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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

KUMQUAT

UPOV Code: FORTU

Fortunella Swingle

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by the

Technical Committee at its forty-ninth session,
to be held in Geneva from March 18 to 20, 2013

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Fortunella Swingle	Kumquat	Kumquat	Kumquat	Kumquat

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.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Fortunella* Swingle.

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 budsticks with sufficient buds to propagate 5 trees (to be sent at budding time), dormant shoots grafted on a rootstock selected by the testing authority or one-year-old trees grafted on a rootstock selected by the testing authority.

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

5 budsticks, or
5 dormant shoots, or
5 one-year-old trees.

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

3.1.3 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst, flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

3.2 Testing Place

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

3.3 Conditions for Conducting the Examination

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

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 trees.

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.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts taken from each of 5 plants and any other observations made on all plants in the test. 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 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:

4.2.2 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 5 plants, no off-types are allowed.

4.3 Stability

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

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new 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) Fruit: weight (characteristic 18)
(b) Fruit: shape (characteristic 19)
(c) Fruit: color of skin (characteristic 20)
(d) Time of beginning of fruit ripening (characteristic 29)

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

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

State	Note
small	3
medium	5
large	7

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

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

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

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*)	Asterisked characteristic	– see Chapter 6.1.2
QL	Qualitative characteristic	– see Chapter 6.3
QN	Quantitative characteristic	– see Chapter 6.3
PQ	Pseudo-qualitative characteristic	– see Chapter 6.3
MG, MS, VG, VS		– see Chapter 4.1.5
(a)-(e)	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. **(*)** **(+)**	**VG**	**Plant: growth habit**	**Plante : port**	**Pflanze: Wuchsform**	**Planta: porte**		
QN	**(a)**	upright	dressé	aufrecht	erguido	Nagami	1
		semi upright	demi-dressé	halbaufrecht	semierguido	Meiwa	2
		spreading	étalé	breitwüchsig	extendido	Fukushu	3
2. **(*)** **(+)**	**VG**	**Plant: density of branches**	**Plante : densité des branches**	**Pflanze: Dichte der Verzweigung**	**Planta: densidad de las ramas**		
QN	**(a)**	sparse	lâche	locker	laxa	Tetraploid-Meiwa	3
		medium	moyenne	mittel	media	Meiwa	5
		dense	dense	dicht	densa	Marumi	7
3. **(*)**	**VG/** **MS**	**One-year-old shoot: length**	**Rameau d'un an : longueur**	**Einjähriger Trieb: Länge**	**Rama de un año: longitud**		
QN	**(b)**	short	court	kurz	corta	Nagami	3
		medium	moyen	mittel	media	Meiwa	5
		long	long	lang	larga	Tetraploid-Meiwa	7
4. **(*)**	**VG/** **MS**	**One-year-old shoot: thickness**	**Rameau d'un an : épaisseur**	**Einjähriger Trieb: Dicke**	**Rama de un año: grosor**		
QN	**(b)**	thin	mince	dünn	delgada	Marumi	1
		medium	moyen	mittel	media	Nagami	3
		thick	épais	dick	gruesa	Meiwa	5
5. **(*)**	**VG/** **MS**	**One-year-old shoot: length of internode**	**Rameau d'un an : longueur de l'entre-nœud**	**Einjähriger Trieb: Länge des Internodiums**	**Rama de un año: longitud del entrenudo**		
QN	**(b)**	short	court	kurz	corta	Nagami	3
		medium	moyen	mittel	media	Meiwa	5
		long	long	lang	larga	Tetraploid-Meiwa	7
6. **(*)**	**VG**	**One-year-old shoot: number of spines**	**Rameau d'un an : nombre d'épines**	**Einjähriger Trieb: Anzahl Stacheln**	**Rama de un año: número de espinas**		
QN	**(b)**	none or very few	aucun ou très petit	keine oder sehr wenige	ausente o muy pocas	Nagami, Fukushu	1
		few	petit	wenige	pocas	Marumi	3
		medium	moyen	mittel	media	Meiwa	5
		many	grand	viele	abundantes	Tetraploid-Meiwa	7
7. **(*)**	**VG/** **MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(b)**	short	court	kurz	corto	Meiwa	3
		medium	moyen	mittel	medio	Tetraploid-Meiwa	5
		long	long	lang	largo	Nagami	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8. (*)	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(c)**	narrow	étroit	schmal	estrecho	Meiwa	1
		medium	moyen	mittel	medio	Tetraploid-Meiwa	3
		broad	large	breit	ancho	Fukushu	5
9. (*) (+)	**VG**	**Leaf blade: shape**	**Limbe : forme**	**Blattspreite: Form**	**Limbo: forma**		
PQ	**(c)**	lanceolate	lancéolé	lanzettlich	lanceolado	Nagami	1
		narrow elliptic	elliptique étroit	schmall elliptisch	elíptico estrecho	Meiwa	2
		broad elliptic	elliptique large	breit elliptisch	elíptico ancho	Fukushu	3
10. (*) (+)	**VG**	**Leaf blade: shape of apex**	**Limbe : forme du sommet**	**Blattspreite: Form der Spitze**	**Limbo: forma del ápice**		
PQ	**(c)**	obtuse	obtus	stumpf	obtuso	Fukushu	1
		acute	aigu	spitz	agudo		2
		acuminate	acuminé	mit aufgesetzter Spitze	acuminado	Meiwa	3
11. (*) (+)	**VG**	**Leaf blade: shape of base**	**Limbe : forme de la base**	**Blattspreite: Form der Basis**	**Limbo: forma de la base**		
QN	**(c)**	acute	aigue	spitz	agudo	Nagami	1
		right angled	droit	rechtwinklig	en ángulo recto	Meiwa	2
		obtuse	obtuse	stumpf	obtuso	Fukushu	3
12. (*)	**VG**	**Leaf blade: undulation of margin**	**Limbe : ondulation du bord**	**Blattspreite: Wellung des Randes**	**Limbo: ondulación del borde**		
QN	**(c)**	weak	faible	gering	débil	Marumi	1
		medium	moyenne	mittel	media	Meiwa	2
		strong	forte	stark	fuerte	Nagami	3
13. (*)	**VG/ MS**	**Leaf: length of petiole**	**Feuille : longueur du pétiole**	**Blatt: Länge des Blattstiels**	**Hoja: longitud del peciolo**		
QN	**(c)**	short	court	kurz	corto	Fukushu	1
		medium	moyen	mittel	medio	Marumi	3
		long	long	lang	largo	Nagami	5
14. (*) (+)	**VG/ MS**	**Flower: diameter**	**Fleur : diamètre**	**Blüte: Durchmesser**	**Flor: diámetro**		
QN	**(d)**	small	petit	klein	pequeño	Meiwa	1
		medium	moyen	mittel	medio		3
		large	grand	groß	grande	Tetraploid-Meiwa	5
15. (*)	**VG**	**Flower: number of filaments**	**Fleur : nombre de filaments**	**Blüte: Anzahl der Staubfäden**	**Flor: número de filamentos**		
QN	**(d)**	few	petit	wenige	bajo	Tetraploid-Meiwa	1
		medium	moyen	mittel	medio	Nagami	3
		many	grand	viele	alto	Meiwa	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. (*)	**VG/ MS**	**Fruit: length**	**Fruit : longueur**	**Frucht: Länge**	**Fruto: longitud**		
QN	**(e)**	short	court	kurz	corto	Marumi	1
		medium	moyen	mittel	medio	Meiwa	3
		long	long	lang	largo	Nagami	5
17. (*)	**VG/ MS**	**Fruit: diameter**	**Fruit : diamètre**	**Frucht: Durchmesser**	**Fruto: diámetro**		
QN	**(e)**	small	petit	klein	pequeño	Marumi	1
		medium	moyen	mittel	medio	Meiwa	3
		large	grand	groß	grande	Fukushu	5
18. (*) (+)	**MG**	**Fruit: weight**	**Fruit : poids**	**Frucht: Gewicht**	**Fruto: peso**		
QN	**(e)**	low	petit	niedrig	pequeño	Nagami	3
		medium	moyen	mittel	medio	Tetraploid-Meiwa	5
		high	grand	hoch	grande	Fukushu	7
19. (*) (+)	**VG**	**Fruit: shape**	**Fruit : forme**	**Frucht: Form**	**Fruto: forma**		
PQ	**(e)**	circular	circulaire	kreisförmig	circular	Marumi	1
		elliptic	elliptique	elliptisch	elíptico	Meiwa	2
		obovate	obovale	verkehrt eiförmig	obovado	Fukushu, Nagami	3
20. (*)	**VG**	**Fruit: color of skin**	**Fruit : couleur de l'épiderme**	**Frucht: Farbe der Schale**	**Fruto: color de la piel**		
PQ	**(e)**	yellowish orange	orange jaunâtre	gelblich orange	naranja amarillento	Nagami	1
		medium orange	orange moyen	mittelorange	naranja medio	Meiwa	2
		dark orange	orange foncé	dunkelorange	naranja oscuro		3
21. (*) (+)	**VG/ MS**	**Fruit: thickness of skin**	**Fruit : épaisseur de l'épiderme**	**Frucht: Dicke der Schale**	**Fruto: grosor de la piel**		
QN	**(e)**	thin	mince	dünn	delgada	Marumi	1
		medium	moyen	mittel	media	Meiwa	3
		thick	épais	dick	gruesa	Tetraploid-Meiwa	5
22. (*) (+)	**MG**	**Fruit: sweetness of flesh**	**Fruit : goût sucré de la chair**	**Frucht: Süße des Fleisches**	**Fruto: dulzura de la pulpa**		
QN	**(e)**	low	faible	gering	baja	Nagami	3
		medium	moyen	mittel	media	Meiwa	5
		high	fort	hoch	alta	Tetraploid-Meiwa	7
23. (*) (+)	**MG**	**Fruit: acidity of flesh**	**Fruit : acidité de la chair**	**Frucht: Säure des Fleisches**	**Fruto: acidez de la pulpa**		
QN	**(e)**	low	faible	gering	baja	Tetraploid-Meiwa	3
		medium	moyenne	mittel	media	Meiwa	5
		high	forte	hoch	alta	Nagami	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24. (*) (+)	**MG**	**Fruit: sweetness of skin**	**Fruit : goût sucré de l'épiderme**	**Frucht: Süße der Schale**	**Fruto: dulzura de la piel**		
QN	**(e)**	low	faible	gering	baja	Nagami	3
		medium	moyen	mittel	media	Meiwa	5
		high	fort	hoch	alta	Tetraploid-Meiwa	7
25. (*) (+)	**VG**	**Fruit: juiciness**	**Fruit : jutosité**	**Frucht: Saftigkeit des Fleisches**	**Fruto: suculencia**		
QN	**(e)**	low	faible	gering	baja	Marumi	3
		medium	moyenne	mittel	media	Meiwa	5
		high	forte	hoch	alta	Fukushu	7
26. (*)	**MS**	**Fruit: number of fully developed seeds**	**Fruit : nombre de graines complètement développées**	**Frucht: Anzahl vollentwickelter Samen**	**Fruto: número de semillas completamente desarrolladas**		
QN	**(e)**	none or few	nul ou petit	keine oder wenige	ninguna o bajo	Nagami	1
		medium	moyen	mittel	medio	Marumi	2
		many	grand	viele	alto	Meiwa	3
27. (*) (+)	**VG**	**Seed: embryony**	**Pépin : embryonie**	**Samen: Embryonie**	**Semilla: embrionía**		
QL	**(e)**	monoembryonic	monoembryonique	monoembryonisch	monoembriónico	Nagami	1
		polyembryonic	polyembryonique	polyembryonisch	poliembriónico	Meiwa	2
28. (+)	**MG**	**Time of beginning of flowering**	**Époque du début de floraison**	**Zeitpunkt des Blühbeginns**	**Época del inicio de la floración**		
QN	**(d)**	early	précoce	früh	temprana		3
		medium	moyenne	mittel	media		5
		late	tardive	spät	tardía		7
29. (*) (+)	**MG**	**Time of beginning of fruit ripening**	**Époque du début de maturation des fruits**	**Zeitpunkt des Beginns der Fruchtreife**	**Época de inicio de maduración del fruto**		
QN	**(e)**	early	précoce	früh	temprana	Fukushu	3
		medium	moyenne	mittel	media	Meiwa	5
		late	tardive	spät	tardía	Nagami	7

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: Observations on the plant should be made in the winter season
(b) One-year-old shoot: Observations on the one-year-old shoot should be made on well developed shoots (excluding water shoots) at the equatorial part of outer side of the plant.
(c) Leaf blade: Observations on the leaf blade should be made on fully developed leaves. Leaves should be taken from the middle third of one-year-old shoots.
(d) Flower: Observations on the flower should be made on the primary flowers.
(e) Fruit: Observations on the fruit should be made on the first fruit, which has reached maturity and is ready for consumption.

8.2 Explanations for individual characteristics

Ad. 1: Plant: growth habit

1
upright

2
semi upright

3
spreading

Ad. 2: Plant: density of branches

Trees should only be pruned in the year of planting to ensure good branch formation.

Ad. 9: Leaf blade: shape

width: narrow ↑ / broad ↓	← broadest part → (below middle)	at middle
	 1 lanceolate	
		 2 narrow elliptic
		 3 broad elliptic

Ad. 10: Leaf blade: shape of apex

1
obtuse

2
acute

3
acuminate

Ad. 11: Leaf blade: shape of base

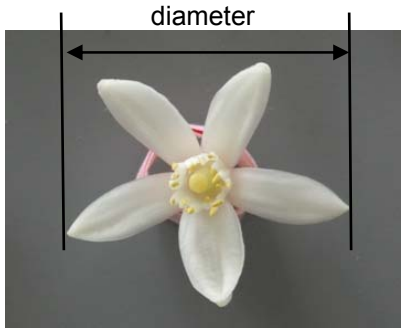
1
acute

2
right angled

3
obtuse

Ad. 14: Flower: diameter

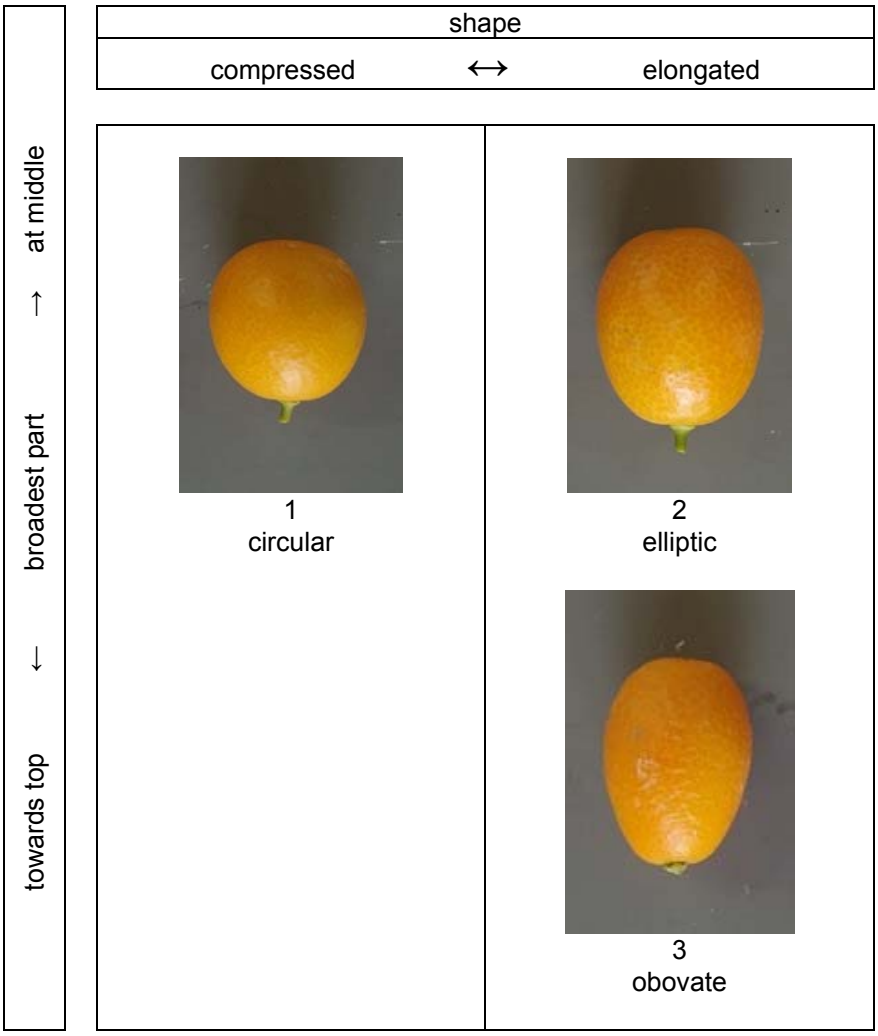
The flower diameter is the broadest part of the primary flower at full flowering time.



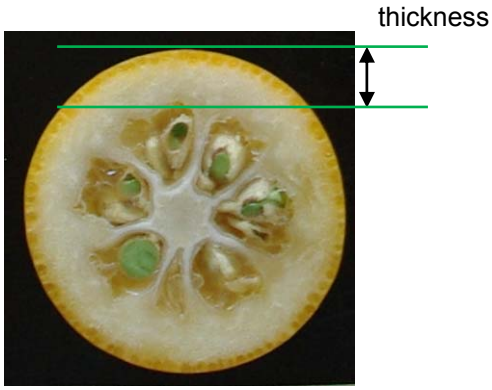
Ad. 18: Fruit: weight

The weight of 10 fruits should be observed.

Ad. 19: Fruit: shape



Ad. 21: Fruit: thickness of skin



Ad. 22: Fruit: sweetness of flesh

The sweetness is considered as the total soluble solids content, and is determined with a refractometer.

Ad. 23: Fruit: acidity of flesh

The acidity is considered as free acids content, and is determined by titration.

Ad. 24: Fruit: sweetness of skin

The sweetness is considered as the total soluble solids content of juice from peeled skin at the middle part of fruit determined with a refractometer.

Ad. 25: Fruit: juiciness

The juiciness should be determined by observation of juice content by squeezing fruit which is cut at the middle part of cross section.

Ad. 27: Seed: embryony

Seed embryony should be determined after removing seed coat.

Ad. 28: Time of beginning of flowering

The beginning of flowering is considered as the time when 10% of the flowers are fully open.

Ad. 29: Time of beginning of fruit ripening

The beginning of fruit ripening is considered as the time when 10% of the fruits are ready for consumption.

9. Literature

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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	*Fortunella* Swingle
1.2 Common name	Kumquat

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 Seed [ ]

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 (18)	**Fruit: weight**		
	very low		1[ ]
	very low to low		2[ ]
	low	Nagami	3[ ]
	low to medium		4[ ]
	medium	Tetraploid-Meiwa	5[ ]
	medium to high		6[ ]
	high	Fukushu	7[ ]
	high to very high		8[ ]
	very high		9[ ]
5.2 (19)	**Fruit: shape**		
	circular	Marumi	1[ ]
	elliptic	Meiwa	2[ ]
	obovate	Fukushu, Nagami	3[ ]
5.3 (20)	**Fruit: color of skin**		
	yellowish orange	Nagami	1[ ]
	medium orange	Meiwa	2[ ]
	dark orange		3[ ]
5.4 (29)	**Time of beginning of fruit ripening**		
	very early		1[ ]
	very early to early		2[ ]
	early	Fukushu	3[ ]
	early to medium		4[ ]
	medium	Meiwa	5[ ]
	medium to late		6[ ]
	late	Nagami	7[ ]
	late to very late		8[ ]
	very late		9[ ]

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: color of skin*	*yellowish orange*	*medium orange*

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

What is this variety used for?

Fruit [ ] Ornamental [ ]

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

8. Authorization for release

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

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

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

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

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]