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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

**TECHNICAL WORKING PARTY
FOR
FRUIT CROPS****Thirty-Third Session
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FOR TRIFOLIATE ORANGE*(Citrus L. – Group 5)**prepared by the Office of the Union*

The attached document TG/PONCI(proj.1) already incorporates the standard wording of document TGP/7.2, which was adopted by the Technical Committee at its thirty-eighth session in April 2002, and includes some additional standard wording from document TGP/7.1 Draft 1, also agreed at that session.

[Document TG/PONCI(proj.1) follows]



TG/PONCI(proj.1) (TWF/33/6)

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CITRUS L. – Group 5

TRIFOLIATE ORANGE

- *Poncirus* Raf. (Trifoliolate Orange, Golden Apple)
- *Poncirus* x Grapefruit (Citrumelo)
- *Poncirus* x Lemon (Citremón)
- *Poncirus* x Mandarin (Citrandarin)
- *Poncirus* x Sweet Orange (Citrango)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names: *

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Poncirus</i> Raf.	Golden Apple, <i>Poncirus</i> , Trifoliolate Orange	Oranger trifolié, <i>Poncirus</i>	Dreiblättrige Orange, Bitterorange, <i>Poncirus</i>	Naranja trifoliado, <i>Poncirus</i>

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants” (hereinafter referred to as the “General Introduction”) and its associated “TGP” documents.

Other associated documents:

CITRUS L. – GROUP 1: TG/MANDA(proj.1) - (TWF/33/4)

CITRUS L. – GROUP 2: TG/ORANG(proj.1) - (TWF/33/5)

CITRUS L. – GROUP 3: TG/LEM-LIM(proj.1) - (TWF/33/3)

CITRUS L. – GROUP 4: TG/GRA-PUM(proj.1) - (TWF/33/2)

*

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 Web Site (<http://www.upov.int>), for the latest information.]

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1. Subject of these Guidelines

1.1 The following Test Guidelines have been developed from the standard Citrus Test Guidelines template. In particular, the Table of Characteristics has been selected from the overall set of citrus characteristics presented in the Annex.

1.2 These Test Guidelines apply to all varieties of the following species of the group Trifoliolate Orange of the genus *Poncirus* L. (Rutaceae), and their hybrids:

Group 5. Trifoliolate Orange and its hybrids

Poncirus Raf. (Trifoliolate Orange, Golden Apple) - **PON**

Poncirus x Grapefruit (Citrumelo) - **CML**

Poncirus x Lemons (Citremón) - **CTL**

Poncirus x Mandarin (Citrandarin) - **CTI**

Poncirus x Sweet Orange (Citrange) - **CTG**

Other *Poncirus* Hybrids - **HPO**

1.3 In the case of hybrids between species within the genus *Poncirus* L., the Test Guidelines to be used should be those for which the overall appearance of FRUIT is most suited. However, if the variety cannot be clearly distinguished from ALL varieties covered by another set of Test Guidelines this other set of Test Guidelines should also be used to examine the variety.

1.4 In the case of hybrids between species within the genus *Poncirus* L., where the variety is clearly distinguishable from all other varieties covered by other Test Guidelines, it may still be necessary to use additional citrus characteristics to examine the variety. In these circumstances it is appropriate to use characteristics from the Test Guidelines covering the parent species, or to select characteristics from the overall set of citrus characteristics presented in the Annex.

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 bud sticks of 6 to 10 mm in diameter (one year old), each cut just behind a typical fruit or, if required by the competent authorities, one-year-old grafted trees. In the case of rootstock varieties, rooted cuttings or polyembryonic seeds may be required in addition.

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

10 bud sticks sufficient to establish 10 plants or,
if required by the competent authorities,
10 one-year-old grafted trees.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease. It should preferably not be obtained from *in vitro* propagation. If it has been produced by *in vitro* propagation this fact must be stated by the applicant.

2.5 The plant material must not have undergone any treatment 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 *Duration of Tests*

The minimum duration of tests should normally be at least two independent growing cycles and must be sufficient for the trees under test to bear a satisfactory crop of fruit in at least two growing periods.

3.2 *Testing Place*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be seen at that place, the variety may be tested at an additional place.

3.3 *Conditions for Conducting the Examination*

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. Where necessary for the examination of fruit varieties, a standard specified rootstock should be used for each group.

3.3.2 All observations should be made on plants of the same age not less than 3 years old. The age of the plants should be specified.

3.3.3 Information on examining particular characteristics:

3.3.3.1 The table of characteristics provides notes which indicate the recommendations for observing characteristics as follows:

- a Growth habit: The observation on the growth habit of the tree should be made immediately after harvest.
- b Young leaf: All observations on the young leaf should be made on actively growing spring flush.
- c Leaf: All observations on the leaf should be made on fully developed leaves on the middle third of the youngest spring flush branch sections not showing signs of active growth.

- d** Flower: Unless otherwise indicated, all observations on the flower bud and the flower should be made on the terminal flower bud and flower, at the time of full flowering of the variety.
- All observations on the open flower should be made on the first day of opening.
- e** Flower bud: All observations on the flower bud should be made when the petal tips are just visible.
- f** Fruit: Unless otherwise indicated, all observations on the fruit should be made on the main fruiting of the year. All observations on the fruit should be made at the stage of optimum ripeness. This stage should be determined by the ratio: total soluble solids/acid content of juice. The fruit should be tested weekly and harvested as soon as this stage has been reached.
- All fruits for observation should be taken from the periphery of the tree and fruit misformed as a result of clustering should not be sampled.
- g** Fruit surface and fruit rind: All observations on the fruit surface and on the fruit rind should be made at the middle, between the base and apex of the fruit.
- h** Fruit flesh: All observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.
- i** Seed: All observations on the seed should be made on the fresh seed.

3.4 *Test Design*

3.4.1 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. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

3.4.2 Each test should be designed to result in a total of, at least, 5 plants.

3.5 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations determined by measuring or counting should be made on 5 plants or 2 parts taken from each of 5 plants.

3.6 *Additional Tests*

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.1.2 Consistent Differences

The minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

4.1.3 Clear Differences

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

4.2 *Uniformity*

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:

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 tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness is 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) Leaf: caducity (characteristic 7)
- (b) Leaf: number of leaflets (characteristic 8)
- (c) Fruit surface: presence of pubescence (characteristic 72)
- (d) Fruit: number of seeds (characteristic 100)
- (e) Seed: polyembryony (characteristic 102).

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

6. Introduction to the Table of Characteristics

6.1 *Categories of Characteristics*

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 *States of Expression and Corresponding Notes*

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

6.3 *Types of Expression*

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

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic. Each example variety is followed by the abbreviation of its group in brackets.

6.5 Legend

(+) See Explanations on the Table of Characteristics in Chapter 8.

(*) Asterisked characteristic – see section 6.1.2

(*F) Asterisked characteristic for fruit varieties

(*R) Asterisked characteristic for rootstock varieties

c#. Corresponding number of characteristic in the citrus overall table of characteristics

[#.] Number of characteristic in document TWF/32/14 Corr.

(QL) Qualitative characteristic – see section 6.3

(QN) Quantitative characteristic – see section 6.3

(PQ) Pseudo-Qualitative characteristic – see section 6.3

Notes for observing characteristics – see section 3.3.3.1:

a	Growth habit
b	Young leaf
c	Leaf
d	Flower
e	Flower bud
f	Fruit
g	Fruit surface and fruit rind
h	Fruit flesh
i	Seed

6.6 Abbreviations

- PON: *Poncirus* Raf. (Trifoliate Orange)
- CML: *Poncirus* x Grapefruit (Citrumelo)
- CTL: *Poncirus* x Lemons (Citremon)
- CTI: *Poncirus* x Mandarin (Citrandarin)
- CTG: *Poncirus* x Sweet Orange (Citrange)
- HPO: Other *Poncirus* Hybrids

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

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	Tree: growth habit					
a	upright				<i>Poncirus Trifoliata</i>	1
[1.]	spreading				CPB 4475	2
c2.	drooping					3
2.	Tree: density of spines					
	absent or sparse					1
[2.]	intermediate					2
c3.	dense				<i>Poncirus Trifoliata</i>	3
3.	Tree: length of spines					
	short					3
[3.]	medium					5
c4.	long				<i>Poncirus Trifoliata</i>	7
4.	Branch: expression of lenticels					
	weak					3
[3b.]	medium					5
c5.	strong				Cunningham	7
5. (*)	Young leaf: presence of anthocyanin coloration					
[4.] b	absent				Troyer	1
c6.	present					9

•
 MoE = Method of Examination

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
6.	Young leaf: intensity of anthocyanin coloration					
b	weak					3
[5.]	medium					5
c7.	strong					7
7.	Leaf: caducity					
c	perennial				CPB 4475	1
[5a.]	partially caducous				Troyer	2
c8.	caducous				<i>Poncirus Trifoliata</i>	3
8.	Leaf: number of leaflets					
c	one only					1
[5b.]	variable				Troyer	2
c9.	three only				<i>Poncirus Trifoliata</i>	3
9.	Leaf blade: length (apical leaflet in case of compound leaf)					
c	short					3
[6.]	medium					5
c10.	long					7
10.	Leaf blade: width (as for 9)					
c	narrow					3
[7.]	medium					5
c11.	broad					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	Leaf blade: ratio length/width (as for 9)					
c	small				<i>Poncirus Trifoliata</i>	3
[8.]	medium					5
c12.	large					7
12.	Leaf blade: length (lateral leaflet in case of compound leaf)					
c	short					3
[6a.]	medium					5
c13.	long					7
13.	Leaf blade: width (as for 12)					
c	narrow					3
[7a.]	medium					5
c14.	broad					7
14.	Leaf blade: ratio length/width (as for 12)					
c	small				<i>Poncirus Trifoliata</i>	3
[8a.]	medium					5
c15.	large					7
15.	Leaf blade: ratio length of blade of apical leaflet/length of blade of lateral leaflet					
c	small					3
[8b.]	medium					5
c16.	large					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
16.	Leaf blade: shape in cross section (as for 9)					
	c straight or weakly concave					1
<i>[9.]</i>	intermediate					2
c17.	strongly concave					3
17.	Leaf blade: shape in longitudinal axis (as for 12)					
	c straight					1
<i>[9a.]</i>	concave to upper side					2
c18.	concave to lower side					3
18.	Leaf blade: twisting					
	c absent or weak					1
<i>[10.]</i>	intermediate					2
c19.	strong					3
19.	Leaf blade: blistering					
	c absent or weak					1
<i>[11.]</i>	intermediate					2
c20.	strong					3
20.	Leaf blade: intensity of green color					
	c light					3
<i>[12.]</i>	medium					5
c21.	dark					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
21.	Leaf blade: pubescence on lower side					
	<input type="checkbox"/> absent or weak					1
[13.]	intermediate					2
c22.	strong					3
22.	Leaf blade: undulation of margin					
	<input type="checkbox"/> absent or weak					1
[15.]	intermediate					2
c23.	strong					3
23.	Leaf blade: incisions of margin					
	<input type="checkbox"/> entire					1
[16.]	crenate					2
c24.	dentate					3
24.	Leaf blade: shape of apex					
(+)	<input type="checkbox"/> acuminate					1
	acute					2
[17.]	obtuse					3
c25.	rounded					4
25.	Leaf blade: emargination at tip					
(+)	<input type="checkbox"/> absent					1
[18.]	present					9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
26.	Petiole: length					
	d short					3
[19.]	medium					5
c27.	long					7
27.	Petiole: presence of wings					
[20.]	d absent					1
c28.	present					9
28.	Petiole: width of wings					
	d narrow					3
[21.]	medium					5
c29.	broad					7
29.	Flower bud: presence of anthocyanin coloration					
[22.]	d absent					1
c30.	e present					9
30.	Flower bud: intensity of anthocyanin coloration					
	d weak					3
[23.]	e medium					5
c31.	strong					7
31.	Flower: diameter of calyx					
	d small					3
[24.]	medium					5
c32.	large					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
32.	Flower: length of petal					
	d short					3
[25.]	medium					5
c33.	long					7
33.	Flower: width of petal					
	d narrow					3
[26.]	medium					5
c34.	broad					7
34.	Flower: ratio length/width of petal					
	d small					3
[27.]	medium					5
c35.	large					7
35.	Flower: length of stamens					
	d short					3
[28.]	medium					5
c36.	long					7
36.	Stamen: color of filament					
[28.]	d white				Carrizo	1
c38.	pink				Forner Alcaide 13	2
37.	Anther: color					
	d white					1
[29.]	light yellow					2
c39.	medium yellow					3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
38.	Anther: viable pollen					
[30.]	d absent					1
c40.	present					9
39.	Style: length					
	d short					3
[31.]	medium					5
c41.	long					7
40.	Ovary: pubescence					
[31a.]	absent					1
c44.	present				<i>Poncirus Trifoliata</i>	9
41. (*)	Fruit: length					
	f short					3
[33.]	medium					5
c45.	long					7
42. (*)	Fruit: diameter					
	f small					3
[34.]	medium					5
c46.	large					7
43. (*)	Fruit: ratio length/diameter					
	f small					3
[35.]	medium					5
c47.	large					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44. (*)	Fruit: position of broadest part					
	f towards stalk end					1
[36.]	at middle					2
c48.	towards distal end					3
45. (*)	Fruit: circumference in transversal section					
	f round				<i>Poncirus Trifoliata</i>	1
[37a.]	somewhat angular					2
c49.	scalloped					3
46. (*) (+)	Fruit: general shape of proximal part (excluding neck, collar and depres- sion at stalk end)					
	f flattened					1
	slightly rounded					2
[38.]	strongly rounded					3
c50.	tapered					4
47. (*) (+)	Fruit: presence of depression at stalk end (excluding necked varieties)					
[39.]	f absent					1
c51.	present					9
48.	Fruit: depth of depression at stalk end (excluding necked varieties)					
	f shallow					3
[40.]	medium					5
c52.	deep					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
49. (*) (+)	Fruit: presence of neck					
[41.]	<input type="checkbox"/> absent					1
c53.	present					9
50.	Fruit: length of neck					
	<input type="checkbox"/> short					1
[42.]	medium					2
c54.	long					3
51.	Fruit: thickness of neck					
	<input type="checkbox"/> thin					1
[43.]	medium					2
c55.	thick					3
52. (+)	Fruit: presence of constriction at stalk end					
[44.]	<input type="checkbox"/> absent					1
c56.	present					9
53.	Fruit: expression of constriction at stalk end					
	<input type="checkbox"/> weak					1
[45.]	medium					2
c57.	strong					3
54.	Fruit: number of radial grooves at stalk end					
	<input type="checkbox"/> absent or few					1
[46.]	intermediate					2
c58.	many					3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
55.	Fruit: length of radial grooves at stalk end					
	f short					3
[47.]	medium					5
c59.	long					7
56.	Fruit: local depression at stalk attachment (necked varieties only)					
(+)						
	f absent or shallow					3
[48.]	intermediate					5
c60.	deep					7
57.	Fruit: presence of collar					
(+)						
[49.]	f absent					1
c61.	present					9
58.	Fruit: abscission layer between floral disc and fruit					
	f absent or weakly developed					1
[52.]	intermediate					2
c64.	strongly developed					3
59.	Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)					
(*)						
(+)						
	f flattened					1
[53.]	slightly rounded					2
c65.	strongly rounded					3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
60. (*) (+)	Fruit: presence of depression at distal end					
[54.]	<input type="checkbox"/> absent					1
c66.	present					9
61.	Fruit: depth of depression at distal end					
	<input type="checkbox"/> shallow					3
[55.]	medium					5
c67.	deep					7
62. (*) (+)	Fruit: presence of nipple					
[57.]	<input type="checkbox"/> absent					3
c69.	present					5
63.	Fruit: prominence of nipple					
	<input type="checkbox"/> weak					1
[58.]	medium					2
c71.	strong					3
64. (*)	Fruit: presence of areola					
	<input type="checkbox"/> absent					1
[59.]	present					2
c71.	complete					3
65. (+)	Fruit: type of areola					
	<input type="checkbox"/> smooth					1
[60.]	grooved					2
c72.	ridged					3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
66.	Fruit: diameter of areola					
	<input type="checkbox"/> small					3
[63.]	medium					5
c73.	large					7
67.	Fruit: diameter of stylar scar					
	<input type="checkbox"/> small					3
[64.]	medium					5
c74.	large					7
67.	Fruit: protruding stylar point					
	<input type="checkbox"/> small					3
[65.]	medium					5
c75.	large					7
68.	Fruit: persistence of style					
	<input type="checkbox"/> none					3
[66.]	partial					5
c76.	total					7
69.	Fruit: bulging of navel					
	<input type="checkbox"/> absent or weak					3
[69.]	intermediate					5
c79.	strong					7
70.	Fruit: presence of radial grooves at distal end					
[70.]	<input type="checkbox"/> absent					3
c80.	present					5

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
71. (*)	Fruit surface: predominant color					
	f green					1
	g yellow green					2
	green and yellow					3
	light yellow					4
	medium yellow					5
	yellow orange					6
	medium orange					7
	dark orange					8
	green and orange					9
	yellow and orange					10
	orange red					11
[72.]	yellow and red					12
c83.	orange and red					13
72.	Fruit surface: presence of pubescence					
[73.]	f absent					1
c84.	g present				<i>Poncirus Trifoliata</i>	9
73.	Fruit surface: intensity of pubescence					
	f weak					1
[74.]	g medium					3
c85.	strong					5

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
74.	Fruit surface: roughness					
	f smooth					3
[76.]	g medium					5
c87.	rough					7
75.	Fruit surface: size of oil glands					
[77.]	f all more or less the same size					1
c88.	g larger ones interspersed by smaller ones					2
76.	Fruit surface: size of larger oil glands					
	f small					3
[78.]	g medium					5
c89.	large					7
77.	Fruit surface: conspicuousness of larger oil glands					
	f weak					3
[79.]	g medium					5
c90.	strong					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
78.	Fruit surface: presence of pitting and pebbling on oil glands					
	f pitting and pebbling absent					1
	g pitting absent, pebbling present					2
[80.]	pitting present, pebbling absent					3
c91.	pitting and pebbling present					4
79.	Fruit surface: density of pitting on oil glands					
	f sparse					3
[81.]	g medium					5
c92.	dense					7
80.	Fruit surface: depth of pitting on oil glands					
	f shallow					3
[82.]	g medium					5
c93.	deep					7
81.	Fruit surface: density of pebbling on oil glands					
	f sparse					3
[83.]	g medium					5
c94.	dense					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
82.	Fruit surface: degree of pebbling on oil glands					
	f weak					3
[84.]	g medium					5
c95.	strong					7
83. (*)	Fruit rind: thickness					
	f thin					3
[85.]	g medium					5
c96.	thick					7
84. (*)	Fruit rind: adherence to flesh					
	f weak					3
[86.]	g medium					5
c97.	strong					7
85.	Fruit rind: strength					
	f weak					3
[87.]	g medium					5
c98.	strong					7
86.	Fruit rind: conspicuousness of oil glands on inner surface					
	f absent or weakly conspicuous					1
[89.]	g intermediate					2
c100.	strongly conspicuous					3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
87.	Fruit: color of albedo					
	f greenish					1
	h white					2
	light yellow					3
	light orange					4
[90.]	pink					5
c101.	reddish					6
88.	Fruit: density of albedo					
	f loose					1
[91.]	h medium					2
c102.	dense					3
89.	Fruit: amount of albedo adhering to flesh (strands excluded)					
	f absent or very small					1
	h small					3
	medium					5
[92.]	large					7
c103.	very large					9
90.	Fruit: presence of albedo strands					
[93.]	f absent					1
c104.	h present					9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
91.	Fruit: amount of albedo strands					
	f small					1
[94.]	h medium					2
c105.	large					3
92. (*)	Fruit: main color of flesh					
	f whitish					1
	h light green					2
	light yellow					3
	medium yellow					4
	light orange					5
	medium orange					6
	dark orange					7
	red					8
[97.]	purple					9
c108.	yellow and red					10
93.	Fruit: bitterness of flesh					
[new]	f absent					1
c109.	h present					2
94.	Fruit: filling of core					
	f absent or very sparse					1
	sparse					3
	medium					5
[98.]	dense					7
c110.	very dense					9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
95.	Fruit: rudimentary segments					
	f absent or weak					1
[100.]	h intermediate					2
c112.	strong					3
96.	Fruit: number of well developed segments					
	f few					3
[101.]	h medium					5
c113.	many					7
97.	Fruit: strength of segment walls					
	f weak					3
[103.]	h medium					5
c115.	strong					7
98. (*)	Fruit: presence of navel viewed <u>internally</u>					
	f absent or very rare					1
[108.]	occasionally present					2
c120.	always present					3
99.	Fruit: juice content					
	f low					3
[110.]	medium					5
c122.	high					7

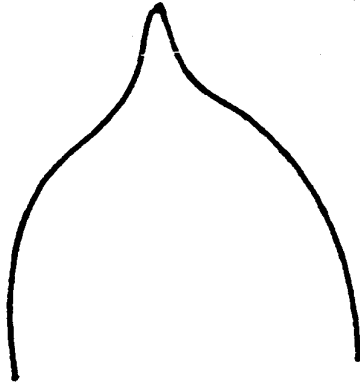
MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
100.	Fruit: number of seeds (controlled self pollination)					
	f absent or very few					1
	few					3
	medium					5
<i>[114.]</i>	many					7
c126.	very many					9
101.	Fruit: number of seeds (open pollination)					
(+)						
	f absent or very few					1
	few					2
<i>[new]</i>	moderate					3
c127.	many					4
102.	Seed: polyembryony					
(*)						
<i>[115.]</i>	i absent					1
c128.	present					9
103.	Seed: length					
	i short					3
<i>[116.]</i>	medium					5
c129.	long					7
104.	Seed: width					
	i narrow					3
<i>[117.]</i>	medium					5
c130.	broad					7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
105.	Seed: surface					
[118.]	i smooth					1
c131.	wrinkled					2
106.	Seed: external color					
	i greenish					1
	whitish					2
	yellowish					3
[120.]	pinkish					4
c133.	brownish					5
107.	Seed: color of inner seed coat					
	i white					1
	light yellow					2
	light brown					3
	medium brown					4
	dark brown					5
[121.]	red					6
c134.	purple					7
108.	Seed: color of cotyledons					
	i white					1
	cream					2
[122.]	light green					3
c135.	dark green					4
109. (*)	Flowering habit					
[124.]	flowering once					1
c136.	flowering more than once					2

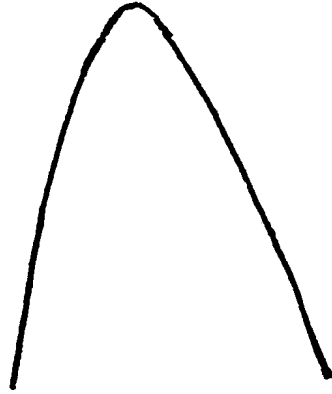
MoE	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
110. (*)	Time of maturity of fruit for consumption					
	early					3
[125.]	medium					5
c137.	late					7
111. (+)	Plant: self- incompatibility					
[127.]	absent					1
c139.	present					9

8. Explanations on the Table of Characteristics

Ad. 24 (c25.): Leaf blade: shape of apex



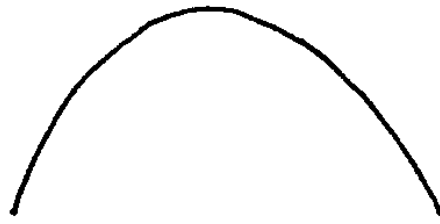
1
acuminate



2
acute

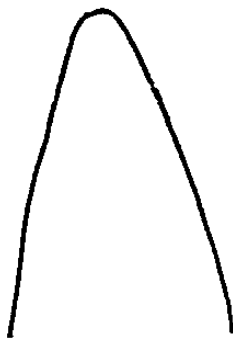


3
obtuse

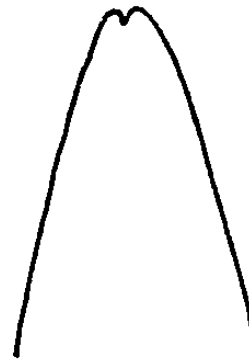


4
rounded

Ad. 25 (c26.): Leaf blade: emargination at tip

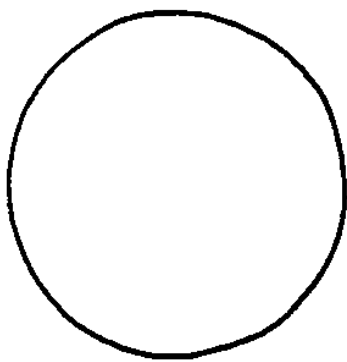


1
absent

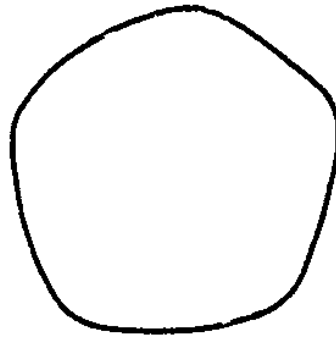


9
present

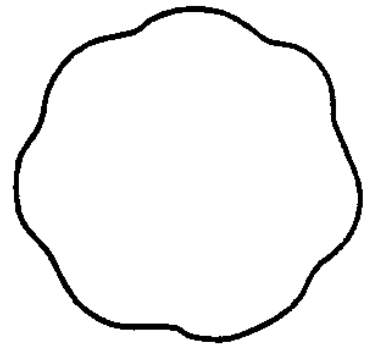
Ad. 45 (c49.): Fruit: circumference in transversal section



1
round



2
somewhat angular



3
scalloped

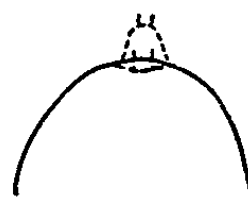
Ad. 46 (c50.): Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)



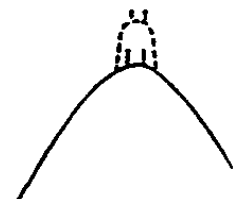
1
flattened



2
slightly rounded

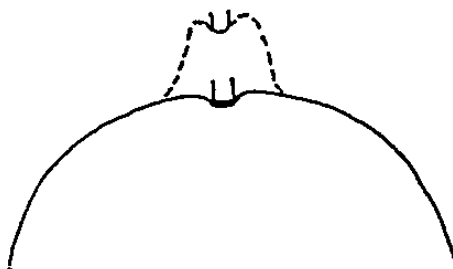


3
strongly rounded

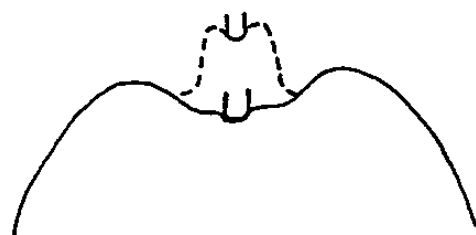


4
tapered

Ad. 47 (c51.): Fruit: presence of depression at stalk end (excluding necked varieties)

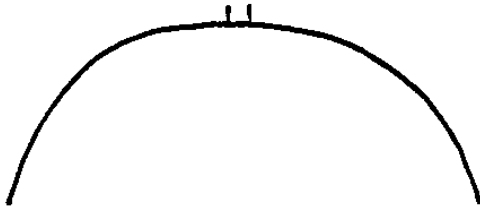


1
absent

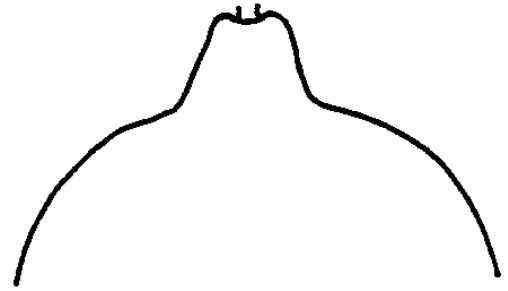


9
present

Ad. 49 (c53.): Fruit: presence of neck



1
absent

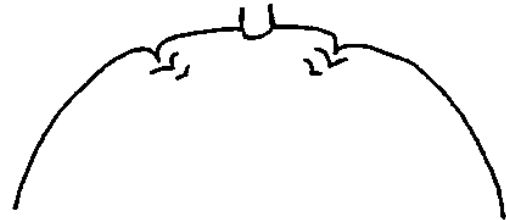


9
present

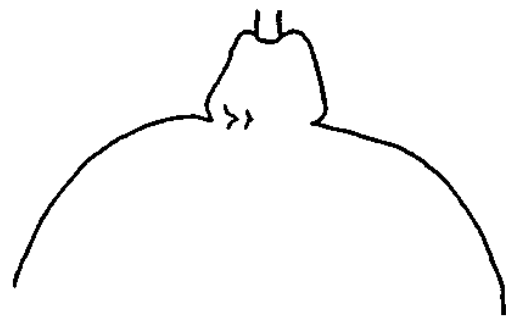
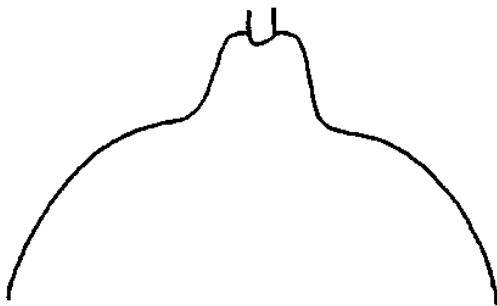
Ad. 52 (c56.): Fruit: presence of constriction at stalk end



1
absent



9
present



Ad. 56 (c60.): Fruit: local depression at stalk attachment (necked varieties only)

[drawings still missing]

1
absent or very shallow

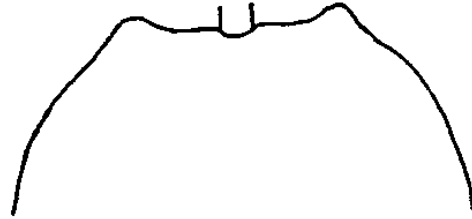
2
shallow

3
deep

Ad. 57 (c61.): Fruit: presence of collar



1
absent



9
present

Ad. 59 (c65.): Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)



1
flattened



2
slightly rounded



3
strongly rounded

Ad. 60 (c66.): Fruit: presence of depression at distal end



1
absent

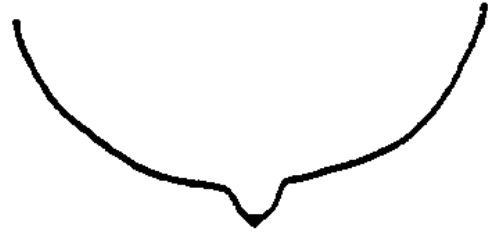


9
present

Ad. 62 (c69.): Fruit: presence of nipple



1
absent



9
present

Ad. 65 (c72.): Fruit: type of areola



1
smooth



2
grooved



3
ridged

LIST OF EXAMPLE VARIETIES FOR PONCIRUS

Variety denomination	Group or species	Observations
CPB 4475	CML	
CARRIZO	CTG	
CUNNINGHAM	CTG	
FORNER ALCAIDE 13	CTI	
PONCIRUS TRIFOLIATA	PON	

9. Literature

Blondel, L., 1978: Botanical classification of species of the genus Citrus, Fruits 33 (11): pp. 695-720.

Damigella, P., Tribulato, E., Calabrese, F., Crescimanno, F.G., Continella, G., 1980: "Gli Agrumi," Cultivar. R.E.D.A., Roma, Italy, pp. 9-70.

Forner, J. B. and Alcaide, A., 1997: Nuevos patrones de agrios (I): Híbrido Forner-Alcaide nº 5. Levante Agrícola 341: 301-303.

Forner, J. B. and Alcaide, A., 1998: Ficha nº 2: Nuevos patrones de agrios: Híbrido Forner-Alcaide nº 418. Levante Agrícola 342: 1-2.

Ortiz Marcide, J.M., 1985: "Nomenclatura botánica de los cítricos". Levante Agrícola nº 259-260, pp. 71-79.

Ray R., Walheim L., 1980: "Citrus: How to select, grow and enjoy," HP Books, Tucson, USA, pp. 41-115.

Reuther W., Webber H.J., Batchelor L.D. (Editors), 1967: "The Citrus -Industry," Volume 1, University of California, Division of Agricultural Sciences, 611 pp.

Saunt, J. 1990: "Citrus varieties of the world: an illustrated guide," Sinclair International Ltd., Norwich, England, 126 pp.

Shannon, L.M., Frolich, E.F., Cameron, S.H., 1960: Characteristics of *Poncirus trifoliata* selections. Am. Soc, Hort. Sci, 76: 163-169.

Webber, H. J. and L. D. Batchelor (Editors), 1946: "The Citrus Industry", Volume I. University of California Press. 1028 pp.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE
 to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 <i>Latin Name</i>	<ul style="list-style-type: none"> • <i>Poncirus</i> Raf. – PON [] • <i>Poncirus</i> x Grapefruit – CML [] • <i>Poncirus</i> x Lemons – CTL [] • <i>Poncirus</i> x Mandarin – CTI [] • <i>Poncirus</i> x Sweet Orange – CTG [] • Other <i>Poncirus</i> Hybrid – HPO: []
-----------------------	--

1.2 Common Name	<ul style="list-style-type: none"> • Trifoliate Orange, Golden Apple – PON [] • Citrumelo – CML [] • Citremon – CTL [] • Citrandarin – CTI [] • Citrange – CTG [] • Other <i>Poncirus</i> Hybrid – HPO: []
-----------------	---

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"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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3. Proposed denomination and breeder's reference

Proposed denomination
(if available)

Breeder's reference

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

4.1 Breeding Scheme

4.1.1 Variety resulting from:

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

4.1.2 Mutation []
(please state parent variety)

4.1.3 Discovery []
(please state where, when and how developed)

4.1.4 Other []
(please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2 Method of Propagating the Variety

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 Leaf: caducity (7)		
perennial	CPB 4475	1[]
partially caducous	Troyer	2[]
caducous	<i>Poncirus Trifoliata</i>	3[]
5.2 Leaf: number of leaflets (8)		
one only		1[]
variable	Troyer	2[]
three only	<i>Poncirus Trifoliata</i>	3[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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5.3 Fruit surface: presence of pubescence		
(72)		
absent		1[]
present	<i>Poncirus Trifoliata</i>	9[]
5.4 Fruit: number of seeds (controlled self pollination)		
(100)		
absent or very few		1[]
few		3[]
medium		5[]
many		7[]
very many		9[]
5.5 Seed: polyembryony		
(102)		
absent		1[]
present		9[]

6. Similar varieties and differences from these varieties

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>Plant: height</i>	<i>e.g. note 3</i>	<i>note 7</i>
		<i>e.g. short</i>	<i>tall</i>
		<i>e.g. 90 cm</i>	<i>130 cm</i>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
<p>7. Additional information which may help in the examination of the variety</p> <p>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?</p> <p>Yes [] No []</p> <p>(If yes, please provide details)</p> <p>7.2 Special conditions for the examination of the variety</p> <p>7.2.1 Are there any special conditions for growing the variety or conducting the examination?</p> <p>Yes [] No []</p> <p>7.2.2 If yes, please give details:</p> <p>7.3 Other information</p>		
<p>8. Authorization for release</p> <p>(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?</p> <p>Yes [] No []</p> <p>(b) Has such authorization been obtained?</p> <p>Yes [] No []</p> <p>If the answer to (b) is yes, please attach a copy of the authorization.</p>		
<p>9. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:</p> <p>Applicant's name <input type="text"/></p> <p>Signature <input type="text"/> Date <input type="text"/></p>		