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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.

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Mexico

to be considered by the

Technical Working Party for Fruit Crops
at its forty-second session, to be held in Hiroshima, Japan, from November 14 to 18, 2011

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.

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 seeds 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 plants in the case of vegetatively propagated varieties.

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 period ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting of fruit.

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. 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 20 plants in the case of seed-propagated plants or, in the case of vegetatively propagated varieties, in a total of at least 6 plants.

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 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.

Further guidance is provided in documents TGP/9 “Examining Distinctness” and TGP/8 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”.

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 purpose of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants in the case of seed-propagated plants and 6 plants or parts taken from each of 6 plants in the case of vegetatively propagated plants, in both types of propagation 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:

4.2.3 For the assessment of uniformity of 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 plants, 1 off-type is allowed.

(a) Cross-pollinated varieties

(i) Test Guidelines covering cross-pollinated varieties and varieties with other forms of propagation

The assessment of uniformity for seed-propagated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

(b) Hybrid varieties

The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.

(c) Uniformity assessment by off-types (all characteristics observed on the same sample size)

(i) Test Guidelines covering only varieties with uniformity assessed by off-types

For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, 1 off-type is allowed.

(ii) Test Guidelines covering varieties with uniformity assessed by off-types and other types of varieties

For the assessment of uniformity of vegetatively 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 6 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 further examined by testing a new seed or plant 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:

(a) Plant: height of attachment of first inflorescence or flower (characteristic 2)
(b) Leaf blade: ratio length/width (characteristic 9)
(c) Fruit: ratio length/diameter (characteristic 25)
(d) Fruit: shape (characteristic 26)

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

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)-(c) 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**					
PQ		only green				Ishigaki Sango	1
		yellowish green				Tainung Nº 1	2
		brown					3
		green and purple				Sunrise	4
		only purple					5
2. **(*)** **(+)**		**Plant: height of attachment of first inflorescence or flower**					
QN	**(a)**	low				Ishigaki Sango	3
		medium				Sunrise, Tainung Nº 1	5
		high				Cera	7
3. **(*)** **(+)**		**Plant: branching**					
QL		absent				Ishigaki Sango, Maradol, Sunrise	1
		present					9
4. **(+)**		**Stem: diameter**					
QN	**(a)**	small					3
		medium				Ishigaki Sango, Sunrise, Tainung Nº 1	5
		large					7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.		**Stem: number of nodes**					
QN	**(a)**	few				Ishigaki Sango	3
		medium				Sunrise, Tainung Nº 1	5
		many				Simangko	7
6.		**Stem: length of internode**					
QN	**(a)**	short				Ishigaki Sango	3
		medium				Sunrise, Tainung Nº 1	5
		long				Simangko	7
7.		**Leaf blade: length**					
(+)							
QN	**(b)**	short					3
		medium				Ishigaki Sango, Sunrise, Tainung Nº 1	5
		long				Dampit	7
8.		**Leaf blade: width**					
(+)							
QN	**(b)**	narrow					3
		medium				Sunrise, Tainung Nº 1	5
		broad				Dampit	7
9. **(*)**		**Leaf blade: ratio length/width**					
QN	**(b)**	slightly elongated					1
		moderately elongated				Ishigaki Sango, Sunrise, Tainung Nº 1	2
		very elongated					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. **(*)** **(+)**		**Leaf blade:** **presence of tertiary lobes**					
QL	**(b)**	absent					1
		present				Ishigaki Sango, Sunrise, Tainung Nº 1	9
11. **(+)**		**Leaf blade:** **pubescence on lower side**					
QL	**(b)**	absent				Ishigaki Sango, Sunrise, Tainung Nº 1	1
		present					9
12.		**Petiole: length**					
QN	**(b)**	short					3
		medium				Ishigaki Sango, Sunrise, Tainung Nº 1	5
		long				Dampit	7
13.		**Petiole: anthocyanin coloration**					
QN	**(b)**	absent or very weak				Ishigaki Sango	1
		medium				Sunrise, Tainung Nº 1	3
		very strong					5
14. **(*)**		**Inflorescence:** **number of flowers**					
QN	**(c)**	few				Ishigaki Sango	3
		medium				Sunrise	5
		many				Tainung Nº 1	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. **(+)**		**Proportion of male plants**					
PQ		absent or very low					1
		low					3
		medium					5
		high					7
		very high					9
16. **(+)**		**Proportion of hermaphrodite plants**					
PQ		absent or very low					1
		low					3
		medium					5
		high					7
		very high					9
17. **(+)**		**Proportion of female plants**					
PQ		absent or very low					1
		low					3
		medium					5
		high					7
		very high					9
18.		**Inflorescence: length of main axis**					
QN	**(c)**	short				Ishigaki Sango, Sunrise	3
		medium					5
		long				Tainung Nº 1	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19.		**Inflorescence: anthocyanin coloration of axis**					
QN	**(c)**	absent or weak				Ishigaki Sango, Sunrise, Tainung Nº 1	1
		medium					2
		strong					3
20.		**Flower: length of corolla**					
QN	**(d)**	short					3
		medium				Sunrise	5
		long				Tainung Nº 1	7
21.		**Flower: color of corolla**					
PQ	**(d)**	white					1
		cream				Sunrise, Tainung Nº 1	2
		yellow					3
		green					4
		purple					5
22.		**Peduncle: length**					
QN	**(e)**	short				Ishigaki Sango, Sunrise	3
		medium					5
		long				Dampit, Semangko, Tainung Nº 1	7
23. **(*)**		**Fruit: length**					
QN	**(e)**	short				Du Roi Solo, Sunrise	3
		medium				Ishigaki Sango	5
		long				Cera	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24. **(*)**		**Fruit: diameter**					
QN	**(e)**	small				Du Roi Solo, Sunrise	3
		medium				Ishigaki Sango	5
		large				Cera	7
25. **(*)**		**Fruit: ratio length/ diameter**					
QN	**(e)**	slightly elongated				Sunrise	3
		moderately elongated				Ishigaki Sango	5
		very elongated				Cera	7
26. **(*)** **(+)**		**Fruit: shape**					
PQ	**(e)**	ovate					1
		elliptic				Ishigaki Sango	2
		obovate				Du Roi Solo, Red Lady	3
		pyriform				Kapoho, Rainbow	4
		oblong				Amarela	5
		reniform				BT-1	6
27. **(+)**		**Fruit: shape of stalk end**					
PQ	**(e)**	pointed				BT-1	1
		rounded				Simangko	2
		truncate				Sun Rice Solo	3
		depressed				Du Roi Solo, Ishigaki Sango	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28.		**Fruit: shape at distal end**					
QN	**(e)**	rounded				Tainung Nº 1	1
		weakly pointed				Ishigaki Sango, Sunrise	2
		strongly pointed				Du Roi Solo	3
29. **(*)**		**Fruit: main color**					
PQ	**(f)**	green				Sari Gading	1
		yellow green					2
		yellow				Amarela, Kapoho, Tainung Nº 1	3
		medium orange				Ishigaki Sango, Maradol, Mulata	4
		dark orange				Mamey	5
30. **(+)**		**Fruit: ridges**					
QN	**(f)**	absent or very weak				Ishigaki Sango, Sunrise, Tainung Nº 1	1
		weak					2
		moderate					3
		strong					4
31. **(*)** **(+)**		**Fruit: thickness of skin**					
QN	**(f)**	thin					1
		medium				Sunrise	2
		thick				Tainung Nº 1	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. **(*)**		**Fruit: color of flesh**					
PQ	**(f)**	yellow				Amarela, Cera, Kapoho	1
		orange				Sunrise, Tainung N 1	2
		red orange				Ishigaki Sango, Maradol	3
33.		**Fruit: firmness of flesh**					
QN	**(f)**	soft				Cera, Mamey	3
		medium				Maradol	5
		firm				Sunrise, Tainung N 1	7
34. **(+)**		**Fruit: sweetness of flesh**					
QN	**(f)**	low				Cera, Sari Gading	3
		medium				Maradol, Tainung Nº 1	5
		high				Ishigaki Sango, Sunrise	7
35.		**Fruit: aroma of flesh**					
QN	**(f)**	weak				Maradol	1
		moderate				Ishigaki Sango, Sunrise	2
		strong				Cera	3
36.		**Fruit: abundance of placental tissue**					
QN	**(f)**	scarce				Mamey	3
		moderate				Sunrise, Tainung Nº 1	5
		abundant				Cera	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37. **(+)**		**Fruit: width of central cavity**					
QN	**(f)**	narrow				Sunrise	3
		medium				Ishigaki Sango, Tainung Nº 1	5
		broad				Dampit, Semangko	7
38. **(+)**		**Fruit: shape of central cavity**					
PQ	**(f)**	circular					1
		angular				Tainung Nº 1	2
		star-shaped				Du Roi Solo, Ishigaki Sango, Sunrise	3
		irregular				Simangko	4
		stellate				BT-2	5
39. **(*)**		**Fruit: number of seeds**					
QN	**(f)**	absent or very few				Ishigaki Sango	1
		few				Du Roi Solo	3
		medium					5
		many				Sunrise	7
		very many				Cera, Tainung Nº 1	9
40.		**Seed: color**					
PQ	**(e)**	grey yellow				BT-K	1
		grey				Dampit	2
		medium brown				Tainung Nº 1	3
		dark brown				Sunrise	4
		black				Maradol	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41.		**Seed: length**					
QN	**(e)**	short				BT-K	3
		medium				Sunrise, Tainung Nº 1	5
		long				Cera, Dampit	7
42.		**Seed: width**					
QN	**(e)**	narrow				BT-2	3
		medium				Sunrise, Tainung N 1	5
		broad				Dampit	7
43.		**Seed: ratio length/width**					
QN	**(e)**	compressed				BT-1	1
		circular				Sunrise, Tainung Nº 1	2
		elongated					3
44. **(+)**		**Seed: position of broadest part**					
QN	**(e)**	at middle				Sunrise	1
		slightly towards base				Tainung Nº 1	2
		clearly towards base					3
45.		**Seed: amount of mucilage**					
QN	**(e)**	small					1
		moderate				Sunrise, Tainung N 1	2
		large				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: Observations on the plant and stem should be made when the first inflorescence or single flower has appeared.

(b) Leaf blade and petiole: 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 first inflorescence or single flower fruit has appeared.

(c) Inflorescence: 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. Observations must be made only on hermaphrodite or female plants, according to the type of variety that will be tested.

(d) Flower: Observations on the flower should be made during the first flower opening, at the start of anther dehiscence.

(e) Peduncle, fruit and seed: Observations on the peduncle, fruit and seed should be made on 5 typical fruits, taken from the middle part of the fruiting region at the time of harvest maturity. Seed characteristics should only be observed on fully-developed seeds. Observations must be made only on the type of variety that will be tested: hermaphrodite or female plants.

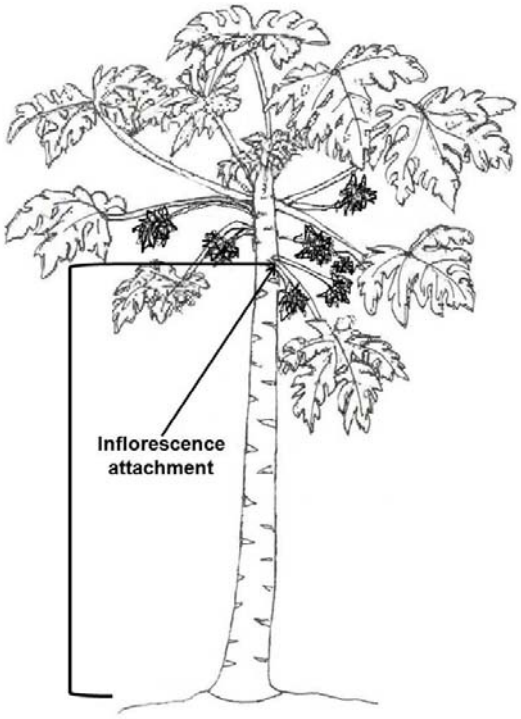
(f) Ripe: Observations on the fruit should be made when the color change is complete.

8.2 Explanations for individual characteristics

Ad. 1: Young plant: color of stem

In the case of seed propagated varieties, the color of stem should be observed when the first node is formed. In the case of vegetatively propagated varieties, the color of stem should be observed when the first node is formed of new growth.

Ad. 2: Plant: height of attachment of first inflorescence or flower



Ad. 3: Plant: branching

The branching should 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.

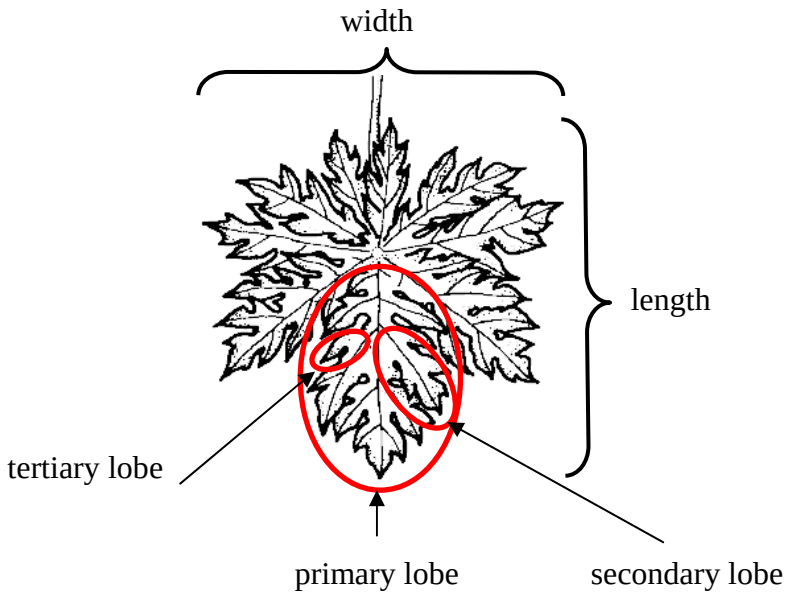
Ad. 5: Stem: number of nodes

The number of nodes should be observed from the ground up to the first flower.

Ad. 6: Stem: length of internode

The length of internode should be observed midway between the ground and the first inflorescence.

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



Ad. 11: Leaf blade: pubescence on lower side

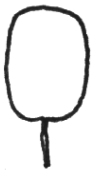
Observations on pubescence should be made with the aid of a magnifying glass.

Ad. 15: Proportion of male plants
Ad. 16: Proportion of hermaphrodite plants
Ad. 17: Proportion of female plants

The observations on proportion of male, hermaphrodite and female, must be observed when the plant is in full bloom.

Male, hermaphrodite, female plants	Note	Approximate percentage
absent or very low	1	< 10%
	2	20%
low	3	30%
	4	40%
medium	5	50%
	6	60%
high	7	70%
	8	80%
very high	9	> 90%

Ad. 26: Fruit: shape

< lateral outline >	< broadest part >		
	(below middle)	at middle	(above middle)
flat parallel sides		 5 oblong	
rounded	 1 ovate	 2 elliptic	 3 obovate
rounded with neck			 4 pyriform
Rounded with central constriction			 6 reniform

Ad. 27: Fruit: shape of stalk end


1
pointed

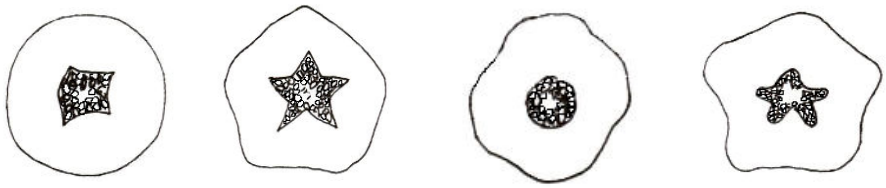

2
rounded


3
truncate


4
depressed

Ad. 30: Fruit: ridges

To be observed in transverse section.



1	2	3	4
absent or very weak	weak	moderate	strong

Ad. 31: Fruit: thickness of skin

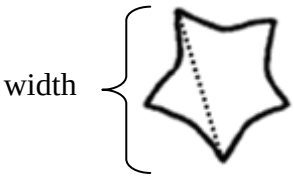
The thickness of the skin is observed in transverse section.

Ad. 34: Fruit: sweetness of flesh

To be determined by tasting the fruit.

Ad. 37: Fruit: width of central cavity

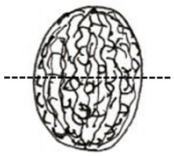
The width of the central cavity should be observed at the broadest part.



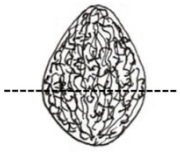
Ad. 38: Fruit: shape of central cavity

1	2	3	4	5
circular	angular	star-shaped	stellate	irregular

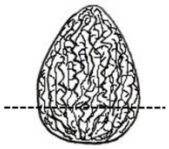
Ad. 44: Seed: position of broadest part



1
at middle



2
slightly towards base



3
clearly towards base

9. Literature

IBPGR, 1988: Descriptors for Papaya. International Board for Plant Genetic Resources. Rome, IT, 34 pp.

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, BR, 40 pp.

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)

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

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

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

(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)”

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

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 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 attachment of first inflorescence or flower**		
	very low		1[ ]
	very low to low		2[ ]
	low	Ishigaki Sango	3[ ]
	low to medium		4[ ]
	medium	Sunrise, Tainung Nº 1	5[ ]
	medium to high		6[ ]
	high	Cera	7[ ]
	high to very high		8[ ]
	very high		9[ ]
5.2 (9)	**Leaf blade: ratio length/width**		
	slightly elongated		1[ ]
	moderately elongated	Ishigaki Sango, Sunrise, Tainung Nº 1	2[ ]
	very elongated		3[ ]
5.3 (25)	**Fruit: ratio length/diameter**		
	very slightly elongated		1[ ]
	very slightly elongated to slightly elongated		2[ ]
	slightly elongated	Sunrise	3[ ]
	slightly elongated to moderately elongated		4[ ]
	moderately elongated	Ishigaki Sango	5[ ]
	moderately elongated to very elongated		6[ ]
	very elongated	Cera	7[ ]
	very elongated to extremely elongated		8[ ]
	extremely elongated		9[ ]

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

	Characteristics	Example Varieties	Note
5.4 (26)	**Fruit: shape**		
	ovate		1[ ]
	elliptic	Ishigaki Sango	2[ ]
	obovate	Du Roi Solo, Red Lady	3[ ]
	pyriform	Kapoho, Rainbow	4[ ]
	oblong	Amarela	5[ ]
	reniform	BT-1	6[ ]

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]