Galia	5
		broad	large	groß	ancho	Albino, Kinka	7
		very broad	très large	sehr groß	muy ancho	Noir des Carmes	9
26. (*)	**VG/ MS**	**Fruit: ratio length/diameter**	**Fruit: rapport longueur/diamètre**	**Frucht: Verhältnis Länge/Durchmesser**	**Fruto: relación longitud/diámetro**		
QN	**(d)**	very small	très petit	sehr klein	muy pequeña	Noir des Carmes	1
		very small to small	très petit à petit	sehr klein bis klein	muy pequeña a pequeña	Alpha, Arava	2
		small	petit	klein	pequeña	Buster, Supermarket	3
		small to medium	petit à moyen	klein bis mittel	pequeña a media	Aril, Edén	4
		medium	moyen	mittel	media	Doral, Tendral Negro	5
		medium to large	moyen à grand	mittel bis groß	media a grande	Sirocco, Verdol	6
		large	grand	groß	grande	Categoría, Futuro	7
		large to very large	grand à très grand	groß bis sehr groß	grande a muy grande	Iguana, Canador	8
		very large	très grand	sehr groß	muy grande	Banana	9
27. (*) (+)	**VG**	**Fruit: position of maximum diameter**	**Fruit: localisation du diamètre maximal**	**Frucht: Position des maximalen Durchmessers**	**Fruto: posición del diámetro máximo**		
QN	**(d)**	toward stem end	vers la base	zum Stielende hin	hacia la base del tallo	Piolín , Sapo de Oro	1
		at middle	au milieu	in der Mitte	en el medio	Piel de Sapo, Védrantais	2
		toward blossom end	vers le sommet	zum Blütenende hin	hacia el ápice	Cganchi, Edén, Katsura Giant	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
28. (*) (+)	**VG**	**Fruit: shape in longitudinal section**	**Fruit: forme en section longitudinale**	**Frucht: Form im Längsschnitt**	**Fruto: forma en sección longitudinal**		
PQ	**(d)**	ovate	ovale	eiförmig	oval	De Cavaillon, Piolín	1
		medium elliptic	elliptique moyen	mittel elliptisch	elíptica media	Piel de Sapo	2
		broad elliptic	elliptique large	breit elliptisch	elíptica ancha	Corin, Sardo	3
		circular	circulaire	rund	circular	Alpha, Galia	4
		quadrangular	rectangulaire	quadratisch	cuadrangular	Zatta	5
		oblate	aplati	breitrund	oblata	Jívaro, Noir de Carmes	6
		obovate	obovale	verkehrt eiförmig	oboval	Cganchi	7
		elongated	allongé	länglich	alargada	Alficoz, Banana	8
29. (*) (+)	**VG**	**Fruit: ground color of skin**	**Fruit: couleur de fond de l'épiderme**	**Frucht: Grundfarbe der Schale**	**Fruto: color de fondo de la piel**		
PQ	**(d)**	white	blanc	weiß	blanco	Albino, Honey Dew	1
		yellow	jaune	gelb	amarillo	Amarillo-Canario, Edén, Galia, Passport, Solarking	2
		green	vert	grün	verde	Gohyang, Piel de Sapo	3
		grey	gris	grau	gris	Geaprince, Geamar, Romeo, Sirio, Supporter, Védrantais	4
30.	**VG**	**Fruit: intensity of ground color of skin**	**Fruit: intensité de la couleur de fond de l'épiderme**	**Frucht: Intensität der Grundfarbe der Schale**	**Fruto: intensidad del color de fondo de la piel**		
QN	**(d)**	light	clair	hell	claro		3
		medium	moyen	mittel	medio		5
		dark	foncé	dunkel	oscuro		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31. **(+)**	**VG**	**Fruit: hue of ground color of skin**	**Fruit: teinte de la couleur de fond de l'épiderme**	**Frucht: Grundfarbton der Schale**	**Fruto: tonalidad del color de fondo de la piel**		
PQ	**(d)**	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Amarillo-Canario, Albino, Piel de Sapo, Sirio	1
		whitish	blanchâtre	weißlich	blanquecina	Romeo	2
		yellowish	jaunâtre	gelblich	amarillenta	Geaprince, Supporter	3
		orange	orange	orange	anaranjada	Edén	4
		ochre	ocre	ocker	ocre	Passport	5
		greenish	verdâtre	grünlich	verdosa	Geamar, Honey Dew, Solarking	6
		greyish	grisâtre	gräulich	grisácea	Gohyang	7
32.	**VG**	**Fruit: density of dots**	**Fruit: densité des points**	**Frucht: Dichte der Punkte**	**Fruto: densidad de los puntos**		
QN	**(d)**	absent or very sparse	nulle ou très lâche	fehlend oder sehr locker	ausente o muy baja	Charentais	1
		sparse	lâche	locker	baja		3
		medium	moyenne	mittel	media	Petit Gris de Rennes	5
		dense	forte	dicht	densa	Piel de Sapo	7
		very dense	très forte	sehr dicht	muy densa	Albino	9
33.	**VG**	**Fruit: size of dots**	**Fruit: taille des points**	**Frucht: Größe der Punkte**	**Fruto: tamaño de los puntos**		
QN	**(d)**	small	petits	klein	pequeño	Doral	3
		medium	moyens	mittel	medio	Toledo	5
		large	gros	groß	grande	Futuro	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
34.	**VG**	**Fruit: color of dots**	**Fruit: couleur des points**	**Frucht: Farbe der Punkte**	**Fruto: color de los puntos**		
PQ	**(d)**	white	blancs	weiß	blanco	Edén	1
		yellow	jaunes	gelb	amarillo	Piel de Sapo	2
		green	verts	grün	verde	Tendral Negro	3
35.	**VG**	**Fruit: intensity of color of dots**	**Fruit: intensité de la couleur des points**	**Frucht: Intensität der Farbe der Punkte**	**Fruto: intensidad del color de los puntos**		
QN	**(d)**	light	claire	hell	claro	Kinka, Mesol	3
		medium	moyenne	mittel	medio	Sapiel, Toledo	5
		dark	foncée	dunkel	oscuro	Soprano, Víctor	7
36. (*)	**VG**	**Fruit: density of patches**	**Fruit: densité des taches**	**Frucht: Dichte der Flecken**	**Fruto: densidad de las manchas**		
QN	**(d)**	absent or very sparse	nulle ou très lâche	fehlend oder sehr locker	ausente o muy baja	Rochet	1
		sparse	lâche	locker	baja		3
		medium	moyenne	mittel	media	Braco	5
		dense	dense	dicht	densa	Piel de Sapo	7
		very dense	très dense	sehr dicht	muy densa	Oranje Ananas	9
37.	**VG**	**Fruit: size of patches**	**Fruit: taille des taches**	**Frucht: Größe der Flecken**	**Fruto: tamaño de las manchas**		
QN	**(d)**	small	petites	klein	pequeño	Baltasar	3
		medium	moyennes	mittel	medio	Sancho	5
		large	grosses	groß	grande	Taurus	7
38. (*)	**VG**	**Fruit: warts**	**Fruit: verrues**	**Frucht: Warzen**	**Fruto: verrugas**		
QL	**(d)**	absent	absentes	fehlend	ausentes	Piel de Sapo	1
		present	présentes	vorhanden	presentes	Zatta	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
39. (*)	**VG**	**Fruit: strength of attachment of peduncle at maturity**	**Fruit: fermeté de la fixation du pédoncule à maturité**	**Frucht: Festigkeit des Anhaftens des Stiels bei Reife**	**Fruto: firmeza de la adherencia del pedúnculo en la madurez**		
QN	**(d)**	very weak	très faible	sehr gering	muy débil	Edén	1
		weak	faible	gering	débil	Arava, Maestro	3
		medium	moyenne	mittel	medio	Doral, Védrantais	5
		strong	forte	stark	fuerte	Clipper, Costa	7
		very strong	très forte	sehr stark	muy fuerte	Daimiel, Eloro	9
40. (*) (+)	**VG**	**Fruit: shape of base**	**Fruit: forme de la base**	**Frucht: Form der Basis**	**Fruto: forma de la base**		
PQ	**(d)**	pointed	pointue	spitz	puntiaguda	Edén	1
		rounded	arrondie	abgerundet	redondeada	Arava	2
		truncate	tronquée	abgeflacht	truncada	Zatta	3
41. (*) (+)	**VG**	**Fruit: shape of apex**	**Fruit: forme du sommet**	**Frucht: Form der Spitze**	**Fruto: forma del ápice**		
PQ	**(d)**	pointed	pointue	spitz	puntiagudo	Canador, Futuro	1
		rounded	arrondie	abgerundet	redondeado	Alpha, Honey Dew	2
		truncate	tronquée	abgeflacht	truncado	Noir des Carmes	3
42. (*)	**VG**	**Fruit: size of pistil scar**	**Fruit: taille de l'attache pistillaire**	**Frucht: Größe der Griffelnarbe**	**Fruto: forma del tamaño de la cicatriz pistilar**		
QN	**(d)**	small	petite	klein	pequeña	Alpha, Categoría	3
		medium	moyenne	mittel	media	Charentais, Eros, Verdol	5
		large	grande	groß	grande	Drake, Supermarket	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
43. (*)	**VG**	**Fruit: grooves**	**Fruit: sillons**	**Frucht: Furchen**	**Fruto: surcos**		
QL	**(d)**	absent or very weakly expressed	absents ou très faiblement exprimés	fehlend oder sehr schwach ausgeprägt	ausentes o muy débilmente definidos	Piel de Sapo, Arava	1
		weakly expressed	faiblement exprimés	schwach ausgeprägt	débilmente definidos	Total, Hobby	2
		strongly expressed	fortement exprimés	stark ausgeprägt	fuertemente definidos	Védrantais, Galia	3
44.	**VG**	**Fruit: width of grooves**	**Fruit: largeur des sillons**	**Frucht: Breite der Furchen**	**Fruto: anchura de los surcos**		
QN	**(d)**	narrow	étroits	schmal	estrecho	Auraprince	3
		medium	moyens	mittel	medios	Biga	5
		broad	larges	breit	anchos	Nembo, Sirio	7
45.	**VG**	**Fruit: depth of grooves**	**Fruit: profondeur des sillons**	**Frucht: Tiefe der Furchen**	**Fruto: profundidad de los surcos**		
QN	**(d)**	very shallow	très peu profonds	sehr flach	muy superficial	Amber	1
		shallow	peu profonds	flach	superficial	Galia	3
		medium	moyens	mittel	media	Alpha	5
		deep	profonds	tief	profunda	Panamá, Supermarket	7
		very deep	très profonds	sehr tief	muy profunda	Noir des Carmes, Sucrin de Tours	9
46.	**VG**	**Fruit: color of grooves**	**Fruit: couleur des sillons**	**Farbe der Furchen**	**Fruto: color de los surcos**		
PQ	**(d)**	white	blancs	weiß	blanco	Geumssaraki	1
		yellow	jaunes	gelb	amarillo	Futuro, Galia	2
		green	verts	grün	verde	Charentais	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
47. (*) (+)	**VG**	**Fruit: creasing of surface**	**Fruit: aspect ridé de la surface**	**Frucht: Faltenbildung der Oberfläche**	**Fruto: rugosida de la superficie**		
QN	**(d)**	absent or very weak	absent ou très faible	fehlend oder sehr gering	ausente o muy débil	Védrantais	1
		weak	faible	gering	débil	Melchor, Sirocco	3
		medium	moyen	mittel	medio	Costa, Piolín	5
		strong	fort	stark	fuerte	Tendral Negro	7
		very strong	très fort	sehr stark	muy fuerte	Balbey, Kirkagac	9
48. (*)	**VG**	**Fruit: cork formation**	**Fruit: broderie**	**Frucht: Korkbildung**	**Fruto: formación suberosa**		
QL	**(d)**	absent	absente	fehlend	ausente	Alpha	1
		present	présente	vorhanden	presente	Dalton	9
49. (*)	**VG**	**Fruit: thickness of cork layer**	**Fruit: épaisseur de la broderie**	**Frucht: Dicke der Korkschicht**	**Fruto: grosor de la capa suberosa**		
QN	**(d)**	very thin	très fine	sehr dünn	muy delgado	Amarillo Oro	1
		thin	fine	dünn	delgado	Riosol, Védrantais	3
		medium	moyenne	mittel	medio	Marina	5
		thick	épaisse	dick	grueso	Geamar, PMR 45	7
		very thick	très épaisse	sehr dick	muy grueso	Honey Rock, Perlita	9
50. (*)	**VG**	**Fruit: pattern of cork formation**	**Fruit: répartition de la broderie**	**Frucht: Muster der Korkbildung**	**Fruto: distribución de la formación suberosa**		
PQ	**(d)**	dots only	ponctuelle seulement	nur punktförmig	únicamente en puntos	Hermes, Védrantais	1
		dots and linear	ponctuelle et linéaire	punktförmig und linear	en puntos y lineal	Jívaro, Topper	2
		linear only	linéaire seulement	nur linear	únicamente lineal	Futuro, Riosol	3
		linear and netted	linéaire et en résille	linear und netzförmig	lineal y reticulada	Anatol, Chantal	4
		netted only	en résille seulement	nur netzförmig	únicamente reticulada	Galia, Perlita	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
51. (*)	**VG**	**Fruit: density of pattern of cork formation**	**Fruit: densité de la broderie**	**Frucht: Dichte des Musters der Korkbildung**	**Fruto: densidad de la distribución de la formación suberosa**		
QN	**(d)**	very sparse	très lâche	sehr locker	muy baja	Alpha, Amarillo Oro	1
		sparse	lâche	locker	baja	Védrantais	3
		medium	moyenne	mittel	media	Regal, Vital	5
		dense	compacte	dicht	densa	Galia, Geamar	7
		very dense	très compacte	sehr dicht	muy densa	Honey Rock, Perlita	9
52. (+)	**VG**	**Fruit: rate of change of skin color from maturity to over maturity**	**Fruit: taux de changement de couleur de l'épiderme de la maturité à la surmaturité**	**Frucht: Änderung der Farbe der Schale von der Reife bis zur Überreife**	**Fruto: tasa de cambio de color de la piel de la madurez a la sobremadurez**		
QN		absent or very slow	nul ou très lent	fehlend oder sehr langsam	ausente o muy lento	Clipper, Doral, Galia, Honey dew, Piel de Sapo	1
		slow	lent	langsam	lento	Goloso	3
		medium	moyen	mittel	medio	Futuro, Vendôme Dulcinea	5
		fast	rapide	schnell	rápido	Corin, Marina, Nembo	7
53. (+)	**VG**	**Fruit: width of flesh in longitudinal section (at position of maximum fruit diameter)**	**Fruit: épaisseur maximale de la chair en section longitudinale (à la position du diamètre du fruit maximal)**	**Frucht: Maximale Breite des Fleisches im Längsschnitt (in der Position des maximalen Fruchtdurchmessers**	**Fruto: anchura máxima de la pulpa en sección longitudinal (en posición del diámetro del fruto máximo)**		
QN	**(d)**	thin	mince	dünn	delgada	Gama	3
		medium	moyenne	mittel	media	Toledo	5
		thick	épaisse	dick	gruesa	Tito	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
54. (*)	**VG**	**Fruit: main color of flesh**	**Fruit: couleur principale de la chair**	**Frucht: Hauptfarbe des Fleisches**	**Fruto: color principal de la pulpa**		
PQ	**(d)**	white	blanche	weiß	blanco	Piel de Sapo	1
		greenish white	blanche verdâtre	grünlichweiß	blanco verdoso	Galia	2
		green	verte	grün	verde	Radical	3
		yellowish white	blanche jaunâtre	gelblichweiß	blanco amarillento	Guaraní	4
		orange	orange	orange	anaranjada	Védrantais	5
		reddish orange	orange rougeâtre	rötlichorange	naranja rojizo	Magenta	6
55.	**VG**	**Only varieties with main color of flesh: orange: Fruit: intensity of orange color of flesh**	**Seulement les variétés à couleur principale de la chair: orange: Fruit: intensité de la couleur orange de la chair**	**Nur Sorten mit Hauptfarbe des Fleisches: orange: Frucht: Intensität der Orangefärbung des Fleisches**	**Únicamente variedades con color principal de la pulpa anaranjada: Fruto: intensidad del color anaranjado de la pulpa**		
QN	**(d)**	light	clair	hell	claro	Fantasy, Oloroso	3
		medium	moyen	mittel	medio	Lunasol	5
		dark	foncé	dunkel	oscuro	Geamar	7
56.	**VG**	**Only varieties with main color of flesh: white; greenish white; green; yellowish white: Fruit: secondary salmon coloring of flesh**	**Seulement les variétés à couleur principale de la chair: blanche; blanche verdâtre; verte; blanche jaunâtre: Fruit: coloration secondaire saumon de la chair**	**Nur Sorten mit Hauptfarbe des Fleisches: weiß; grünlichweiß; grün; gelblichweiß: Frucht: sekundäre Lachsfärbung des Fleisches**	**Únicamente variedades con color principal de la pulpa: blanco; blanco verdoso; verde; blanco amarillento: Fruto: coloración secundaria de la pulpa de color salmón**		
QN	**(d)**	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Gustal	1
		weak	faible	gering	débil	Floraprince, Toledo	3
		medium	moyenne	mittel	media	Arizo, Eloro	5
		strong	forte	stark	fuerte		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
57. **(+)**	**VG**	**Fruit: firmness of flesh**	**Fruit: fermeté de la chair**	**Frucht: Festigkeit des Fleisches**	**Fruto: firmeza de la pulpa**		
QN	**(d)**	soft	molle	weich	blanda	Galia, Marina	3
		medium	moyenne	mittel	media	Sancho, Supporter	5
		firm	ferme	fest	firme	Braco, Geamar	7
58.	**VG**	**Only varieties with change of skin color from maturity to over maturity: Fruit at over maturity: hue of color of skin**	**Seulement les variétés à changement de couleur d'épiderme de la maturité à la surmaturité: Fruit à la surmaturité: teinte de couleur de l'épiderme**	**Nur Sorten mit Änderung der Farbe der Schale von der Reife bis zur Überreife: Frucht bei Überreife: Farbton der Schale**	**Únicamente variedades con cambio de color de la piel de la madurez a la sobremadurez: Fruto en la sobremadurez: tonalidad del color de la piel**		
PQ		yellow	jaune	gelb	amarillo	Futuro, Marina	1
		orangish yellow	jaune orangé	hell orangegelb	amarillo anaranjado	Drake, Gama	2
		creamish	crème	hell cremefarben	cremoso	Figaro, Vendôme	3
59.	**VG**	**Only varieties with change of skin color from maturity to over maturity and with yellow or orangish yellow color of skin: Fruit at over maturity: intensity of yellow color of skin**	**Seulement les variétés à changement de couleur de l'épiderme de la maturité à la surmaturité et avec une couleur d'épiderme jaune ou jaune orangé: Fruit à la surmaturité: intensité de la couleur jaune de l'épiderme**	**Nur Sorten mit Änderung der Farbe der Schale von der Reife bis zur Überreife und mit gelber oder hell orangegelber Farbe der Schale: Frucht bei Überreife: Intensität der Gelbfärbung der Schale**	**Únicamente variedades con cambio de color de la piel de la madurez a la sobremadurez y con el color de la piel amarillo o amarillo anaranjado: Fruto en la sobremadurez: intensidad del color amarillo de la piel**		
QN		light	clair	hell	claro	Dulcinea	3
		medium	moyen	mittel	medio	Futuro	5
		dark	foncé	dunkel	oscuro	Trapío	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
60. (*)	**MS**	**Seed: length**	**Graine: longueur**	**Samen: Länge**	**Semilla: longitud**		
QN	**(e)**	very short	très courte	sehr kurz	muy corta	Geumssaraki, Golden Crispi	1
		short	courte	kurz	corta	Elario, Katsura Giant	3
		medium	moyenne	mittel	media	Arava, Sancho	5
		long	longue	lang	larga	Amarillo Oro, Toledo	7
		very long	très longue	sehr lang	muy larga	Albino	9
61.	**MS**	**Seed: width**	**Graine: largeur**	**Samen: Breite**	**Semilla: anchura**		
QN	**(e)**	very narrow	très étroite	sehr schmal	muy estrecha	Golden Crispi	1
		narrow	étroite	schmal	estrecha	Aurabel	3
		medium	moyenne	mittel	media	Arava, Sancho	5
		broad	large	breit	amplia	Amarillo Oro	7
		very broad	très large	sehr breit	muy amplia	Ronda	9
62.	**VG**	**Seed: shape**	**Graine: forme**	**Samen: Form**	**Semilla: forma**		
(+)							
QL	**(e)**	not pine-nut shape	pas en forme de pigne de pin	nicht zirbelnußförmig	no apiñonada	Toledo	1
		pine-nut shape	en forme de pigne de pin	zirbelnußförmig	apiñonada	Piel de Sapo	2
63. (*)	**VG**	**Seed: color**	**Graine: couleur**	**Samen: Farbe**	**Semilla: color**		
QL	**(e)**	whitish	blanchâtre	weißlich	blanquecino	Amarillo Oro s.b.	1
		cream yellow	crème	cremefarben gelb	crema amarillento	Galia, Piel de Sapo	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
64.	**VG**	**Only varieties with cream yellow seed color: Seed: intensity of color**	**Seulement les variétés à couleur de graine crème: Graine: intensité de la couleur**	**Nur Sorten mit cremefarben gelben Samen: Samen: Intensität der Farbe**	**Únicamente variedades con el color de semilla crema amarillento: Semilla: intensidad del color**		
QN	**(e)**	light	claire	hell	clara	Goldgen	3
		medium	moyenne	mittel	media	Galia	5
		dark	foncée	dunkel	oscura	Doral	7
65.	**MG**	**Time of male flowering**	**Époque de floraison mâle**	**Zeitpunkt der männlichen Blüte**	**Época de floración masculina**		
QN		early	précoce	früh	temprana	Clipper, Vital	3
		medium	moyenne	mittel	media	Categoría	5
		late	tardive	spät	tardía	Nicolás, Rocín	7
66.	**MG**	**Time of female flowering**	**Époque de floraison femelle**	**Zeitpunkt der weiblichen Blüte**	**Época de floración femenina**		
QN		early	précoce	früh	temprana	Clipper	3
		medium	moyenne	mittel	media	Braco, Categoría, Vital	5
		late	tardive	spät	tardía	Nicolás	7
67.	**MG**	**Time of ripening**	**Époque de maturité**	**Zeitpunkt der Reife**	**Época de maduración**		
QN		very early	très précoce	sehr früh	muy temprana	Goldstar, Sun	1
		early	précoce	früh	temprana	Galia	3
		medium	moyenne	mittel	media	Védrantais	5
		late	tardive	spät	tardía	Pinonet Piel de Sapo, Rochet	7
		very late	très tardive	sehr spät	muy tardía	Clipper, Supporter, Tendral	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
68. (*) (+)	**MG**	**Shelf life of fruit**	**Durée de conservation du fruit sur l'étalage**	**Haltbarkeitsdauer der Frucht**	**Conservación post cosecha del fruto**		
QN		very short	très courte	sehr kurz	muy breve	Charentais	1
		short	courte	kurz	breve	Galia	3
		medium	moyenne	mittel	media	Clipper	5
		long	longue	lang	larga	Piel de Sapo	7
		very long	très longue	sehr lang	muy larga	Tendral Negro	9
69.	**VG**	**Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom)**	**Résistance à *Fusarium oxysporum* f. sp. *melonis* (Fom)**	**Resistenz gegen *Fusarium oxysporum* f. sp. *melonis* (Fom)**	**Resistencia al *Fusarium oxysporum* f. sp. *melonis* (Fom)**		
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69.1		**Race 0 (Fom: 0)**	**Race 0 (Fom: 0)**	**Pathotyp 0 (Fom: 0)**	**Raza 0 (Fom: 0)**		
(+)							
QL		absent	absente	fehlend	ausente	Atos, Charentais T	1
		present	présente	vorhanden	presente	Cadence, Charentais Fom-2, Dibango, Jubilo, Karakal, Védrantais	9
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69.2		**Race 1 (Fom: 1)**	**Race 1 (Fom: 1)**	**Pathotyp 1 (Fom: 1)**	**Raza 1 (Fom: 1)**		
(+)							
QL		absent	absente	fehlend	ausente	Atos, Charentais T, Védrantais	1
		present	présente	vorhanden	presente	Cadence, Charentais Fom-2, Dibango, Jubilo, Karakal	9
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		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
69.3		**Race 2 (Fom: 2)**	**Race 2 (Fom: 2)**	**Pathotyp 2 (Fom: 2)**	**Raza 2 (Fom: 2)**		
(+)							
QL		absent	absente	fehlend	ausente	Atos, Charentais Fom-2, Charentais T, Dibango, Marianna	1
		present	présente	vorhanden	presente	Cadence, Charentais Fom-1, Jubilo, Karakal, Perlita, Védrantais	9
69.4	**VG**	**Resistance to *Fusarium oxysporum* f. sp. *melonis***	**Résistance à *Fusarium oxysporum* f. sp. *melonis***	**Resistenz gegen *Fusarium oxysporum* f. sp. *melonis***	**Resistencia al *Fusarium oxysporum* f. sp. *melonis***		
(+)		**Race 1.2 (Fom: 1.2)**	**Race 1.2 (Fom: 1.2)**	**Pathotyp 1.2 (Fom: 1.2)**	**Raza 1.2 (Fom: 1.2)**		
QL		absent	absente	fehlend	ausente	Graffio, Prity, Virgos	1
		present	présente	vorhanden	presente	Isabelle, Kyriel, Lunasol, Meliance, Piboule	9
70.	**VG**	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew)**	**Résistance à *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (oïdium)**	**Resistenz gegen *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Echter Mehltau)**	**Resistencia a *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Oidio)**		
		---	---	---	---	---	---
70.1		**Race 1 (Px: 1)**	**Race 1 (Px: 1)**	**Pathotyp 1 (Px: 1)**	**Raza 1 (Px: 1)**		
(+)							
QN		absent or low	absente ou faible	fehlend oder gering	ausente o baja	Védrantais	1
		medium	moyenne	mittel	media	Escrito	2
		high	élevée	hoch	alta	Arum	3
		---	---	---	---	---	---

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
70.2	**Race 2 (Px: 2)**	**Race 2 (Px: 2)**	**Pathotyp 2 (Px: 2)**	**Raza 2 (Px: 2)**		
(+)						
QN	absent or low	absente ou faible	fehlend oder gering	ausente o baja	Védrantais	1
	medium	moyenne	mittel	media	Escrito, Pendragon	2
	high	élevée	hoch	alta	Arum	3
	---	---	---	---	---	---
70.3	**Race 3 (Px: 3)**	**Race 3 (Px: 3)**	**Pathotyp 3 (Px: 3)**	**Raza 3 (Px: 3)**		
(+)						
QN	absent or low	absente ou faible	fehlend oder gering	ausente o baja	Védrantais	1
	medium	moyenne	mittel	media	Arago, Durango	2
	high	élevée	hoch	alta	Arum	3
	---	---	---	---	---	---
70.4	**Race 5 (Px: 5)**	**Race 5 (Px: 5)**	**Pathotyp 5 (Px: 5)**	**Raza 5 (Px: 5)**		
(+)						
QN	absent or low	absente ou faible	fehlend oder gering	ausente o baja	Védrantais	1
	medium	moyenne	mittel	media	Arago, Durango	2
	high	élevée	hoch	alta	Arum	3
	---	---	---	---	---	---
70.5	**Race 3-5 (Px: 3.5)**	**Race 3-5 (Px: 3.5)**	**Pathotyp 3-5 (Px: 3.5)**	**Raza 3-5 (Px: 3.5)**		
(+)						
QN	absent or low	absente ou faible	fehlend oder gering	ausente o baja	Védrantais	1
	medium	moyenne	mittel	media	Arago, Durango	2
	high	élevée	hoch	alta	Arum	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
71. **(+)**	**VG**	**Resistance to *Golovinomyces cichoracearum (Erysiphe cichoracearum)* Race 1 (Powdery mildew)**	**Résistance à *Golovinomyces cichoracearum (Erysiphe cichoracearum)* Race 1 (oïdium)**	**Resistenz gegen *Golovinomyces cichoracearum (Erysiphe cichoracearum* Pathotyp 1 (Echter Mehltau)**	**Resistencia a *Golovinomyces cichoracearum (Erysiphe cichoracearum)* Raza 1 (Oidio)**		
QN		susceptible	sensible	anfällig	susceptible	Escrito, Score, Védrantais	1
		moderately resistant	moyennement résistant	mäßig resistent	moderadamente resistente	Flores, Anasta	2
		highly resistant	hautement résistant	hochresistent	altamente resistente	Cézanne, Heliobel, Théo	3
72. **(+)**	**VG**	**Resistance to colonization by *Aphis gossypii***	**Résistance à la colonisation par *Aphis gossypii***	**Resistenz gegen Befall durch *Aphis gossypii***	**Resistencia a la colonización por *Aphis gossypii***		
QL		absent	absente	fehlend	ausente	Védrantais	1
		present	présente	vorhanden	presente	AR Hale's Best Jumbo, AR Top Mark, Godiva, Heliobel, Virgos	9
73. **(+)**	**VG**	**Resistance to *Zucchini yellow mosaic virus* (ZYMV)**	**Résistance au virus de la mosaïque jaune de la courgette (ZYMV)**	**Resistenz gegen Zucchinigelb-mosaikvirus (ZYMV)**	**Resistencia al virus del mosaico amarillo del calabacín (ZYMV)**		
QL		absent	absente	fehlend	ausente	Cardillo, Généris, Jador, Védrantais	1
		present	présente	vorhanden	presente	Hannah's Choice, Lunaduke	9
74.	**VG**	**Resistance to *Papaya ringspot virus* (PRSV)**	**Résistance au virus des taches annulaires du papayer (PRSV)**	**Resistenz gegen Papayaringflecken-virus (PRSV)**	**Resistencia al virus de la mancha anular del papayo (PRSV)**		
		---	---	---	---	---	---
74.1 **(+)**		**Guadeloupe strain**	**Souche Guadeloupe**	**Pathotyp Guadeloupe**	**Cepa Guadeloupe**		
QL		absent	absente	fehlend	ausente	Védrantais	1
		present	présente	vorhanden	presente	Hannah's Choice	9
		---	---	---	---	---	---

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
74.2 **(+)**		**E2 strain**	**Souche E2**	**Pathotyp E2**	**Cepa E2**		
QL		absent	absente	fehlend	ausente	Hannah's Choice, Védrantais	1
		present	présente	vorhanden	presente	WMR29	9
75. **(+)**	**VG**	**Resistance to *Melon necrotic spot virus* (MNSV) Strain 0 (MNSV: 0)**	**Résistance au virus de la criblure du melon (MNSV) Souche 0 (MNSV: 0)**	**Resistenz gegen Netzmelonen-nekrosefleckenvirus (MNSV) Pathotyp 0 (MNSV: 0)**	**Resistencia al virus del cribado del melón (MNSV) Cepa 0 (MNSV: 0)**		
QL		absent	absente	fehlend	ausente	Védrantais	1
		present	présente	vorhanden	presente	Cyro, Primal, Virgos, Yellow Fun	9
76. **(+)**	**VG**	**Resistance to *Cucumber mosaic virus* (CMV)**	**Résistance au virus de la mosaïque du concombre (CMV)**	**Resistenz gegen Gurkenmosaikvirus (CMV)**	**Resistencia al virus del mosaico del pepino (CMV)**		
QL		absent	absente	fehlend	ausente	Cézanne, Dalton	1
		present	présente	vorhanden	presente	Lunaduke, Virgos	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) Seedling: All observations on the seedling should be made just before the development of the first true leaf.

(b) Leaf blade: Unless otherwise indicated, all observations on the leaf blade, should be made on fully developed but not old leaves, preferably between the 5th and 8th node when the plant has at least 11 nodes.

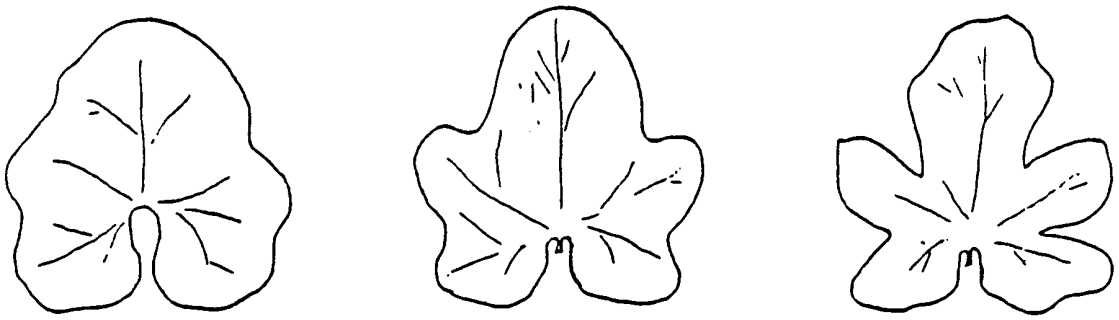
(c) Young fruit: All observations on the young fruit should be made on green, unripe fruits, before the color change. For most varieties this means when the fruit is half the final size. To facilitate the observation, it is recommended to harvest one young fruit per plant, if the number of fruits per plant makes that possible.

(d) Fruit: Observations which should be made on ripened fruit. The color must not start to change to the over maturity color. When appropriate, for the flesh characteristics it is recommended to wait at least one week after the harvest before opening the fruits.

(e) Seed: All observations on the seed should be made on fully developed and dry seeds, after washing and drying in the shade.

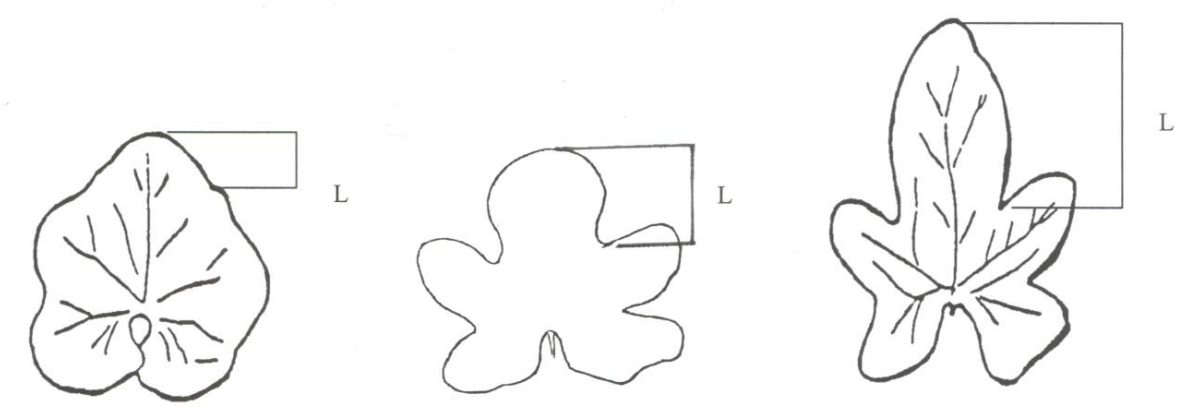
8.2 Explanations for individual characteristics

Ad. 6: Leaf blade: development of lobes



3	5	7
weak	medium	strong

Ad. 7: Leaf blade: length of terminal lobe



3	5	7
short	medium	long

Ad. 13: Young fruit: hue of green color of skin

The basic color of the young fruit is green. There are two true hue levels “yellowish” and “green” depending on the proportion between red and blue components in the color, and two other hue levels “greyish” that is rather a low saturation of the green color and “whitish” that results from a very light intensity of the green color.

Ad. 23: Fruit: change of skin color from young fruit to maturity
Ad. 52: Fruit: Rate of change of skin color from maturity to over maturity

The melon fruit may have up to three different skin colors in the course of its development. The speed of evolution of the color depends on the type of variety, but within a type different speeds can also be observed. Please note that in cases where the color change is closely linked to maturity, the observation should be clear: either on the color change related to maturity (characteristic 23) or within mature fruits from mature to over mature (characteristic 53). The changing of fruit skin color can be described by using the following characteristics:

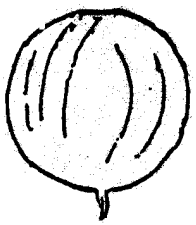
1. Stage 1: color of the young fruit (green color)
2. Change from Stage 1 to Stage 2 (Characteristics 23)
3. Stage 2: color at maturity
4. Change from Stage 2 to Stage 3 (Characteristic 53)
5. Stage 3: color at over maturity.

Some examples are given in the following table:

Variety	Stage 1: color of the young fruit	Change from Stage 1 to Stage 2 (Ch. 23)	Stage 2: color at maturity (Ch. 29)	Change from Stage 2 to Stage 3 (Ch. 53)	Stage 3: color at over maturity
Galia	green	late	yellow	absent	yellow
Amarillo Oro	green	late	yellow	absent	yellow
Doral	green	late	yellow	absent	yellow
Charentais	green	early	grey	fast	yellow
Alpha	green	early	grey	medium	yellow
Clipper	green	early	grey	absent	grey
Vendome	green	early	grey	medium	yellow
Corin	green	early	grey	fast	yellow
Nembo	green	early	grey	fast	yellow
Albino	green	late	white	absent	white
Honey Dew	green	late	white	absent	white
Dulcinea	green	late	white	medium	yellow
Marina	green	no-change	green	fast	yellow
Futuro	green	no change	green	medium	yellow
Goloso	green	no change	green	slow	yellow
Piel de Sapo	green	no change	green	absent	green

Ad. 27: Fruit: position of maximum diameter

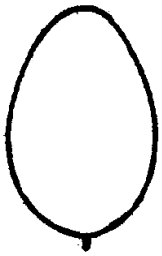
1
toward stem end



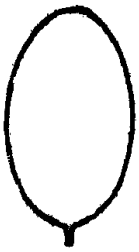
2
at middle

3
toward blossom end

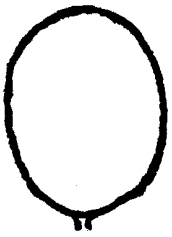
Ad. 28: Fruit: shape in longitudinal section



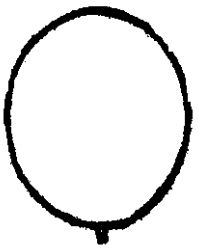
1
ovate



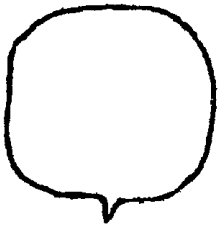
2
medium elliptic



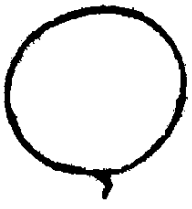
3
broad elliptic



4
circular



5
quadrangular



6
oblate

7
obovate

8
elongated

Ad. 29: Fruit: ground color of skin
Ad. 31: Fruit: hue of ground color of skin

For example:

All the Galia type would be considered as yellow color. Hues ochre, orange, pure yellow or greenish can be considered in the group, but in a separate characteristic (31).

All the Charentais type would be considered as grey. Greenish, whitish, or yellowish hues (characteristic 31) can be used for distinctness, but are not recommended for grouping.

Ochre is pale brownish yellow.

The colors given below indicate the ground color of skin of the variety in question.

		Hue of ground color (characteristic 31)	
Example variety	Ground color (characteristic 29)	State	Note
Amarillo-Canario	yellow	absent or very weak	1
Albino	white	absent or very weak	1
Piel de Sapo	green	absent or very weak	1
Sirio	grey	absent or very weak	1
Romeo	grey	whitish	2
Geaprince	grey	yellowish	3
Supporter	grey	yellowish	3
Edén	yellow	orange	4
Passport	yellow	ocre	5
Geamar	grey	greenish	6
Honey Dew	white	greenish	6
Solarking	yellow	greenish	6
Gohyang	green	greyish	7

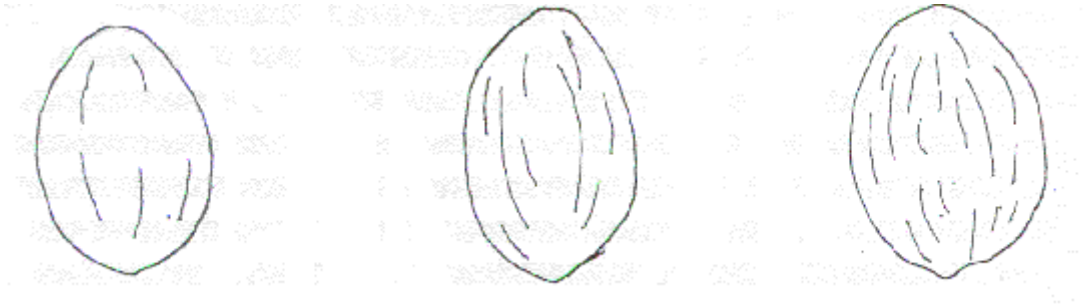
Ad. 40: Fruit: shape of base

pointed | rounded | truncate

Ad. 41: Fruit shape of apex

1 pointed | 2 rounded | 3 truncate

Ad. 47: Fruit: creasing of surface

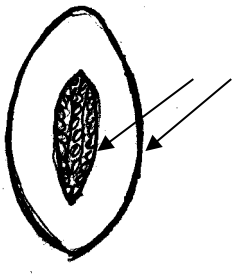


3 weak | 5 medium | 7 strong

Ad. 52: Fruit: Rate of change of skin color from maturity to over maturity

See Ad. 23, Ad. 52

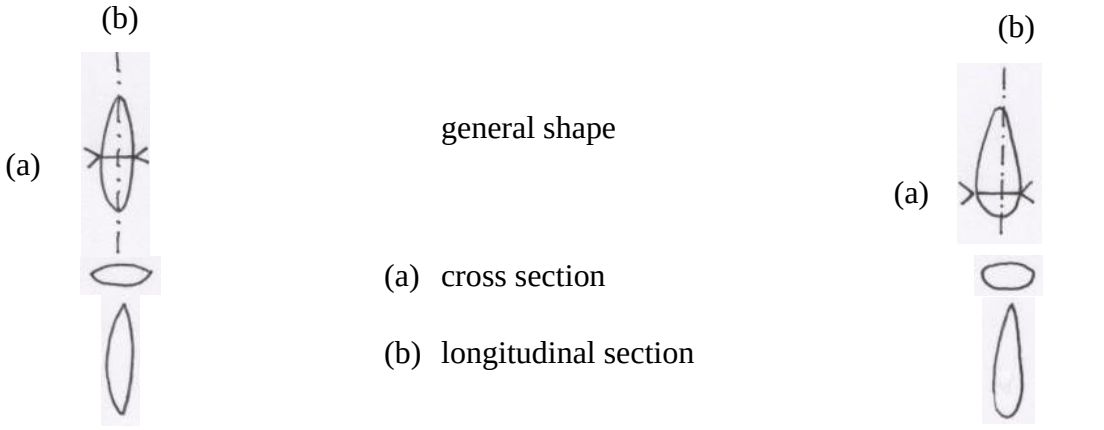
Ad. 53: Fruit: width of flesh in longitudinal section (at position of maximum fruit diameter)



Ad. 57: Firmness of flesh

Firmness of the flesh should be assessed in the central third of the fruit. The assement can be made by pressing the flesh with the blunt end of a pencil, or similar instrument, midway between the skin and the mucilage.

Ad. 62: Seed: shape



Pine-nut shape seed (Piñonet) is controlled by a recessive characteristic with simple genetic regulation. Seed with pine-nut shape resembles the shape of a pine nut and has the following features:

the hilum end is slightly more pointed, with very small wings;
the apical end has a tendency to be more rounded;
in cross section the seed has a tendency to be more symmetrically elliptical;
the surface is not covered with arista.

Ad. 68: Shelf life of fruit

Shelf life is the time that the fruit remains firm in storage.

Five fruits per plot are stored in boxes in single layers. The boxes can be stored one on top on another if air can circulate between them. The storage area does not need to be climatically controlled, but must have naturally good conditions for storing fruits.

Observations are made at regular intervals of 3 to 4 days, noting the firmness of fruits, taking care not to damage them, and removing those which are damaged or rotten. The observation is to determine when the fruits become soft, i.e. when the firmness of the fruit becomes equal or lower than Note 3 “soft” in characteristic 57.

Ads. 69.1 - 69.3: Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom), races 0, 1 and 2 (Fom: 0, Fom: 1, Fom: 2)

1.	Pathogen	*Fusarium oxysporum* f. sp. *melonis* races 0, 1, and 2
2.	Quarantine status	No
3.	Host species	Melon - *Cucumis melo*
4.	Source of inoculum	e.g. GEVES (FR)[1]
5.	Isolate	e.g., Reference strain validated in an inter-laboratory test[2, 3] Fom:0 - Strain MLZ = MAT/REF/04-07-01-03-02 [1] Fom: 1 - Strain FOM 26 = MAT/REF/04-07-01-01 [1] Fom: 2 - Strain F185

[1] matref@geves.fr
[2] Harmores 3 CPVO project https://cpvo.europa.eu/sites/default/files/documents/report_harmores_3_final_meeting_v0_0.pdf
[3] ISF EG DRT Fom: 2 resistance in Melon – https://worldseed.org/document/melon-fusarium-wilt-fom-isf-project-report/

6.	Establishment isolate identity	The most recent table is available through ISF at https://www.worldseed.org/our-work/plant-health/differential-hosts/ *Situation July 2019*

Differential host	**Gene present**	**Fom: 0***	**Fom: 1***	**Fom: 2***	**Fom: 1.2***
Charantais T*	-	S	S	S	S
Védrantais*, Doublon*	*Fom-1*	HR	S	HR	S
Charantais Fom-2*, CM17187*	*Fom-2*	HR	HR	S	S
Isabelle*	*Polygenic?*	HR	HR	HR	IR

S = susceptible; HR = highly resistant; IR = intermediate
*differential hosts and isolates that are used by the seed sector

Courtesy of Worldseed.org website

7.	Establishment pathogenicity	use susceptible melon varieties
8.	Multiplication inoculum	
8.1	Multiplication medium	on agar medium – e.g., Potato Dextrose Agar, Malt agar at 20°C to 25°C
8.2	Multiplication variety	-
8.3	Plant stage at inoculation	-
8.5	Inoculation method	-
8.6	Harvest of inoculum	7–10-day-old culture
8.7	Check of harvested inoculum	-
8.8	Shelf life /viability inoculum	Between 4 to 8 hours or keep cool to prevent spore germination
9.	Format of the test	
9.1	Number of plants per genotype	at least 30 plants, it is important to have at least 5 non-inoculated plants per variety to be able to assess the growth reduction
9.2	Number of replicates	At least e.g. 3 replicates (3 x10)
9.3	Control varieties	
9.3.1	Control varieties for race 0	Resistance absent: Charentais T Resistance present: Charentais Fom-2, Védrantais
9.3.2	Control varieties for race 1	Resistance absent: Charentais T, Védrantais Resistance present: Charentais Fom-2
9.3.3	Control varieties race 2	Resistance absent: Marianna Resistance present: Perlita, Charentais Fom-1, Védrantais
9.4	Test design	3 replicates of 10 plants to allow statistical analysis (in different trays) and at least 5 non-inoculated plants per variety.
9.5	Test facility	glasshouse or climatic room
9.6	Temperature	- Fom: 0 and Fom: 1: 18 - 24°C - Fom: 2: 24°C

9.7	Light	- Fom: 0 and Fom: 1: At least 12h - Fom: 2: 16h
9.9	Special measures	- Fom: 0 and Fom: 1: Recommended temperatures 18°C at night and not above 24°C during the day.
10.	Inoculation	
10.1	Preparation inoculum	Scrape spore cultures with water from agar medium (see 8.1) or optional multiplication on liquid medium (e.g., Messiaen (1991) synthetic liquid medium, sucrose 50g/L, on permanent agitator-shaker or aerated Czapek-Dox culture medium for 5-7 days at room temperature). *Remark*: Beware of toxin productions by some isolates (see remark under 13.)
10.2	Quantification inoculum	$4x10^5$ to $1x10^6$ sp /mL
10.3	Plant stage at inoculation	cotyledon expanded
10.4	Inoculation method	Plant at the inoculation stage are harvested carefully, roots and hypocotyls are immersed in spore suspension for 2-15 min; trimming of roots is an option; transplant in trays.
10.5	First observation	1^{st} notation: symptoms on Resistance absent (susceptible) control at classes 2 and 3 with a strong proportion at class 3
10.6	Second observation	A second notation can be necessary to re-evaluate some unclear varieties
11.	Observations	
11.1	Method	Visual observation

11.2	Observation scale	

non-inoculated plant = mock	Class 0	Class 1
At least 5 plants	Healthy plant: no symptoms of yellowing and wilting. Slight growth reduction may occur due to inoculation stress. Yellowing different from *Fusarium* symptoms may sometimes occur in non-inoculated plants.	Light symptoms of yellowing/wilting
		

Class 2	Class 3	
typical symptoms: yellowing, wilting and necrosis, stunting (growth stopped)	Death of plant (Dead)	
		 Vein clearing symptoms may be observed due to other factors. Their evolution over time should be assessed.

Courtesy of GEVES-SNES in the framework of CPVO Harmores project.

11.3	Validation of test	Validation on controls. In case of the Fom: 0 and Fom:1 tests: Controls expected response: Resistance absent: most of the plants at classes 2 and 3 Resistance present: most of the plants at classes 0 and 1, sometimes very few plants at classes 2 or 3. In case of the Fom: 2 test Controls expected response: • Susceptible controls, with UPOV characteristic state 'Resistance absent', should have most of the plants in observation classes 2 or 3, and few or no plants in observation classes 0 or 1. o Marianna, the susceptible control is less susceptible than Charentais Fom-2, Charentais T • Resistant controls should have most of the plants in observation classes 0 or 1, and few or no plant in observation classes 2 or 3. Perlita, the lower threshold resistance control, should have at least some plants in observation class 1, 2, or 3. It has to be less resistant than Charentais Fom-1, Védrantais.
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	For varieties with a response between the susceptible (resistance absent) and the resistant control, repeat the test. In case of confirmation of the result, the variety will be judged heterogeneous. In case of an inconclusive results, retest or test in another lab.
13.	Critical control points	For race 2, the control Perlita, with the *Fom-3* gene, allows to validate the capacity of the isolate to partially attack this variety. In the case of inoculum increased in e.g. Messiaen (1991) synthetic liquid medium, on permanent agitator-shaker, inoculum can be used after 5 to 7 days. For race 0 and 1, dilution 1/12 is recommended, while it must not be less than 1/20 for race 2. At a lower dilution (higher concentration of the medium), it has been observed that toxins released in the medium by the race 2 can cause some yellowing of melon plants, even if they are resistant. Alternatively, spores can be "washed" by resuspending a mass of spores collected on a Millipore filter with vacuum force.

Ad. 69.4: Resistance to *Fusarium oxysporum* f. sp. *melonis*, race 1.2 (Fom: 1.2)

1.	Pathogen	*Fusarium oxysporum* f. sp. *melonis* race 1.2 (Fom: 1.2)
2.	Quarantine status	No
3.	Host species	Melon - *Cucumis melo* L.
4.	Source of inoculum	GEVES (FR)[4]
5.	Isolate	e.g., Reference strain validated in an inter-laboratory test[5] Fom: 1.2 - Strain TST = MAT/REF/04-07-01-04 [2]
6.	Establishment isolate identity	The most recent table is available through ISF at https://www.worldseed.org/our-work/plant-health/differential-hosts/ *Situation July 2019*

Differential host	**Gene present**	**Fom: 0***	**Fom: 1***	**Fom: 2***	**Fom: 1.2***
Charantais T*	-	S	S	S	S
Védrantais*, Doublon*	*Fom-1*	HR	S	HR	S
Charantais Fom-2*, CM17187*	*Fom-2*	HR	HR	S	S
Isabelle*	*Polygenic?*	HR	HR	HR	IR

S = susceptible; HR = highly resistant; IR = intermediate
*differential hosts and isolates that are used by the seed sector
Courtesy of Worldseed.org website

7.	Establishment pathogenicity	use susceptible melon varieties
8.	Multiplication inoculum	
8.1	Multiplication medium	on agar medium e.g., Potato Dextrose Agar, Sabouraud, at 20°C to 25°C
8.2	Multiplication variety	-
8.3	Plant stage at inoculation	-
8.5	Inoculation method	-
8.6	Harvest of inoculum	4-10 day-old culture
8.7	Check of harvested inoculum	-
8.8	Shelf life/viability inoculum	-
9.	Format of the test	
9.1	Number of plants per genotype	30 plants per variety plus 5 non-inoculated controls
9.2	Number of replicates	At least 3 x 10 plants, in different trays

[4] matref@geves.fr
[5] Harmores 3 CPVO project (https://cpvo.europa.eu/sites/default/files/documents/report_harmores_3_final_meeting_v0_0.pdf)

9.3	Control varieties	Resistance absent: Virgos Resistance present: Piboule and Lunasol and Isabelle (Isabelle is expected to have a lower disease index (DI) (= higher resistance than Piboule and Lunasol). Piboule and Lunasol are both needed to illustrate the lower level of resistance. Their resistance is based on other genetics and may have different levels in different labs.
9.4	Test design	3 replicates of 10 plants to allow statistical analysis (in different trays) and at least 5 non-inoculated plants per variety.
9.5	Test facility	glasshouse or climatic room
9.6	Temperature	18-24°C
9.7	Light	at least 12h
10.	Inoculation	
10.1	Preparation inoculum	Scrape cultures with water on agar medium (see 8.1) or optional multiplication on liquid medium (e.g., Potato Dextrose Broth (PDB), Czapek-Dox culture medium for 7 days at room temperature and darkness or Messiaen (1991) synthetic liquid medium, sucrose 50 g/L, on permanent agitator-shaker, at room-temperature, inoculum can be used after 5 to 7 days)
10.2	Quantification inoculum	$1x10^5$-$1x10^6$ sp/mL, depending on inoculation method (see 10.4) and lab conditions
10.3	Plant stage at inoculation	cotyledons expanded, first leaf emerging
10.4	Inoculation method	One of two methods can be used for inoculation. - Absorption: Absorption of a suspension of spores, e.g., 700mL of a suspension at 1.10^5 sp/mL for 50 plants in a tray 30 cm*30 cm. - Injection: Injection of a suspension of spores into the soil at the base of the plant, e.g., 5mL at 10^6 sp /mL per plant.
10.7	Final observations	1st notation: symptoms on susceptible control at least at class 3 [generally 10-21 dpi]. A 2nd notation can be necessary to reevaluate some unclear varieties.

11.	Observations	
11.1	Method	Visual observation
11.2	Observation scale	

Non-inoculated plants = mock	Class 0	Class 1
Varieties must be compared to the non-inoculated plants.	Healthy plant, the whole plant is green or at the same level than the mock. Just a light yellowing can be accepted on the mock	Light level of symptoms, light yellowing on cotyledons and/or leaves without necrosis
		
		

Class 2	Class 3	Class 4
Moderate level of symptoms, yellowing on cotyledon and/or leaves, starting of necrosis and wilting but not extended	Severe symptoms of yellowing and/or wilting on cotyledons and/or leaves with extended necrosis	Dead plant, no green leaf part or hypocotyl is dry
 		

Courtesy of GEVES-SNES in the framework of CPVO Harmores project.

11.3	Validation of test	Validation on controls. Controls expected response: - Resistance present: Most plants in classes 0 and 1, in some cases with few plants in 2, 3, 4. Low level of disease index (DI) generally below 40%. A difference of disease index is generally observed between Piboule and Lunasol compared to Isabelle - Resistance absent: Most plants in classes 3 and 4, in some cases with few plants at class 0, 1, or 2. Very high disease index (DI) above 80%.
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	Interpretation of varieties depending on controls (figure 1) Note 1 = Resistance absent Note 9 = Resistance present Quantitative analysis is based on the disease index (DI) AND the distribution of plants per class compared to the controls The varieties statistically similar to the resistant controls or with a lower disease index (DI) have to be judged as resistant. The varieties between the susceptible and the resistant controls have to be judged as susceptible. If not clear, the use of statistics is highly recommended.

Resistance to Fom:1-2:

$$DI = \frac{(N0 * 0) + (N1 * 1) + (N2 * 2) + (N3 * 3) + (N4 * 4)}{(N0 + N1 + N2 + N3 + N4) * 4} * 100$$

Nx : number of plants at class x

Figure 1: disease index (DI) formula

Ads. 70.1 to 70.5: Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea*) (Powdery mildew) races 1, 2, 3, 5, 3.5 (Px: 1, 2, 3, 5, 3.5)
Ad. 71: Resistance to *Golovinomyces cichoracearum (Erysiphe cichoracearum)*, race 1 (Powdery mildew)

1.	Pathogen	Powdery mildew: *Podosphaera xanthii* (ex *Sphaerotheca fuliginea*) races 1, 2, 3, 5 and 3.5 *Golovinomyces cichoracearum* (ex *Erysiphe cichoracearum*) race 1
2.	Quarantine status	No
3.	Host species	Melon - *Cucumis melo* L.
4.	Source of inoculum	GEVES (FR)[6]
5.	Isolate	e.g., Reference strain validated in an inter-laboratory test[7] Px: 1 - Strain Sm 3 = MAT/REF/04-07-03-01 [6] Px: 2 - Strain S87-7 = MAT/REF/04-07-03-02 [7] Px: 3 - Strain 00Sm39 = MAT/REF/04-07-03-04-02 [7] Px: 5 - Strain 98Sm65 = MAT/REF/04-07-03-03-01-02 [7] Px: 3.5 - Strain 04Sm2 = MAT/REF/04-07-03-05-01 [7] Gc: 1 - Strain GEVES = MAT/REF/04-07-02-01)[3]

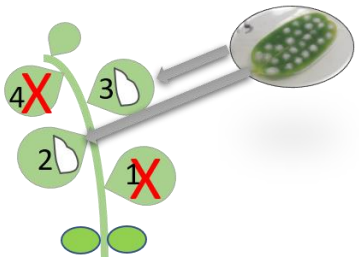
[6] matref@geves.fr
[7] Harmores 3 CPVO project (https://cpvo.europa.eu/sites/default/files/documents/report_harmores_3_final_meeting_v0_0.pdf)

6.	Establishment isolate identity	on differentials (table 1)

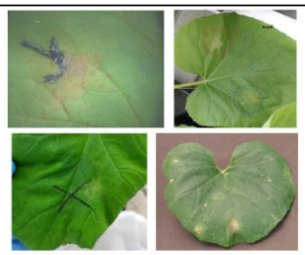
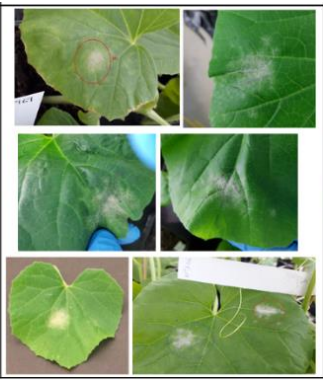
Table 1:
Races of *Podosphaera xanthii* (Px) and *Golovinomyces cichoracearum* (Gc), J. McCreight and M. Pitrat

		Podosphaera xanthii						*Golovinomyces cichoracearum*	
	Race 0	Race 1	Race 2	Race 3	Race 4	Race 5	Race 3.5	Race 0	Race 1
Iran H	S	S	S	S	S	S	S	S	S
Védrantais	R	S	S	S	S	S	S	R	S
PMR45	R	R	S	S	S	S	S	R	S
WMR29	R	R	R	R	S	S	S	R	S
Edisto 47	R	R	R	R	R	S	S	R	S
MR-1, PI124112	R	R	R	R	R	R	R	R	R
PMR5	R	R	R	S	S	R	S	R	R
Nantais Oblong	R	S	S	S	S	S	S	R	R

7.	Establishment pathogenicity	use susceptible melon varieties
8.	Multiplication inoculum	
8.1	Multiplication medium	Melon plantlets
8.2	Multiplication variety	Susceptible variety, for example Védrantais. For higher isolates like 3.5 or 5, a variety with defeated resistance may be preferable to keep the isolate fit.
8.3	Plant stage at inoculation	Cotyledon
8.5	Inoculation method	Sowing in substrate, for example soil or disinfected peat inside a closed mini glasshouse. When the cotyledons have expanded, remove them from the plant. Disinfect the cotyledons by soaking them for 3 minutes in a mercuric chloride solution (0.05%) or in sodium hypochlorite solution. Rinse them with sterilized water. Dry the cotyledons with sterile paper towel, then place them in Petri dishes with the following medium: Sucrose 10g Mannitol 20g Agar 5g Distilled water 1 liter Scatter conidia on the cotyledons and blow them or deposit conidia at the surface of cotyledons. Incubate the inoculated cotyledons in Petri dishes for example at 23°C during 14 hours in the light and at 18°C during 10 hours in the dark or 17°C permanently under very low light intensity. 9 to 11 days after the inoculation, the cotyledons will be covered with conidia and can be used as an inoculum.

8.6	Harvest of inoculum	Sporulation on cotyledons
8.8	Shelf life /viability inoculum	Maximum 1 to 1.5 months after the inoculation.
9.	Format of the test	
9.1	Number of plants per genotype	At least 20 plants per variety and controls, 5 plants for other differentials to validate the identity of the Px race tested.
9.2	Number of replicates	-
9.3	Control varieties	
		For *Podosphaera xanthii* (Px) race 1, resistance • absent or low: Védrantais • medium: Escrito • high: Arum For *Podosphaera xanthii* (Px) race 2, resistance: • absent or low: Védrantais • medium: Escrito, Pendragon • high: Arum For *Podosphaera xanthii* (Px) races 3, 5, 3.5, resistance: • absent or low: Védrantais • medium: Arago, Durango • high: Arum For *Golovinomyces cichoracearum* (Gc) race 1, resistance: • absent or low: Védrantais • medium: Anasta • high: Cézanne
9.4	Test design	Include at least 5 plants per differential to validate the race and compare the level of sporulation.
9.5	Test facility	Climatic chamber or greenhouse
9.6	Temperature	20-24°C
9.7	Light	At least 12 hours
10.	Inoculation	
10.1	Preparation inoculum	-
10.2	Quantification inoculum	-
10.3	Plant stage at inoculation	Whole plants at 3-4 true leaf fully expanded stage. Inoculation on the leaves 2 and 3 indicated on the diagram below.  Courtesy of GEVES-SNES in the framework of CPVO Harmores project.

10.4	Inoculation method	Take spores from a cotyledon already covered with conidia and deposit them on a leaf. Different isolates can be tested on the same plant (or the same leaf) if the local deposit is well separated from each other and if a mark indicates the place of the deposit.
10.7	Final observations	The date of notation should be chosen based on expected symptoms on the three controls. Sporulation should be well expressed on the susceptible control.
11.	Observations	
11.1	Method	Visual observation of sporulation
11.2	Observation scale	

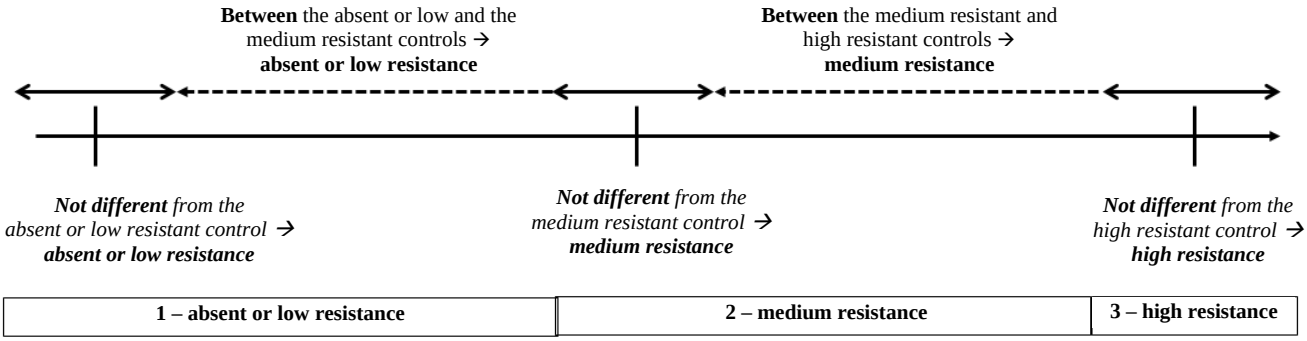
Class 1: No development of the fungus (no mycelium or dead mycelium) or no sporulation	Class 3: weak sporulation	Class 5: moderate sporulation	Class 9: strong sporulation
			

Example of contamination by environment on the susceptible control, test not validated

Courtesy of GEVES-SNES in the framework of CPVO Harmores project.

11.3	Validation of test	Validation on controls. Additional information for expected responses of *Podosphaera xanthii* controls Resistance absent or low • Plants at class 9, or most of the plants at class 9 and few plants at class 5 (high disease index). • Few plants at class 3 but in this case the resistant controls should be all at class 1 and the intermediate resistant control at classes 3 and 1. • No plants at class 1. Resistance medium • Between the resistant and the susceptible control. • Generally, plants at classes 3 and 5. Resistance hiqh • Plants at class 1, or most of the plants at class 1 and few plants at class 3 (very low disease index). • Plants at class 3 but in this case the susceptible control should be all at class 9. • No plants at classes 5 or 9.
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	Interpretation of varieties depending on controls (figure 1) Resistance Note 1 = absent or low Note 2 = medium Note 3 = high Quantitative analysis is based on the disease index AND the distribution of plants per class compared to the controls. Additional information for *Podosphaera xanthii* controls: The varieties between the intermediate resistant and the resistant control have to be judged as intermediate resistant (because they are not resistant enough to be considered resistant). The varieties between the susceptible and the intermediate resistant control have to be judged as susceptible (because they are not resistant enough to be considered intermediate resistant).

Resistance to Px:



$$DI = \frac{(N1*0)+(N3*1)+(N5*2)+(N9*3)}{(N1+N3+N5+N9)*3} *100$$

NX: Number of plants at class X

Figure 1: disease index formula

13.	Critical control points	To avoid cross contamination, it is advised to not produce inoculum of different races in the same room.

Ad. 72: Resistance to colonization by *Aphis gossypii*

1.	Pathogen	*Aphis gossypii*
2.	Quarantine status	no
3.	Host species	*Cucumis melo*
4.	Source of inoculum	INRA GAFL (FR)
5.	Isolate	NM1 clone
6.	Establishment isolate identity	-
7.	Establishment pathogenicity	on susceptible plants
8.	Multiplication inoculum	
8.1	Multiplication medium	living plant (obligate parasite), e.g. young plants of Melon or Cucumber
8.2	Multiplication variety	on susceptible variety (Corona, Védrantais, Ventura)
8.3	Plant stage at inoculation	at first leaf (measuring around 2-3 cm)
8.4	Inoculation medium	-
8.5	Inoculation method	deposit a piece of infested leaf (visual appreciation) or ten adult wingless aphids per plant
8.6	Harvest of inoculum	-
8.7	Check of harvested inoculum	-
8.8	Shelflife/viability inoculum	-
9.	Format of the test	
9.1	Number of plants per genotype	30
9.2	Number of replicates	e.g. 3

9.3	Control varieties	
	[1] absent	Védrantais
	[9] present	AR Hale's Best Jumbo, AR Top Mark, Virgos
9.4	Test design	-
9.5	Test facility	-
9.6	Temperature	21-24°C day/16-20°C night
9.7	Light	16 hours per day
9.8	Season	-
9.9	Special measures	-
10.	Inoculation	
10.1	Preparation inoculum	-
10.2	Quantification inoculum	at least 10 adults wingless aphid per plant
10.3	Plant stage at inoculation	1st leaf measuring around 2-3 cm
10.4	Inoculation method	deposit of a piece of infested leaf or ten adult wingless aphids per plant
10.5	First observation	1-4 days post inoculation
10.6	Second observation	-
10.7	Final observations	5-10 days post inoculation
11.	Observations	
11.1	Method	visual, to compare with standards
11.2	Observation scale	
	[1] absent	9 or 10 adult aphids per plant; larvae frequent, plants covered with aphids, shriveled leaves
	[9] present	less than 7 adult aphids per plant; larvae rare. Remark: counting is not compulsory, it can be a visual assessment of the respective level of colonization.
11.3	Validation of test	on standards
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	QL
13.	Critical control points	Low aphid density to avoid having too many winged types. "Synchronous"-type breeding in order to have only aphids of the same age and, therefore, at the same growing stage on a plant. Normally *Aphis gossypii* is viviparous, but sometimes (autumn, on particular crops) may produce eggs.

Ad. 73: Resistance to *Zucchini yellow mosaic virus* (ZYMV)

1.	Pathogen	*Zucchini yellow mosaic virus* (ZYMV)
2.	Quarantine status	no
3.	Host species	*Cucumis melo*
4.	Source of inoculum	GEVES (FR)
5.	Isolate	F strain (e.g. strain 1318 Fn) or a NF strain (e.g. strain E15)
6.	Establishment isolate identity	use standard varieties, flaccida necrosis on Généris (Zym^+ / Fn)
7.	Establishment pathogenicity	on susceptible melon varieties - as above
8.	Multiplication inoculum	
8.1	Multiplication medium	-
8.2	Multiplication variety	susceptible variety (e.g.: Védrantais)
8.3	Plant stage at inoculation	first leaf appearing
8.4	Inoculation medium	fresh and dried leaves homogenized, in PBS with carborundum
8.5	Inoculation method	rubbing
8.6	Harvest of inoculum	on symptomatic leaves
8.7	Check of harvested inoculum	-
8.8	Shelflife/viability inoculum	-
9.	Format of the test	
9.1	Number of plants per genotype	at least 30
9.2	Number of replicates	e.g. 3
9.3	Control varieties	Védrantais, Jador, Cardillo (susceptible) Hannah's Choice, Lunaduke, PI 414723 (resistant)
9.4	Test design	-
9.5	Test facility	growth chamber
9.6	Temperature	22°C - 25°C during day and 18°C during night
9.7	Light	12 hours
9.8	Season	all seasons
9.9	Special measures	-
10.	Inoculation	
10.1	Preparation inoculum	ice cold buffer solution: Fresh leaves homogenized in PBS and carborundum
10.2	Quantification inoculum	-
10.3	Plant stage at inoculation	cotyledon expanded or first emergent leaf
10.4	Inoculation method	mechanical inoculation by rubbing of cotyledons with inoculum
10.5	First observation	-
10.6	Second observation	-
10.7	Final observations	14-15 days post inoculation

11.	Observations	
11.1	Method	visual, comparative
11.2	Observation scale	

Resistance to ZYMV		ZYMV - Strain F e.g. strain 1318 Fn	ZYMV - Strain NF e.g.: strain E15
1	absent	Mosaic, non wilting	Mosaic, non wilting
		Necrosis + slow wilting (flaccida necrosis)	
		Necrosis + fast wilting (flaccida necrosis)	
9	present	chlorotic or necrotic systemic lesions and possibly an apical necrosis	
9	present	No symptom	

11.3	Validation of test	on Standards
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	QL
13.	Critical control points	The three distinct phenotypes associated with susceptibility to ZYMV strain F are connected with Fn gene. The Zym gene is epistatic on the Fn gene. The Fn gene modifies the susceptibility symptom expression of strain F: Fn/Fn is associated with fast wilting and necrosis (Flaccida-necrosis), Fn/Fn+ with the same reaction, but slower. Flaccida-necrosis is a form of systemic hypersensitivity, which is interpreted as susceptibility. The Fn gene has no influence on the symptom expression of resistant varieties.

Ad. 74: Resistance to *Papaya ringspot virus* (PRSV), Guadeloupe strain and E2 strain

1.	Pathogen	*Papaya ringspot virus* (PRSV)
2.	Quarantine status	no
3.	Host species	*Cucumis melo*
4.	Source of inoculum	INRA Pathology - Avignon (FR)
5.	Isolate	Guadeloupe strain and E2 strain
6.	Establishment isolate identity	

Gene Pvr	Standards	Symptoms	Behavior against PRSV Guadeloupe strain
allele (Prv^+)	Védrantais	Mosaic (vein-clearing)	susceptible
allele (Prv^2)	72-025, PI 414723 Hannah's Choice	No systemic symptoms or Irregular local necrotic lesions on cotyledons	resistant
allele (Prv^1)	WMR29	No systemic symptoms Occasional local necrotic lesions on cotyledons	resistant

Gene Pvr	Standards	Symptoms	Behavior against PRSV E2 strain
allele (Prv^+)	Védrantais	Mosaic (vein-clearing)	susceptible
allele (Prv^2)	72-025, PI 414723 Hannah's Choice	Apical necrosis Necrosis of plant instead of local lesions	susceptible
allele (Prv^1)	WMR29	No systemic symptoms or few systemic chloronecrotic symptoms Occasional local necrotic lesions on cotyledons	resistant

7.	Establishment pathogenicity	-
8.	Multiplication inoculum	
8.1	Multiplication medium	-
8.2	Multiplication variety	pre-multiplication of the virus on non-wilting variety (Védrantais) prior to testing
8.3	Plant stage at inoculation	First leaf appearing
8.4	Inoculation medium	PBS with carborundum
8.5	Inoculation method	rubbing
8.6	Harvest of inoculum	Fresh or dried leaves homogenized in PBS and carborundum
8.7	Check of harvested inoculum	-
8.8	Shelflife/viability inoculum	-
9.	Format of the test	

9.1	Number of plants per genotype	at least 30
9.2	Number of replicates	e.g. 3
9.3	Control varieties	Védrantais (susceptible) Hannah's Choice (resistant to Guadeloupe strain (Prv^2 / Prv^+)) WMR 29 (resistant to E2 strain (Prv^1 / Prv^+))
9.4	Test design	-
9.5	Test facility	-
9.6	Temperature	25ºC /18ºC
9.7	Light	12 h
9.8	Season	-
9.9	Special measures	-
10.	Inoculation	
10.1	Preparation inoculum	fresh leaves homogenized in PBS and carborundum
10.2	Quantification inoculum	-
10.3	Plant stage at inoculation	first emergent leaf
10.4	Inoculation method	mechanical inoculation by rubbing cotyledons with inoculums
10.5	First observation	15 days post inoculation
10.6	Second observation	-
10.7	Final observations	20 days post inoculation
11.	Observations	visual, comparative
11.1	Method	
11.2	Observation scale	

Resistance to PRSV - Guadeloupe strain	Gene Pvr	Symptoms
[1] absent	allele (Prv^+)	Mosaic (vein-clearing)
[9] present	allele (Prv^2)	No systemic symptoms Irregular local necrotic lesions on cotyledons
[9] present	allele (Prv^1)	No systemic symptoms Occasional local necrotic lesions on cotyledons

Resistance to PRSV – E2 strain	Gene Pvr	Symptoms
[1] absent	allele (Prv^+)	Mosaic (vein-clearing)
[1] absent	allele (Prv^2)	Apical necrosis Necrosis of plant instead of local lesions
[9] present	allele (Prv^1)	No systemic symptoms or few systemic chloronecrotic symptoms Occasional local necrotic lesions on cotyledons

11.3	Validation of test	on standards
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	QL
13.	Critical control points	-

Ad. 75: Resistance to *Melon necrotic spot virus* (MNSV), Strain 0 (MNSV: 0)

1.	Pathogen	*Melon necrotic spot virus* strain 0 (MNSV: 0)
3.	Host species	*Cucumis melo*
4.	Source of inoculum	GEVES[8] (FR)
5.	Isolate	E8
6.	Establishment isolate identity	Védrantais (susceptible) PMR5, VA 435, Virgos (resistant)
7.	Establishment pathogenicity	on susceptible plant
8.	Multiplication inoculum	
8.1	Multiplication medium	living plant
8.2	Multiplication variety	pre-multiplication of the virus on non-wilting variety (Védrantais) prior to testing
8.3	Plant stage at inoculation	10.3
8.5	Inoculation method	10.4
8.6	Harvest of inoculum	10.1
8.7	Check of harvested inoculum	symptomatic leaves
8.8	Shelflife/viability inoculum	on susceptible variety
9.	Format of the test	
9.1	Number of plants per genotype	at least 30
9.2	Number of replicates	e.g. 3
9.3	Control varieties	Védrantais (susceptible) Cyro, Primal, Virgos, Yellow Fun, (resistant)
9.4	Test design	add non inoculated plants
9.5	Test facility	growth chamber
9.6	Temperature	25°C during day and 18°C during night or 22°C constant
9.7	Light	12 h per day
9.8	Season	all seasons
10.	Inoculation	
10.1	Preparation inoculum	fresh leaves homogenized in PBS and carborundum
10.3	Plant stage at inoculation	cotyledon expanded or 1st emergent leaf
10.4	Inoculation method	mechanical inoculation by rubbing of cotyledons with inoculum
10.7	Final observations	8-15 days after inoculation

[8] matref@geves.fr

11.	Observations	
11.1	Method	Visual
11.2	Observation scale	
	[1] absent	necrotic lesions on the inoculated organs, possible systemic reaction (depends on condition, and varieties), possible death of plant
	[9] present	no lesions
11.3	Validation of test	on standards
12.	Interpretation of data in terms of UPOV characteristic states	QL
13.	Critical control points	To check the pathogen identity, Virgos is resistant to MNSV: 0 and susceptible to the new MNSV strain.

Ad. 76: Resistance to *Cucumber mosaic virus* (CMV)

1.	Pathogen	*Cucumber mosaic virus* (CMV)
2.	Quarantine status	no
3.	Host species	*Cucumis melo*
4.	Source of inoculum	GEVES (FR)
5.	Isolate	Use “common” strains (e.g. Tl, P9)
6.	Establishment isolate identity	Védrantais, 72-025 (susceptible) PI 161375, Virgos (resistant)
7.	Establishment pathogenicity	on susceptible melon varieties
8.	Multiplication inoculum	don’t use leaves dried with $CaCl_2$ to inoculate, do a multiplication of the inoculum on susceptible plants
8.1	Multiplication medium	living plant
8.2	Multiplication variety	susceptible variety (e.g. Védrantais)
8.3	Plant stage at inoculation	cotyledon expanded or first leaf appearing
8.4	Inoculation medium	ice-cold buffer solution
8.5	Inoculation method	Inoculation by rubbing. Optional: after a few minutes, rinse the cotyledons with running water.
8.6	Harvest of inoculum	symptomatic leaves, e.g.: 1 g leaves with 4 mL buffer - 0,03 M PBS with 0.2% DIECA freshly added, addition of activated charcoal.
8.7	Check of harvested inoculum	-
8.8	Shelflife/viability inoculum	about 2 h
9.	Format of the test	
9.1	Number of plants per genotype	at least 30 plants
9.2	Number of replicates	e.g. 3
9.3	Control varieties	Védrantais (susceptible) Lunaduke, Virgos (resistant)
9.4	Test design	-

9.5	Test facility	climatic room or glasshouse
9.6	Temperature	22°C constant
9.7	Light	12 hours at least
9.8	Season	all seasons in climatic room, in glasshouse, strong environmental effect on the test severity (more severe in winter, too soft in summertime)
9.9	Special measures	-
10.	Inoculation	
10.1	Preparation inoculum	Fresh leaves homogenized in ice-cold buffer solution- in PBS and carborundum (active charcoal), with 0.2% DIECA freshly added.
10.2	Quantification inoculum	-
10.3	Plant stage at inoculation	cotyledon expanded or first leaf appearing
10.4	Inoculation method	Inoculation by rubbing. After a few minutes, rinse the cotyledons with running water, when uses activated charcoal.
10.5	First observation	-
10.6	Second observation	-
10.7	Final observations	7-8 days after inoculation
11.	Observations	
11.1	Method	visual, comparative
11.2	Observation scale	
	[1] absent	Mosaics
	[9] present	No symptoms or necrotic spot or very weak symptoms in case of a more aggressive strain like T1. *Remarks:* P9 strain brings out “aucuba” mosaic on susceptible varieties (aggressive symptoms) P9 strain is less virulent than Tl strain.
11.3	Validation of test	on control varieties
11.4	Off-types	-
12.	Interpretation of data in terms of UPOV characteristic states	QL
13.	Critical control points	- When light intensity and daylight are not sufficient (winter period), resistant plants (in particular PI 161375) may present chlorotic lesions on the first leaf. - Virgos seeds usually germinate better than seeds of PI 161375 - Songwhan Charmi = PI 161375: name of the melon variety, on which this strain was identified. The “song” strains break the common resistance to CMV (e.g.: “song” strains 14, T2). - Intermediate reactions may occur; the resistance is polygenic.

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10. Technical Questionnaire

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

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

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

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Cucumis melo* L.
1.2 Common Name	Melon

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) totally 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

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 (12)	**Inflorescence: sex expression (at full flowering)**		
	monoecious	Alpha, Categoría	1[ ]
	andromonoecious	Piel de Sapo	2[ ]
5.2 (13)	**Young fruit: hue of green color of skin**		
	whitish green	Geasol	1[ ]
	yellowish green	Fimel	2[ ]
	green	Lucas	3[ ]
	greyish green	Spanglia	4[ ]
5.3 (14)	**Young fruit: intensity of green color of skin**		
	very light	Solarking	1[ ]
	very light to light		2[ ]
	light	Fimel	3[ ]
	light to medium		4[ ]
	medium	Eros	5[ ]
	medium to dark		6[ ]
	dark	Galia	7[ ]
	dark to very dark		8[ ]
	very dark	Edén	9[ ]

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

	Characteristics	Example Varieties	Note
5.4 (24)	**Fruit: length**		
	very short	Doublon, Golden Crispy	1[ ]
	very short to short		2[ ]
	short	Topper, Védrantais	3[ ]
	short to medium		4[ ]
	medium	Marina, Spanglia	5[ ]
	medium to long		6[ ]
	long	Categoría, Toledo	7[ ]
	long to very long		8[ ]
	very long	Katsura Giant, Valdivia	9[ ]
5.5 (25)	**Fruit: diameter**		
	very narrow	Banana, Golden Crispy	1[ ]
	very narrow to narrow		2[ ]
	narrow	Alpha, Maestro	3[ ]
	narrow to medium		4[ ]
	medium	Categoría, Galia	5[ ]
	medium to broad		6[ ]
	broad	Albino, Kinka	7[ ]
	broad to very broad		8[ ]
	very broad	Noir des Carmes	9[ ]

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

	Characteristics	Example Varieties	Note
5.6 (28)	**Fruit: shape in longitudinal section**		
	ovate	De Cavaillon, Piolín	1[ ]
	medium elliptic	Piel de Sapo	2[ ]
	broad elliptic	Corin, Sardo	3[ ]
	circular	Alpha, Galia	4[ ]
	quadrangular	Zatta	5[ ]
	oblate	Jívaro, Noir de Carmes	6[ ]
	obovate	Cganchi	7[ ]
	elongated	Alficoz, Banana	8[ ]
5.7 (29)	**Fruit: ground color of skin**		
	white	Albino, Honey Dew	1[ ]
	yellow	Amarillo-Canario, Edén, Galia, Passport, Solarking	2[ ]
	green	Gohyang, Piel de Sapo	3[ ]
	grey	Geaprince, Geamar, Romeo, Sirio, Supporter, Védrantais	4[ ]
5.8 (31)	**Fruit: hue of ground color of skin**		
	absent or very weak	Amarillo-Canario, Albino, Piel de Sapo, Sirio	1[ ]
	whitish	Romeo	2[ ]
	yellowish	Geaprince, Supporter	3[ ]
	orange	Edén	4[ ]
	ochre	Passport	5[ ]
	greenish	Geamar, Honey Dew, Solarking	6[ ]
	greyish	Gohyang	7[ ]

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

	Characteristics	Example Varieties	Note
5.9 (32)	**Fruit: density of dots**		
	absent or very sparse	Charentais	1[ ]
	very sparse to sparse		2[ ]
	sparse		3[ ]
	sparse to medium		4[ ]
	medium	Petit Gris de Rennes	5[ ]
	medium to dense		6[ ]
	dense	Piel de Sapo	7[ ]
	dense to very dense		8[ ]
	very dense	Albino	9[ ]
5.10 (36)	**Fruit: density of patches**		
	absent or very sparse	Rochet	1[ ]
	very sparse to sparse		2[ ]
	sparse		3[ ]
	sparse to medium		4[ ]
	medium	Braco	5[ ]
	medium to dense		6[ ]
	dense	Piel de Sapo	7[ ]
	dense to very dense		8[ ]
	very dense	Oranje Ananas	9[ ]
5.11 (38)	**Fruit: warts**		
	absent	Piel de Sapo	1[ ]
	present	Zatta	9[ ]

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

	Characteristics	Example Varieties	Note
5.12 (43)	**Fruit: grooves**		
	absent or very weakly expressed	Piel de Sapo, Arava	1[ ]
	weakly expressed	Total, Hobby	2[ ]
	strongly expressed	Védrantais, Galia	3[ ]
5.13 (45)	**Fruit: depth of grooves**		
	very shallow	Amber	1[ ]
	very shallow to shallow		2[ ]
	shallow	Galia	3[ ]
	shallow to medium		4[ ]
	medium	Alpha	5[ ]
	medium to deep		6[ ]
	deep	Panamá, Supermarket	7[ ]
	deep to very deep		8[ ]
	very deep	Noir des Carmes, Sucrin de Tours	9[ ]
5.14 (47)	**Fruit: creasing of surface**		
	absent or very weak	Védrantais	1[ ]
	very weak to weak		2[ ]
	weak	Melchor, Sirocco	3[ ]
	weak to medium		4[ ]
	medium	Costa, Piolín	5[ ]
	medium to strong		6[ ]
	strong	Tendral Negro	7[ ]
	strong to very strong		8[ ]
	very strong	Balbey, Kirkagac	9[ ]

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

	Characteristics	Example Varieties	Note
5.15 (48)	**Fruit: cork formation**		
	absent	Alpha	1[ ]
	present	Dalton	9[ ]
5.16 (49)	**Fruit: thickness of cork layer**		
	very thin	Amarillo Oro	1[ ]
	very thin to thin		2[ ]
	thin	Riosol, Védrantais	3[ ]
	thin to medium		4[ ]
	medium	Marina	5[ ]
	medium to thick		6[ ]
	thick	Geamar, PMR 45	7[ ]
	thick to very thick		8[ ]
	very thick	Honey Rock, Perlita	9[ ]
5.17 (50)	**Fruit: pattern of cork formation**		
	dots only	Hermes, Védrantais	1[ ]
	dots and linear	Jivaro, Topper	2[ ]
	linear only	Futuro, Riosol	3[ ]
	linear and netted	Anatol, Chantal	4[ ]
	netted only	Galia, Perlita	5[ ]

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

	Characteristics	Example Varieties	Note
5.18 (51)	**Fruit: density of pattern of cork formation**		
	very sparse	Alpha, Amarillo Oro	1[ ]
	very sparse to sparse		2[ ]
	sparse	Védrantais	3[ ]
	sparse to medium		4[ ]
	medium	Regal, Vital	5[ ]
	medium to dense		6[ ]
	dense	Galia, Geamar	7[ ]
	dense to very dense		8[ ]
	very dense	Honey Rock, Perlita	9[ ]
5.19 (54)	**Fruit: main color of flesh**		
	white	Piel de Sapo	1[ ]
	greenish white	Galia	2[ ]
	green	Radical	3[ ]
	yellowish white	Guaraní	4[ ]
	orange	Védrantais	5[ ]
	reddish orange	Magenta	6[ ]

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

	Characteristics	Example Varieties	Note
5.20 (60)	**Seed: length**		
	very short	Geumssaraki, Golden Crispi	1[ ]
	very short to short		2[ ]
	short	Elario, Katsura Giant	3[ ]
	short to medium		4[ ]
	medium	Arava, Sancho	5[ ]
	medium to long		6[ ]
	long	Amarillo Oro, Toledo	7[ ]
	long to very long		8[ ]
	very long	Albino	9[ ]
5.21 (62)	**Seed: shape**		
	not pine-nut shape	Toledo	1[ ]
	pine-nut shape	Piel de Sapo	2[ ]
5.22 (63)	**Seed: color**		
	whitish	Amarillo Oro s.b.	1[ ]
	cream yellow	Galia, Piel de Sapo	2[ ]

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

	Characteristics	Example Varieties	Note
5.23 (68)	**Shelf life of fruit**		
	very short	Charentais	1[ ]
	very short to short		2[ ]
	short	Galia	3[ ]
	short to medium		4[ ]
	medium	Clipper	5[ ]
	medium to long		6[ ]
	long	Piel de Sapo	7[ ]
	long to very long		8[ ]
	very long	Tendral Negro	9[ ]
5.24 (69.1)	**Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom) – Race 0 (Fom: 0)**		
	absent	Atos, Charentais T	1[ ]
	present	Cadence, Charentais Fom-2, Dibango, Jubilo, Karakal, Védrantais	9[ ]
5.25 (69.2)	**Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom) - Race 1 (Fom: 1)**		
	absent	Atos, Charentais T, Védrantais	1[ ]
	present	Cadence, Charentais Fom-2, Dibango, Jubilo, Karakal	9[ ]

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

	Characteristics	Example Varieties	Note
5.26 (69.3)	**Resistance to *Fusarium oxysporum* f. sp. *melonis* (Fom) - Race 2 (Fom: 2)**		
	absent	Atos, Charentais Fom-2, Charentais T, Dibango, Marianna	1[ ]
	present	Cadence, Charentais Fom-1, Jubilo, Karakal, Perlita, Védrantais	9[ ]
5.27 (69.4)	**Resistance to *Fusarium oxysporum* f. sp. *melonis* - Race 1.2 (Fom: 1.2)**		
	absent	Graffio, Prity, Virgos	1[ ]
	present	Isabelle, Kyriel, Lunasol, Meliance, Piboule	9[ ]
	not tested		[ ]
5.28 (70.1)	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew) - Race 1 (Px: 1)**		
	absent or low	Védrantais	1[ ]
	medium	Escrito	2[ ]
	high	Arum	3[ ]
	not tested		[ ]
5.29 (70.2)	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew) - Race 2 (Px: 2)**		
	absent or low	Védrantais	1[ ]
	medium	Escrito, Pendragon	2[ ]
	high	Arum	3[ ]
	not tested		[ ]

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

	Characteristics	Example Varieties	Note
5.30 (70.3)	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew) - Race 3 (Px: 3)**		
	absent or low	Védrantais	1[ ]
	medium	Arago, Durango	2[ ]
	high	Arum	3[ ]
	not tested		[ ]
5.31 (70.4)	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew) - Race 5 (Px: 5)**		
	absent or low	Védrantais	1[ ]
	medium	Arago, Durango	2[ ]
	high	Arum	3[ ]
	not tested		[ ]
5.32 (70.5)	**Resistance to *Podosphaera xanthii* (Px) (ex *Sphaerotheca fuliginea)* (Powdery mildew) - Race 3-5 (Px: 3.5)**		
	absent or low	Védrantais	1[ ]
	medium	Arago, Durango	2[ ]
	high	Arum	3[ ]
	not tested		[ ]
5.33 (71)	**Resistance to *Golovinomyces cichoracearum (Erysiphe cichoracearum)* Race 1 (Powdery mildew)**		
	susceptible	Escrito, Score, Védrantais	1[ ]
	moderately resistant	Flores, Anasta	2[ ]
	highly resistant	Cézanne, Heliobel, Théo	3[ ]
	not tested		[ ]
5.34 (72)	**Resistance to colonization by *Aphis gossypii***		
	absent	Védrantais	1[ ]
	present	AR Hale's Best Jumbo, AR Top Mark, Godiva, Heliobel, Virgos	9[ ]
	not tested		[ ]

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

	Characteristics	Example Varieties	Note
5.35 (73)	**Resistance to *Zucchini yellow mosaic virus* (ZYMV)**		
	absent	Cardillo, Généris, Jador, Védrantais	1[ ]
	present	Hannah's Choice, Lunaduke	9[ ]
	not tested		[ ]
5.36 (74.1)	**Resistance to *Papaya ringspot virus* (PRSV) - Guadeloupe strain**		
	absent	Védrantais	1[ ]
	present	Hannah's Choice	9[ ]
	not tested		[ ]
5.37 (74.2)	**Resistance to *Papaya ringspot virus* (PRSV) - E2 strain**		
	absent	Hannah's Choice, Védrantais	1[ ]
	present	WMR29	9[ ]
	not tested		[ ]
5.38 (75)	**Resistance to *Melon necrotic spot virus* (MNSV) Strain 0 (MNSV: 0)**		
	absent	Védrantais	1[ ]
	present	Cyro, Primal, Virgos, Yellow Fun	9[ ]
	not tested		[ ]
5.39 (76)	**Resistance to *Cucumber mosaic virus* (CMV)**		
	absent	Cézanne, Dalton	1[ ]
	present	Lunaduke, Virgos	9[ ]
	not tested		[ ]

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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	*Density of pattern of cork formation*	*dense*	*medium*

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 Special conditions for the examination of the variety

Yes [ ] No [ ]

If yes, please give details:

……

7.3 Other information

A representative color photograph of the variety should accompany 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”.

……

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]