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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

PAPAYA

UPOV Code: CARIC_PAP

Carica papaya L.

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GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Mexico

to be considered by the

Technical Committee at its forty-sixth session,
to be held in Geneva from March 22 to 24, 2010

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Carica papaya L.	Papaya, Papaw	Papayer	Melonenbaum, Papaya	Papayo, Lechosa

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Carica papaya* L. of the family *Caricaceae*.

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 or plants.

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

200 seeds in the case of seed-propagated varieties,
or 6 hermaphrodite plants in the case of vegetatively propagated varieties.

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

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The growing cycle is considered to be the duration of a single growing season, beginning with vegetative growth, followed by flowering and fruit harvest.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 25 hermaphrodite plants in the case of seed-propagated plants or, in the case of vegetatively propagated varieties, in a total of at least 6 hermaphrodite plants or plant parts.

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 25 hermaphrodite plants parts in the case of seed-propagated varieties or, in the case of vegetatively propagated varieties, on 6 hermaphrodite plants or plant parts.

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 For the assessment of uniformity for seed-propagated 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 25 hermaphrodite plants, one off-type is allowed.

4.2.3. For the assessment of uniformity for vegetatively propagated varieties, a population standard of 1% and an acceptance probability of 95% should be applied. In the case of a sample size of 6 hermaphrodite plants, one off-type is allowed.

4.3 Stability

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

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

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: height to first flower (characteristic 2)
(b) Leaf blade: ratio length/width (characteristic 9)
(c) Fruit: ratio length/diameter at broadest part (characteristic 24)
(d) Fruit: shape (characteristic 25)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

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

(a)-(g) See Explanations on the Table of Characteristics in Chapter 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.2

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(+)**		**Young plant: color of stem**	**Jeune plante : couleur de la tige**	**Jungpflanze: Farbe des Triebs**	**Planta joven: color del tallo**		
PQ		only green	seulement verte	nur grün	sólo verde	Ishigaki Sango	1
		yellowish green	vert jaunâtre	gelblichgrün	verde amarillento	Tainung Nº 1	2
		brown	brune	braun	marrón		3
		green and purple	verte et pourpre	grünpurpurn	verde y púrpura	Sunrise	4
		only purple	seulement pourpre	nur purpurn	sólo púrpura		5
2. **(*)** **(+)**		**Plant: height of first flower**	**Plante : hauteur de la première fleur**	**Pflanze: Höhe der ersten Blüte**	**Planta: altura de la primera flor**		
QN	**(a)**	low	basse	niedrig	baja	Ishigaki Sango	3
		medium	moyenne	mittel	media	Sunrise, Tainung Nº 1	5
		high	haute	hoch	alta	Cera	7
3. **(*)** **(+)**		**Plant: branching**	**Plante : ramification**	**Pflanze: Verzweigung**	**Planta: ramificación**		
QL		absent	absente	fehlend	ausente	Ishigaki Sango, Maradol, Sunrise	1
		present	présente	vorhanden	presente		9
4. **(+)**		**Stem: diameter**	**Tige : diamètre**	**Stängel: Durchmesser**	**Tallo: diámetro**		
QN	**(a)**	small	petit	klein	pequeño		3
		medium	moyen	mittel	medio	Ishigaki Sango, Sunrise, Tainung Nº 1	5
		large	large	groß	grande		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.		**Stem: number of nodes from ground to first flower**	**Tige : nombre de noeuds du sol à la première fleur**	**Stängel: Anzahl Knoten vom Boden bis zur ersten Blüte**	**Tallo: número de nudos desde el suelo hasta la primera flor**		
QN	**(a)**	few	faible	wenige	bajo	Ishigaki Sango	3
		medium	moyen	mittel	medio	Sunrise, Tainung Nº 1	5
		many	élevé	viele	alto		7
6.		**Stem: length of internode half-way between ground and first flower**	**Tige : longueur de l'entrenoeud à mi-chemin entre le sol et la première fleur**	**Stängel: Länge der Internodien auf halbem Wege zwischen Boden und erster Blüte**	**Tallo: longitud del entrenudo a mitad camino entre el suelo y la primera flor**		
QN	**(a)**	short	courte	kurz	corto	Ishigaki Sango	3
		medium	moyenne	mittel	medio	Sunrise, Tainung Nº 1	5
		long	longue	lang	largo		7
7.		**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
(+)							
QN	**(b)**	short	court	kurz	corta		3
		medium	moyen	mittel	media	Ishigaki Sango, Sunrise, Tainung Nº 1	5
		long	long	lang	larga		7
8.		**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
(+)							
QN	**(b)**	narrow	étroit	schmal	estrecha		3
		medium	moyen	mittel	media	Sunrise, Tainung Nº 1	5
		broad	large	breit	ancha		7
9. **(*)**		**Leaf blade: ratio length/ width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación longitud/ anchura**		
QN	**(b)**	slightly elongated	légèrement allongé	leicht langgezogen	ligeramente alargado		3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargado	Ishigaki Sango, Sunrise, Tainung Nº 1	5
		very elongated	très allongé	sehr langgezogen	muy alargado		7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. (*) (+)		**Leaf blade: presence of tertiary lobes**	**Limbe : présence de lobes tertiaires**	**Blattspreite: Vorhandensein von Lappen dritter Ordnung**	**Limbo: presencia de lóbulos terciarios**		
QL	**(b)**	absent	absente	fehlend	ausencia		1
		present	présente	vorhanden	presencia	Ishigaki Sango, Sunrise, Tainung Nº 1	9
11.		**Leaf blade: pubescence on lower side**	**Limbe : pubescence (face inférieure)**	**Blattspreite: Behaarung der Unterseite**	**Limbo: pubescencia en envés**		
QL	**(b)**	absent	absente	fehlend	ausente	Ishigaki Sango, Sunrise, Tainung Nº 1	1
	(c)	present	présente	vorhanden	presente		9
12.		**Petiole: length**	**Pétiole : longueur**	**Blattstiel: Länge**	**Peciolo: longitud**		
QN	**(b)**	short	court	kurz	corta		3
		medium	moyen	mittel	media	Ishigaki Sango, Sunrise, Tainung Nº 1	5
		long	long	lang	larga		7
13.		**Petiole: anthocyanin coloration**	**Pétiole : pigmentation anthocyanique**	**Blattstiel: Anthocyanfärbung**	**Peciolo: pigmentación antociánica**		
QN	**(b)**	absent or very weak	absente ou très faible	fehlend oder sehr schwach	ausente o muy débil	Ishigaki Sango	1
		moderate	modérée	mittel	moderada	Sunrise, Tainung Nº 1	3
		very strong	très forte	sehr stark	muy fuerte		5
14. (*)		**Inflorescence: number of flowers**	**Inflorescence : nombre de fleurs**	**Blütenstand: Anzahl der Blüten**	**Inflorescencia: número de flores**		
QN	**(d)**	few	petit	wenige	bajo	Ishigaki Sango	3
		medium	moyen	mittel	medio	Sunrise	5
		many	élevé	viele	alto	Tainung Nº 1	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15.		**Inflorescence: length of main axis**	**Inflorescence : longueur de l'axe central**	**Blütenstand: Länge der Hauptachse**	**Inflorescencia: longitud del eje central**		
QN	**(d)**	short	court	kurz	corta	Ishigaki Sango, Sunrise	3
		medium	moyen	mittel	media		5
		long	long	lang	larga	Tainung Nº 1	7
16.		**Inflorescence: anthocyanin coloration of axis**	**Inflorescence : pigmentation anthocyanique de l'axe**	**Blütenstand: Anthocyanfärbung der Achse**	**Inflorescencia: pigmentación antociánica del eje**		
PQ	**(d)**	absent or weak	absente ou faible	fehlend oder schwach	ausente o débil	Ishigaki Sango, Sunrise, Tainung Nº 1	1
		moderate	modérée	mittel	moderada		2
		strong	forte	stark	fuerte		3
17.		**Flower: length of corolla**	**Fleur : longueur de la corolle**	**Blüte: Länge der Krone**	**Flor: longitud de la corola**		
QN	**(e)**	short	courte	kurz	corta		3
		medium	moyenne	mittel	media	Sunrise	5
		long	longue	lang	larga	Tainung Nº 1	7
18.		**Flower: color of corolla**	**Fleur : couleur de la corolle**	**Blüte: Farbe der Krone**	**Flor: color de la corola**		
PQ	**(e)**	white	blanche	weiß	blanca		1
		cream	crème	cremefarben	crema	Sunrise, Tainung Nº 1	2
		yellow	jaune	gelb	amarilla		3
		green	verte	grün	verde		4
		purple	pourpre	purpurn	púrpura		5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19.		**Peduncle: length**	**Pédoncule : longueur**	**Länge des Stiels**	**Pedúnculo: longitud**		
QN	**(f)**	short	courte	kurz	corto	Ishigaki Sango, Sunrise	3
		medium	moyenne	mittel	medio		5
		long	longue	lang	largo	Tainung Nº 1	7
20. (*)		**Fruit: length**	**Fruit : longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(f)**	short	petit	kurz	corto	Du Roi Solo, Sunrise	3
		medium	moyen	mittel	medio	Ishigaki Sango	5
		long	long	lang	largo	Cera	7
21. (*)		**Fruit: diameter**	**Fruit : diamètre**	**Frucht: Durchmesser**	**Fruto: diámetro**		
QN	**(f)**	small	petit	klein	pequeño	Du Roi Solo, Sunrise	3
		medium	moyen	mittel	medio	Ishigaki Sango	5
		large	large	groß	grande	Cera	7
22. (*)		**Fruit: ratio length/ diameter**	**Fruit : rapport longueur/diamètre**	**Frucht: Verhältnis Länge/Durchmesser**	**Fruto: relación longitud/ diámetro**		
QN	**(f)**	slightly elongated	légèrement allongé	leicht langgezogen	ligeramente alargado	Cera	3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargado	Ishigaki Sango	5
		very elongated	très allongé	sehr langgezogen	muy alargado	Sunrise	7
23. (*) (+)		**Fruit: shape**	**Fruit : forme**	**Frucht: Form**	**Fruto: forma**		
PQ	**(f)**	ovate	ovale	eiförmig	oval		1
		elliptic	elliptique	elliptisch	elíptico	Ishigaki Sango	2
		obovate	obovale	verkehrt eiförmig	ovoidal	Du Roi Solo, Red Lady	3
		pyriform	pyriforme	birnenförmig	piriforme	Kapoho, Rainbow	4
		oblong		länglich	oblongo	Amarela	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24. **(+)**		**Fruit: shape of stalk end**	**Fruit : forme de l'extrémité pédonculaire**	**Frucht: Form des Stielendes**	**Fruto: forma del extremo peduncular**		
PQ	**(f)**	pointed	pointue	spitz	en punta		1
		rounded	arrondie	abgerundet	redondeado		2
		truncate	tronquée	stumpf	truncado	Sun Rice Solo	3
		depressed	déprimée	eingesunken	deprimido	Du Roi Solo, Ishigaki Sango	4
25.		**Fruit: shape at distal end**	**Fruit : forme à l'extrémité distale**	**Frucht: Form am distalen Ende**	**Fruto: forma en el extremo distal**		
QN	**(f)**	rounded	arrondi	abgerundet	redondeado	Tainung Nº 1	1
		weakly pointed	pointu	leicht spitz	ligeramente puntiagudo	Ishigaki Sango, Sunrise	2
		strongly pointed	fortement pointu	stark spitz	muy puntiagudo	Du Roi Solo	3
26. **(*)**		**Ripe fruit: main color**	**Fruit à maturité de consommation : principale couleur**	**Reife Frucht: Hauptfarbe**	**Fruto maduro: color principal**		
PQ	**(g)**	green	verte	grün	verde		1
		yellow green	vert jaune	gelbgrün	verde amarillento		2
		yellow	jaune	gelb	amarillo	Amarela, Kapoho, Tainung Nº 1	3
		medium orange	orange moyen	mittelorange	naranja medio	Ishigaki Sango, Maradol, Mulata	4
		dark orange	orange foncé	dunkelorange	naranja oscuro	Mamey	5
27. **(+)**		**Ripe fruit: ridges**	**Fruit à maturité de consommation : cannelures**	**Reife Frucht: Rippen**	**Fruto maduro: aristas**		
QN	**(g)**	absent or very weak	absentes ou très faibles	fehlend oder sehr schwach	ausentes o muy débiles	Ishigaki Sango, Sunrise, Tainung Nº 1	1
		weak	faibles	schwach	débiles		2
		moderate	modérées	mittel	moderadas		3
		strong	fortes	stark	fuertes		4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. (*) (+)		**Ripe fruit: thickness of skin**	**Fruit à maturité de consommation : épaisseur de l'épiderme**	**Reife Frucht: Dicke der Schale**	**Fruto maduro: grosor de la piel**		
QN	**(g)**	thin	mince	dünn	delgada		1
		medium	moyenne	mittel	media	Sunrise	2
		thick	épaisse	dick	gruesa	Tainung Nº 1	3
29. (*)		**Ripe fruit: color of flesh**	**Fruit à maturité de consommation : couleur de la chair**	**Reife Frucht: Fleischfarbe**	**Fruto maduro: color de la carne**		
PQ	**(g)**	yellow	jaune	gelb	amarillo	Amarela, Cera, Kapoho	1
		orange	orange	orange	naranja	Sunrise, Tainung N 1	2
		red orange	rouge orangé	rotorange	naranja rojizo	Ishigaki Sango, Maradol	3
30.		**Ripe fruit: firmness of flesh**	**Fruit à maturité de consommation : fermeté de la chair**	**Reife Frucht: Festigkeit des Fleisches**	**Fruto maduro: firmeza de la carne**		
QN	**(g)**	soft	douce	weich	blanda	Cera, Mamey	3
		medium	moyenne	mittel	media	Maradol	5
		firm	ferme	fest	firme	Sunrise, Tainung N 1	7
31. (+)		**Ripe fruit: sweetness**	**Fruit à maturité de consommation : goût sucré**	**Reife Frucht: Süße**	**Fruto maduro: sabor dulce**		
QN	**(g)**	low	faible	niedrig	bajo	Cera	3
		medium	moyen	mittel	medio	Maradol, Tainung Nº 1	5
		high	fort	hoch	alto	Ishigaki Sango, Sunrise	7
32.		**Ripe fruit: aroma of flesh**	**Fruit à maturité de consommation : arôme de la chair**	**Reife Frucht: Aroma des Fleisches**	**Fruto maduro: aroma de la carne**		
QN	**(g)**	weak	faible	schwach	débil	Maradol	1
		moderate	modéré	mittel	moderado	Ishigaki Sango, Sunrise	2
		strong	fort	stark	fuerte	Cera	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33.		**Ripe fruit: placental tissue**	**Fruit à maturité de consommation : tissu placentaire**	**Reife Frucht: plazentales Gewebe**	**Fruto maduro: tejido placentario**		
QN	**(g)**	scarce	rare	spärlich	escaso	Mamey	3
		medium	moyen	mittel	medio	Sunrise, Tainung Nº 1	5
		abundant	abondant	üppig	abundante	Cera	7
34. **(+)**		**Ripe fruit: width of central cavity**	**Fruit à maturité de consommation : largeur de la cavité centrale**	**Reife Frucht: Breite der zentralen Höhlung**	**Fruto maduro: anchura de la cavidad central**		
QN	**(g)**	narrow	étroite	eng	estrecha	Sunrise	3
		medium	moyenne	mittel	media	Ishigaki Sango, Tainung Nº 1	5
		broad	large	breit	ancha		7
35. **(+)**		**Ripe fruit: shape of central cavity**	**Fruit à maturité de consommation : forme de la cavité centrale**	**Reife Frucht: Form der zentralen Höhlung**	**Fruto maduro: forma de la cavidad central**		
PQ	**(g)**	circular	circulaire	rund	circular		1
		angular	angulaire	winklig	angular	Tainung Nº 1	2
		star-shaped	en forme d'étoile	sternförmig	estrellada	Du Roi Solo, Ishigaki Sango, Sunrise	3
		irregular	irrégulière	unregelmäßig	irregular		4
36. **(*)**		**Ripe fruit: number of seeds**	**Fruit à maturité de consommation : nombre de graines**	**Reife Frucht: Anzahl Samen**	**Fruto maduro: número de semillas**		
QN	**(g)**	absent or very few	absent ou très peu	fehlend oder sehr gering	ninguna o muy pocas	Ishigaki Sango	1
		few	quelques-unes	wenige	número bajo	Du Roi Solo	3
		moderate	modéré	mittel	número moderado		5
		many	un grand nombre	viele	número alto	Sunrise	7
		very many	un très grand nombre	sehr viele	número muy alto	Cera, Tainung Nº 1	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37.		**Seed: color**	**Graine : couleur**	**Samen: Farbe**	**Semilla: color**		
PQ	**(f)**	grey yellow	jaune gris	graugelb	amarillo grisáceo		1
		grey	grise	graugelb	gris		2
		medium brown	brun moyen	mittelbraun	marrón medio	Tainung Nº 1	3
		dark brown	brun foncé	dunkelbraun	marrón oscuro	Sunrise	4
		black	noire	schwarz	negro	Maradol	5
38.		**Seed: length**	**Graine : longueur**	**Samen: Länge**	**Semilla: longitud**		
QN	**(f)**	short	courte	kurz	corta		3
		medium	moyenne	mittel	media	Sunrise, Tainung Nº 1	5
		long	longue	lang	larga	Cera	7
39.		**Seed: width**	**Graine : largeur**	**Samen: Breite**	**Semilla: anchura**		
QN	**(f)**	narrow	étroite	schmal	estrecha		3
		medium	moyenne	mittel	media	Sunrise, Tainung N 1	5
		broad	large	breit	ancha		7
40.		**Seed: ratio length/width**	**Graine : rapport longueur/largeur**	**Samen: Verhältnis Länge/Breite**	**Semilla: relación longitud/anchura**		
QN	**(f)**	moderately compressed	modérément comprimé	mäßig zusammengedrückt	moderadamente comprimida		3
		circular	circulaire	rund	circular	Sunrise, Tainung Nº 1	5
		moderately elongated	modérément allongé	mäßig länglich	moderadamente alargada		7
41. **(+)**		**Seed: position of broadest part**	**Graine : position de la partie la plus large**	**Samen: Position der breitesten Stelle**	**Semilla: posición de la parte más ancha**		
QN	**(f)**	at middle	au milieu	in der Mitte	en el medio	Sunrise	1
		slightly towards base	légèrement vers la base	leicht zur Basis hin	ligeramente hacia la base	Tainung Nº 1	2
		moderately towards base	plus ou moins vers la base	mäßig zur Basis hin	moderadamente hacia la base		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
42.		**Seed: amount of mucilage**	**Semence : quantité de mucilage**	**Samen: Menge Schleim**	**Semilla: cantidad de mucílago**		
QN	**(f)**	small	petite	gering	pequeña		1
		moderate	modérée	mittel	moderada	Sunrise, Tainung N 1	2
		large	grande	groß	grande	Cera	3

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) Plant and stem: All observations on the plant and stem should be made at the beginning of fruit maturity.

(b) Leaf blade and petiole: All observations on the leaf blade and petiole should be made on mature leaves. Leaves should be taken from the middle third of the current season's growth when the fruit has reached its full size.

(c) Pubescence: All observations on pubescence should be made with the aid of a magnifying glass.

(d) Inflorescence: All observations on inflorescence should be taken after the fourth one has appeared, when it has reached its full length. Single flowers should be excluded from all observations.

(e) Flower: All observations on the flower should be made during the first flower opening, at the start of anther dehiscence, only in hermaphrodite and female flowers.

(f) Peduncle, fruit and seed: All observations on the peduncle, fruit and seed should be made on 5 typical fruits, taken from the middle part of the fruiting region with a minimum sample of 10 fruits, at the time of harvest maturity. Seed characteristics should only be observed on fully-developed seeds.

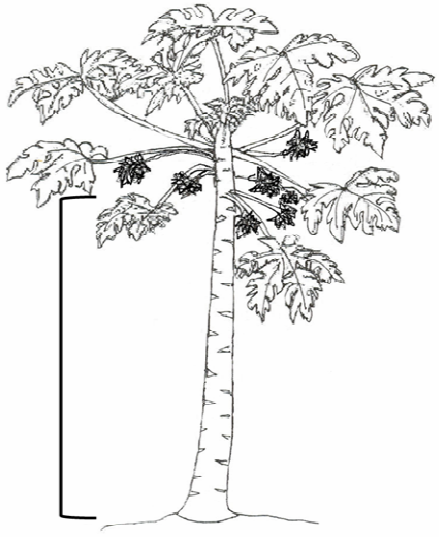
(g) Ripe fruit: Observations on the ripe fruit should be made when the color change is complete.

8.2 Explanations for individual characteristics

Ad. 1: Young plant: color of stem

To be observed when the first bud appears.

Ad. 2: Plant: height of first flower



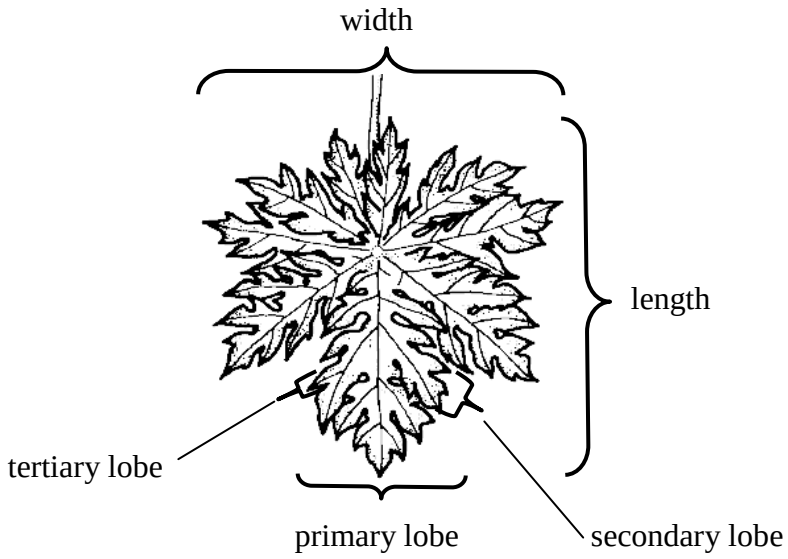
Ad. 3: Plant: branching

To be observed at the beginning of flowering.

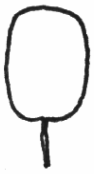
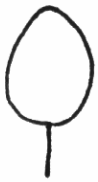
Ad. 4: Stem: diameter

The diameter should be observed half-way up the stem, at the beginning of flowering.

Ad. 7: Leaf blade: length
Ad. 8: Leaf blade: width
Ad. 10: Leaf blade: presence of tertiary lobes



Ad. 23: Fruit: shape

		< broadest part >		
		(below middle)	at middle	(above middle)
< lateral outline >	flat parallel sides		 5 oblong	
	rounded	 1 ovate	 2 elliptic	 3 obovate
	rounded with neck			 4 pyriform

Ad. 24: Fruit: shape of stalk end

1
pointed

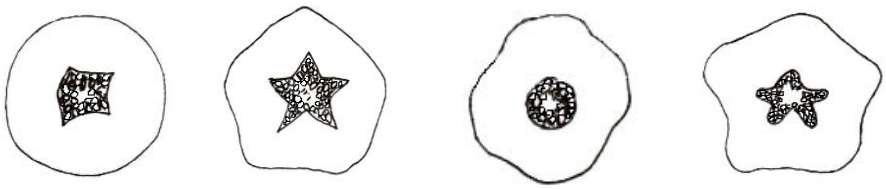
2
rounded

3
truncate

4
depressed

Ad. 27: Ripe fruit: ridges

To be observed in transverse section.



1	2	3	4
absent or very weak	weak	moderate	strong

Ad. 28: Ripe fruit: thickness of skin

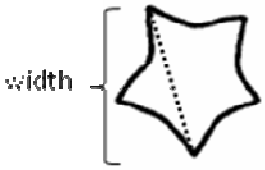
The thickness of the skin is observed by cutting the fruit in transversal section.

Ad. 31: Ripe fruit: sweetness

To be determined by tasting the fruit.

Ad. 34: Ripe fruit: width of central cavity

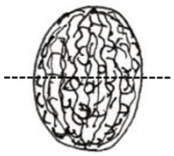
To be determined at the maximum width.



Ad. 35: Ripe fruit: shape of central cavity

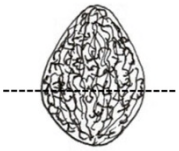
1	2	3	4
circular	angular	star-shaped	irregular

Ad. 41: position of broadest part



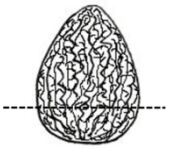
1

at middle



2

slightly towards base



3

moderately towards base

9. Literature

IBPGR, 1988: Descriptors for Papaya. International Board for Plant Genetic Resources. Rome, Italy, 34 p.

Loyola, J. L. D., Pinto, R. M. de S., Lima, J. F. de, Ferreira, F. R. 2000: Catálogo de germoplasma de mamão (*Carica papaya* L.). Embrapa Mandioca e Fruticultura, Cruz das Almas, Bahia, Brasil, 40 p.

10. Technical Questionnaire

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

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

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

1. Subject of the Technical Questionnaire

1.1	Botanical name	*Carica papaya* L.
1.2	Common name	Papaya

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding Scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)
(b) partially known cross [ ]
(please state known parent variety(ies))
(c) unknown cross [ ]

4.1.2 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

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]
(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]
(c) Hybrid [ ]
(d) Other [ ]
(please provide details)

4.2.2 Vegetative propagation
(a) cuttings [ ]
(b) *in vitro* propagation [ ]
(c) Other (state method) [ ]

4.2.3 Other [ ]
(please provide details)

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

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

	Characteristics	Example Varieties	Note
5.1 (2)	**Plant: height of first flower**		
	short	Ishigaki Sango	3[ ]
	medium	Sunrise, Tainung Nº 1	5[ ]
	tall	Cera	7[ ]
5.2 (9)	**Leaf blade: ratio length/width**		
	slightly elongated		3[ ]
	moderately elongated	Ishigaki Sango, Sunrise, Tainung Nº 1	5[ ]
	very elongated		7[ ]
5.3 (22)	**Fruit: ratio length/diameter**		
	slightly elongated	Cera	3[ ]
	moderately elongated	Ishigaki Sango	5[ ]
	very elongated	Sunrise	7[ ]
5.4 (23)	**Fruit: shape**		
	ovate		1[ ]
	elliptic	Ishigaki Sango	2[ ]
	obovate	Du Roi Solo, Red Lady	3[ ]
	pyriform	Kapoho, Rainbow	4[ ]
	oblong	Amarela	5[ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Fruit: shape*	*ovate*	*elliptic*

Comments:

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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:

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]