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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

LEMONS AND LIMES

UPOV Code(s): CITRU_AUR; CITRU_HYS; CITRU_LIM

Citrus × *aurantiifolia* (Christm.) Swingle;
Citrus hystrix DC.;
Citrus ×*limon* (L.) Osbeck
[to be reviewed]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Spain
to be considered by the
Technical Working Party for Fruit Crops
at its fifty-third session, to be held virtually,
from 2022-07-11 to 2022-07-15

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Citrus ×*aurantiifolia* (Christm.) Swingle	Lime, Mexican Lime	Limettier	Limette	Lima mexicana, Limón mexicano
Citrus hystrix DC.	Leech Lime, Mauritius Papeda, Porcupine Orange	Combava	Makrut Limette; Papeda	
Citrus ×*limon* (L.) Osbeck	Lemon	Citronnier, Limonier	Limone, Sauerzitrone, Zitrone	Limonero, Limón

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.]

UPOV Code	Principal botanical name	Other botanical name(s)
CITRU_AUR	Citrus ×aurantiifolia (Christm.) Swingle	Citrus acida Roxb.; Citrus acida var. acida Roxb.; Citrus aurata Risso; Citrus excelsa var. davaoensis Wester; Citrus grandis Hassk.; Citrus grandis var. grandis Hassk.; Citrus grandis var. oblonga Hassk.; Citrus grandis var. sphaerocarpos Hassk.; Citrus hystrix subsp. acida (Roxb.) Engl.; Citrus lima Lunan; Citrus limetta var. aromatica Wester; Citrus limonellus Hassk.; Citrus limonellus var. limonellus Hassk.; Citrus limonellus var. oxycarpus Hassk.; Citrus medica var. acida (Roxb.) Hook. f.; Citrus ×aurantiifolia var. aurantiifolia (Christm.) Swingle; Citrus ×davaoensis (Wester) Tanaka; Citrus ×excelsa Wester; Citrus ×javanica Blume; Limonia aurantiifolia Christm., Citrus medica × C. micrantha"
CITRU_HYS	Citrus hystrix DC.	Citrus auraria Michel; Citrus balincolong (Tanaka) Tanaka; Citrus boholensis (Wester) Tanaka; Citrus celebica Koord.; Citrus celebica var. celebica Koord.; Citrus combara Raf.; Citrus echinata St.-Lag.; Citrus hyalopulpa Tanaka; Citrus hystrix subsp. hystrix DC.; Citrus hystrix var. balincolong Tanaka; Citrus hystrix var. boholensis Wester; Citrus hystrix var. hystrix DC.; Citrus kerrii (Swingle) Tanaka; Citrus latipes Hook. f. & Thomson; Citrus macroptera var. annamensis Tanaka; Citrus macroptera var. kerrii Swingle; Citrus papeda Miq.; Citrus papuana F. M. Bailey; Citrus torosa Blanco; Citrus vitiensis Tanaka; Fortunella sagittifolia K. M. Feng & P. I Mao; Papeda rumphii Hassk.
CITRU_LIM	Citrus ×limon (L.) Osbeck	Citrus balotina Poit. & Turpin; Citrus bergamota Raf.; Citrus karna Raf.; Citrus limonum Risso; Citrus medica var. limon L.; Citrus rissoi Risso; Citrus ×limon (L.) Burm. f.; Citrus ×limonia Osbeck; Citrus ×mellarosa Risso; Citrus ×volkameriana (Risso) V. Ten. & Pasq.; a hybrid of Citrus × aurantium (C. maxima × C. reticulata) × C. medica

To be reviewed:

GROUP 3 – ALTERNATIVE NAMES AND CORRESPONDING SUBGROUPS*

Latin	*Sub-group*	*English*	*French*	*German*	*Spanish*
Citrus assamensis S. Dutta & S.C. Bhattach.	LEM				
Citrus aurantiifolia (Christm.) Swingle	SAL	Mexican Lime	Limettier	Limette	Lima mexicana, Limón mexicano
Citrus aurata Risso	LEM				
Citrus balotina Poit. & Turpin	LEM				
Citrus bergamia Risso & Poit.	SAL				
Citrus davaoensis (Wester) Tanaka	SAL				
Citrus duttae Tanaka	LEM				
Citrus excelsa Wester	SAL				
Citrus hyalopulpa Tanaka	SAL				
Citrus jambhiri Lush.	LEM (RLM)	Rough Lemon	Citronnier	Rauhschalige Zitrone	Limón rugoso
Citrus javanica Blume	SAL				
Citrus karna Raf.	LEM				
Citrus latifolia (Yu. Tanaka) Tanaka	SAL (LAL)	Acid Lime	Limettier	Persische Limette	Lima ácida
Citrus limetta Risso	LEM				
Citrus limettioides Tanaka	SAL (SWL)	Sweet Lime	Limettier	Zitrone	Lima dulce
Citrus limon (L.) Burm. f.	LEM	Lemon	Citronnier	Zitrone	Limón
Citrus limon (L.) Burm. x *C. aurantifolia* (Christm.) Swing.	HLL	Lemonime			

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Latin	*Sub-group*	*English*	*French*	*German*	*Spanish*
Citrus limonia Osbeck	LEM				
Citrus longilimon Tanaka	LEM				
Citrus longispina Wester	SAL				
Citrus lumia Risso & Poit.	LEM				
Citrus macrolimon Tanaka	LEM				
Citrus megaloxycarpa Lush.	LEM				
Citrus mellarosa Risso	LEM				
Citrus meyeri Yu. Tanaka	LEM				
Citrus montana (Wester) Tanaka	SAL				
Citrus obversa Hassk.	SAL				
Citrus ovata Hassk.	SAL				
Citrus papaya Hassk.	SAL				
Citrus peretta Risso	LEM				
Citrus pseudolimon Tanaka	LEM				
Citrus pseudolimonum Wester	SAL				
Citrus pyriformis Hassk.	LEM				
Citrus rissoi Risso	LEM				
Citrus sarbati Tanaka	LEM				
Citrus webberii Wester	SAL				

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Citrus* × *aurantiifolia* (Christm.) Swingle, *Citrus hystrix* DC. and *Citrus* ×*limon* (L.) Osbeck.

2. Material Required

3. Method of Examination

4. Assessment of Distinctness, Uniformity and Stability

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:

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 All relevant states of expression are presented in the characteristic.

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 Be ejemplo	Note
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 8.1

6 Not applicable

7 Not applicable

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

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.		**QL**	**VG**			**201**			
		Ploidy							
		diploid							2
		triploid							3
		tetraploid							4
2.		**QN**	**VG**			**203**			
		Tree: density of spines							
		absent							1
		sparse						Colima 02 (SAL)	2
		intermediate						Lisbon Frost (LEM)	3
		dense							4
3.	**(*)**	**PQ**	**VG**			**202**			
		Tree: growth habit							
		upright						Lisbon Frost (LEM)	1
		spreading						Verna (LEM)	2
		drooping							3
4.		**QN**	**VG**			**204**			
		Tree: length of spines							
		short						Eureka (LEM)	3
		medium						Fino (LEM)	5
		long						Comun (LEM)	7
5.	**(*)**	**QL**	**VG**			**206**			
		Young leaf: presence of anthocyanin coloration							
		absent						Flor de Arancio (LEM)	1
		present						Verna (LEM)	9
6.		**QN**	**VG**			**207**			
		Young leaf: intensity of anthocyanin coloration							
		weak						Tahiti (LAL)	3
		medium						Verna (LEM)	5
		strong							7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	**QN VG**		**210**			
	Leaf blade: length (apical leaflet in case of compound leaf)					
	short				Mexicana (SAL)	3
	medium				Tahiti (LAL)	5
	long				Fino (LEM)	7
8.	**QN VG**		**211**			
	Leaf blade: width (as for 7)					
	narrow				Mexicana (SAL)	3
	medium				Tahiti (LAL)	5
	broad				Fino (LEM)	7
9.	**QN VG**		**212**			
	Leaf blade: ratio length/width (as for 7)					
	small				Messara (LEM)	3
	medium				Fino (LEM)	5
	large					7
10	**QN VG**		**217**			
	Leaf blade: shape in cross section (as for 7)					
	straight or weakly concave					1
	intermediate					2
	strongly concave					3
11	**QN VG**		**218**			
	Leaf blade: twisting					
	absent or weak				Fino (LEM)	1
	intermediate				Eureka (LEM)	2
	strong					3
12	**QN VG**		**220**			
	Leaf blade: green color					
	light					3
	medium				Fino (LEM)	5
	dark					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13	**QN VG**		**222**			
	Leaf blade: undulation of margin					
	absent or weak				Fino (LEM)	1
	intermediate				Eureka (LEM)	2
	strong					3
14	**PQ VG**		**224**			
	Leaf blade: shape of apex					
	acuminate				Santa Teresa (LEM)	1
	acute				Fino (LEM)	2
	obtuse					3
	rounded					4
15	**QN VG**		**226**			
	Petiole: length					
	short					3
	medium				Fino (LEM)	5
	long				Santa Teresa (LEM)	7
16	**QL VG**		**227**			
	Petiole: presence of wings					
	absent				Colima 02 (SAL), Fino (LEM)	1
	present					9
17	**QN VG**		**228**			
	<u>Varieties with petiole wings present only</u>: Petiole: width of wings					
	narrow					3
	medium					5
	broad					7
18	**QL VG**		**229**			
	Flower bud: presence of anthocyanin coloration					
	absent				Flor de Arancio (LEM)	1
	present				Verna (LEM)	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19	**QN VG**		**230**			
	Flower bud: intensity of anthocyanin coloration					
	weak				Tahiti (LAL)	3
	medium					5
	strong				Verna (LEM)	7
20	**QN VG**		**232**			
	Flower: length of petal					
	short					3
	medium				Bearss (LAL)	5
	long				Fino (LEM)	7
21	**QN VG**		**233**			
	Flower: width of petal					
	narrow					3
	medium					5
	broad					7
22	**QN VG**		**234**			
	Flower: ratio length/ width of petal					
	small				Laphitos (LEM)	3
	medium				Fino (LEM)	5
	large				Roxani (LEM)	7
23	**QN VG**		**235**			
	Flower: length of stamens					
	short					3
	medium					5
	long					7
24	**QL VG**		**236**			
	Flower: basal union of stamens					
	absent				Fino (LEM)	1
	present					9

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25		**PQ**	**VG**			**238**			
		Anther: color							
		white							1
		light yellow						Bearss (LAL)	2
		medium yellow						Verna (LEM)	3
26		**QL**	**VG**	**(+)**		**239**			
		Anther: pollen viability							
		absent or low						Tahiti (LAL)	1
		medium						Verna (LEM)	2
		high						Fino (LEM)	3
27		**QN**	**VG**			**240**			
		Style: length							
		short							3
		medium							5
		long							7
28	**(*)**	**QN**	**VG**			**244**			
		Fruit: length							
		short						Mexicana (SAL)	3
		medium						Tahiti (LAL)	5
		long						Eureka (LEM)	7
29	**(*)**	**QN**	**VG**			**245**			
		Fruit: diameter							
		small						Mexicana (SAL)	3
		medium						Lunario Ambrojo (LEM)	5
		large						Calabria (SAL)	7
30	**(*)**	**QN**	**VG**			**246**			
		Fruit: ratio length/diameter							
		small						Tahiti (LAL)	3
		medium						Fino (LEM)	5
		large						Verna (LEM)	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
31	**(*)**	**QN VG**		**247**			
		Fruit: position of broadest part					
		towards stalk end					1
		at middle				Fino (LEM)	2
		towards distal end					3
32		**PQ VG**		**249**			
		Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)					
		flattened					1
		slightly rounded					2
		strongly rounded					3
		tapered					4
33	**(*)**	**QL VG**		**250**			
		Fruit: presence of neck					
		absent				Lunario (LEM)	1
		present				Verna (LEM)	9
34		**QN VG**		**251**			
		<u>Necked varieties only</u>: Fruit: length of neck					
		short				Fino (LEM)	3
		medium				Lisbon Frost (LEM)	5
		long				Verna (LEM)	7
35	**(*)**	**QL VG**		**253**			
		<u>Only varieties without fruit neck</u>: Fruit: presence of depression at stalk end					
		absent				Lunario (LEM)	1
		present				Messina (LEM)	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36		**QN VG**		**254**			
		<u>Only varieties without fruit neck</u>: Fruit: depth of depression at stalk end					
		shallow					3
		medium					5
		deep					7
37		**QN VG**		**264**			
		Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)					
		flattened				Messina (LEM)	1
		slightly rounded				Eureka (LEM)	2
		strongly rounded				Verna (LEM)	3
38	**(*)**	**QL VG**		**268**			
		Fruit: presence of nipple					
		absent				Mexicana (SAL), Tahiti (LAL)	1
		present				Verna (LEM)	9
39		**QN VG**		**269**			
		Fruit: prominence of nipple					
		weak				Messina (LEM)	3
		medium				Fino (LEM)	5
		strong				Verna (LEM)	7
40		**QN VG**		**273**			
		Fruit: diameter of stylar scar					
		small					3
		medium					5
		large					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41	**PQ VG**		**275**			
	Fruit: persistence of style					
	none				Verna (LEM)	1
	partial				Eureka Seedless (LEM)	2
	total				Melarosa (SAL)	3
42	**QL VG**		**279**			
	Fruit: presence of radial grooves at distal end					
	absent					1
	present					9
43	**QN VG**		**280**			
	Fruit: expression of radial grooves at distal end					
	weak					3
	medium					5
	strong					7
44	**QL VG**		**281**			
	Fruit: color variegation					
	absent					1
	present					9
45	**PQ VG**		**282**			
	Fruit surface: predominant color(s)					
	green					1
	yellow green				Tahiti (LAL)	2
	light yellow				Bearss (LAL)	3
	medium yellow				Canaria (SWL)	4
	yellow orange				Meyer (LEM)	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
46	**(*)**	**QN VG**		**285**			
		Fruit surface: glossiness					
		absent or very weak					1
		weak				Eureka (LEM)	3
		medium					5
		strong					7
		very strong					9
47		**QN VG**		**286**			
		Fruit surface: roughness					
		smooth				Lunario (LEM)	3
		medium				Fino (LEM)	5
		rough				Campisi (LEM)	7
48		**PQ VG**		**290**			
		Fruit surface: presence of pitting and pebbling on oil glands					
		pitting and pebbling absent					1
		pitting absent, pebbling present					2
		pitting present, pebbling absent					3
		pitting and pebbling present					4
49	**(*)**	**QN VG**		**295**			
		Fruit rind: thickness					
		thin					3
		medium				Messina (LEM), Mexicana (SAL)	5
		thick				Verna (LEM)	7
50	**(*)**	**QN VG**		**298**			
		Fruit rind: oiliness					
		dry					3
		medium					5
		oily					7

		English	français	deutsch	español	Example Varieties Exemples Bei ejemplo	Note/
51	**(*)**	**PQ** **VG**		**307**			
		Fruit: main color of flesh					
		light green				Tahiti (LAL)	1
		light yellow				Eureka (LEM)	2
		medium yellow				Meyer (LEM)	3
		light orange					4
		medium orange					5
		medium pink				Variegado (LEM)	6
52		**QN** **VG**		**309**			
		Fruit: filling of core					
		absent or very sparse					1
		sparse				Messina (LEM)	3
		medium				Lunario (LEM)	5
		dense				Fino (LEM)	7
		very dense					9
53		**QN** **VG**		**310**			
		Fruit: diameter of core					
		small				Fino (LEM)	3
		medium				Messara (LEM)	5
		large				Santa Teresa (LEM)	7
54		**QN** **VG**		**312**			
		Fruit: number of well developed segments					
		few					3
		medium					5
		many					7
55		**QN** **VG**		**314**			
		Fruit: strength of segment walls					
		weak					3
		medium					5
		strong					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
56	**QN** **VG**		**315**			
	Fruit: length of juice vesicles					
	short					3
	medium					5
	long					7
57	**QN** **VG**		**316**			
	Fruit: thickness of juice vesicles					
	thin					3
	medium					5
	thick					7
58	**QN** **VG**		**321**			
	Fruit: juiciness					
	low					3
	medium				Fino (LEM)	5
	high				Laphitos (LEM)	7
59	**QN** **VG**		**322**			
	Fruit juice: total soluble solids					
	low					3
	medium					5
	high					7
60	**QN** **VG**		**323**			
	Fruit juice: acidity					
	low					3
	medium					5
	high					7
61	**QN** **VG**		**324**			
	Fruit: strength of fibre					
	weak					3
	medium					5
	strong					7

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
62		**QN**	**VG**	**(+)**		**326**			
		Fruit: number of seeds (open pollination)							
		absent or very few						Tahiti (LAL)	1
		few						Verna (LEM)	3
		medium						Fino (LEM)	5
		many						Eureka (LEM)	7
63	**(*)**	**QL**	**VG**			**327**			
		Seed: polyembryony							
		absent							1
		present						Eureka (LEM)	9
64	**(*)**	**QL**	**VG**			**335**			
		Flowering habit							
		flowering once						Fino (LEM)	1
		flowering more than once						Lunario (LEM), Mexicana (SAL)	2
65	**(*)**	**QN**	**VG**			**336**			
		Time of maturity of fruit for consumption							
		early						Tahiti (LAL)	3
		medium						Fino (LEM)	5
		late						Verna (LEM)	7
66	**(*)**	**QL**	**VG**			**337**			
		Fruit: parthenocarpy							
		absent							1
		present						Tahiti (LAL)	9
67		**QL**	**VG**			**338**			
		Plant: self-incompatibility							
		absent							1
		present						Tahiti (LAL)	9

8.1 Explanations for individual characteristics

Ad. 26: Anther: pollen viability

There is variability during development of the floral bud. It must be observed during the period of full flowering. From the two years of observations, the highest value should be taken, as this would indicate the highest potential for pollination.

Method to determine the percentage of pollen viability:

The pollen should be collected when the petals begin to open (but with the anthers closed). The anthers should be introduced into a Petri dish and placed inside a silica gel dryer at room temperature, for 20-48 hours of darkness. When the anthers are open they should be moved to an 8 ºC chamber with a 70-80 % Relative Humidity for one hour. Afterwards, the pollen should be brushed onto a microscope slide with 2 ml of Brewbacker medium (Brewbaker and Kwack. 1963). Finally, the microscope slide should be placed in a 24 ºC chamber with a 75 % RH for 20 hours.

The percentage of pollen fertility is calculated as the average of germinated pollen grains observed with a binocular microscope in 15 visual fields from 2 different microscope slides.

(Brewbaker, J.L. and Kwack, B.H. 1963. The essential role of calcium ion in pollen germination and pollen tube growth. Amer. Jour. Botany. 50: 859-865.)

Ad. 62: Fruit: number of seeds (open pollination)

Ad. 74 ([326]): Fruit: number of seeds (open pollination)

Open pollination means natural pollination between trees of any variety.

9. Literature

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

1.1.1	Botanical name	*Citrus ×aurantiifolia* (Christm.) Swingle	[ ]
1.1.2	Common name	Lime, Mexican Lime	
1.2.1	Botanical name	*Citrus hystrix* DC.	[ ]
1.2.2	Common name	Leech Lime, Mauritius Papeda, Porcupine Orange	
1.3.1	Botanical name	*Citrus ×limon* (L.) Osbeck	[ ]
1.3.2	Common name	Lemon	

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 variety)

(……..……..…) 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 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 (5)	**Young leaf: presence of anthocyanin coloration**		
	absent	Flor de Arancio (LEM)	1 [ ]
	present	Verna (LEM)	9 [ ]
5.2 (6)	**Young leaf: intensity of anthocyanin coloration**		
	weak	Tahiti (LAL)	3 [ ]
	medium	Verna (LEM)	5 [ ]
	strong		7 [ ]
5.3 (28)	**Fruit: length**		
	short	Mexicana (SAL)	3 [ ]
	medium	Tahiti (LAL)	5 [ ]
	long	Eureka (LEM)	7 [ ]
5.4 (29)	**Fruit: diameter**		
	small	Mexicana (SAL)	3 [ ]
	medium	Lunario Ambrojo (LEM)	5 [ ]
	large	Calabria (SAL)	7 [ ]
5.5 (33)	**Fruit: presence of neck**		
	absent	Lunario (LEM)	1 [ ]
	present	Verna (LEM)	9 [ ]
5.6 (38)	**Fruit: presence of nipple**		
	absent	Mexicana (SAL), Tahiti (LAL)	1 [ ]
	present	Verna (LEM)	9 [ ]

	Characteristics	Example Varieties	Note
5.7 (45)	**Fruit surface: predominant color(s)**		
	green		1 [ ]
	yellow green	Tahiti (LAL)	2 [ ]
	light yellow	Bearss (LAL)	3 [ ]
	medium yellow	Canaria (SWL)	4 [ ]
	yellow orange	Meyer (LEM)	5 [ ]
5.8 (51)	**Fruit: main color of flesh**		
	light green	Tahiti (LAL)	1 [ ]
	light yellow	Eureka (LEM)	2 [ ]
	medium yellow	Meyer (LEM)	3 [ ]
	light orange		4 [ ]
	medium orange		5 [ ]
	medium pink	Variegado (LEM)	6 [ ]
5.9 (65)	**Time of maturity of fruit for consumption**		
	early	Tahiti (LAL)	3 [ ]
	medium	Fino (LEM)	5 [ ]
	late	Verna (LEM)	7 [ ]
5.10 (66)	**Fruit: parthenocarpy**		
	absent		1 [ ]
	present	Tahiti (LAL)	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			

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 displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.

The key points to consider when taking a photograph of the candidate variety are:

- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)"

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (http://www.upov.int/tgp/en/).

[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

Virus status

The plant material is virus-free [ ]
The plant material is virus tested [ ]
(indicate against which viruses: .....
.....)
The virus status is unknown [ ]

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]