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<p>PAPAYA</p> <p>UPOV Code(s) : CARIC_PAP</p> <p><i>Carica papaya</i> L.</p>

Alternative names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Carica papaya</i> L.	Papaya, Pawpaw	Papayer	Melonenbaum, Papaya	Papaya, Lechosa, Fruta bomba

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 5 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 independent growing cycles.

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

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

3.1.4 The growing cycle is considered to be the period ranging from the beginning of development of an individual flower or inflorescence, through fruit development and concluding with the harvesting of fruit from the corresponding individual flower or inflorescence.

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 In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 5 plants.

3.4.2 In the case of seed-propagated varieties, each test should be designed to result in a total of at least 50 plants, with at least 15 hermaphrodite plants and at least 15 female plants if exist.

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 or Parts of Plants to be Examined

In the case of seed-propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 15 plants or parts taken from each of 15 plants and any other observation made on all plants in the test, disregarding any off-type plants.

In the case of vegetatively propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts taken from each of 5 plants and any other observation made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 2.

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 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:
- 4.2.2 These Test Guidelines have been developed for the examination of cross-pollinated, hybrid and vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.
- 4.2.3 The assessment of uniformity should be according to the recommendations for cross-pollinated varieties in the General Introduction.
- 4.2.4 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.
- 4.2.5 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 5 plants, no off-types are allowed.
- 4.2.6 For the assessment of uniformity of seed-propagated hybrid varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 15 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 (characteristic 2)
 - (b) Leaf blade: ratio length/width (characteristic 9)
 - (c) Petiole: length (characteristic 13)
 - (d) Fruit of hermaphrodite plants: ratio length/width (characteristic 23)
 - (e) Fruit: color of flesh (characteristic 35)
- 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:

<i>State</i>	<i>Note</i>
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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7	
		Name of characteristics in English	Nom du caractère en français	Name des Merkmals auf Deutsch	Nombre del carácter en español		
		states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

- 1 Characteristic number
- 2 (*) Asterisked characteristic – see Chapter 6.1.2
- 3 Type of expression
 - QL Qualitative characteristic – see Chapter 6.3
 - QN Quantitative characteristic – see Chapter 6.3
 - PQ Pseudo-qualitative characteristic – see Chapter 6.3
- 4 Method of observation (and type of plot, if applicable)
 - MG, MS, VG, VS – see Chapter 4.1.5
- 5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
- 6 (a)-(d) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Not applicable

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

	English		français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
1.	PQ	VG					
	Young plant: color of stem	Jeune plante : couleur de la tige	Junge Pflanze: Farbe des Triebes	Planta joven: color del tallo			
	green	verte	grün	verde	Ishigaki Sango	1	
	yellowish green	vert jaunâtre	gelblichgrün	verde amarillento	Tainung N° 1	2	
	brown	brune	braun	marrón	Tangkai hitam	3	
	green and purple	verte et pourpre	grün und purpurn	verde y púrpura	Sunrise	4	
	purple	pourpre	purpurn	púrpura		5	
2. (*)	QN	MS/VG	(+)	(a)			
	Plant: height of attachment of first inflorescence	Plante : hauteur de l'attache de la première inflorescence	Pflanze: Höhe der Ansatzstelle des ersten Blütenstandes	Planta: altura de la inserción de la primera inflorescencia			
	low	basse	niedrig	baja	Ishigaki Sango, Sekaki	3	
	medium	moyenne	mittel	media	Tainung N° 1, Sunrise	5	
	high	haute	hoch	alta	Cera, Dampit, Semangko	7	
3. (*)	QL	VG					
	Plant: branching	Plante : ramification	Pflanze: Verzweigung	Planta: ramificación			
	absent	absente	fehlend	ausente	Ishigaki Sango, Sunrise, Maradol	1	
	present	présente	vorhanden	presente		9	
4.	QN	MS/VG		(a)			
	Stem: diameter	Tige : diamètre	Stängel: Durchmesser	Tallo: diámetro			
	small	petit	klein	pequeño		3	
	medium	moyen	mittel	medio	Ishigaki Sango, Tainung N° 1, Sunrise	5	
	large	large	groß	grande	Klangdong, Eksotika	7	
5. (*)	QN	MS/VG	(+)	(a)			
	Stem: number of nodes	Tige : nombre de nœuds	Stängel: Anzahl Knoten	Tallo: número de nudos			
	few	petit	gering	bajo	Ishigaki Sango	3	
	medium	moyen	mittel	medio	Tainung N° 1, Sunrise	5	
	many	grand	groß	alto	Semangko	7	

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. (*)	QN MS/VG	(a)				
	Stem: length of internode	Tige : longueur de l'entrenœud	Stängel: Länge der Internodien	Tallo: longitud del entrenudo		
	short	courte	kurz	corto	Ishigaki Sango	3
	medium	moyenne	mittel	medio	Tainung N° 1, Sunrise, Sekaki	5
	long	longue	lang	largo	Eksotika, Semangko	7
7.	QN MS/VG	(+)	(b)			
	Leaf blade: length	Limbe : longueur	Blattspreite: Länge	Limbo: longitud		
	short	court	kurz	corto	BT-K, Eksotika	3
	medium	moyen	mittel	medio	Ishigaki Sango, Tainung N° 1, Sunrise	5
	long	long	lang	largo	Dampit	7
8.	QN MS/VG	(+)	(b)			
	Leaf blade: width	Limbe : largeur	Blattspreite: Breite	Limbo: anchura		
	narrow	étroit	schmal	estrecho	BT-K, Eksotika	3
	medium	moyen	mittel	medio	Tainung N° 1, Sunrise	5
	broad	large	breit	ancho	Dampit	7
9. (*)	QN MS/VG	(b)				
	Leaf blade: ratio length/width	Limbe : rapport longueur/largeur	Blattspreite: Verhältnis Länge/Breite	Limbo: relación longitud/anchura		
	low	bas	klein	baja	Johor	1
	medium	moyen	mittel	media	Ishigaki Sango, Tainung N° 1, Sunrise	2
	high	élevé	groß	alta	Golden	3
10. (*)	QL VG	(+)	(b)			
	Leaf blade: presence of tertiary lobes	Limbe : présence de lobes tertiaires	Blattspreite: Vorhandensein von Lappen dritter Ordnung	Limbo: presencia de lóbulos terciarios		
	absent	absents	fehlend	ausentes		1
	present	présents	vorhanden	presentes	Ishigaki Sango, Tainung N° 1, Sunrise	9
11. (*)	QL VG	(+)	(b)			
	Leaf: presence of secondary leaf	Feuille : présence de feuille secondaire	Blatt: Vorhandensein eines sekundären Blattes	Hoja: presencia de hoja secundaria		
	absent	absente	fehlend	ausente	Sunrise, Cera, Maradol	1
	present	présente	vorhanden	presente	Callina, Plugmailai, Sekaki	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12. (*)	QL	VG	(b)				
	Leaf blade: pubescence on lower side		Limbe : pubescence sur la face inférieure	Blattspreite: Behaarung der Unterseite	Limbo: pubescencia en el envés		
	absent		absente	fehlend	ausente	Ishigaki Sango, Tainung N° 1, Sunrise	1
	present		présente	vorhanden	presente		9
13. (*)	QN	MS/VG	(+)	(b)			
	Petiole: length		Pétiole : longueur	Blattstiel: Länge	Pecíolo: longitud		
	short		court	kurz	corto	BT-K	3
	medium		moyen	mittel	medio	Ishigaki Sango, Tainung N° 1, Sunrise	5
	long		long	lang	largo	Dampit	7
14.	QN	VG	(b)				
	Petiole: anthocyanin coloration		Pétiole : pigmentation anthocyanique	Blattstiel: Anthocyanfärbung	Pecíolo: pigmentación antociánica		
	absent or very weak		absente ou très faible	fehlend oder sehr gering	nula o muy leve	Ishigaki Sango	1
	medium		moyenne	mittel	media	Tainung N° 1, Sunrise	3
	very strong		très forte	sehr stark	muy intensa		5
15.	QN	VG	(c)				
	Inflorescence: number of flowers on hermaphrodite plants		Inflorescence : nombre de fleurs sur les plantes hermaphrodites	Blütenstand: Anzahl der Blüten bei zwittrigen Pflanzen	Inflorescencia: número de flores en plantas hermafroditas		
	few		petit	wenige	bajo	Ishigaki Sango	3
	medium		moyen	mittel	medio	Sunrise, Eksotika	5
	many		élevé	viele	alto	Tainung N° 1	7
16.	QN	MS/VG	(c)				
	Inflorescence: length of main axis on hermaphrodite plants		Inflorescence : longueur de l'axe central sur les plantes hermaphrodites	Blütenstand: Länge der Hauptachse bei zwittrigen Pflanzen	Inflorescencia: longitud del eje principal en plantas hermafroditas		
	short		court	kurz	corto	Ishigaki Sango, Sunrise	3
	medium		moyen	mittel	medio	BT-1	5
	long		long	lang	largo	Dampit	7
17.	QN	VG	(c)				
	Inflorescence: anthocyanin coloration of axis on hermaphrodite plants		Inflorescence : pigmentation anthocyanique de l'axe sur les plantes hermaphrodites	Blütenstand: Anthocyanfärbung der Achse bei zwittrigen Pflanzen	Inflorescencia: pigmentación antociánica del eje en plantas hermafroditas		
	absent or weak		absente ou faible	fehlend oder gering	nula o leve	Ishigaki Sango, Tainung N° 1, Sunrise	1
	medium		moyenne	mittel	media		2
	strong		forte	stark	intensa	Tangkai hitam	3

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18.	QN	MS/VG	(+)	(c)				
	Flower: length of corolla	Fleur : longueur de la corolle	Blüte: Länge der Krone	Flor: longitud de la corola				
	short	courte	kurz	corta	BT-3		3	
	medium	moyenne	mittel	media	BT-1		5	
	long	longue	lang	larga	Dampit		7	
19.	PQ	VG	(+)					
	Flower: color of corolla	Fleur : couleur de la corolle	Blüte: Farbe der Krone	Flor: color de la corola				
	white	blanche	weiß	blanco	Morib		1	
	yellowish white	blanc jaunâtre	gelblichweiß	blanco amarillento	Sunrise, Eksotika		2	
	yellow	jaune	gelb	amarillo			3	
	green	verte	grün	verde			4	
	purple	pourpre	purpurn	púrpura	Sabah Yellow		5	
20. (*)	QN	MS/VG		(d)				
	Peduncle: length in hermaphrodite plants	Pédoncule : longueur sur les plantes hermaphrodites	Stiel: Länge bei zwittrigen Pflanzen	Pedúnculo: longitud en plantas hermafroditas				
	short	court	kurz	corto	Ishigaki Sango, Sunrise, Eksotika		3	
	medium	moyen	mittel	medio	Sekaki		5	
	long	long	lang	largo	Dampit, Semangko		7	
21. (*)	QN	MS/VG		(d)				
	Fruit of hermaphrodite plants: length	Fruit des plantes hermaphrodites : longueur	Frucht von zwittrigen Pflanzen: Länge	Fruto de plantas hermafroditas: longitud				
	short	petit	kurz	corto	Sunrise, Du Roi Solo		3	
	medium	moyen	mittel	medio	Ishigaki Sango, Eksotika		5	
	long	long	lang	largo	Cera, Tainung N° 5		7	
22. (*)	QN	MS/VG		(d)				
	Fruit of hermaphrodite plants: width	Fruit des plantes hermaphrodites : largeur	Frucht von zwittrigen Pflanzen: Breite	Fruto de plantas hermafroditas: anchura				
	small	petit	schmal	estrecho	Sunrise, Du Roi Solo		3	
	medium	moyen	mittel	medio	Ishigaki Sango		5	
	large	large	breit	ancho	Cera		7	

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23. (*)	QN MS/VG	(+) (d)				
	Fruit of hermaphrodite plants: ratio length/width	Fruit des plantes hermaphrodites : rapport longueur/largeur	Frucht von zwittrigen Pflanzen: Verhältnis Länge/Breite	Fruto de plantas hermafroditas: relación longitud/anchura		
	low	bas	klein	baja	Sunrise, Eksotika	3
	medium	moyen	mittel	media	Ishigaki Sango, Sekaki	5
	high	élevé	groß	alta	Cera, Dampit	7
24.	QN MS/VG		(d)			
	Fruit of female plants: length	Fruit des plantes femelles : longueur	Frucht von weiblichen Pflanzen: Länge	Fruto de plantas femeninas: longitud		
	short	petit	kurz	corto	Intenza	3
	medium	moyen	mittel	medio	Zapote Morada	5
	long	long	lang	largo		7
25.	QN MS/VG					
	Fruit of female plants: width	Fruit des plantes femelles : largeur	Frucht von weiblichen Pflanzen: Breite	Fruto de plantas femeninas: anchura		
	small	petit	schmal	estrecho	Pococi	3
	medium	moyen	mittel	medio	Intenza	5
	large	large	breit	ancho	Coco	7
26.	QN MS/VG					
	Fruit of female plants: ratio length/width	Fruit des plantes femelles : rapport longueur/largeur	Frucht von weiblichen Pflanzen: Verhältnis Länge/Breite	Fruto de plantas femeninas: relación longitud/anchura		
	low	bas	klein	baja	Coco	3
	medium	moyen	mittel	media	Holland	5
	high	élevé	groß	alta		7
27. (*)	PQ VG	(+) (d)				
	Fruit of hermaphrodite plants: shape	Fruit des plantes hermaphrodites : forme	Frucht von zwittrigen Pflanzen: Form	Fruto de plantas hermafroditas: forma		
	ovate	ovale	eiförmig	oval	Cariflora	1
	elliptic	elliptique	elliptisch	elíptico	Ishigaki Sango, Eksotika	2
	oblong	oblongue	rechteckig	oblongo	Sekaki, Amarela	3
	obovate	obovale	verkehrt eiförmig	oboval	Du Roi Solo, Red Lady	4
	pyriform	pyriforme	birnenförmig	piriforme	Rainbow, Kapoho	5
	obovate waisted	obovale étranglée	verkehrt eiförmig tailliert	oboval entallado	BT-1	6

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. (*)	PQ	VG	(+)	(d)				
	Fruit of female plants: shape	Fruit des plantes femelles : forme	Frucht von weiblichen Pflanzen: Form	Fruto de plantas femeninas: forma				
	ovate	ovale	eiförmig	oval				1
	elliptic	elliptique	elliptisch	elíptico	Zapote Verde			2
	oblong	oblongue	rechteckig	oblongo	Zapote Morada			3
	obovate	obovale	verkehrt eiförmig	oboval	Mulata			4
	pyriform	pyriforme	birnenförmig	piriforme				5
	obovate waisted	obovale étranglée	verkehrt eiförmig tailliert	oboval entallado				6
29.	PQ	VG	(+)	(d)				
	Fruit: shape of stalk end	Fruit : forme de l'extrémité pédonculaire	Frucht: Form des Stielendes	Fruto: forma del extremo peduncular				
	pointed	pointue	spitz	puntiagudo	BT-1			1
	rounded	arrondie	abgerundet	redondeado	Semangko			2
	truncate	tronquée	stumpf	truncado	Sunrise			3
	depressed	déprimée	eingesunken	deprimido	Ishigaki Sango, Du Roi Solo			4
30.	PQ	VG		(d)				
	Fruit: shape at distal end	Fruit : forme à l'extrémité distale	Frucht: Form am distalen Ende	Fruto: forma del extremo distal				
	rounded	arrondi	abgerundet	redondeado	Tainung N° 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
31. (*)	PQ	VG	(+)	(d)				
	Fruit: main color	Fruit : principale couleur	Frucht: Hauptfarbe	Fruto: color principal				
	green	verte	grün	verde	Sari Gading			1
	yellow green	verte jaune	gelblichgrün	verde amarillento	BT-K, Sabah Yellow			2
	yellow	jaune	gelb	amarillo	Tainung N° 1, Kapoho, Amarela			3
	medium orange	orange moyen	mittelorange	anaranjado medio	Ishigaki Sango, Maradol, Mulata			4
	dark orange	orange foncé	dunkelorange	anaranjado oscuro	Dampit, Mamey			5
32.	QN	VG	(+)	(d)				
	Fruit: ridges	Fruit : cannelures	Frucht: Rippen	Fruto: aristas				
	absent or very weak	absentes ou très faibles	fehlend oder sehr schwach	ausentes o muy leves	Ishigaki Sango, Tainung N° 1			1
	weak	faibles	schwach	leves	BT-4			2
	moderate	modérées	mittel	moderadas	Semangko			3
	strong	fortes	stark	pronunciadas	Dampit			4

	English		français		deutsch		español		Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33.	QN	VG	(d)							
	Fruit: surface texture		Fruit : texture de la surface		Frucht: Beschaffenheit der Oberfläche		Fruto: textura de la superficie			
	smooth		lisse		glatt		lisa		Callina, Paris	3
	medium		moyenne		mittel		media		Carisya	5
	rough		rugueuse		rauh		áspera		Sukma	7
34. (*)	QN	VG	(+)		(d)					
	Fruit: thickness of skin		Fruit : épaisseur de l'épiderme		Frucht: Dicke der Schale		Fruto: grosor de la piel			
	thin		mince		dünn		delgada		BT-3	1
	medium		moyenne		mittel		media		Sunrise, Eksotika	2
	thick		épaisse		dick		gruesa		Tainung N° 1, Dampit	3
35. (*)	PQ	VG	(d)							
	Fruit: color of flesh		Fruit : couleur de la chair		Frucht: Fleischfarbe		Fruto: color de la pulpa			
	yellow		jaune		gelb		amarillo		Cera, Kapoho, Amarela	1
	orange		orange		orange		anaranjado		Tainung N° 1, Sunrise	2
	red orange		rouge orangé		rotorange		anaranjado rojizo		Ishigaki Sango, Maradol	3
36.	QN	VG	(+)		(d)					
	Fruit: firmness of flesh		Fruit : fermeté de la chair		Frucht: Fleischfarbe		Fruto: firmeza de la pulpa			
	soft		molle		weich		blanda		Cera	3
	medium		moyenne		mittel		media		Maradol	5
	firm		ferme		fest		firme		Sunrise, Sekaki	7
37.	QN	VG	(+)		(d)					
	Fruit: sweetness of flesh		Fruit : goût sucré de la chair		Frucht: Süße des Fleisches		Fruto: dulzor de la pulpa			
	low		faible		niedrig		bajo		Cera	3
	medium		moyen		mittel		medio		Tainung N° 1, Maradol, Sekaki	5
	high		fort		hoch		alto		Ishigaki Sango, Sunrise, Eksotika	7
38.	QN	VG	(d)							
	Fruit: aroma of flesh		Fruit : arôme de la chair		Frucht: Aroma des Fleisches		Fruto: aroma de la pulpa			
	weak		faible		schwach		débil		Callina, Sekaki	1
	medium		moyen		mittel		medio		Ishigaki Sango, Sunrise	2
	strong		fort		stark		fuerte		Eksotika	3

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39.	QN	MG/VG	(d)				
	Fruit: thickness of flesh	Fruit : épaisseur de la chair	Frucht: Dicke des Fleisches	Fruto: grosor de la pulpa			
	thin	mince	dünn	delgada			3
	medium	moyenne	mittel	media			5
	thick	épaisse	dick	gruesa	Sekaki		7
40.	QN	VG	(d)				
	Fruit: abundance of placental tissue	Fruit : abondance de tissu placentaire	Frucht: Menge des plazentalen Gewebes	Fruto: abundancia de tejido placentario			
	scarce	faible	gering	escaso	BT-1, Mamey		3
	moderate	moyen	mittel	moderado	Sunrise, Eksotika		5
	abundant	abondant	groß	abundante	Cera, BT-3		7
41.	QN	MS/VG	(d)				
	Fruit: width of central cavity	Fruit : largeur de la cavité centrale	Frucht: Breite der zentralen Höhlung	Fruto: anchura de la cavidad central			
	narrow	étroite	schmal	estrecha	Sunrise, Sekaki		3
	medium	moyenne	mittel	media	Ishigaki Sango, Tainung N° 1, Golden		5
	broad	large	breit	ancha	Dampit, Semangko		7
42. (*)	PQ	VG	(+) (d)				
	Fruit: shape of central cavity	Fruit : forme de la cavité centrale	Frucht: Form der zentralen Höhlung	Fruto: forma de la cavidad central			
	circular	circulaire	kreisförmig	circular	Niensee		1
	angular	angulaire	winklig	angular	Tainung N° 1, BT-K		2
	weakly stellate	faiblement étoilée	leicht sternförmig	levemente estrellada	Ishigaki Sango, Sunrise, Du Roi Solo		3
	strongly stellate	fortement étoilée	stark sternförmig	marcadamente estrellada	BT-2		4
	irregular	irrégulière	unregelmäßig	irregular	Semangko		5
43. (*)	QN	MS/VG	(d)				
	Fruit: number of seeds	Fruit : nombre de graines	Frucht: Anzahl Samen	Fruto: número de semillas			
	absent or very few	nul ou très faible	fehlend oder sehr wenige	nulo o muy bajo	Ishigaki Sango		1
	few	petit	wenige	bajo	Du Roi Solo		3
	medium	moyen	mittel	medio			5
	many	grand	viele	alto	Sunrise		7
	very many	très grand	sehr viele	muy alto	Tainung N° 1, Cera		9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	PQ VG					
	Seed: color	Graine : couleur	Samen: Farbe	Semilla: color		
	grey yellow	jaune gris	graugelb	amarillo grisáceo	BT-K	1
	grey	grise	grau	gris	Dampit	2
	medium brown	brun moyen	mittelbraun	marrón medio	Eksotika	3
	dark brown	brun foncé	dunkelbraun	marrón oscuro	Sekaki, BT-1	4
	black	noire	schwarz	negro	Maradol, Morib	5
45.	QN MS/VG					
	Seed: length	Graine : longueur	Samen: Länge	Semilla: longitud		
	short	courte	kurz	corta	BT-K	3
	medium	moyenne	mittel	media	BT-1	5
	long	longue	lang	larga	Cera, Dampit	7
46.	QN MS/VG					
	Seed: width	Graine : largeur	Samen: Breite	Semilla: anchura		
	narrow	étroite	schmal	estrecha	BT-2	3
	medium	moyenne	mittel	media	Tainung N° 1, Sunrise	5
	broad	large	breit	ancha	Dampit	7
47.	QN MS/VG	(+)				
	Seed: ratio length/width	Graine : rapport longueur/largeur	Samen: Verhältnis Länge/Breite	Semilla: relación longitud/anchura		
	low	bas	klein	baja	BT-1	1
	medium	moyen	mittel	media	Tainung N° 1, Sunrise	2
	high	élevé	groß	alta		3
48.	QN MS/VG	(+)				
	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		
	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 N° 1	2
	clearly towards base	nettement vers la base	stark zur Basis hin	claramente hacia la base		3

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
49.	QN	VG	(+)				
	Seed: amount of mucilage	Graine : quantité de mucilage	Samen: Menge Schleim	Semilla: cantidad de mucilago			
	small	petite	gering	pequeña	BT-3	1	
	moderate	modérée	mittel	moderada	Tainung N° 1, Sunrise	2	
	large	grande	groß	grande	Cera	3	
50. (*)	QN	MG/VG	(+)				
	Time of beginning of flowering	Époque de début de floraison	Zeitpunkt des Blühbeginns	Época de inicio de la floración			
	early	précoce	früh	temprana	Sinta, Carisya, Arum	3	
	medium	moyenne	mittel	intermedia	Sunrise, Callina	5	
	late	tardive	spät	tardía	Wulung, Cavite Special	7	

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

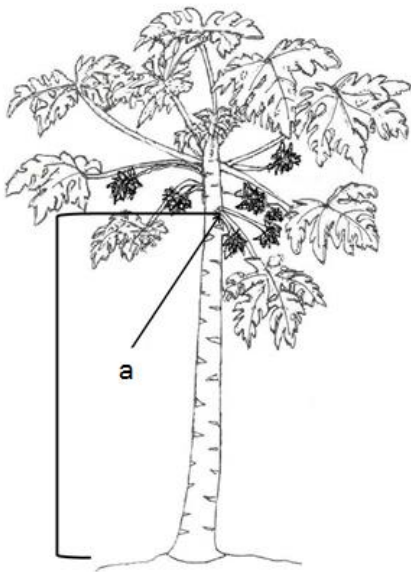
Characteristics containing the following key in the Table of Characteristics should be examined as indicated below:

- (a) Plant and stem: Observations on the plant and stem should be made when the first inflorescence or single flower has appeared.
- (b) Leaf, leaf blade and petiole: Observations on the leaf, 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 has appeared.
- (c) Inflorescence: Observations on the inflorescence should be made after the fourth one has appeared, when it has reached its full length. Single flowers should be excluded from all observations.
- (d) Fruit: Observations should be on fruit taken from the middle of the fruiting area. A fruit is considered ripe when the color change is completed. If the type of tree is not indicated the observations must be taken from hermaphrodite trees.

8.2 *Explanations for individual characteristics*

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

To be considered as the height of attachment of the first inflorescence or single flower.

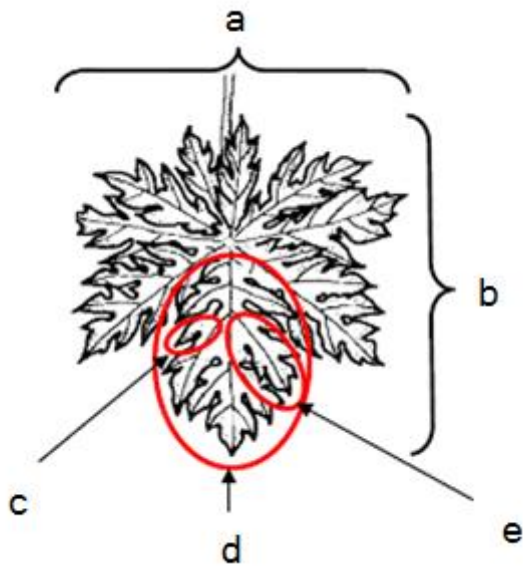


a = Inflorescence attachment

Ad. 5: Stem: number of nodes

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

Ad. 7: Leaf blade: length



a = Width
b = Length
c = Tertiary lobe
d = Primary lobe
e = Secondary lobe

Ad. 8: Leaf blade: width

See Ad. 7

Ad. 10: Leaf blade: presence of tertiary lobes

See Ad. 7

Ad. 11: Leaf: presence of secondary leaf



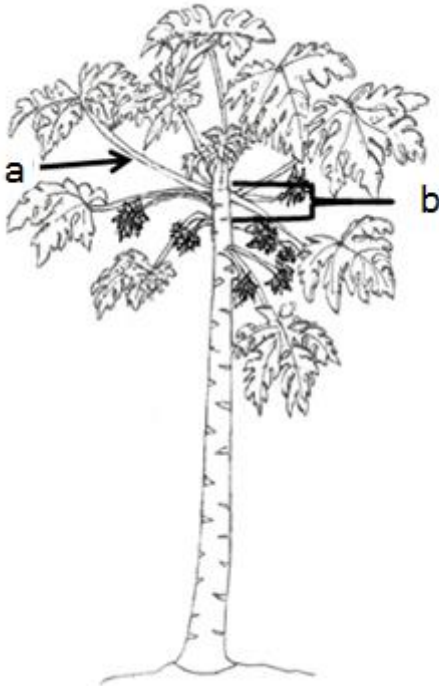
1
absent



9
present

Ad. 13: Petiole: length

a = Petiole
b = Middle third



Ad. 18: Flower: length of corolla

This characteristic only applies to hermaphrodite or female varieties. Observations should be made during the first flower opening, at the start of anther dehiscence in hermaphrodite varieties, and in the case of female varieties at midday.







Ad. 19: Flower: color of corolla

This characteristic applies to all types of plants, regardless of the sex. Observations should be made during the first flower opening.

Ad. 23: Fruit of hermaphrodite plants: ratio length/width



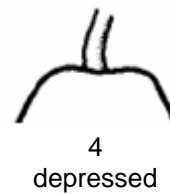
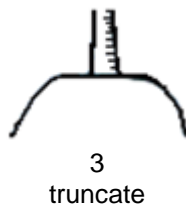
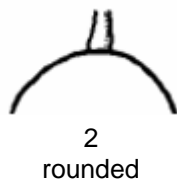
Ad. 27: Fruit of hermaphrodite plants: shape

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

Ad. 28: Fruit of female plants: shape

See Ad. 27

Ad. 29: Fruit: shape of stalk end

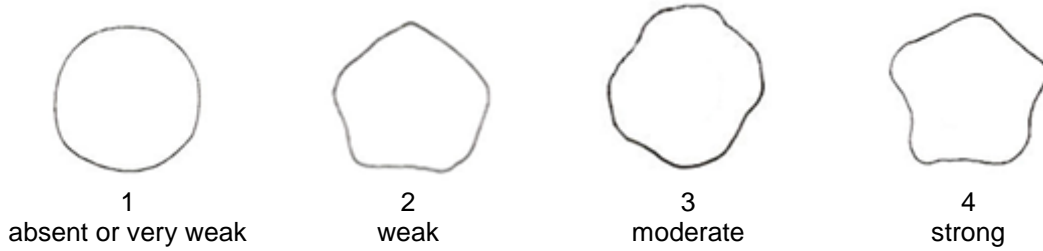


Ad. 31: Fruit: main color

The main color is the color with the largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area the darkest color is considered to be the main color.

Ad. 32: Fruit: ridges

To be observed in transverse section.



Ad. 34: Fruit: thickness of skin

The thickness of the skin is observed in transversal section with the help of a magnifying glass.

Ad. 36: Fruit: firmness of flesh

To be assessed with the help of a penetrometer.

Ad. 37: Fruit: sweetness of flesh

To be assessed with the help of a refractometer.

Ad. 42: Fruit: shape of central cavity



Ad. 47: Seed: ratio length/width



1
low



2
medium

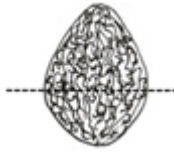


3
high

Ad. 48: Seed: position of broadest part



1
at middle



2
slightly towards base



3
clearly towards base

Ad. 49: Seed: amount of mucilage

The amount of mucilage is determined visually by separating the mucilage from the seed.

Ad. 50: Time of beginning of flowering

The beginning of flowering is considered when 10% of the flowers on the first inflorescence have started to flower.

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	<input type="text" value="Carica papaya L."/>
1.2	Common name	<input type="text" value="Papaya, Pawpaw"/>
2. Applicant		
	Name	<input type="text"/>
	Address	<input type="text"/>
	Telephone No.	<input type="text"/>
	Fax No.	<input type="text"/>
	E-mail address	<input type="text"/>
	Breeder (if different from applicant)	<input type="text"/>
3. Proposed denomination and breeder's reference		
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#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:
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4.2	Method of propagating the variety	
4.2.1	Seed-propagated varieties	
(a)	Cross-pollination	[]
(b)	Hybrid	[]
(c)	Other (please provide details)	[]
4.2.2	Vegetative propagation	
(a)	Cuttings	[]
(b)	<i>In vitro</i> propagation	[]
(c)	Other (state method)	[]
4.2.3	Other (Please provide details)	[]
	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).		
Characteristics	Example Varieties	Note
5.1 Plant: height of attachment of first inflorescence (2)		
very low		1 []
very low to low		2 []
low	Ishigaki Sango, Sekaki	3 []
low to medium		4 []
medium	Sunrise, Tainung N° 1	5 []
medium to high		6 []
high	Cera, Dampit, Semangko	7 []
high to very high		8 []
very high		9 []
5.2 Leaf blade: ratio length/width (9)		
low	Johor	1 []
medium	Ishigaki Sango, Sunrise, Tainung N° 1	2 []
high	Golden	3 []
5.3 Petiole: length (13)		
very short		1 []
very short to short		2 []
short	BT-K	3 []
short to medium		4 []
medium	Ishigaki Sango, Sunrise, Tainung N° 1	5 []
medium to long		6 []
long	Dampit	7 []
long to very long		8 []
very long		9 []
5.4 Fruit of hermaphrodite plants: ratio length/width (23)		
very low		1 []
very low to low		2 []
low	Eksotika, Sunrise	3 []
low to medium		4 []
medium	Ishigaki Sango, Sekaki	5 []
medium to high		6 []
high	Cera, Dampit	7 []
high to very high		8 []
very high		9 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.5 Fruit: color of flesh (35)		
yellow	Amarela, Cera, Kapoho	1 []
orange	Sunrise, Tainung N° 1	2 []
red orange	Ishigaki Sango, Maradol	3 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

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

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#7.	Additional information which may help in the examination of the variety		
7.1	In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?		
	Yes	[]	No []
	(If yes, please provide details)		
7.2	Are there any special conditions for growing the variety or conducting the examination?		
	Yes	[]	No []
	(If yes, please provide details)		
7.3	Other information		

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:
-------------------------	-----------------	-------------------

8. Authorization for release

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

Yes [] No []

(b) Has such authorization been obtained?

Yes [] No []

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

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

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

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

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

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

.....

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]