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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

WATERMELON

UPOV Code: CTRLS_LAN

(*Citrullus lanatus* (Thunb.) Matsum. et Nakai)

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from the Netherlands

to be considered by the

Technical Working Party for Vegetables
at its forty fifth session, to be held in Monterey, California, United States of America, from July 25 to 29, 2011

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Citrullus lanatus (Thunb.) Matsum. et Nakai, *Citrullus vulgaris* Schrad.	Watermelon	Pastèque	Wassermelone	Sandía

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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(Year) between brackets is the year in which proposal is done.

Underlined and highlighted: changes proposed by the Leading Experts to document TG/142/4.
italic and highlighted: comments made by interested experts

bold and highlighted: comments made by the Leading Expert on the comments made by interested experts

highlighted: amendments in accordance with document TGP/7/2

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Citrullus lanatus* (Thunb.) Matsum. et Nakai. (2011): Varieties belonging to *Citrullus colocynthis* are excluded.

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:

1,200 seeds.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

(2011) ISF: seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. Looking at the level of detail they go in to in this document, these minimum requirements should be defined or a reference should be placed where these details can be found.
(2011) NL: to refer to TGP 7 for explanation

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.

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 at least two 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.

3.4.3 For pollination and fruit set of triploid varieties it is needed to interplant with diploid varieties in a trial lay out so that the diploid pollenizers will be close to the triploid plants. The minimum percentage of diploid plants should not be less than 30%. When pollinators (e.g. bees, bumblebees) are used a *(ISF2011)* *slightly* lower percentage of pollenizer ~~is~~ may be required. **NL: agree**

3.5 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.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation 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

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness."

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

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.

(a) Cross-pollinated varieties

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.

(b) Hybrid varieties and inbred lines

4.2.3 For the assessment of uniformity of hybrids and inbred lines, a population standard of 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 2 off-types are allowed.

4.3 Stability

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

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

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(2011) The grouping characteristics were not discussed in 2010, proposal to discuss this new proposal after the contents of chapter 7: table of characteristics are discussed.
The NL proposal is

(a) Ploidy (characteristic 1)
(b) Leaf blade: degree of lobing (characteristic 9)
(c) Fruit: weight (1st mature fruit) (characteristic 13)
(d) Fruit: shape in longitudinal section (characteristic 14)
(e) Fruit: ground color of skin (characteristic 18)

(f) Only varieties with Fruit: ground color of skin: green: Fruit: intensity of ground color of skin (characteristic 19)
(g) Fruit: conspicuousness of stripes (characteristic 21)
(h) Excluding types with only veins: Fruit: width of stripes (characteristic 23)
(i) Excluding types with only veins: Fruit: margin of stripes (characteristic 25)
(j) Fruit: main color of flesh (characteristic 42 (old 36))
(k) Only diploid and tetraploid varieties: Seed: size (characteristic 47 (old 40))
(l) Seed: ground color of testa (characteristic 48 (old 41))

*(2010) France agreed with the grouping characteristics.***NL: changed in 2011** *(2011):*
It agrees with deletion of "Only varieties with fruit without netted color pattern".
Es: Not agree with the lobing added. This crop has enough other grouping characteristics, and the lobbing have certain risk of lack of consistency, for the variability into the plant.

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

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

6.2.1 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.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a) – (d) 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
(2011) Nb: The order of the characteristics (shape, color, etc.) has been changed, according to the proposals in 2010, and the numbering of the characterisics has been changed accordingly up to number 28. From characteristic 40 the numbering from TG/142/5(proj.1) 2010-5-21 has been followed.						
(2011) ISF: Consider the use of the Royal Horticulture Color Chart or the reading of Colorimeter for colors as this will provide more measurement of distinctness · *The reference varieties should be replaced with the varieties that are available for breeder to reference. Some of the reference varieties are simply not available.*						
NL: the experts are asked to go through their files or collection to find out whether the example varieties are still available.						
(2011) Char. 1: explanation added *(2011) HU, ES: see comment on explanation*						
1. (*) (+)	**VG**	**Ploidy**	**Ploïdie**	**Ploidie**	**Ploidía**	
QL		diploid	diploïde	diploid	diploide	SP 4, Sugar Baby, Yamato 3	2
		triploid	triploïde	triploid	triploide	Boston, Kimiwa Red, Seedless, TRIX 313	3
		tetraploid					4
2.	**MS/ VG**	**Cotyledon: size**	**Cotylédon: taille**	**Keimblatt: Größe**	**Cotiledón: tamaño**	
QN	**(a)**	small	petit	klein	pequeño	Crimson Glory, Kanro, Rapid, Rocio	3
		medium	moyen	mittel	medio	Crisby, Granit, Panni Sugar Suika, Yamato 3	5
		large	grand	groß	grande	Candida, Farao, Kurobe, Royal flesh hybrid	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
3.	**VG**	**Cotyledon: shape**	**Cotylédon: forme**	**Keimblatt: Form**	**Cotiledón: forma**		
(+)							
QN	**(a)**	narrow elliptic	elliptique étroit	schmal elliptisch	elíptica estrecha	Kahô	1
		medium elliptic	elliptique moyen	mittel elliptisch	elíptica media	Crimson Sweet, Farao, Napsugár, Sweet Favorite, Yamato 3,	2
		broad elliptic	elliptique large	breit elliptisch	elíptica ancha	Kanro, Oasis, Rubin, Scarlet Trio	3
4.	**VG**	**Cotyledon: intensity of green color**	**Cotylédon: intensité de la couleur verte**	**Keimblatt: Intensität der Grünfärbung**	**Cotiledón: intensidad del color verde**		
QN	**(a)**	light	faible	hell	claro	À graine rouge à confire à chair verte, Shin Kurobe 7	1
		medium	moyenne	mittel	medio	Jenny, Yamato 3	3
		dark	forte	dunkel	oscuro	Boston, Kahô, SP 4	5

2010: Char. 5: A photo of the spots would help as an explanation. Can Japan provide this perhaps?

(2010) ISF: agree, rarely see spots

(2011): Hu suggests to delet, It: a photo would be useful

(2011) JP: We were not able to find the photo. It is necessary to take the photo newly, we try to provide the photo further. But in this Char.. We have only one or two old varieties. Therefore, obtaining is difficult in general. If this Char. is adopted, it should change Example Variety to "Taiyou".

(2011) NL: proposal to delete this characteristic and put it on the list of additional characteristics (ref to TGP5, TGP 7)

5.	**VG**	**Cotyledon: spots**	**Cotylédon: taches**	**Keimblatt: Flecken**	**Cotiledón: manchas**		
(+)							
QL	**(a)**	absent	absentes	fehlend	ausentes	Yamato 3	1
		present	présentes	vorhanden	presentes	~~Okan~~ Taiyo	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		(2011) Char. 6 new explanation added					
ES: Pictures are unnecessary and can confuse. Examples varieties are enough							
		NL: agree					
6.	**VG**	**Leaf blade: size**					
(+)							
QN	**(b)**	small				SP 1, SP 4	1
		medium				Sugar Baby	3
		large				~~ISF: Crimson Sweet~~ Topgun	5
		(2011) Char 7 new explanation added					
7. **(+)**	**MS/ VG**	**Leaf blade: ratio length/width ~~(as for 7)~~**	**Limbe: rapport longueur/largeur (comme pour 7)**	**Blattspreite: Verhältnis Länge/Breite (wie unter 7)**	**Limbo: relación entre la longitud y la anchura (como para 7)**		
QN	**(b)**	slightly elongated				Kanro	3
		moderately elongated				Sugar Baby, Yamato 3	5
		strongly elongated				Kurobe	7
		Char.8 :					
(2011) ES: To delete the notes without example. Since it is PQ, is not necessary the complete quantitative scale. The variability into the collection is limited.							
		NL: example varieties will be provided					
8.	**VG**	**Leaf blade: color**	**Limbe: couleur**	**Blattspreite: Farbe**	**Limbo: color**		
PQ	**(b)**	yellowish green	vert-jaune	gelbgrün	verde amarillento	Baby Fun, Okan	1
		light green					2
		medium green				Crimson Sweet, Yamato 3	3
		dark green					4
		light greyish green					5
		medium greyish green				Sugar Baby	6
		dark greyish green				SP 4	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		(2011) Char. 9 new explanation added					
9. (*) (+)	**VG**	**Leaf blade : degree of lobing**					
QN	**(b)**	absent or very weak				*ISF: ~~Early Florida~~ Sunshade*	1
		weak				*ISF: ~~Dumara~~ Estrella*	3
		medium				Crimson Sweet, Crisby	5
		strong				Cadans	7
		very strong				SP 1	9

(2011)

Char. 10: F and It to give new example varieties?

ISF: Char. 10: a picture or further description of leaf blistering would be useful to clarify this.

NL: photo's will be provided with example varieties

10.	**VG**	**Leaf blade: blistering (on 10th to 15th leaf)**	**Limbe: cloqûre (de la 10ème à la 15ème feuille)**	**Blattspreite: Blasigkeit (vom 10. bis 15. Blatt)**	**Limbo: abullonado (de la 10ª a la 15ª hoja)**		
QN	**(b)**	weak	faible	gering	débil	Tabata	1
		medium	moyenne	mittel	medio	Yamato 3	2
		strong	forte	stark	fuerte	Klondike Striped II	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

(2010) Char. 11: Photo's of the marbling would help as an explanation. Can Japan provide this perhaps?

(2010) Hu: quite difficult to evaluate; Fr: photos needed,

(2011) KR agrees with request for photos, It proposes only two notes absent/present and agrees with photo's needed as well.

(2011) JP: We were not able to find the photo. It is necessary to take the photo newly, we try to provide the photo further. But in this Char.. We have only one or two old varieties. Therefore, obtaining is difficult in general.

We attached the photo of "Zucchini" that showed the same expression of this Char. for the discussion.

(2011) NL: proposal to delete this characteristic and put it on the list of additional characteristics (ref to TGP5, TGP 7)

11. **(+)**	**VG**	**Leaf blade: marbling**	**Limbe: marbrures**	**Blattspreite: Marmorierung**	**Limbo: jaspeado**		
QN	**(b)**	absent or weak	absentes ou faibles	fehlend oder gering	ausente o muy débil	Sugar Baby, Yamato 3	1
		medium	moyennes	mittel	medio	Okan, Taiyô	2
		strong	fortes	stark	fuerte		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		(2011):					
		It: it would be useful to establish the time of evaluation, for example: before flower opening					
		ES: *We have observed important variation into the plant. If it really gives not important information to discriminate varieties, we should prefer to delete the characteristic.*					
		Kr: Position of the ovary to be indicated for clarification					
		(2011) NL: Char. 12: proposal to delete this characteristic, because it will not become very clear and raises more questions than answers.					
12. **(+)**	**VG**	**Ovary: density of pubescence**					
QN		sparse				*ISF: Sugar Baby*	1
		medium				*ISF: Crimson Sweet*	2
		dense				Trix Palomar (?)	3
13. **(*)**	**MS/ MG**	**Fruit: weight (1st mature fruit)**	**Fruit: poids (1er fruit mûr)**	**Frucht: Gewicht (1. reife Frucht)**	**Fruto: peso (1er fruto maduro)**		
QN	**(c)**	very low	très petit	sehr niedrig	muy pequeño	Monaco, *ISF New Hampshire Midget*	1
		very low to low	très petit à petit	sehr niedrig bis niedrig	muy pequeño a pequeño	Mini, Petite Perfection	2
		low	petit	niedrig	pequeño	Angela, *ISF: ~~Jenny~~*	3
		low to medium	petit à moyen	niedrig bis mittel	prequeño a medio	Pasión	4
		medium	moyen	mittel	medio	Boston, Sugar Baby	5
		medium to high	moyen à grand	mittel bis hoch	medio a grande	Panonia	6
		high	grand	hoch	grande	Fabiola	7
		high to very high	grand à très grand	hoch bis sehr hoch	grande a muy grande	Crimson Sweet	8
		very high	très grand	sehr hoch	muy grande	Carolina Cross, Florida Giant, *ISF Cobb's Gem*	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

(2011)

ES: Sugar Baby is not a good example variety for 1 (circular). At least in Spain, is closer to 2 (broad elliptic). We propose to add "Sweet Marvel" as example for 2, and "Reina de Corazones" as example for 3.

NL: to be discussed

14. (*) (+)	**VG**	**Fruit: shape in longitudinal section**	**Fruit: forme en section longitudinale**	**Frucht: Form im Längsschnitt**	**Fruto: forma en sección longitudinal**		
QN	**(c)**	circular	circulaire	kreisförmig	circular	Camilla, Kanro, *ISF: Sugar Baby*	1
		broad elliptic	elliptique large	breit elliptisch	elíptico ancho	Fumin, Gray Belle, Yellow Baby, Zorba	2
		medium elliptic	elliptique moyen	mittel elliptisch	elíptico medio	Congo, Kurobe, Picnic	3
		elongated elliptic	elliptique allongé	länglich elliptisch	elíptico alargado	Allsweet, Charleston Gray	4

(2010) Char 15: Explanation about the states needed (drawings or photo's)

15. (+)	**VG**	**Fruit: depression at base**	**Fruit: dépression à la base**	**Frucht: Vertiefung an der Basis**	**Fruto: depresión de la base**		
QN	**(c)**	shallow	peu profonde	flach	poco profunda	Kahô, Yellow Baby	3
		medium	moyenne	mittel	media	Triple Sweet, Yamato 3	5
		deep	profonde	tief	profunda	À graine rouge à confire à chair verte, Kanro	7

(2010) Char 16: Explanation about the states needed (drawings or photo's)

(*2011): **JP: We provide the photos about the states.***

2011: NL: see explanation, proposal to use pictures from Japan

16. (+)	**VG**	**Fruit: shape of apical part**	**Fruit: forme de la partie apicale**	**Frucht: Form des apikalen Teils**	**Fruto: forma de la zona apical**		
PQ	**(c)**	flat	plate	flach	plana	Cream Sinka, Kanro	1
		flat to rounded	plate à arrondie	flach bis abgerundet	plana a redondeada		2
		rounded	arrondie	abgerundet	redondeada	Glory, Sugar Baby, Toro, Yamato 3	3
		rounded to conical	arrondie à conique	abgerundet bis kegelförmig	redondeada a cónica		4
		conical	conique	kegelförmig	cónica	Kahô	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		(2010) Char 17: Explanation about the states needed (drawings or photo's)					
		(2011)NL: See explanation proposal to use the pictures provided by Japan					
17. **(+)**	**VG**	**Fruit: depression at apex**	**Fruit: cuvette pistillaire**	**Frucht: Vertiefung an der Spitze**	**Fruto: depresión del ápice**		
QN	**(c)**	shallow	peu profonde	flach	poco profunda	Burpee Hybrid, Kahô, *ES: Valdoria*	3
		medium	moyenne	mittel	media	Asahi Miyako, Fumin	5
		deep	profonde	tief	profunda	*ISF: Kob's Gem*	7
18. **(*)** **(+)**	**VG**	**Fruit: ground color of skin**	**Fruit: couleur du fond de l'épiderme**	**Frucht: Grundfarbe der Schale**	**Fruto: color de fondo de la epidermis**		
QL	**(c)**	yellow	jaune	gelb	amarillo	Golden Dragon, Okan, Taiyô	1
		green	vert	grün	verde	Crimson Sweet, Blanca de Benocaz, Fabiola, Napsugar , Sugar Baby, Sugar Belle	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

Char. 19***: (2011)*** *ISF: to add characteristics also for varieties with yellow color of ski;*
It:The introduction of intensity of ground color of skin for yellow color type would be reduced to three notes : light- medium- dark.

NL: There are very few varieties with yellow color of skin, not to take over ISF proposal

2011 Comments from Fr, Hu, It, Es see ad 19 explanation

2011 proposal NL see also ad 19 explanation

19. **Proposal: add (*)**	**VG**	**Only varieties with Fruit: ground color of skin: green: Fruit: intensity of ground color of skin**	**Fruit: intensité de la couleur du fond de l'épiderme**	**Frucht: Intensität der Grundfarbe der Schale**	**Fruto: intensidad del color de fondo de la epidermis**		
QN	**(c)**	very light	très claire	sehr hell	muy claro	Fumin, Blanca de Benocaz, Napsugar, Tiger Baby	1
		very light to light	très claire à claire	sehr hell bis hell	muy claro a claro	Crimson Sweet	2
		light	claire	hell	claro	Estella Rocha, Sweet Favorite, Yamato 3	3
		light to medium	claire à moyenne	hell bis mittel	claro a medio	Tigre	4
		medium	moyenne	mittel	medio	Asahiyamato, Lucky Sweet, Rodeo	5
		medium to dark	moyenne à foncée	mittel bis dunkel	medio a oscuro		6
		dark	foncée	dunkel	oscuro	Benimusume, ISF: ~~Resistant~~, Sweet Marvel	7
		dark to very dark	foncée à très foncée	dunkel bis sehr dunkel	oscuro a muy oscuro	Panni, Sugar Baby	8
		very dark	très foncée	sehr dunkel	muy oscuro	Augusta, Rocio, Tabor 5	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

(2011)Char 20

ES: The photo of 5 (very strong) is not appropriate. In my opinion the netting is not veining but stripes. New proposal of examples for photos

NL: see ad 20 explanation

20. **(+)**	**VG**	**Fruit: conspicuousness of veining**				
QN	**(c)**	absent or very weak			Napsugar	1
		weak				2
		medium			Crimson Sweet	3
		strong			Trix Palomar	4
		very strong			~~SP 4~~	5

(2011)

Es: *As the characteristic 24 describes the intensity of colour of stripes, it is not necessary to precise between strong and very strong. The very dark varieties have variability in this characteristic before maturity, that disappear when the fruit is ripen (ground colour almost black). So I should prefer to observe this characteristic before maturity. It would be more discriminant*

*ISF proposes 5 Crimson Sweet and 9 All Sweet***. NL: not to take over, see explanation**

NL: prefer to observe at maturity, like all the other characteristics of the fruit. Agree with choice of example photo's and varieties. Change into a 1, 2, 3, 4, 5 scale, see also explanation ad 21

21. **(*)** **(+)**	**VG**	**Fruit: conspicuousness of stripes**				
QN	**(c)**	absent or very weak			**Augusta**	**1**
		weak			**Odem**	**2**
		medium			**Trix Palomar**	**3**
		strong			**Jenny**	**4**
		very strong				**5**

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		Comments from HU see ad 22 explanation					
22. (*) (+)	**VG**	**Fruit: patternation of stripes**					
PQ	**(c)**	one colored				**Congo**	1
		one colored and veins				**Trix Palomar**	2
		one colored, veins and marbled				**to be provided by Spain**	3
		one colored and marbled				**Boston**	4
		two colored, veins and marbled				**Crisby**	5
		only veins				**Charlesleston Gray**	6
		char 23 (2011)					
		*It:Char. 23, 24, 25: We suggest to explain that the characteristics of stripes have to be observed in types with only stripes, stripes and veins but excluding types with only veins (Charleston Gray).***NL: agree**					
		ISF: Char. 23, 24 and 25 "Stripes of only veins excluded" is not clear in its meaning. Perhaps it means "Stripes, not including the veins"?					
		ES:					
		Note 5 . To read medium instead of moderate; New proposal of example photos					
23. (*) (+)	**VG**	**Excluding types with only veins: Fruit: width of stripes**					
QN	**(c)**	very narrow				*ISF: Tiny Orchid* **NL: Odem is better**	1
		narrow				**Boston**	3
		medium				*ISF: Crimson Sweet*	5
		broad				**Sangria**	7
		very broad				*ISF: All Sweet*	9

(2011)

It:Char. 23, 24, 25: We suggest to explain that the characteristics of stripes have to be observed in types with only stripes, stripes and veins but excluding types with only veins (Charleston Gray). **NL: agree**

ISF: Char. 23, 24 and 25 "Stripes of only veins excluded" is not clear in its meaning. Perhaps it means "Stripes, not including the veins"?

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24. **(+)**	**VG**	**Excluding types with only veins: Fruit: intensity of main color of stripes**					
QN	**(c)**	very light					1
		light					2
		medium					3
		dark					4
		very dark					5

(2011)

It:Char. 23, 24, 25: We suggest to explain that the characteristics of stripes have to be observed in types with only stripes, stripes and veins but excluding types with only veins (Charleston Gray). **NL: agree**

ISF: Char. 23, 24 and 25 "Stripes of only veins excluded" is not clear in its meaning. Perhaps it means "Stripes, not including the veins"?

25. **(*)** **(+)**	**VG**	**Excluding types with only veins: Fruit: margin of stripes**					
PQ	**(c)**	sharp				**Jenny, Jubilee**	1
		medium				**Crimson Sweet**	2
		diffuse				**Crimson Glory, Crisby**	3
26. **(+)**	**VG**	**Fruit: size of insertion of peduncle**	**Fruit: taille de l'insertion du pédoncule**	**Frucht: Größe des Stielansatzes**	**Fruto: tamaño de la inserción del pedúnculo**		
QN	**(c)**	small	petite	klein	pequeño	Charleston Gray, Sugar Bush	3
		medium	moyenne	mittel	mediano	Fumin, Picnic	5
		large	grande	groß	grande	Dixie Queen, Kanro	7
27.	**VG**	**Fruit: size of pistil scar**	**Fruit: taille de l'attache pistillaire**	**Frucht: Größe der Griffelnarbe**	**Fruto: tamaño de la cicatriz del pistilo**		
QN	**(c)**	small	petite	klein	pequeña	Charleston Gray, Daisen	3
		medium	moyenne	mittel	media	Yamato 3	5
		large	grande	groß	grande	Kanro, *Trix Palomar*	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		(2010) explanations needed for 3, 5 and 7 (photo's)					
		(2011) It: Photo n.2 would be a medium degree of grooving					
		NL: can Japan provide pictures for 3 and 7? Should we make a condensed range: 1, 2, 3, 4, 5?					
28.	**VG**	**Fruit: degree of grooving**	**Fruit: degré de la cannelure**	**Frucht: Grad der Riefung**	**Fruto: grado de acanalado**		
QN	**(c)**	absent or very weak				Sugar Baby	~~1~~ **1**
		weak				Augusta, Kanro, Rapid	~~3~~ **2**
		medium	moyenne	mittel	medio	Asahi, Bego, Miyako	~~5~~ **3**
		strong	forte	stark	fuerte	Marsowszky, Napsugár, Panni	~~7~~ **4**
		From here the characteristics were not dicussed in 2010, additional comments 2011 are included					
		ES: It is not so precise and consistent to consider so many notes. A concentrate quantitative with 3 notes should be more appropriate.					
		1 Absent or very weak. –Example: Betica *2 Moderately expressed- Example:* *3 Strongly expressed- Example:*					
		NL: proposal to have 5 notes: 1, 2, 3, 4, 5					
40 (new)	**VG**	**Fruit: waxy layer**					
(+)							
QN	**(c)**	**absent or very weak**	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Betica	**1**
		weak	faible	gering	débil	Dumara	**2**
		medium	moyenne	mittel	medio	Sugar Baby	**3**
		strong	forte	stark	fuerte	Red Star	**4**
		very strong	très forte	sehr stark	muy fuerte	*ISF: add Romanza and Cobb Gem*	**5**

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
				char. 41: *(2010) Fr accepts mod ex. vars* *(2011) Hu : are still seeds available from Coles Early (1892)?* **(2011) NL answer or example of living variety to be provided by ISF**			
41. (new 35) (*) (+)	**MS/ VG**	**Fruit: thickness of pericarp**	**Fruit: épaisseur du péricarpe**	**Frucht: Dicke des Perikarps**	**Fruto: espesor del pericarpio**		
QN	**(c)**	very thin				Bibo, *ISF add Tiny Orchid, ES: Luciano*	1
		thin	mince	dünn	delgado	À graine rouge à confire à chair verte, Beni-kodama, Kahô, *Kassai; ES: Jenny*	3
		medium	moyen	mittel	medio	Panonia, Sugar Baby, Sugar Belle, Yamato 3	5
		thick	épais	dick	grueso	Charleston Gray, Crimson Sweet, Kurobe, Triple Sweet, *ES: Sunrise*	7
		very thick				*(2010) ISF: Coles Early, 2011 Kholodok* **(NL: photo's?)**	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
				char 42 *(2010) Fr accepts mod ex. vars*			
42. (old 36) (*)	**VS**	**Fruit: main color of flesh**	**Fruit: couleur principale de la chair**	**Frucht: Hauptfarbe des Fleisches**	**Fruto: color principal de la pulpa**		
PQ	**(c)**	white	blanche	weiß	blanco	SP 4, Yamato Cream 3, *ISF: add SP1*	1
		yellow	jaune	gelb	amarillo	Napsugár, Yamato Cream 1	2
		orange	orange	orange	naranja	Kahô, Tendersweet	3
		pink	rose	rosa	rosa	Sadur, (2010): *ISF add Charleston Gray* **NL: is more 5 pinkish red, It agrees with NL**	4
		pinkish red	rouge rosâtre	rosarot	rojo rosado	Bingo, Crimson Sweet	5
		red	rouge	rot	rojo	Asahiy ~~Yamato~~, Sugar Baby, *ISF: Topgun*	6

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

(2010)

Proposal NL to delete Char 43. (old 37), as this is very dependent on state of maturity of the fruit *Hu agrees with deletion*;

FR:It is linked to the state of maturity of fruit. I harvest at the same date, all the varieties in the same culti group and I asses the color and the firmness of flesh in these conditions. To be discussed

(2010)ISF proposes Add CHARLESTON GRAY for level 3; Add TRIX 313 for level 5; Add SUNSUGAR and TOP GUN for level 7

NL: not to take over ISF proposal, as proposal is to delete Char 43 (old 37)

(2011)

KR: very dependant on state of maturity, but still distinctive at the time of ordinary maturity. Proposal to provide photo's, if included.

HU; the harvesting time influences this characteristic, evaluation of the little genetical difference is difficult

It agrees to delete, is influenced by growing conditions

ISF proposes New Hampshire Midget for 3, Kholodok for 5

ES: *Not a big variability, but easy to assess and may be useful to distinctness of pair of varieties. To keep*

NL: keep proposal to delete, 42 is sufficient for distinctness

43. (old 37)	**VG**	**Fruit: intensity of main color of flesh**	**Fruit: intensité de la couleur principale de la chair**	**Frucht: Intensität der Hauptfarbe des Fleisches**	**Fruto: intensidad del color principal de la pulpa**		
QN	**(c)**	light	claire	hell	claro		3
		medium	moyenne	mittel	medio		5
		dark	foncée	dunkel	oscuro		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota

char 44

(2010)

Proposal NL to delete Char 44 (old 38), as this is very dependent on state of maturity of the fruit *Hu agrees with deletion*

ISF: Add SANGRIA for level 7

NL: not to take over, as proposal is to delete Char 44 (old 38)

(2011)

KR agrees to delete

HU; the harvesting time influences this characteristic, evaluation of the little genetical difference is difficult

It agrees to delete, is influenced by growing conditions

ES: It is interesting for few varieties, but not indispensible. We can agree with deletion.

NL: keep proposal to delete

44. (old 38)	**MS**	**Fruit: firmness of flesh**	**Fruit: fermeté de la chair**	**Frucht: Festigkeit des Fleisches**	**Fruto: firmeza de la pulpa**		
(+)							
QN	**(c)**	soft	molle	weich	blanda	Yamato Cream 2	3
		medium	moyenne	mittel	media	Miyako 3	5
		firm	ferme	fest	firme	Fumin	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
		char 45 *(2010) Hu and Fr agree with new 45,* *(2011) It also* ***ES:** It has big variability into the same fruit. Difficult to assess. Scale 3 to 7 is more than enough* **NL: proposal to make it a scale from 1 to 5**					
45. (new)	**MS/ VG**	**Only triploid varieties: Seed coat: size**					
(+)							
QN	**(d)**	very small				Petite Perfection	**1**
		small				Boston	**2**
		medium				Ortal	**3**
		large				*ISF: add Sunrise*	**4**
		very large					**5**
46. (old 39)	**QN**	**Only diploid and tetraploid varieties: Fruit: number of seeds**	**Fruit: nombre de graines**	**Frucht: Anzahl Samen**	**Fruto: número de semillas**		
VG	**(d)**	absent or few	nul ou très petit	fehlend oder sehr gering	ausente o muy bajo	Tanenashi Kôyô	1
		medium	moyen	mittel	medio	Miyako 3	2
		many	grand	groß	alto	Fumin	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
47. (old 40) (*) (+)	**MS/ VG**	**Only diploid and tetraploid varieties: Seed: size**	**Graine: taille**	**Samen: Größe**	**Semilla: tamaño**		
QN	**(d)**	very small	très petite	sehr klein	muy pequeña	Urimi *ISF skip Urimi, add Jenny and Bonanza*	1
		small	petite	klein	pequeña	Jenny, Panonia, Tabata *ISF: skip Jenny*	3
		medium	moyenne	mittel	mediana	Sugar Baby	5
		large	grande	groß	grande	Charleston Gray, Kurobe	7
		very large	très grande	sehr groß	muy grande	Malali, Wanli	9
48. (old 41) (+)	**VG**	**Only diploid and tetraploid varieties: Seed: ground color of testa**	**Graine: couleur de fond du tégument**	**Samen: Grundfarbe der Samenschale**	**Semilla: color de fondo del tegumento**		
PQ	**(d)**	white	blanc	weiß	blanco	Sanpaku	1
		cream	crème	cremefarben	crema	Kurobe	2
		green	vert	grün	verde	Green Citron	3
		red	rouge	rot	rojo	Red Citron	4
		red-brown	brun-rouge	rotbraun	marrón rojizo	Kahô	5
		brown	brun	braun	marrón	Otome, Sugar Baby	6
		black	noir	schwarz	negro	Yamato Cream	7
			ES: Ch 49 Seed: secondary colour (To add excluding hilum)				
			1-Absent or very weak *2- Present*				
			NL: Not to take ver as Kahô is really absent				
49. (old 42) (+)	**VG**	**Only diploid and tetraploid varieties: Seed: secondary color of testa**	**Graine: couleur secondaire de fond du tégument**	**Samen: sekundäre Grundfarbe der Samenschale**	**Semilla: color secundario del tegumento**		
QL	**(d)**	absent	absente	fehlend	ausente	Kahô	1
		present	présente	vorhanden	present	Charleston Gray	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
50. (old 43) **(+)**	**VG**	**Only diploid and tetraploid varieties: Seed: distribution of secondary color of testa**	**Graine: distribution de la couleur secondaire du tégument**	**Samen: Verteilung der Sekundärfarbe der Samenschale**	**Semilla: distribución del color secundario del tegumento**		
PQ	**(d)**	in dots only	en points seulement	nur in Punkten	sólo en puntos	Charleston Gray, Excel	1
		in dots and in patches	en points et en taches	in Punkten und Flecken	en puntos y manchas	Lady, Yamato 3	2
		in patches only	en taches seulement	nur in Flecken	sólo en manchas	Kurobe, Rattle Snake	3

(2010) Proposal NL to delete characteristic 51 (old 44)

(2010) Fr agrees, (2011) Kr, It agree)

*ES: To keep. (May be preferable a different name, for instance **intensity of patches and dots?**) Very important to diploid varieties.*

(I will intend to send photos)
Example varieties:
1-Estela roja
3- Sugar baby
5- Crimson sweet
7- Furia
9-Starlich

NL: to be discussed

51. (old 44)	**VG**	**Seed: area of secondary color in relation to that of ground color**	**Graine: surface de la couleur secondaire par rapport à celle de la couleur de fond**	**Samen: Ausdehnung der Sekundärfarbe im Vergleich zu der der Grundfarbe**	**Semilla: área del color secundario en relación con el del color de fondo**		
QN	**(d)**	small	petite	klein	pequeño	Early Star	3
		medium	moyenne	mittel	medio	Crimson Sweet	5
		large	grande	groß	grande	Resistant	7

ISF: skip 52 (old 45)

Es: To replace absent with absent or very weak

NL: to be discussed

52. (old 45) **(+)**	**VG**	**Only diploid and tetraploid varieties: Seed: patches at hilum**	**Graine: taches sur le hile**	**Samen: Flecken am Nabel**	**Semilla: manchas en el hilo**		
QL	**(d)**	absent	absentes	fehlend	ausentes	Daisen, Kahô	1
		present	présentes	vorhanden	presentes	Kurobe, Rattle Snake, Yamato 3	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
53. (old 46)	**VG**	**Time of female flowering (50% of plants with at least one female flower)**	**Époque de floraison femelle (50% des plantes avec au moins une fleur femelle)**	**Zeitpunkt der Blüte der weiblichen Blüte (50% der Pflanzen mit mindestens einer weiblichen Blüte)**	**Época de la floración femenina (50% de las plantas con al menos una flor femenina)**		
QN		early	précoce	früh	temprana	*ISF: add Tiny Orchid*	3
		medium	moyenne	mittel	media	Sugar Baby, Yamato 3	5
		late	tardive	spät	tardía	Kurobe	7

(2010)

Proposal NL to delete characteristic 54 (old 47) Hu *agrees with deletion*

FR: the deletion have to be discussed. It is an important characteristic, but not so easy to assess.... If it is maintained, it needs further explanations.

ISF proposes to add Bonanza for 3 **NL: not to take over, as the proposal is to delete char. 54 (old 47)**

(2011)

It: Time of maturity is difficult to assess. We suggest to determine the time of maturity with the observation of browning of basal cirrus closer to the fruit

54. (old 47)	**VG**	**Time of maturity (50% of plants with at least one ripe fruit)**	**Époque de maturité (50% des plantes avec au moins un fruit mûr)**	**Zeitpunkt der Reife (50% der Pflanzen mit mindestens einer reifen Frucht)**	**Época de madurez (50% de las plantas con al menos un fruto maduro)**		
QN		early	précoce	früh	temprana	Kahô, Sugar Baby	3
		medium	moyenne	mittel	media	Panonia, Yamato 3	5
		late	tardive	spät	tardía	Charleston Gray, Fumin, Kurobe	7

(2011): ISF comments on explanation of char. 55 and 56, see ad 55 and 56

55. (old 48) **(+)**		**Resistance to Fusarium *oxysporum* f.sp. *niveum* ~~(E.F. Smith) Snyder et Hansen~~**	**Résistance au Fusarium *oxysporum* f.sp. *niveum* ~~(E.F. Smith) Snyder et Hansen~~**	**Resistenz gegen Fusarium *oxysporum* f.sp. *niveum* ~~(E.F. Smith) Snyder et Hansen~~**	**Resistencia a Fusarium *oxysporum* f.sp. *niveum* ~~(E.F. Smith) Snyder et Hansen~~**		
55.1 (old 48.1)		**Race 0**	**Pathotype 0**	**Pathotyp 0**	**Raza 0**		
		absent	absente	fehlend	ausente	Kahô; *ISF to add Sugar Baby*	1
		present	présente	vorhanden	presente	Calhoun Gray, Charleston Gray	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
55.2 (old 48.2)	**Race 1**	**Pathotype 1**	**Pathotyp 1**	**Raza 1**		
	absent	absente	fehlend	ausente	Kahô, *ISF to add Sugar Baby and Charleston Gray*	1
	present	présente	vorhanden	presente	Calhoun Gray	9
55.3 (old 48.3)	**Race 2**	**Pathotype 2**	**Pathotyp 2**	**Raza 2**		
	absent	absente	fehlend	ausente	Kahô *ISF to add Calhoun Gray*	1
	present	présente	vorhanden	presente	PI 296341-FR	9
			ISF: should read Colletotrichum orbiculare			
56. (old 49)	**Resistance to *Colletotrichum*** *orbiculare*	**Résistance au *Colletotrichum*** *orbiculare*	**Resistenz gegen *Colletotrichum*** *orbiculare*	**Resistencia a *Colletotrichum*** *orbiculare*		
(+)						
56.1 (old 49.1)	**Race 1**	**Pathotype 1**	**Pathotyp 1**	**Raza 1**		
	absent	absente	fehlend	ausente	Kahô; *ISF add Black Diamond, Calhoun Gray*	1
	present	présente	vorhanden	presente	Charleston Gray, *ISF ~~Congo~~, add Jubilee*	9
56.2 (old 49.2)	**Race 2**	**Pathotype 2**	**Pathotyp 2**	**Raza 2**		
	absent	absente	fehlend	ausente	Kahô; *ISF add Charleston Gray*	1
	present	présente	vorhanden	presente	*ISF: ~~African citron W-695~~, add PI 189225*	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
56.3 (old 49.3)	**Race 3** ***ISF should read: 2b***	**Pathotype 3**	**Pathotyp 3**	**Raza 3**		
	NL: maybe 1B?					
	absent	absente	fehlend	ausente	Kahô, *ISF add Black Diamond*	1
	present	présente	vorhanden	presente	Charleston Gray, Congo, *ISF add Sugarlee*	9

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

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

(a) Cotyledon: All observations on the cotyledon should be observed when the cotyledons are fully developed and before the development of the first leaf: the surface is flat and the attitude is horizontal

Right stage for observation

(b) Leaf blade: All observations on the leaf blade should be made on fully developed leaves on the main vine, from the 10th to the 20th leaf, during fruit set, before the fruits are developed.

(2010) Hu: we would keep the earlier explanation (from the 10th to the 15th leaf) which is more precise and at that stage the main vine is still more visible than later. **NL proposes to keep the proposed explanation, is useful in the greenhouse as well as in the open field.**

(2011) I: the observation from the 10th to the 15th leaf is more precise.
NL: If it is easier, then we agree to make it 10th to 15th leaf.

(c) Fruit: Unless otherwise indicated, all observations on the fruit should be made on first well developed, mature fruits.

(d) Seed: All observations on the seed should be recorded on fully developed, mature seeds harvested from the fruit.

Fr agrees with (a), (b), (d); The color descriptions (Char 41, 42, 43, 45) have to be done on dry seeds or "fresh" seeds just after extraction?

NL: color stays the same, whether fresh or dry seeds

8.2 Explanations for individual characteristics

Ad. 1: Ploidy

(2011)
Hu: We do not see why we need the evaluation of the ploidity level by methods which are in case of b) (By counting the number chloroplasts in stomatal guard cells using a leaf peel under the microscope;) and c) (By flow cytometry.) indirect.

The differentiation power of the evaluation of ploidity levels is not to big, because the ploidity is given by the breeder (applicant) and the triploid varieties differs visibly from the diploid varieties.(seed and seed coats)

Tetraploids can be tested for protection as female parent lines of triploid varieties which is quite rare.

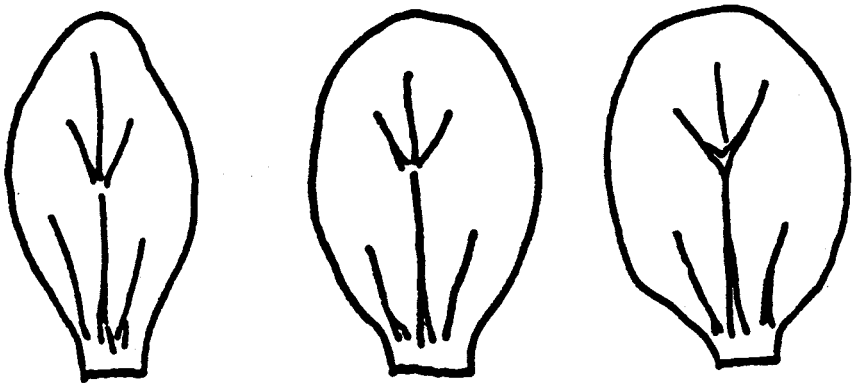
ES: To add in the explanation that it will be checked in laboratory only in the case of parent lines. (In the case of commercial varieties, the difference between diploids and triploids is evident observing the formation of seeds).

NL: proposal to keep this explanation, the testing and the choice of method is responsibility of the examiner but to add d. Triploid varieties show a whitish seed coat without embryo. The wording can be changed from 'can be detected' into 'may be' detected.

Ploidy level ~~**can**~~ **may** be detected by several methods:

a. By counting chromosomes of cells under the microscope;
b. By counting the number chloroplasts in stomatal guard cells using a leaf peel under the microscope;
c. By flow cytometry.
d. **Triploid varieties show a whitish seed coat without embryo.**

Ad. 3: Cotyledon: shape



1	2	3
narrow elliptic	medium elliptic	broad elliptic

Ad. 6: Leaf blade: size

(2011) ES: Pictures are unnecessary and can confuse. Examples varieties are enough

NL: agree with not having an explanation, although this was asked for in 2010

1
small

3
medium

5
large

Ad. 7: Leaf blade: ratio length/width

1
slightly elongated

2
moderately elongated

3
strongly elongated

Ad. 9: Leaf blade: degree of lobing

1
absent or very weak

3
weak

5
medium

7
strong

9
very strong

Ad. 12: Ovary: density of pubescence

(2011) To be observed just before flower opening.

3
dense?

ISF add 1?
sparse?

(2011) Photo's of sparse and medium to be provided by interested experts.
(2011) Kr: Position of the ovary to be indicated for clarification

NL: probably delete

Ad. 14: Fruit: shape in longitudinal section

1
circular

2
broad elliptic

3
elliptic

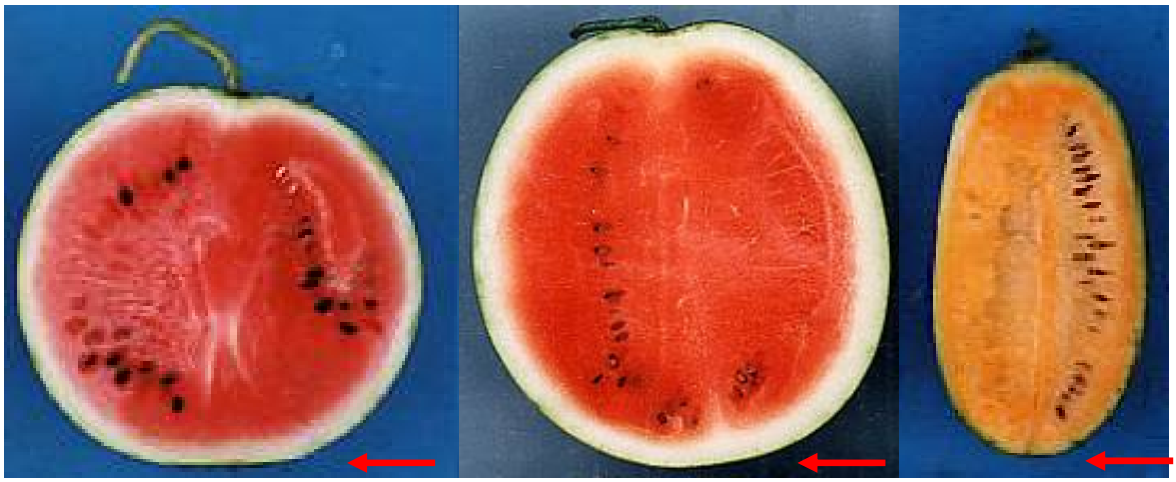
4
elongated elliptic

Ad. 15: Fruit: depression at base: **better explanation needed (photos)**

3	5	7
shallow	medium	deep

Ad. 16: Fruit: shape of apical part

Explanations about the states needed (drawings or photo's), provided 2011 by Japan, NL proposes to include these pictures.

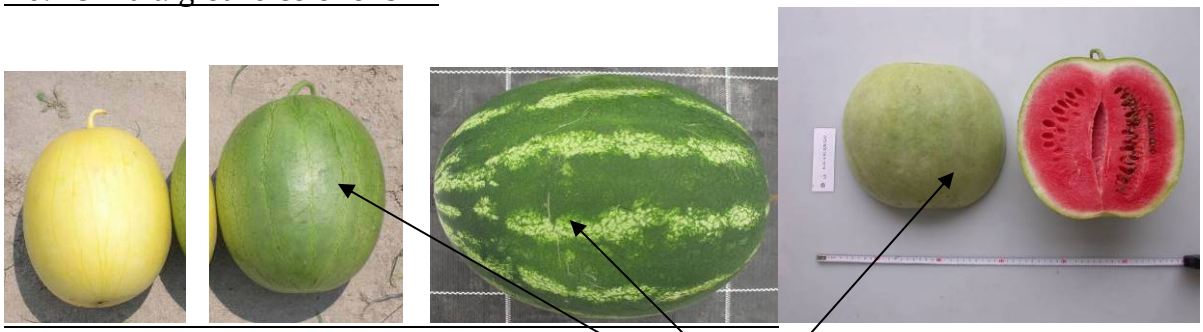


1	3	5
flat	rounded	conical

Ad. 17: Fruit: depression at apex**: NL:better explanation needed (drawing or photo's)**

3	5	7
shallow	medium	deep

Ad. 18 Fruit: ground color of skin



1
yellow

2
green

NL: see comments in the table chapter 7

In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.

Ad. 19: Fruit: intensity of ground color of skin

FR: to complete with photos as far as possible states 1, 3, 4, 6, 8, or at least to have the notes 1-3-5-7-9

***H**u: ad 19: picture 2 seems to be lighter than picture 1*

***It:** Photos of technical guide do not correspond to real expression of characteristic : photo n. 2 is ligther than photo 1. We propose other photos with different color intensity of skin: photo's of Italy*

3
light

4
light to medium

5
medium

7
dark

8
dark to very dark

ES:
In our opinion the selection of photos must be improved.
Our usual scale is approximately:

1 2 3

4 5 6

7 8 9

Original proposal NL:

1
very light

2
very light to light

5
medium

7
dark

9
very dark

(2011) Proposal NL:

	photo	ex var		
1	**NL 1**	**Tiger Baby**		
2	**IT 3**	**name to provide by It**		
3	**Napsugar**	**Napsugar**		
4	**NL 4**	**Tigre**		
5	**Es 5**	**name to provide by Es**		
6	**It 7**	**name to provide by It**		
7	**ES 7 (orig. NL)**	**Odem**		
8	**ES 8**	**name to provide by Es**		
9	**NL 9**	**Augusta, Rocio**		

Ad. 20: Fruit: conspicuousness of veining

ES: The photo of 5 (very strong) is not appropriate. In my opinion the netting is not veining but stripes. New proposal of examples for photos:

2
weak

3
medium

4
strong

1

2

3

4

5

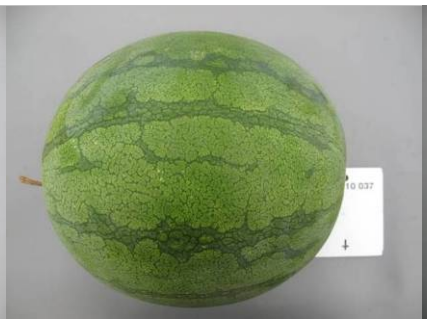
NL: to replace the photo's for 2, 3 and 4 by the photo's provided by Spain, to delete the photo for 5 Question: how to describe 5?

Ad. 21: Fruit: conspicuousness of stripes

In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.

(2011)Proposal ES for photo's

3

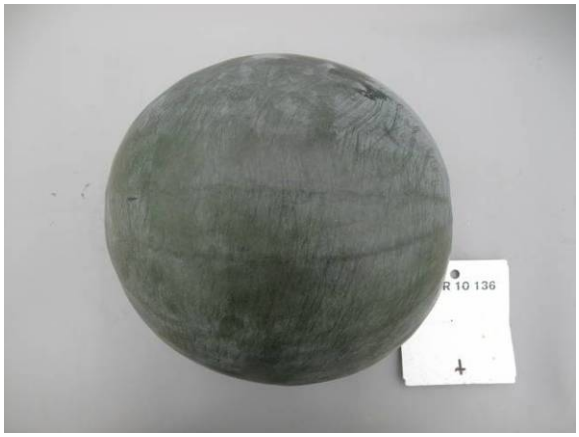


5

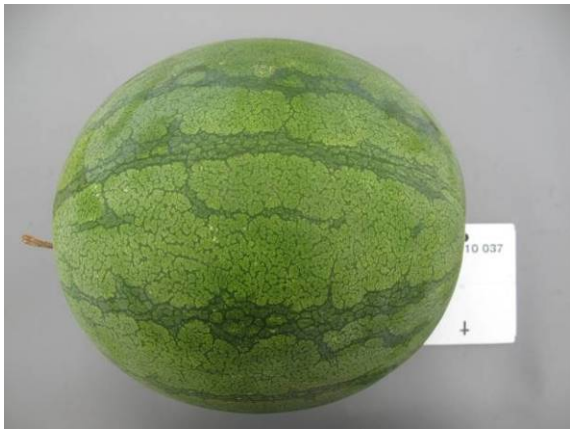
7

Proposal NL: To take over these photo's but with notes 2, 3 and 4, and to use for 1 the picture of NL

1 absent or very weak



2 weak



3 medium

4 strong *ISF: not a good picture*

5 very strong *ISF: not a good picture*

ISF: better pictures

4

5

Ad. 22: Fruit: patternation of stripes

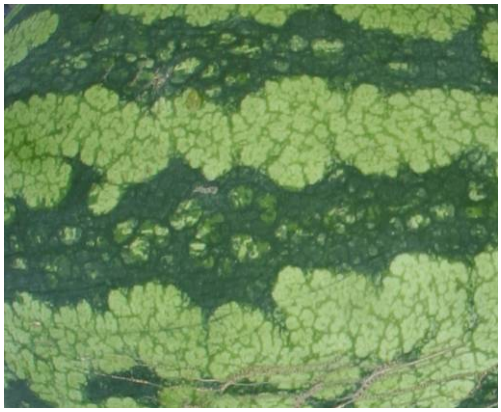
Hu: picture 3 (one colored, veins and marbled)
*picture 4 (one colored and marbled) On this photo veins are more visible.***NL: better picture needed from Spain?**

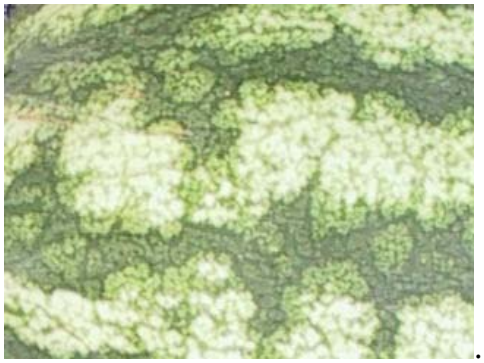
In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.

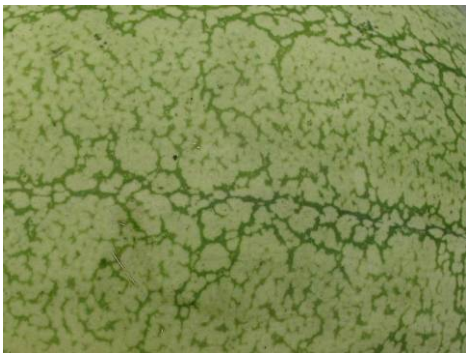

1 one colored


2 one colored and veins


3 one colored, veins and marbled


4 one colored and marbled


….


5 two colored, veins and marbled

6 only veins

Ad. 23: Stripes of only veins excluded: Fruit: width of stripes

In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.

ISF:

ES:

2

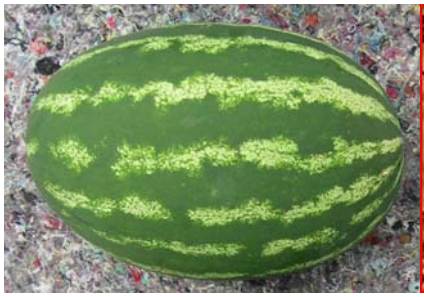
3

4

5

6

7



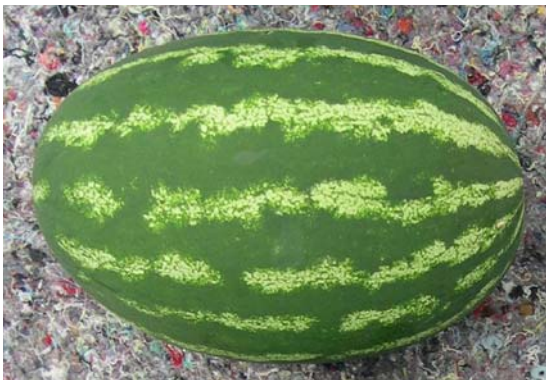

8 9

NL: agree with 2 (ISF and ES), pictures for 3, 4 and 5 from ES do not seem to be different from each other, so proposal to keep NL pictures.

1 very narrow

3 narrow

5 medium



7 broad

9 very broad

Ad. 24: Stripes of only veins excluded: Fruit: intensity of main color of stripes

In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.
Use the same scale as ground color

Ad. 25: Stripes of only veins excluded: Fruit: margin of stripes

In the case of striped fruits the ground color is defined as the lighter color and the color of the stripes as the darker color.

1 sharp

2 medium

3 diffuse

Ad. 26: Fruit: size of insertion of peduncle:

The size of the insertion of the peduncle is absolute and not relative to fruit size.

Ad. 28: Fruit: degree of grooving: **(2010) explanations needed for 3, 5 and 7**

It: Photo n.2 would be a medium degree of grooving

1
absent or very weak

?

Ad. 40 (new): Fruit: waxy layer

ISF: photo for very strong

1
absent or very weak

2
weak

3
medium

4
strong

5
very strong

Ad. 41 (new 35): Fruit: thickness of pericarp

1	3	5	7	9
very thin	thin	medium	thick	very thick

ISF: picture for level 9 is wrong: better picture needed **NL ok, we will try to provide**
FR: to add a photo for note 3 thin. **NL: we will try to provide**

Photo ISF for state 9 received:

Ad. 44 (old 38): Fruit: firmness of flesh (proposal to delete this characteristic)

~~Testing method: Firmness is measured by a hardness meter (tester), which has 9 mm (diameter head) and measures from 10 g/cm^2 - 2000 g/cm^2.~~

Ad. 45 (new): Only triploid varieties: Seed coat: size

1	3	5
very small	small	medium

Ad. 47 (old 40): Only diploid and tetraploid varieties: Seed: size

1	2	3	4	5	6	7	8	9
very small		small		medium		large		very large

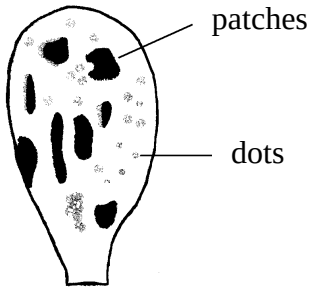
Ad. 48 (old 41): Only diploid and tetraploid varieties: Seed: ground color of testa

1	2	3	4	5	6	7
white	cream	green	red	red brown	brown	black

Ad. 49 (old.42): Only diploid and tetraploid varieties: ~~Seed: secondary color of testa~~

1	9
absent	present

Ad. 50 (old 43): Only diploid and tetraploid varieties: Seed: distribution of secondary color of testa



Ad. 52 (old 45): Only diploid and tetraploid varieties: Seed: patches at hilum

1	9
absent	present

Ad. 55 (old 48): Resistance to *Fusarium oxysporum* f. sp. *niveum* ~~(E.F. Smith) Snyder et Hansen~~

(2011) ISF:

· *Work instructions Fusarium oxysporum f. sp. niveum*

1 Resistant plants may show slightly retarded growth but no other external symptoms.; we suggest: resistant plants show no or little delayed growth but no internal or external symptoms

2 In the Remark section: Keeping of Pathogenicity: Renewal of medium at least once a year; This comes somewhat out of the blue probably change to: Transfer pathogen to fresh growing medium (PSA) at least a year.

3 Possibly a remark could be included that to maintain virulence pathogen should be reisolated every 4 years.

4 Possibly an intermediate control would be good to include in bioassay

5 For both workinstructions we miss:

o Validation of the assay: 90 % plants Susceptible control susceptible, 90% plants Resistant control resistant

o Bioassay design: 20 seedlings in at least 2 reps as indicated earlier on in the document

(2011) NL:

- **to take over remarks 1, 2, 3 and 5 of ISF,**
- **to remove the author name of the pathogen**
- **To add Symptoms and interpretation**

Maintenance of races

Type of medium:	P.S.A. (Potato, Sugar and Agar) medium
Special conditions:	Stored below 5°C
Preparation of inoculum:	Shaking culture in P.S. (Potato and Sugar) liquid medium for 7 to 10 days at 28°C. Filtration by using double gauzes. Adjusting concentration of spore to 1.3×10^7/ml with sterilized water.

Execution of test

Sowing the seeds:	In sterilized soil
Growth stage of plants:	Expanding of 2nd to 3rd true leaf
Method of inoculation:	Soaking of roots and of hypocotyl axis for one minute inoculum solution. After inoculation, transplantation of plantlets in sterilised (by steam) soil or perlite.
Number of plants tested:	~~10 to~~ 20 plants

Environmental condition after inoculation

Temperature:	Day: 25°C; night: 16°C
Light:	Natural (longer than 12 hours)
Growing method:	In the greenhouse or climatic room. Application of liquid fertilizer every week.

Duration of test

Inoculation to last observation:	20 days. Disease symptoms appear from 5 to 10 days after inoculation. Observation should be made on several occasions

(2011)
Symptoms and interpretation

Susceptibility	Yellowing, wilting and plant death are indicative of susceptibility.
	Vascular browning is the most reliable diagnostic symptom.
Resistance	Resistant plants may show slightly retarded growth but no other external symptoms.

Remarks

Keeping of pathogenesity: Renewal of medium at least once a year

Standard varieties

	Race 0	Race 1	Race 2
Black Diamond, Kahô	S	S	S
Charleston Gray	R	S	S
Calhoun Gray	R	R	S
P.I. 296341-FR	R	R	R

S: susceptible R: resistant

Ad. 56 (old 49): Resistance to *Colletotrichum orbiculare ~~lagenarium~~ ~~(passerini)~~* ~~Ellis et Halsted~~

(2011) ISF:
1 Method of inoculation: Spraying inoculum on the leaves and the stem; Include on which side of the leaves it should be sprayed
2 The UPOV guidelines use "C. lagenarium" and the ISF pathogen name is Colletotrichum orbiculare. we suggest switching to C. orbiculare for consistency.

3 For both workinstructions we miss:
o Validation of the assay: 90 % plants Susceptible control susceptible, 90% plants Resistant control resistant
o Bioassay design: 20 seedlings in at least 2 reps as indicated earlier on in the document

(2011) NL:
- **to take over remarks 1, 2, 3 of ISF,**
- **to remove the author name of the pathogen**
- **To add Symptoms and interpretation**

Maintenance of races

Type of medium: P.S.A. (Potato, Sugar and Agar) medium

Special conditions: Stored below 5°C

Preparation of inoculum: Shaking culture in P.D. (Potato and Dextrose) liquid medium for 7 to 10 days at 28°C. Filtration by using double gauzes. Adjusting concentration of spore to 1.5×10^4/ml with sterilized water.

Execution of test

Sowing the seeds: In sterilized soil

Growth stage of plants: Expanding of 2nd to 3rd true leaf

Method of inoculation: Spraying inoculum on the leaves and the stem

Treatment after inoculation: Inoculated plants should be placed in a dark and humid chamber at 25°C with 100% relative humidity for 48 hours before being moved to the greenhouse.

Number of plants tested: ~~10 to~~ 20 plants

Environmental condition after inoculation

Temperature: Day: 25°C; night: 16°C

Light: Natural (longer than 12 hours)

Growing method: In the greenhouse

Duration of test

Inoculation to last observation: 25 days

(2011)

Symptoms and interpretation

Susceptibility: Lesions expanding to a size bigger then 2 mm indicate susceptibility. Eventually lesions may coalesce and kill the leaf back to the petiole.

Resistance: Lesions that stay small and tend towards necrosis indicate resistance. Complete absence of symptoms indicates a low disease pressure or high resistance

Remarks

Race: Three races are identified

Keeping of pathogenesity: Renewal of medium at least once a year

Standard varieties

	Race 1	Race 2	Race 3
Kahô *ISF: skip Kahô and add Calhoun Gray*	S	S	S
Charleston Gray, Congo *ISF: skip Congo*	R	S	R
ISF: delete African citron W-695, add PI 189225	S	R	S

S: susceptible R: resistant

9. Literature

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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

ISF: delete following sentence
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.

1. Subject of the Technical Questionnaire

1.1 Latin Name	*Citrullus lanatus* (Thunb.) Matsum. et Nakai
1.2 Common Name	Watermelon

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	

Breeder (if different from applicant)

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

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)

(……..……..…)	x	(……..……..…)
female parent		male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…)	x	(……..……..…)
female parent		male parent

(c) unknown cross [ ]

ISF: Crossing: this scheme is appropriate for hybrid varieties. Which choice should be made when applying for a parental line, since usually it is a controlled cross, but with a larger number of "parent varieties".

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)"

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

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination

(i) population [ ]

(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]

(please provide details)

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

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

To be decided, at least the grouping characteristics to be included

NL: proposal to include only the grouping characteristics

	Characteristics	Example Varieties	Note
5.1 (1)	**Ploidy**		
	diploid	SP 4, Sugar Baby, Yamato 3	2
	triploid	Boston, Kimiwa Red, Seedless, TRIX 313	3
	tetraploid		4
5.2 (9)	**Leaf blade : degree of lobing**		
	absent or very weak	*ISF: ~~Early Florida~~ Sunshade*	1
	very weak to weak		2
	weak	*ISF: ~~Dumara~~ Estrella*	3
	weak to medium		4
	medium	Crimson Sweet, Crisby	5
	medium to strong		6
	strong	Cadans	7
	strong to very strong		8
	very strong	SP 1	9

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

	Characteristics	Example Varieties	Note
5.3 (13)	**Fruit: weight (1st mature fruit)**		
	very low	Monaco, *ISF New Hampshire Midget*	1
	very low to low	Mini, Petite Perfection	2
	low	Angela, *ISF: ~~Jenny~~*	3
	low to medium	Pasión	4
	medium	Boston, Sugar Baby	5
	medium to high	Panonia	6
	high	Fabiola	7
	high to very high	Crimson Sweet	8
	very high	Carolina Cross, Florida Giant, *ISF Cobb's Gem*	9
5.4 (14)	**Fruit: shape in longitudinal section**		
	circular	Camilla, Kanro, *ISF: Sugar Baby*	1
	broad elliptic	Fumin, Gray Belle, Yellow Baby, Zorba	2
	medium elliptic	Congo, Kurobe, Picnic	3
	elongated elliptic	Allsweet, Charleston Gray	4
5.5 (18)	**Fruit: ground color of skin**		
	yellow	Golden Dragon, Okan, Taiyô	1
	green	Crimson Sweet, Blanca de Benocaz, Fabiola, Napsugar , Sugar Baby, Sugar Belle	2

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

	Characteristics	Example Varieties	Note
5.6 (19)	**<u>Only varieties with Fruit: ground color of skin: green</u>: Fruit: intensity of ground color of skin**		
	very light	Fumin, Blanca de Benocaz, Napsugar, Tiger Baby	1
	very light to light	Crimson Sweet	2
	light	Estella Rocha, Sweet Favorite, Yamato 3	3
	light to medium	Tigre	4
	medium	Asahiyamato, Lucky Sweet, Rodeo	5
	medium to dark		6
	dark	Benimusume, ISF: ~~Resistant~~, Sweet Marvel	7
5.7 (21)	**<u>Fruit: conspicuousness of stripes</u>**		
	absent or very weak	**Augusta**	**1**
	weak	**Odem**	**2**
	medium	**Trix Palomar**	**3**
	strong	**Jenny**	**4**
	very strong		**5**

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

	Characteristics	Example Varieties	Note
5.8 (23)	**Excluding types with only veins: Fruit: width of stripes**		
	very narrow	*ISF: Tiny Orchid* **NL: Odem is better**	1
	very narrow		2
	narrow	**Boston**	3
	narrow to medium		4
	medium	*ISF: Crimson Sweet*	5
	medium to broad		6
	broad	**Sangria**	7
	broad to very broad		8
	very broad	*ISF: All Sweet*	9
5.9 (25)	**Excluding types with only veins: Fruit: margin of stripes**		
	sharp	**Jenny, Jubilee**	1
	medium	**Crimson Sweet**	2
	diffuse	**Crimson Glory, Crisby**	3
5.10 (42)	**Fruit: main color of flesh**		
	white	SP 4, Yamato Cream 3, *ISF: add SP1*	1
	yellow	Napsugár, Yamato Cream 1	2
	orange	Kahô, Tendersweet	3
	pink	Sadur, (2010): *ISF add Charleston Gray* **NL: is more 5 pinkish red, It agrees with NL**	4
	pinkish red	Bingo, Crimson Sweet	5
	red	Asahiy ~~Yamato~~, Sugar Baby, *ISF: Topgun*	6

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

	Characteristics	Example Varieties	Note
5.11 (47)	**Only diploid and tetraploid varieties: Seed: size**		
	very small	Urimi *ISF skip Urimi, add Jenny and Bonanza*	1
	very small to small		2
	small	Jenny, Panonia, Tabata *ISF: skip Jenny*	3
	small to medium		4
	medium	Sugar Baby	5
	medium to large		6
	large	Charleston Gray, Kurobe	7
	large to very large		8
	very large	Malali, Wanli	9
5.12 (48)	**Only diploid and tetraploid varieties: Seed: ground color of testa**		
	white	Sanpaku	1
	cream	Kurobe	2
	green	Green Citron	3
	red	Red Citron	4
	red-brown	Kahô	5
	brown	Otome, Sugar Baby	6
	black	Yamato Cream	7

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6. Similar varieties and differences from these varieties

Please use the table, and space provided for comments, below 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	*Fruit: width of stripes*	*narrow*	*medium*

Comments:

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color image 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.

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

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

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”:

……

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

Applicant’s name

Signature Date

[End of document]