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

**DRAFT**

**MELON** \*

UPOV code: CUCUM\_MEL

(*Cucumis melo* L.)

**GUIDELINES**

**FOR THE CONDUCT OF TESTS**

**FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

*prepared by an expert from Spain*

*to be considered by the  
 Technical Working Party for Vegetables at its thirty-eighth session,  
 to be held in Seoul, from June 7 to 11, 2004*

Alternative Names:\*

Botanical name	English	French	German	Spanish
<i>Cucumis melo</i> 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 guidelines (“Test Guidelines”) should be read in conjunction with document TG/1/3, “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants” (hereinafter referred to as the “General Introduction”) and its associated “TGP” documents.

Other associated UPOV 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  
VS: visual assessment by observation of individual plants or parts of plants

### 3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 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 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.

4.2.4 For the assessment of uniformity of self-pollinated varieties (in-bred lines) , vegetatively propagated varieties and single cross 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 (characteristic 12)
- (b) Young fruit: intensity of green color of skin (characteristic 14)

- (c) Fruit: ratio length/diameter (characteristic 26)
- (d) Fruit: ground color of skin (characteristic 29)
- (e) Fruit: density of patches (characteristic 36)
- (f) Fruit: warts (characteristic 38)
- (g) Fruit: grooves (characteristic 43)
- (h) Fruit: density of pattern of cork formation (characteristic 50)
- (i) Fruit: main color and hue of flesh (characteristic 54)
- (j) Seed: length (characteristic 60)
- (k) Seed: color (characteristic 63)
- (l) Resistance to race 0 of *Fusarium oxysporum* f. sp. melonis (Characteristic 69)

#### 5.4 Types of *Cucumis melo* L. for grouping is inserted in Chapter 8.3.

5.5 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 (Section 6.1.2)
- (QL) Qualitative characteristic – see Chapter 6 (Section 6.3)
- (QN) Quantitative characteristic – see Chapter 6 (Section 6.3)
- (PQ) Pseudo-qualitative characteristic – see Chapter 6 (Section 6.3)
  
- MG Single measurement of a group of plants or parts of plants – see Section 3.3.1
- MS Measurement of a number of individual plants or parts of plants – see Section 3.3.1
- VG Visual assessment by a single observation of a group of plants or parts of plants – see Section 3.3.1
- VS Visual assessment by observation of individual plants or parts of plants – see Section 3.3.1
  
- (a)-(f) 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
<b>1.</b>	<b>VG</b>	<b>Seedling: length of hypocotyl</b>				
<b>QN</b>	<b>(a)</b>	very short			Golden Crispy	1
		short			Arava, Clipper	3
		medium			Doral, Futuro	5
		long			Bimbo, Ronda	7
		very long			Noy	9
<b>2.</b>	<b>VG</b>	<b>Seedling: size of cotyledon</b>				
<b>QN</b>	<b>(a)</b>	very small			Golden Crispy	1
		small			Candy, Lunasol	3
		medium			Futuro, Sancho	5
		large			Bimbo, Nicolás	7
		very large			Noy	9
<b>3.</b>	<b>VG</b>	<b>Seedling: intensity of green color of cotyledon</b>				
<b>QN</b>	<b>(a)</b>	light			Bimbo, Lucas	3
		medium			Candy, Piel de Sapo	5
		dark			Clipper, Lunasol	7
<b>4.</b>	<b>VG</b>	<b>Leaf blade: size (at 7-10 node stage)</b>				
<b>QN</b>		small			Geaprince, Lunasol,	3
		medium			Candy, Total	5
		large			Don, Subrero	7



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>5.</b>	<b>VG</b>	<b>Leaf blade: intensity of green color (as for 4.)</b>				
<b>QN</b>	light				Fimel, Yuma	3
	medium				Doral, Galia	5
	dark				Gama, Gustal	7
<b>6.</b>	<b>VG</b>	<b>Leaf blade: development of lobes</b>				
(+)						
<b>QN</b>	<b>(b)</b>	weak			Boule d'or	3
		medium			Piel de Sapo	5
		strong			Galia	7
<b>7.</b>	<b>VG</b>	<b>Leaf blade: length of terminal lobe</b>				
(+)						
<b>QN</b>	<b>(b)</b>	short			Perlita	3
		medium			Clipper, Gama	5
		long			Gustal, Primal	7
<b>8.</b>	<b>VG</b>	<b>Leaf blade: dentation of margin</b>				
<b>QN</b>	<b>(b)</b>	weak			Clipper, Vedrantaïs	3
		medium			Piel de Sapo, De Cavaillon espagnol	5
		strong			Boule d'or, Portoluz	7
<b>9.</b>	<b>VG</b>	<b>Leaf blade: blistering</b>				
<b>QN</b>	<b>(b)</b>	weak			Galia	3
		medium			Costa	5
		strong			Haros	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>10.</b>	<b>VG</b>	<b>Petiole: attitude</b>				
<b>QN</b>	<b>(b)</b>	erect			Alfredo	1
		semi-erect			Peko	3
		horizontal			Creso	5
<b>11.</b>	<b>MS</b>	<b>Petiole: length</b>				
<b>QN</b>	<b>(b)</b>	short			Costa	3
		medium			Arava, Sancho	5
		long			Goldgen	7
<b>12.</b>	<b>VS</b>	<b>Inflorescence: sex expression (at full flowering)</b>				
<b>(*)</b>						
<b>QL</b>		monoecius			Alpha, Categoría	1
		andromonoecius			Piel de Sapo	2
<b>13.</b>	<b>VG</b>	<b>Young fruit: hue of green color of skin</b>				
<b>PQ</b>	<b>(c)</b>	whitish green			Geasol	1
		yellowish green			Fimel	2
		green			Lucas	3
		greyish green			Spanglia	4
<b>14.</b>	<b>VG</b>	<b>Young fruit: intensity of green color of skin</b>				
<b>(*)</b>						
<b>QN</b>	<b>(c)</b>	very light			Solarking	1
		light			Fimel	3
		medium			Eros	5
		dark			Galia	7
		very dark			Edén	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>15.</b>	<b>VG</b>	<b>Young fruit : density of dots</b>				
<b>QN</b>	(c)	absent or very sparse			Solarking	1
		sparse			Fimel	3
		medium			Lucas	5
		dense			Arava	7
		very dense			Edén	9
<b>16.</b>	<b>VG</b>	<b>Young fruit: size of dots</b>				
<b>QN</b>	(c)	small			Lucas	3
		medium			Arava	5
		large			Spanglia	7
<b>17.</b>	<b>VG</b>	<b>Young fruit: contrast of dots color/ground color</b>				
<b>QN</b>	(c)	weak			Lucas	3
		medium			Arava	5
		strong			Total	7
<b>18.</b>	<b>VS</b>	<b>Young fruit: extent of groove coloring</b>				
<b>QN</b>	(c)	absent or very weak			Solarking	1
		weak			Geaprince, Total	3
		medium			Gama	5
		strong			Clipper, Galia	7
		very strong			Nembo	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>19.</b>	<b>VS</b>	<b>Young fruit: intensity of groove coloring</b>				
<b>QN</b>	(c)	light				3
		medium			Gama, Topper	5
		dark			Century, Drake	7
<b>20.</b>	<b>MS</b>	<b>Young fruit: length of peduncle</b>				
<b>QN</b>	(c)	short			Lince Haros	3
		medium			Arava, Romeo	5
		long			Corín	7
<b>21.</b>	<b>MS</b>	<b>Young fruit: thickness of peduncle (1 cm from fruit)</b>				
<b>QN</b>	(c)	thin				3
		medium				5
		thick				7
<b>22.</b>	<b>VG</b>	<b>Young fruit: extension of darker area around peduncle</b>				
<b>QN</b>	(c)	absent or very small			Doral	1
		small			Boule d'or	3
		medium			Mirasol Geaprince	5
		large				7
		very large				9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>23.</b>	<b>VG</b>	<b>Change from green to ripe fruit color</b>				
<b>QN</b>	no change or very late in the development of fruit				Piel de Sapo	1
	late in the development of fruit				Galia, Doral	2
	early in the development of fruit				Drake, Geaprince	3
<b>24.</b>	<b>MS</b>	<b>Fruit: length</b>				
<b>(*)</b>						
<b>QN</b>	<b>(d)</b> very short				Doublon, Golden Crispy	1
	short				Topper, Total	3
	medium				Marina, Spanglia	5
	long				Categoría, Toledo	7
	very long				Katsura Giant, Valdivia	9
<b>25.</b>	<b>MS</b>	<b>Fruit: diameter</b>				
<b>(*)</b>						
<b>QN</b>	<b>(d)</b> very narrow				Banana, Golden Crispy	1
	narrow				Alpha, Maestro	3
	medium				Categoría, Galia	5
	broad				Albino, Kinka	7
	very broad				Noir des Carmes	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>26.</b>	<b>MS</b>	<b>Fruit: ratio length/diameter</b>				
(*)						
<b>QN</b>	<b>(d)</b>	very small			Noir des Carmes	1
		very small to small			Arava, Clipper	2
		small			Buster, Galia	3
		small to medium			Aril, Edén	4
		medium			Doral, Tendral Negro	5
		medium to large			Sirocco, Verdol	6
		large			Categoría, Futuro	7
		large to very large			Iguana, Trujillo	8
		very large			Banana	9
<b>27.</b>	<b>VG</b>	<b>Fruit: position of maximum diameter</b>				
(*)						
(+)						
<b>PQ</b>	<b>(d)</b>	toward stem end			Piolín , Sapo de Oro	1
		at middle			Piel de Sapo, Vedrantais	2
		toward blossom end			Edén, Katsura Giant, Cganchi	3
<b>28.</b>	<b>VG</b>	<b>Fruit: shape in longitudinal section</b>				
(*)						
(+)						
<b>PQ</b>	<b>(d)</b>	oblate			Jívaro	1
		circular			Galia	2
		ovate			Piolín	3
		broad elliptic				4
		elliptic			Piel de Sapo	5
		obovate			Cganchi	6
		elongated			Banana	7
		quadrangular			Zatta	8

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>29.</b>	<b>VG</b>	<b>Fruit: ground color of skin</b>				
(*)						
<b>QL</b>	(d)	white			Albino	1
		yellow			Galia	2
		green			Piel de Sapo	3
		grey			Vedrantais	4
<b>30.</b>	<b>VG</b>	<b>Fruit: intensity of ground color of skin</b>				
<b>QN</b>	(d)	light				3
		medium				5
		dark				7
<b>31.</b>	<b>VG</b>	<b>Fruit: hue of color of skin</b>				
<b>PQ</b>	(d)	pure basic color	Netherlands propose absent		Amarillo-Canario (yellow), Piel de Sapo (green), Sirio (grey), Albino (white)	1
		whitish			Romeo (grey)	2
		yellowish			Supporter, Geaprince (grey)	3
		orange			Edén (yellow)	4
		ochre			Passport (yellow)	5
		greenish			Geamar (grey), Solarking (yellow), Honey Dew (white)	6
		greyish			Gohyang (green)	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>32.</b>	<b>VS</b>	<b>Fruit: density of dots</b>				
<b>QN</b>	<b>(d)</b>	absent or very sparse			Charentais	1
		sparse				3
		medium				5
		dense			Piel de Sapo	7
		very dense			Albino	9
<b>33.</b>	<b>VG</b>	<b>Fruit: color of dots</b>				
<b>QL</b>	<b>(d)</b>	white			Edén	1
		yellow			Piel de Sapo	2
		green			Tendral Negro	3
<b>34.</b>	<b>VS</b>	<b>Fruit: intensity of color of dots</b>				
<b>QN</b>	<b>(d)</b>	light			Kinka, Mesol	3
		medium			Sapiel, Toledo	5
		dark			Soprano, Víctor	7
<b>35.</b>	<b>VS</b>	<b>Fruit: size of the dots</b>				
<b>QN</b>	<b>(d)</b>	small			Doral	3
		medium			Toledo	5
		large			Futuro	7
<b>36.</b>	<b>VG</b>	<b>Fruit: density of patches</b>				
<b>(*)</b>						
<b>QN</b>	<b>(d)</b>	absent or very sparse			Rochet	1
		sparse				3
		medium			Braco	5
		dense			Piel de Sapo	7
		very dense			Oranje Ananas	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>37.</b>	<b>VG</b>	<b>Fruit: size of patches</b>				
<b>QN</b>	<b>(d)</b>	small			Baltasar	3
		medium			Sancho	5
		large			Taurus	7
<b>38.</b>	<b>VG</b>	<b>Fruit: warts</b>				
<b>(*)</b>						
<b>QL</b>	<b>(d)</b>	absent			Piel de Sapo	1
		present			Zatta	9
<b>39.</b>	<b>VS</b>	<b>Fruit: attachment of peduncle</b>				
<b>(*)</b>						
<b>QN</b>	<b>(d)</b>	absent or very weak			Edén	1
		weak			Arava, Maestro	3
		medium			Doral, Vedrantaís	5
		strong			Clipper, Costa	7
		very strong			Daimiel, Eloro	9
<b>40.</b>	<b>VS</b>	<b>Fruit: shape of base</b>				
<b>(*)</b>						
<b>(+)</b>						
<b>PQ</b>	<b>(d)</b>	pointed			Edén	1
		rounded			Arava	2
		flattened			Zatta	3
<b>41.</b>	<b>VS</b>	<b>Fruit: shape of apex</b>				
<b>(*)</b>						
<b>(+)</b>						
<b>PQ</b>	<b>(d)</b>	pointed			Futuro	1
		rounded			Alpha	2
		flattened			Noir des Carmes	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>42.</b>	<b>VS</b>	<b>Fruit: size of pistil scar</b>					
(*)							
<b>QN</b>	<b>(d)</b>	small			Alpha, Categoría	3	
		medium			Charentais, Eros, Verdol	5	
		large			Colmo, Drake	7	
<b>43.</b>	<b>VG</b>	<b>Fruit: grooves</b>					
(*)							
<b>QL</b>	<b>(d)</b>	absent or occasionally present			Piel de Sapo	1	
		present			Vedrantaís	9	
<b>44.</b>	<b>VS</b>	<b>Fruit: width of grooves</b>					
<b>QN</b>	<b>(d)</b>	narrow			Auraprince	3	
		medium			Biga	5	
		broad			Nembo, Sirio	7	
<b>45.</b>	<b>VS</b>	<b>Fruit: depth of grooves</b>					
<b>QN</b>	<b>(d)</b>	very shallow			Amber	1	
		shallow			Galia	3	
		medium			Alpha	5	
		deep			Panamá	7	
		very deep			Noir des Carmes	9	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>46.</b> (* (+)	<b>Fruit: creasing of surface</b>						
<b>QN</b>	absent or very weak				Vedrantais	1	
	weak				Melchor, Sirocco	3	
	medium				Costa, Piolín	5	
	strong				Tendral Negro	7	
<b>47.</b> (*	<b>VS</b>	<b>Fruit: cork formation</b>					
<b>QL</b>	(d)	absent				1	
		present				9	
<b>48.</b> (*	<b>VS</b>	<b>Fruit: thickness of cork layer</b>					
<b>QN</b>	(d)	very thin			Amarillo Oro	1	
		thin			Riosol	3	
		medium			Marina	5	
		thick			Geamar	7	
		very thick			Honey Rock	9	
<b>49.</b> (*	<b>VS</b>	<b>Fruit: pattern of cork formation</b>					
<b>PQ</b>	(d)	in dots			Hermes, Vedrantais	1	
		dots and linear			Jívaro, Topper	2	
		linear			Futuro, Riosol	3	
		linear and netted			Anatol, Chantal	4	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>50.</b>	<b>VS</b>	<b>Fruit: density of pattern of cork formation</b>				
(*)						
<b>QN</b>	<b>(d)</b>	very sparse			Alpha, Amarillo Oro	1
		sparse			Vedrantais	3
		medium			Regal, Vital	5
		dense			Galia, Geamar	7
		very dense			Honey Rock, Perlita	9
<b>51</b>	<b>VG</b>	<b>Fruit: color of groove in relation to ground color</b>				
(*)						
<b>QL</b>	<b>(d)</b>	similar			Galia	1
		different			Vedrantais	2
<b>52.</b>	<b>VG</b>	<b>Fruit: color change after maturity</b>				
<b>QN</b>		absent or very slow			Clipper, Doral, Galia, Honey dew, Piel de Sapo	1
		slow			Dulcinea, Goloso	3
		medium			Futuro, Vendôme	5
		fast			Corin, Marina, Nembo	7
<b>53.</b>	<b>VS</b>	<b>Fruit: maximum width of flesh in longitudinal section</b>				
(+)						
<b>QN</b>	<b>(d)</b>	thin			Gama	3
		medium			Toledo	5
		thick			Tito	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>54.</b>	<b>VS</b>	<b>Fruit: main color and hue of flesh</b>				
(*)						
<b>PQ</b>	<b>(d)</b>	white			Piel de Sapo	1
		white greenish			Galia	2
		green			Radical	3
		white yellowish			Guaraní	4
		orange			Vedrantais	5
		reddish orange			Magenta	6
<b>55.</b>	<b>VS</b>	<b><u>Varieties with orange flesh only:</u> Fruit: intensity of orange color of flesh</b>				
<b>QN</b>	<b>(d)</b>	light			Fantasy, Oloroso	3
		medium			Lunasol	5
		dark			Geamar	7
<b>56.</b>	<b>VS</b>	<b><u>Varieties with green and white flesh only:</u> Fruit: salmon hue of flesh</b>				
<b>QN</b>	<b>(d)</b>	absent or very weak			Gustal	1
		weak			Floraprince, Toledo	3
		medium			Arizo, Eloro	5
		strong				7
<b>57.</b>	<b>VS</b>	<b>Fruit: firmness of the flesh</b>				
(+)						
<b>QN</b>	<b>(d)</b>	soft			Galia, Marina	3
		medium			Sancho, Supporter	5
		firm			Braco, Geamar	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>58.</b>	<b>VG</b>	<b><u>Varieties with change of fruit color at over maturity only:</u> Fruit at over maturity: hue of yellow color</b>				
<b>PQ</b>	<b>(e)</b>	pure yellow			Futuro, Marina	1
		orangish			Drake, Gama	2
		creamish			Figaro, Vendôme	3
<b>59.</b>	<b>VS</b>	<b><u>Varieties with change of fruit color at over maturity only:</u> Fruit at over maturity: intensity of yellow color</b>				
<b>QN</b>	<b>(e)</b>	light			Dulcinea	3
		medium			Futuro	5
		dark			Trapío	7
<b>60.</b>	<b>MS</b>	<b>Seed: length</b>				
<b>QN</b>	<b>(f)</b>	very short			Golden Crispi	1
		short			Katsura Giant	3
		medium			Arava, Sancho	5
		long			Amarillo Oro, Toledo	7
		very long			Albino	9
<b>61.</b>	<b>MS</b>	<b>Seed: width</b>	<b>Netherlands ask an explanation</b>			
<b>QN</b>	<b>(f)</b>	very narrow			Golden Crispi	1
		narrow			Aurabel	3
		medium			Arava, Sancho	5
		large			Amarillo Oro	7
		very large			Ronda	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>62.</b>	<b>VS</b>	<b>Seed: shape</b>				
	(+)					
<b>PQ</b>	(f)	not pine-nut shape			Toledo	1
		pine-nut shape			Piel de Sapo	2
<b>63.</b>		<b>Seed: color</b>				
	(*)					
<b>QL</b>	<b>VG</b>	ivory			Amarillo Oro s.b.	1
		cream-yellow			Piel de Sapo	2
<b>64.</b>	<b>VG</b>	<b>Seed: intensity of color</b>				
<b>QN</b>	(f)	light			Goldgen	3
		medium			Galia	5
		dark			Doral	7
<b>65.</b>	<b>MS</b>	<b>Time of male flowering</b>				
<b>QN</b>		early			Clipper, Vital	3
		medium			Categoría	5
		late			Nicolás, Rocín	7
<b>66.</b>	<b>MS</b>	<b>Time of female flowering</b>				
<b>QN</b>		early			Clipper	3
		medium			Braco, Categoría, Vital	5
		late			Nicolás	7
<b>67.</b>	<b>MS</b>	<b>Time of ripening</b>				
<b>QN</b>		early				3
		medium				5
		late				7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>68.</b>	<b>Conservation of fruits</b>					
(+)	VS					
<b>QN</b>	short				Charentais, Galia	3
	medium				Clipper	5
	long				Piel de Sapo	7
	very long				Tendral Negro	9
<b>69.</b>	<b>Resistance to <u>race 0</u> of <i>Fusarium</i> <i>oxysporum</i> f. sp. <i>melonis</i></b>					
(+)						
	absent				Jaune Canari 2	1
	present				Jador, Joker, Vedrantais	9
<b>70.</b>	<b>Resistance to <u>race 1</u> of <i>Fusarium</i> <i>oxysporum</i> f. sp. <i>melonis</i></b>					
(+)						
	absent				Jaune Canari 2, Vedrantais	1
	present				Jador, Joker	9
<b>71.</b>	<b>Resistance to <u>race 2</u> of <i>Fusarium</i> <i>oxysporum</i> f. sp. <i>melonis</i></b>					
(+)						
	absent				Jaune Canari 2, Joker	1
	present				Jador, Vedrantais	9
<b>72.</b>	<b>Resistance to <u>race 1- 2</u> of <i>Fusarium</i> <i>oxysporum</i> f. sp. <i>melonis</i></b>					
(+)						
	absent				Jaune Canari 2, Joker, Vedrantais	1
	present				Jador	9



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>73.</b>	<b>Resistance to <i>Sphaeroteca fuliginea</i></b>	(Netherlands propose to give races and define a protocol)				
(+)						
			absent			Piel de Sapo
	present			Eloro	9	
<b>74.</b>	<b>Resistance to colonization by <i>Aphis gossypii</i></b>					
(+)						
		absent			Charentais	1
	present			AR, Margot, Top Mark	9	
<b>75.</b>	<b>Resistance to <u>race F</u> of Zucchini Yellow Mosaic Virus (ZYMV)</b>					
(+)						
		absent			Alpha, Boule d'Or Cantor, Doublon	1
	present			Eloro, Hermes, Vedranta	9	
<b>76.</b>	<b>Resistance to <u>race GVA</u> of Papaya Ringspot Virus (PRV)</b>					
(+)						
		absent			Vedranta	1
	present			WMRV 29, 72025	9	
<b>77.</b>	<b>Resistance to <u>race E<sub>2</sub></u> of Papaya Ringspot Virus (PRV)</b>					
(+)						
		absent			Vedranta, 72025	1
	present			WMRV 29	9	
<b>78.</b>	<b>Resistance to <u>race E<sub>8</sub></u> of Muskmelon Necrotic Spot Virus (MNSV)</b>					
(+)						
		absent			Vedranta	1
	present			Primal, VA 435	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:

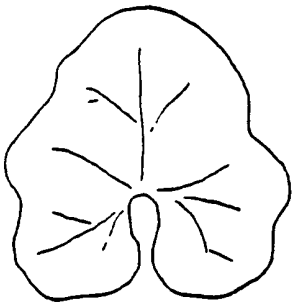
- (a) Seedling: All observations on the seedling should be made just before the development of the first true leaf.
- (b) Leaf blade: Unless otherwise indicated, all observations on the leaf blade, should be made on fully developed but not old leaves between the 5<sup>th</sup> and the 8<sup>th</sup> nodes counting from the apex of main stem, and never in the 3 first nodes counting from the base of the stem.
- (c) Young fruit: All observations on the young fruit should be made on fruits with less than the half of the final size, preferably 7-10 cm of diameter. The fruit should have loosed the hairiness. In some groups of varieties it is recommended to harvest one small fruit per plant to observe them in groups (for characteristics VG).

*It is considered that the expression “young fruit” instead of fruit before maturity (when the fruit has **almost reached its final size, but before the start of corking and the change of color**) because a great variability in the speed of the change of color is observed in this crop, depending on the variety, increase the risk of misunderstanding. In fact many varieties don't have this stage according the above definition, because start the changes much before of to reach the final size . In groups of varieties with slow evolution of the fruits, the stage may be prolonged to before maturity*

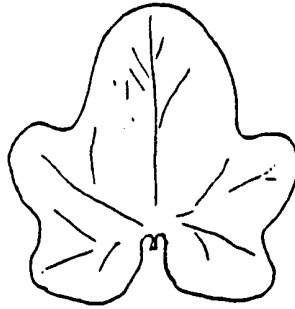
- (d) Fruit: All observations on the fruit should be made on ripened fruit. The color must be **not changing** to the over maturity. It is convenient to harvest the fruits to observe them side by side. In general for the flesh characteristics it is recommended to wait at least a week after the harvest before opening the fruits.
- (e) Fruit at over maturity: All observations on the fruit at over maturity should be made when the fruit has lost its commercial state.
- (f) Seed: All observations on the seed, should be made on full grown and dry seeds, after washing and drying in the shade.

8.2 Explanations for individual characteristics

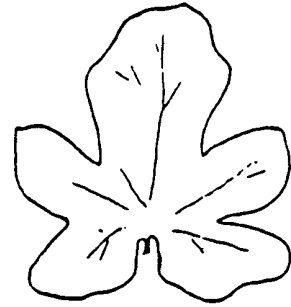
Ad. 6: Leaf blade: development of lobes



3  
weak

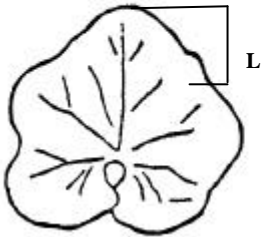


5  
medium

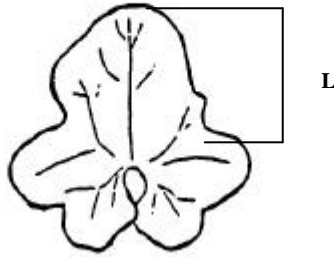


7  
strong

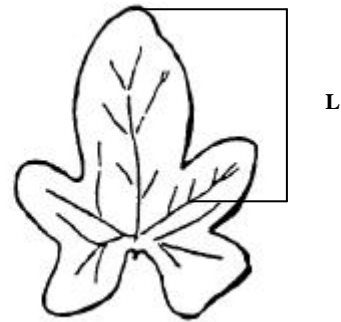
Ad. 7: Leaf blade: length of terminal lobe



3  
short



5  
medium

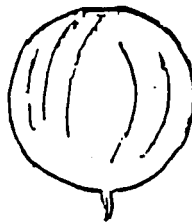


7  
long

Ad. 27: Fruit: position of maximum diameter



1  
toward blossom end

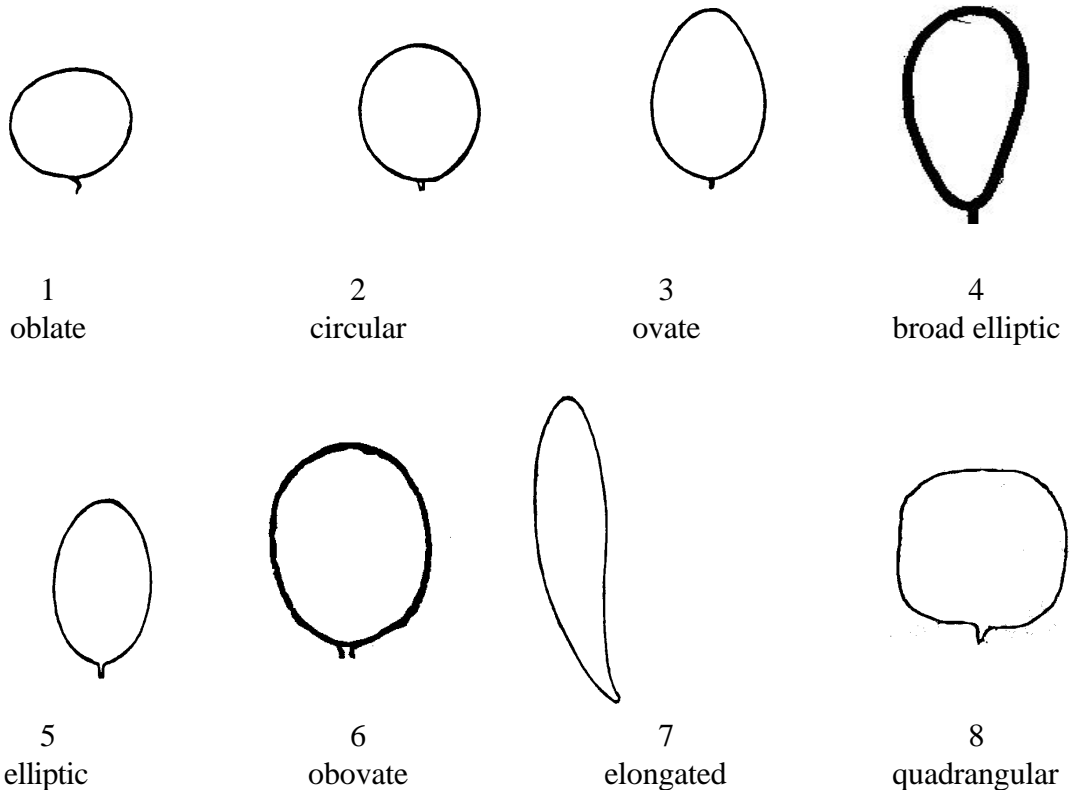


2  
at center



3  
toward stem end

Ad. 28: Fruit: shape in longitudinal section



Ads. 23, 29, 31, 52, 58: Observation of color

1. General explanation about different components of colors characteristics

The color is defined for the resultant of three basic components: blue-green-red.

It is very difficult to quantify visually, with sufficient precision, each component which would be the exact form of define one color.

There exist three indexes or ratios composed of the relative quantities of the components that are easier to perceive by the human eye:

***saturation***: this is a parameter that indicates the vivacity of the colors. The bigger the difference between the quantity of the dominant and the less abundant component, the higher the saturation. The opposite concept is the ***grey hue*** of the colors, also named ***glaucescence*** in many crops, that is easy to observe;

***brightness***: this parameter varies depending on the total quantity of the addition of both the dominant and the less abundant components. This opposite concept is the ***intensity*** of the color, easily assessed by eyes;

***hue***: this is determined by the relative proportion of 2 principal components: There is a continuous transition between adjacent hues. Others, non-adjacent hues are clearly separated.

This characteristic can be considered as pseudo-qualitative or qualitative, depending on the range of hues that appear in one concrete crop.

In the case of **qualitative** characteristic (clear discontinuities between the possible expressions), it will be simply called “**color**”.

In the case of **pseudo-qualitative**, to be of possible use for grouping, it must be divided in **two** characteristics: one named “**color**”, that will join different hues in the common basic color (red, blue, white, yellow etc.), clearly different of all the others basic colors, consequently qualitative and useful for grouping. One second characteristic, named “**hue**” would describe more finely using adjacent hues, and would be used not for grouping, but mainly for distinctness (scarlet-pink-vermilion, ochre-orange-crème, yellowish-green –bluish green). In many characteristics, the basic color is the same for the whole crop, but the hue may discriminate. In these cases, is usual to name it color instead of hue, and to add the common basic color in all the different expressions (Example: Characteristics 13)

## 2. Examples in melon

### Ad. 13: Color of young fruit (Pseudo-qualitative)

There are different **grey-hues** (saturation), and different color **intensities** (brightness). The basic **color** must be considered always green, but would be a continuous lineal gradation from the yellowish **hue** (slight predominance of the red over the blue), “pure” or “vivid” green (red and blue components in similar proportion). (Bluish **hue** (when the blue component is slightly stronger than the red one) is not included in the possible expressions of this characteristic because no example varieties in melon are known by us.)

In order not to increase too much the number of characteristics, we propose to include in only one pseudo-qualitative characteristic (number 13), two true hues: (*yellowish*, and *pure green*), the *greyish* that really is not a hue but a low saturation and the *whitish* that is a very light intensity of green. When one of these two untrue hues is present, it makes not relevant the true hue.

### Ads. 23, 52: Changing of Colors in Melon

The growing fruit of melon can have successively one, two or three different colors. The speed of evolution of the color varies a lot depending on the group of the variety, but also into the same group. It is very difficult to conduct one or several occasions for observation that would be sufficient for characterizing all the varieties, as the description should include a complete information about an important grouping characteristic, without introducing differences in the description that could produce mistakes in the grouping.

These characteristics could be named “dynamic” characteristics. A good solution to describe them could be to divide them into several qualitative characteristics, expressing the different steps in evolution of color, completed with the information of the speed of changing between the different steps.

Thus for melon the description of the colors could be:

1. color of the young fruit (stage 1)
2. changing to color at maturity
3. color at maturity (stage 2)
4. changing to color at over maturity
5. color at over maturity (stage 3).

The three mentioned stages must be considered not as very precise stages, but approximately. Thus, the description of the color in a stage must not vary for differences in the speed of changing (only if there is no change).

Some examples could illustrate these arguments:

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. 52)	Stage 3: color at over maturity
Galia	green	late	yellow	absent	yellow
Amarillo Oro	green	medium	yellow	absent	yellow
Charentais	green	early	grey	fast	yellow
Alfa	green	early	grey	medium	yellow
Clipper	green	early	grey	absent	grey
Albino	green	medium	white	absent	white
Dulcinea	green	medium	white	medium	yellow
Futuro	green	absent	green	fast	yellow
Piel de Sapo	green	absent	green	absent	green

*The changing color (characteristics n° 23 and n°52 ) are useful mainly for **distinctness**.*

Ads. 29, 31: Color, hue of mature fruit

All the Galia type would be considered as yellow color. Hues ochre, orange, pure yellow or greenish can be considered into the group, but in a separate characteristic (31). All the Charentais type would be considered as **grey**. Greenish, whitish, or yellowish hues (Ch. 31) can be used for distinctness, but not recommended for grouping.

Ad. 58: Color at over maturity

It is always yellow (if there is change of color after the maturity). The differences would be in hue: cream, orange, pure yellow, or in intensity of the yellow color.

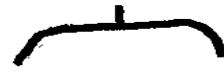
Ad. 40: Fruit: shape of base



1  
pointed



2  
rounded



3  
flattened

Ad. 41: Fruit shape of apex



1  
pointed

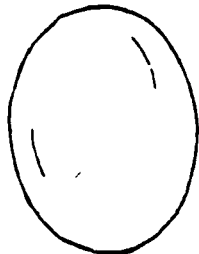


2  
rounded

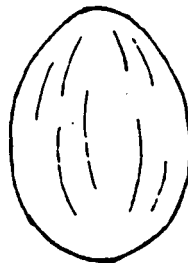


3  
flattened

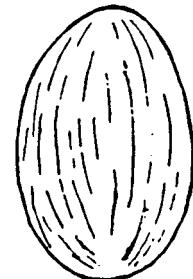
Ad. 46: Fruit: creasing of surface



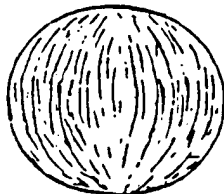
1  
absent or very weak



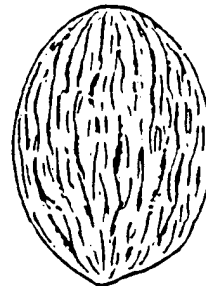
3  
weak



5  
medium

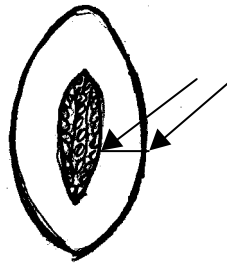


7  
strong



9  
very strong

Ad. 53: Fruit: maximum width of flesh in longitudinal section



Ad. 57: Firmness of flesh

At the time of observation of the rest of the characteristics for flesh, it is assessed pushing the flesh in an intermediate zone with a pencil or a similar tool.

Ad. 62: Seed: shape



1  
Not pine-nut shape

3  
Pine-nut shape

**Pine nut shape** seed (Piñonet) is a recessive characteristic with simple genetic regulation, that is objective of breeding in some types of varieties, because this is associated with the excellent quality of the traditional Spanish varieties “Piñonet” and “Piel de Sapo.”

This shape differs from the usual in a set of small differences, that make the seed; at first sight, it resembles the pine nut:

The hilum end slightly more pointed, with very small swings.

The apical end with tendency to be more rounded.

The cross section with tendency to be more symmetrically elliptical.

General aspect non aristed.



Ad. 68: Conservation of fruit

Can be observed assessing the duration of the fruits, in commercial stage, (good consistence of flesh) on stored samples of 5 fruits per plot. The frequency of observations would be at least once a week.

Ads. 69-71: Resistance to races 0, 1 and 2 of *Fusarium oxysporum* f. sp. *melonis*

Maintenance of races

Type of medium: on agar medium at 22 to 25 C  
Special conditions: transplantation of races each month

Execution of test

Growth stage of plants: cotyledons expanded  
Temperature: 24 C during day, 18 C during night  
Light: 10 - 12 hours per day  
Growing method: dishes in climatic chambers  
Method of inoculation: soaking of root system in suspension of liquid medium of fungus  
Duration of test  
- from sowing to inoculation: 30 days  
- from inoculation to reading: 20 days  
Number of plants tested: 30 plants  
Remarks: plants raised and transplanted in sterilized sand, irrigation with nutritive solution

Ad. 72: Resistance to race 1-2 of *Fusarium oxysporum* f. sp. *melonis*

Maintenance of races

Type of medium: on agar medium at 22 to 25 C  
Special conditions: transplantation of races each month

Execution of test

Growth stage of plants: cotyledons expanded  
Temperature: 24°C during day, 18°C during night  
Light: 12 hours per day  
Growing method: dishes in climatic chambers  
Method of inoculation: absorption of 700 ml of a very diluted (30 to 50 times) fungus culture via the lower holes of the seed dish  
Duration of test  
- from sowing to inoculation: 4 to 5 weeks  
- from inoculation to reading: 3 weeks

Number of plants tested: 30 plants  
Remarks: a moderately aggressive type of race 1-2 should be used as this is likely to show the difference most clearly between the presence and absence of resistance

#### Ad. 73. Resistance to *Sphaerotheca fuliginea*

##### Maintenance of races

Type of medium: On living plants

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

##### Raising the plants

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

##### Inoculation

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

##### Special conditions after inoculation

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

##### Duration of test

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

Standard varieties: Resistance absent: Piel de Sapo, Charentais  
Resistance present: Eloro, Pancha

Ad. 74: Resistance to colonization by *Aphis gossypii*

Maintenance of strain

Maintenance and multiplication: on susceptible variety (Vedrantais)

Special conditions: weak greenfly density so as not to have too many winged types. "Synchronous"-type breeding so as to have only greenfly of the same age and therefore at the same growing stage on a plant

Conduct of the test

Plant stage: 1st leaf measuring 2-3 cm  
Temperature: 21 C  
Light: 16 hours per day  
Planting: plants sown in sand, pricked out at cotyledon stage in compost-filled pots  
Manner of inoculation: deposit of ten adult wingless greenfly per plant  
Duration of test:  
- from sowing to inoculation 15-18 days  
- from inoculation to reading one day  
Number of plants tested: 30  
  
Recording:  
- Resistance present = less than 7 adult aphids per plant; eggs rare.  
- Resistance absent = 9 or 10 adult aphids per plant; eggs frequent.  
- Record number of aphids per plant 24 hours after inoculation.

Ad. 75: Resistance to race F of Zucchini Yellow Mosaic Virus (ZYMV)

Maintenance of strain

Maintenance and multiplication: dried on anhydrous calcium chloride at 5 C

Special conditions: premultiplication of the virus on non-wilting variety (Vedrantais) prior to testing

Conduct of the test

Plant stage: 1st emergent leaf  
Temperature: 25 C during day, 18 C during night  
Light: 12 hours per day  
Manner of inoculation: mechanical inoculation by rubbing of cotyledons  
Duration of test:  
- from sowing to inoculation 15 days  
- from inoculation to reading 15 days  
Number of plants tested: 30

Remarks

Reading difficulty: - heterozygotes (Fn/Fn+) wither and die more slowly than homozygotes (Fn/Fn)  
 - use the F pathotype of ZYMV

Example varieties:  
 Vedrantaïs (Fn+/Fn+): mosaic (resistance present)  
 Cantor (Fn/Fn+): slower necrosis with wilting (resistance absent)  
 Doublon (Fn/Fn): necrosis with wilting

Ads. 76 and 77: Resistance to race GVA (76) and race E<sub>2</sub> (77) of Papaya Ringspot Virus (PRV)

Maintenance of strain

Maintenance and multiplication: dried on anhydrous calcium chloride at 5 C  
 Special conditions: premultiplication of the virus on susceptible variety (Vedrantaïs) prior to testing

Conduct of the test

Plant stage: 1st emergent leaf  
 Temperature: 25 C during day, 18 C during night  
 Light: 12 hours per day  
 Manner of inoculation: mechanical inoculation by rubbing of cotyledons  
 Duration of test:  
 - from sowing to inoculation 15 days  
 - from inoculation to reading 15-20 days  
 Number of plants tested: 30

Remarks

Identification of two strains of Prv virus and of the two alleles concerned

Genotypes/Strains	GVA strain	E2 strain
Vedrantaïs (Prv <sup>+</sup> )	Mosaic (vein-clearing) = SUSCEPTIBLE	Mosaic (vein-clearing) = SUSCEPTIBLE
72025 (Prv <sup>2</sup> )	- No systemic symptoms - Local necrotic lesions on cotyledons (irregular) = RESISTANT	- Apical necrosis = Necrosis of plant instead of local lesions
WMRV 29 (Prv <sup>1</sup> )	- No systemic symptoms - Occasional local necrotic lesions on cotyledons = RESISTANT	- No systemic symptoms - Occasional local necrotic lesions on cotyledons = RESISTANT

Ad. 78: Resistance to race E8 of Muskmelon Necrosis Spot Virus (MNSV)

Maintenance of strain

Nature of environment: dried on anhydric calcium chloride at 5 C  
Special conditions: premultiplication on susceptible variety (Vedrantaïs)  
prior to test

Conduct of the test

Plant stage: 1st emergent leaf  
Temperature: 25 C during day, 18 C during night  
Light: 12 hours per day  
Manner of inoculation: mechanical inoculation by rubbing of cotyledons  
Duration of test:  
- from sowing to inoculation 15 days  
- from inoculation to reading 8 days  
Number of plants tested: 30  
Remark: - necrotic lesions on the inoculated organs (cotyledons)  
of susceptible plants  
- no lesion on resistant plants



9. Literature

Invuflec, 1976: “Le melon cantaloup”, publication de l’Institut national de vulgarisation pour les fruits, légumes et champignons, FR (191 pp.)

CTIFL, 1985: “Melon, marché et techniques de production,” publication du Centre technique interprofessionnel des fruits et légumes, FR (270 pp.)

Filov, A.I. 1960: “The problem of melon systematics” Plant breed Abstr.31:5499

Mallick 1986: “Origin distribution and taxonomy of melons” Scientia horticultrae 28: 251-261

Sobrino E. 1989: “Tratado de horticultura herbácea” –I-Hortalizas de flor y fruto Editorial AEDOS ES (352 pp)

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p> <p>In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.</p>		
1. Subject of the Technical Questionnaire		
1.1 Botanical name	<input type="text" value="Cucumis melo L."/>	
1.2 Common Name	<input type="text" value="Melon"/>	
2. Applicant		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	



TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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3. Proposed denomination and breeder's reference

Proposed denomination

(if available)

Breeder's reference

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

4.1 Breeding scheme

(i) Variety resulting from:

4.1.1 Crossing

(a) controlled cross

(please state parent varieties)

(b) partially known cross

(please state known parent variety(ies))

(c) unknown cross

4.1.2 Mutation

(please state parent variety)

4.1.3 Discovery and development

(please state where and when discovered and how developed)

4.1.4 Other

(please provide details)

4.2 Method of propagating the variety (pro domo: see GN 31 and GN 32)

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
<b>5.1 Inflorescence: sex expression (at full flowering)</b> (12)		
monoecius	Alpha, Categoría	1[ ]
andromonoecius	Piel de Sapo	2[ ]
<b>5.2 Young fruit: intensity of green color of skin</b> (14)		
very light	Solarcking	1[ ]
light	Fimel	3[ ]
medium	Eros	5[ ]
dark	Galia	7[ ]
very dark	Edén	9[ ]
<b>5.3 Fruit: ratio length/diameter</b> (26)		
very small	Noir des Carmes	1[ ]
very small to small	Arava, Clipper	2[ ]
small	Buster, Galia	3[ ]
small to medium	Aril, Edén	4[ ]
medium	Doral, Tendral Negro	5[ ]
medium to large	Sirocco, Verdol	6[ ]
large	Categoría, Futuro	7[ ]
large to very large	Iguana, Trujillo	8[ ]
very large	Banana	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
Characteristics	Example Varieties	Note	
<b>5.4 Fruit: shape of longitudinal section (28)</b>			
oblate	Jívaro	1[ ]	
circular	Galia	2[ ]	
ovate	Piolín	3[ ]	
broad elliptic	Verdol	4[ ]	
elliptic	Piel de Sapo	5[ ]	
obovate	Geumssaraki	6[ ]	
elongated	Banana, Alficoz	7[ ]	
quadrangular	Zatta	8[ ]	
<b>5.5 Fruit: ground color of skin (29)</b>			
white	Albino	1[ ]	
yellow	Galia	2[ ]	
green	Piel de Sapo	3[ ]	
grey	Vedrantaís	4[ ]	
<b>5.6 Fruit: density of patches (36)</b>			
absent or very weak	Rochet	1[ ]	
sparse		3[ ]	
medium	Braco	5[ ]	
dense	Piel de Sapo	7[ ]	
very dense	Oranje Ananas	9[ ]	
<b>5.7 Fruit: grooves (43)</b>			
absent or occasionally present	Piel de Sapo	1[ ]	
present	Vedrantaís	9[ ]	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.8 Fruit: pattern of cork formation</b> (49)		
in dots	Hermes, Vedrantaís	1[ ]
dots and linear	Jívaro, Topper	2[ ]
linear	Futuro, Riosol	3[ ]
linear and netted	Anatol, Chantal	4[ ]
<b>netted</b>	<b>Galia, Perlita</b>	<b>5[ ]</b>
<b>5.9 Fruit: density of pattern of cork formation</b> (50)		
<b>absent or</b> very sparse	Alpha, Amarillo Oro	1[ ]
sparse	Vedrantaís	3[ ]
medium	Regal, Vital	5[ ]
dense	Galia, Geamar	7[ ]
very dense	Honey Rock, Perlita	9[ ]
<b>5.10 Fruit: main color and hue of flesh</b> (54)		
white	Piel de Sapo	1[ ]
white greenish	Galia	2[ ]
green	Radical	3[ ]
white yellowish	Guaraní	4[ ]
orange	Vedrantaís	5[ ]
reddish orange	Magenta	6[ ]
<b>5.11 Seed: length</b> (60)		
very short	Golden Crispi, <b>Geumssaraki</b>	1[ ]
short	<b>Elario</b> , Katsura Giant	3[ ]
medium	Arava, Sancho	5[ ]
long	Amarillo Oro, Toledo	7[ ]
very long	Albino	9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.12 Seed: color (63)</b>		
ivory	Amarillo Oro s.b.	1[ ]
cream-yellow	Piel de Sapo	2[ ]
<b>5.13 Conservation of fruits (68)</b>		
short	Charentais, Galia	3[ ]
medium	Clipper	5[ ]
long	Piel de Sapo	7[ ]
very long	Tendral Negro	9[ ]

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
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*Example*

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<p>Comments:</p>
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TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#7. Additional information which may help in the examination of the variety

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color photograph of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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9. Information on plant material to be examined or submitted for examination.

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

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

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

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

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes [ ]

(please provide details as specified by the Authority)

No [ ]

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]