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GENEVA

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WORKING PAPER ON REVISED TEST GUIDELINES ON MANDARIN AND ITS HYBRIDS

(*Citrus unshiu* Marc. (Satsumas), *Citrus clementina* Hort. ex Tan. (Clementines), *Citrus deliciosa* Ten. (Mediterranean Mandarins), *Citrus reticulata* Blanco (Ponkan Mandarins), Mandarin x Grapefruit (Tangelos), Mandarin x Orange (Tangors))

Document prepared by experts from Spain

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I. Subject of these Guidelines

These Test Guidelines apply to all vegetatively propagated varieties for fruit production and rootstock varieties of the following **species of the group Mandarins** of the genus Citrus L., **and their hybrids:**

SAT: *Citrus unshiu* Marc. (Satsumas)
CLE: *Citrus clementina* Hort. ex Tan. (Clementines)
MMN: *Citrus deliciosa* Ten. (Mediterranean Mandarins)
PMN: *Citrus reticulata* Blanco (Ponkan Mandarins)
TNL: Mandarin x Grapefruit or Pummelo (Tangelos)
TNR: Mandarin x Orange (Tangors)

These Test Guidelines may be used for the testing of varieties of other citrus groups for which UPOV Test Guidelines are not yet available, after having studied which of the characteristics indicated show reliable and useful results and whether further characteristics should be added.

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material required for testing the variety is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must make sure that all customs **and phytosanitary** formalities are complied with. As a minimum, the following quantity of plant material is recommended:

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

2. The plant material supplied should be visibly healthy, not lacking in vigor or affected by any important pests or diseases. It should preferably not be obtained from *in vitro* propagation. If it has been produced by *in vitro* propagation this fact has to be stated by the applicant.

3. 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.

III. Conduct of Tests

1. To assess distinctness, it is essential for the trees under test to bear a satisfactory crop of fruit for at least two growing periods.

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. The tests should be carried out under conditions ensuring normal growth. As a minimum, each test should include a total of 5 trees. Separate plots for observation and for

measuring can only be used if they have been subject to similar environmental conditions. A standard specified rootstock should be used for each group.

4. Additional tests for special purposes may be established.

IV. Methods and Observations

1. **Unless otherwise stated**, all observations **determined by mearurement, weighing or counting** should be made on 5 plants or 10 typical parts, 2 from each of 5 plants.

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.

3. 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.

4. The observation on the **growth habit of the tree** should be made immediately after harvest.

5. All observations on the young leaf should be made on actively growing spring flush.

6. 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.

7. 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.

8. All observations on the flower bud should be made when the petal tips are just visible.

9. All observations on the open flower should be made on the first day of opening.

10. 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.

11. 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.

12. All observations on the **fruit surface** and **on** the texture and thickness of the rind should be made at the middle, between the base and apex of the fruit.

13. The observation on the oiliness of the fruit rind should be made**, by peeling the fruit**, within 3 to 7 days after harvesting.

14. All observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.

15. **Unless stated otherwise**, all observations on the seed should be made on the fresh seed.

V. Grouping of Varieties

1. The collection of varieties to be grown should be divided into groups to facilitate the assessment of distinctness. In the first place the collection should be divided into the groups mentioned in Chapter I.

2. In addition, characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety. Their various states of expression should be fairly evenly distributed throughout the collection.

3. It is recommended that the competent authorities use the following characteristics for grouping fruit varieties:

(a) Fruit: length (characteristic 33)
(b) Fruit: diameter (characteristic 34)
(c) Fruit: presence of neck (characteristic 41)
(d) Fruit surface: predominant color (characteristic 72)
(e) Time of maturity of fruit for consumption (characteristic 125)

VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Tables of Characteristics should be used.

2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.

3. Each example variety is also followed by the abbreviation of its group in brackets.

4. Legend:

(*) Characteristics that should be used on all varieties in every growing period over which examinations are made and always be included in the variety descriptions, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible....**Deleted ?** *The asterisk (*) is applicable to fruit varieties only and not to rootstock varieties.*

(+) See Explanations on the Table of Characteristics in chapter VIII.

5. Abbreviations:

SAT: *Citrus unshiu* Marc. (Satsumas)
CLE: *Citrus clementina* Hort. ex Tan. (Clementines)
MMN: *Citrus deliciosa* Ten. (Mediterranean Mandarins)
PMN: *Citrus reticulata* Blanco (Ponkan Mandarins)
TNL: Mandarin x Grapefruit or Pummelo (Tangelos)
TNR: Mandarin x Orange (Tangors)
OMH: Other mandarins and hybrids

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	**Tree: growth habit**					
[2.]	upright				Marisol	1
	spreading				Clemenules	2
	drooping				Owari	3
2.	**Tree: density of spines**					
	absent or very sparse				Owari	1
	sparse				Marisol	2
	dense					3
3.	**Tree: length of spines**					
	short				Marisol	3
	medium					5
	long					7
4. (*)	**Young leaf: presence of anthocyanin coloration**	**Not for this Group**				
5.	**Young leaf: intensity of anthocyanin coloration**	**Not for this Group**				
6.	**Leaf blade: length**					
[5.]	short				Común	3
	medium				Nova	5
	long				Kara	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	**Leaf blade: width**					
[6.]	narrow				Común	3
	medium				Clemenules	5
	broad				Page	7
8.	**Leaf blade: ratio length/width**					
[7.]	small				Orlando	3
	medium				Fino	5
	large				Clemenules	7
9.	**Leaf blade: shape *in cross section***					
[8.]	straight or very weakly concave				Owari	1
	weakly concave				Minneola	2
	strongly concave					3
10.	**Leaf blade: twisting**					
[9.]						
	absent or very weakly expressed					1
	weakly expressed					2
	strongly expressed					3
11.	**Leaf blade: blistering**					
[10.]						
	absent or very weakly expressed					1
	weakly expressed					2
	strongly expressed					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12. [11.]	**Leaf blade: intensity of green color**					
	light				Nova	3
	medium				Owari	5
	dark				Oroval	7
13.	**Leaf blade: pubescence on lower side**	**Not for this Group**				
14. [13.]	**Leaf blade: firmness**					
	weak				Fino	3
	medium				Fortune	5
	strong				Owari	7
15.	**Leaf blade: undulation of margin**					
[14.]	absent or very weakly expressed					1
	weakly expressed					2
	strongly expressed					3
16. [15.]	**Leaf blade: incisions of margin**					
	entire (or *absent or very shallow?)*					1
	sinuate (or *shallow?)*					2
	crenate (or *deep?)*					3
	dentate					4

TWF: To consider whether we should rather say: entire (1), sinuate (2), crenate (3), dentate (4).

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17. **(+)**	**Leaf blade: shape of apex**					
[16.]	acuminate					1
	acute				Clemenules	2
	obtuse				Minneola	3
	rounded					4
	emarginate?					5
18. **(+)**	**Leaf blade: emargination at tip**					
	absent (or *absent or very shallow*?)					1
	shallow?					2
	present (or *deep?)*					9 (*3*?)
19.	**Petiole: length**					
{18.]						
	short				Clemenules	3
	medium				Fortune	5
	long				Minneola	7
20.	**Petiole: presence of wings**					
[19.]	absent				Clemenules	1
	present				Owari	9
21.	**Petiole: width of wings**					
[19a.]	narrow				Owari	3
	medium					5
	broad					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
22.	**Flower bud: presence of anthocyanin coloration**	**Not for this Group**				
23.	**Flower bud: intensity of anthocyanin coloration**	**Not for this Group**				
24.	**Flower: diameter of calyx**					
[23.]	small					3
	medium					5
	large					7
25.	**Flower: length of petal**					
[24.]	short				Fino	3
	medium				Ellendale	5
	long				Owari	7
26.	**Flower: width of petal**					
[25.]	narrow				Clementiules	3
	medium				Ellendale	5
	broad				Owari	7
27.	**Flower: ratio length/width of petal**					
new	small				Wilking	3
	medium				Fino	5
	large				Page	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28.	**Flower: length of stamens**					
[27.]	short				Encore	3
	medium				Owari	5
	long				Page	7
JP : new 28 a : Flower arrangements of stamens : separate(1)/partly united(2) / fully united (3)						
29.	**Anther: color**					
[28.]	white					1
	light yellow				Owari	2
	medium yellow				Fino	3
30. **(*)**	**Anther: viable pollen**					
[29.]	absent				Owari	1
	present					9
31.	**Style: length**					
[31.]	short				Pixie	3
	medium				Fino	5
	long				Owari	7
JP : new 31 a .- Style : shape .- staright(1) / arched (2) / kinked (3)						
32.	**Infructescence: clustering of fruits**					
	absent					1
	present					9
33.	**Fruit: length**					
(*)	short				Wilking	3
[34.]	medium				Clemenules	5
	long				Minneola	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. (*)	**Fruit: diameter**					
[35.]	small				Fino	3
	medium				Clemenules	5
	large				Ortanique	7
35. (*)	**Fruit: ratio length/diameter**					
[36.]	small				Encore	3
	medium				Clemenules	5
	large				Minneola	7
36. (*)	**Fruit: position of broadest part**					
[37.]	towards stalk end					1
	at middle				Clemenules	2
	towards distal end					3
37. (+)	**Fruit: circumference**					
	round				Ortanique	1
[38.]	somewhat angular					2
	scalloped					3
38. (*) (+)	**Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)**					
[39.]	flattened				Clemenules	1
	slightly rounded				Ortanique	2
	strongly rounded					3
	tapered					4

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39. **(*)** **(+)**	**Fruit: presence of depression at base (or *at stalk end*?)**					
[40.]	absent				Ortanique	1
	present				Marisol	9
40.	**Fruit: depth of depression at base (or *at stalk end*?)**					
[41.]	shallow					3
	medium					5
	deep					7
41. **(*)** **(+)**	**Fruit: presence of neck**					
[42.]	absent				Clemenules	1
	present					9
42.	**Fruit: length of neck**					
[43.]	short					3
	medium					5
	long					7
43.	**Fruit: thickness of neck**					
[44.]	thin					3
	medium					5
	thick					7
44. **(+)**	**Fruit: presence of constriction at base (or *at stalk end*?)**					
[45.]	absent				Clemenules	1
	present					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
45.	**Fruit: expression of constriction at base (or *at stalk end*?)**					
[45a.]	weak					3
	medium					5
	strong					7
46.	**Fruit: radial grooves at stalk base (or *end*?)**					
[45b.]	absent or very few				Nova	1
	few				Clemenules	2
	many					3
47.	**Fruit: length of radial grooves at base (or *at stalk end*?)**					
[45c.]	short					3
	medium					5
	long					7
48. **(+)**	**Fruit: local depression at stalk attachment (necked varieties only)**					
[46.]	absent or very shallow					1
	shallow					2
	deep					3
49. **(+)**	**Fruit: presence of collar**					
	absent				Clemenules	1
[46a.]	present					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
50.	**Fruit: height of collar**					
[47.]	low					3
	medium					5
	high					7
51.	**Fruit: diameter of collar**					
new	small					3
	medium					5
	large					7
52.	**Fruit: abscission layer between floral disc and fruit**					
[49.]	absent or very weakly developed					1
	weakly developed					2
	strongly developed					3
53. **(*)** **(+)**	**Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)**					
[50.]	flattened				Clemenules	1
	slightly rounded					2
	strongly rounded					3
54. **(*)** **(+)**	**Fruit: presence of depression at apex (or *at distal end*?)**					
[51.]	absent				Ortanique	1
	present				Arrufatina	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
55.	**Fruit: depth of depression at apex (or *at distal end*?)**					
[52.]	shallow					3
	medium					5
	deep					7
56.	**Fruit: diameter of depression at apex (or *at distal end*?)**					
[53.]	small					3
	medium					5
	large					7
57. (*) (+)	**Fruit: presence of nipple**	**Not for this Group**				
58.	**Fruit: prominence of nipple**	**Not for this Group**				
59. (*)	**Fruit: presence of areola**					
	absent				Nova	1
[56.]	present				Ortanique	9
60. (+)	**Fruit: type of areola**					
	smooth					1
[57.]	grooved					2
	ridged					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
61.	**Fruit: conspicuousness of areola**					
[58.]	weak					1
	medium					2
	strong					3
62.	**Fruit: development of areola**					
[59.]	not complete				Hernandina	1
	complete				Ortanique	2
63.	**Fruit: diameter of areola**					
[60.]	small				Arrufatina	3
	medium				Owari	5
	large				Ortanique	7
64.	**Fruit: diameter of stylar scar**					
[61.]	small				Clemenules	3
	medium				Owari	5
	large					7
65.	**Fruit: protruding stylar point**	**Not for this Group**				
66.	**Fruit: persistence of style**	**Not for this Group**				

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
67.	**Fruit: presence of navel opening**					
[64.]	absent				Clemenules	1
	occasionally present				Fortune	2
	always present					3
68.	**Fruit: diameter of navel opening**					
[65.]	small				Ellendale	3
	medium				Fortune	5
	large					7
69.	**Fruit: bulging of navel**	**Not for this Group**				
70.	**Fruit: presence of radial grooves at apex (or *at distal end*?)**					
[68.]	absent					1
	present					9
71.	**Fruit: expression of radial grooves at**					
[68a.]	**apex (or *at distal end*?)**					
	weak					3
	medium					5
	strong					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
72. (*)	**Fruit surface: predominant color**					
[69.]	green					1
	yellow green					2
	light yellow					3
	medium yellow				Mapo	4
	green and yellow					5
	yellow orange					6
	medium orange				Clemenules	7
	dark orange					8
	orange red				Nova	9
	green and orange					10
	yellow and orange					11
	yellow and red					12
	orange and red					13
73.	**Fruit surface: presence of pubescence**	**Not for this Group**				
74.	**Fruit surface: intensity of pubescence**	**Not for this Group**				

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
75. (*)	**Fruit surface: glossiness**					
[70.]	absent or very weak				Clemenules	1
	weak					3
	medium				Afourer	5
	strong					7
	very strong					9
76.	**Fruit surface: roughness**					
[71.]	smooth				Murcott	3
	medium				Clemenules	5
	rough				Temple	7
77.	**Fruit surface: evenness of size of oil glands**					
[72.]	all more or less the same size					1
	larger ones interspersed by smaller ones					2
78.	**Fruit surface: size of larger oil glands**					
[73.]	small					3
	medium					5
	large					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
79.	**Fruit surface: conspicuousness of larger oil glands**					
[74.]	weak				Clemenules	3
	medium					5
	strong				Owari	7
80.	**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
81. [76.]	**Fruit surface: density of pitting on oil glands**					
	sparse					3
	medium					5
	dense					7
82. [77.]	**Fruit surface: depth of pitting on oil glands**	**Not for this Group**				

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
83.	**Fruit surface: density of pebbling on oil glands**					
[77a.]	sparse					3
	medium					5
	dense					7
84.	**Fruit surface: degree of pebbling on oil glands**					
[78.]	weak					3
	medium					5
	strong					7
85. (*)	**Fruit rind: thickness**					
[80.]	thin				Murcott	3
	medium				Clemenules	5
	thick				Minneola	7
86. (*)	**Fruit rind: adherence to flesh**					
[82.]	weak				Clemenules	3
	medium				Fortune	5
	strong				Ortanique	7
87.	**Fruit rind: strength**					
[83.]	weak					3
	medium					5
	strong					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
88.	**Fruit rind: oiliness**					
[85.]	dry					3
	medium				Clemenules	5
	oily				Ortanique	7
89.	**Fruit rind: conspicuousness of oil glands on inner surface**					
[85.]	absent or very weakly conspicuous					1
	weakly conspicuous				Clemenules	2
	strongly conspicuous					3
90.	**Fruit: color of albedo**					
[86.]	greenish					1
	white				Clemenules	2
	light yellow				Murcott	3
	light orange				Afourer	4
	pinkish					5
	reddish					6
91.	**Fruit: density of albedo**					
[87.]	loose				Clemenules	3
	medium				Fortune	5
	dense				Ortanique	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
92. **(*)** [88.]	**Fruit: amount of albedo adhering to flesh (strands excluded)**					
	absent or very small				Clemenules	1
	small					3
	medium					5
	large					7
	very large					9
93.	**Fruit: presence of albedo strands**					
[89.]	absent					1
	present				Clemenules	9
94.	**Fruit: amount of albedo strands**					
[89a.]	small					3
	medium					5
	large					7
95.	**Fruit: differently colored specks in flesh**	**Not for this Group**				
96.	**Fruit: bicolored segments**	**Not for this Group**				

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
97. **(*)** [92.]	**Fruit: main color of flesh**					
	whitish					1
	light green					2
	light yellow					3
	medium yellow					4
	light orange					5
	medium orange				Clemenules	6
	dark orange					7
	red					*13?*
	yellow and red					*14?*
	purple					*15?*
98.	**Fruit: filling of core**					
[93.]	absent or very sparse				Fortune	1
	sparse					3
	medium				Clemenules	5
	dense				Murcott	7
	very dense					9
99.	**Fruit: diameter of core**					
[94.]	small				Murcott	3
	medium				Clemenules	5
	large				Hernandina	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
100.	**Fruit: rudimentary segments**					
[95.]	absent or very weakly expressed				Clemenules	1
	weakly expressed					2
	strongly expressed					3
101.	**Fruit: number of well developed segments**					
[96.]	few				Oroval	3
	medium				Ortanique	5
	many				Temple	7
102.	**Fruit: coherence of adjacent segment walls**					
[98.]	weak				Clemenules	3
	medium				Fortune	5
	strong					7
103.	**Fruit: strength of segment walls**					
[99.]	weak				Mapo	3
	medium				Fino	5
	strong				Oronules	7
104.	**Fruit: length of juice vesicles**					
[100.]	short				Wilking	3
	medium					5
	long				Clemenules	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
105.	**Fruit: thickness of juice vesicles**					
[100a]	thin				Clemenules	3
	medium					5
	thick				Mapo	7
106.	**Fruit: conspicuousness of juice vesicle walls**					
[101.]	low					3
	medium					5
	high					7
107.	**Fruit: coherence of juice vesicles**					
[102.]	weak					3
	medium					5
	strong					7
108. (*)	**Fruit: presence of navel viewed internally**					
[103.]	absent or very rare					1
	occasionally present					2
	always present					3
109.	**Fruit: size of navel (viewed internally)**					
[104.]	short					3
	medium					5
	long					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
110.	**Fruit: juice content**					
[106.]	low					3
	medium				Campeona	5
	high				Marisol	7
111. (*)	**Fruit juice: total soluble solids**					
[107.]	low				Okitsu	3
	medium				Temple	5
	high				Honey	7
112.	**Fruit juice: acidity**					
[108.]	low				Hernandina	3
	medium				Clemenules	5
	high				Fortune	7
113.	**Fruit: strength of fibre**					
[109.]	weak					3
	medium					5
	strong					7
114.	**Fruit: number of seeds *(autopollinated flowers)?***					
[110.]	absent or very few				Clemenules	1
	few					3
	medium				Kara	5
	many					7
	very many				Común	9

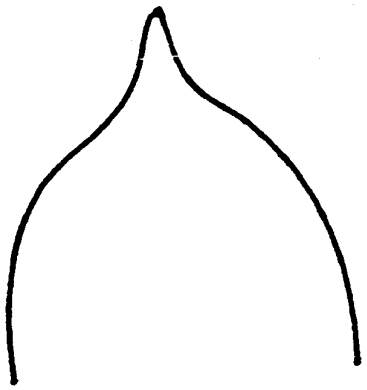
	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
115. (*)	**Seed: polyembryony**					
[111.]	absent				Wilking	1
	present				Común	9
116.	**Seed: length**					
[113.]	short				Temple	3
	medium					5
	long				Campeona	7
117.	**Seed: width**					
[114.]	narrow				Temple	3
	medium					5
	broad				Campeona	7
118.	**Seed: surface (when fresh)**					
[115.]	smooth				Kinnow	1
	veined				Wilking	2
	wrinkled					3
119.	**Seed: prominence of veins and/or wrinkles (as for 118)**					
[116.]	weak					3
	medium					5
	strong					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
120.	**Seed: external color *when fresh* (?)**					
[117.]	greenish					1
	whitish				Kara	2
	yellowish					3
	pinkish					4
	brownish					5
121.	**Seed: color of inner seed coat (as for 118)**					
[118.]	white					1
	light yellow					2
	light brown				Murcott	3
	brown					4
	dark brown					5
	red					6
	purple					7
122.	**Seed: color of cotyledons *(as for 118, polyembryonic varieties only)*?**					
[119.]	white				Murcott	1
	cream				Kara	2
	light green				Común	3
	dark green					4
123.	**Seed: external color when dry**	**Deleted from all groups**				

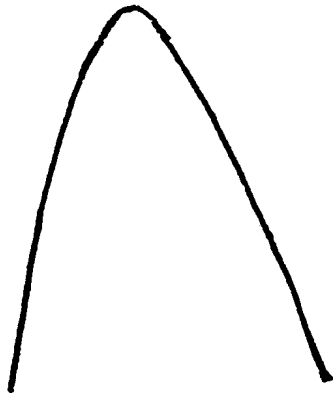
	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
124.	**Flowering habit**	**Not for this Group**				
125. **(*)**	**Time of maturity of fruit for consumption**					
[122.]	early				Okitsu	3
	medium				Clemenules	5
	late				Murcott	7
126. **(*)**	**Plant: parthenocarpy**					
[122a.]	absent				Temple	1
	present				Clemenules	9
127.	**Plant: self-incompatability**					
new	absent				Ellendale	1
	present				Clemenules	9

VIII. Explanations on the Table of Characteristics

Ad. 17: Leaf blade: shape of apex

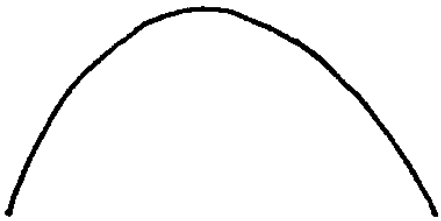


1
acuminate



2
acute

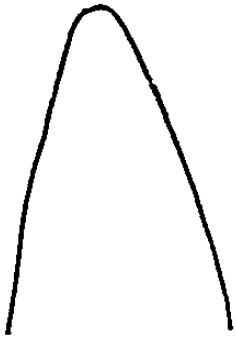
3
obtuse



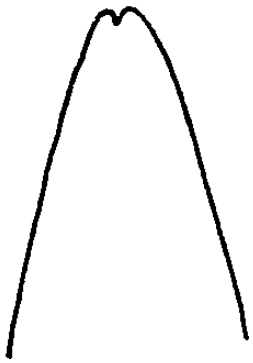
4
rounded

emarginate (5) ?

Ad. 18: Leaf blade: emargination at tip

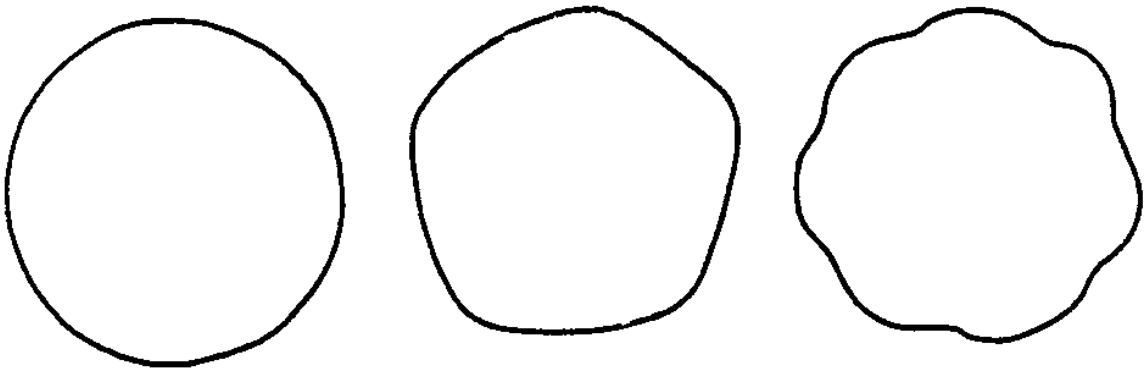


1
absent



9
present

Ad. 37: Fruit: circumference

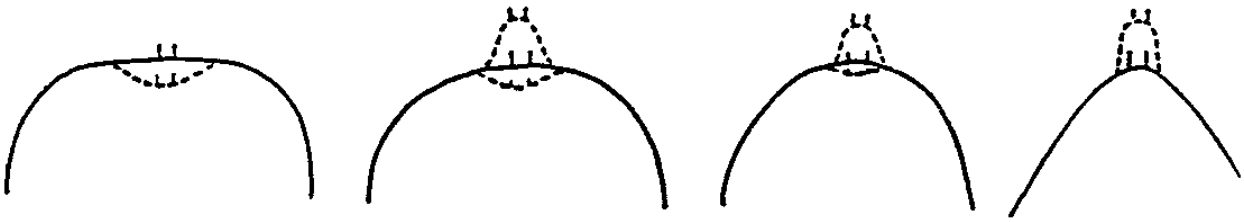


1
round

2
somewhat angular

3
scalloped

Ad. 38: Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)



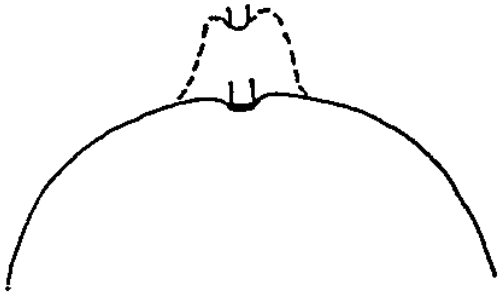
1
flattened

2
slightly rounded

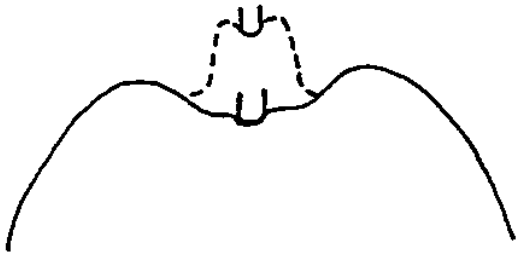
3
strongly rounded

4
tapered

Ad. 39: Fruit: presence of depression depression at base (or *at stalk end* ?)

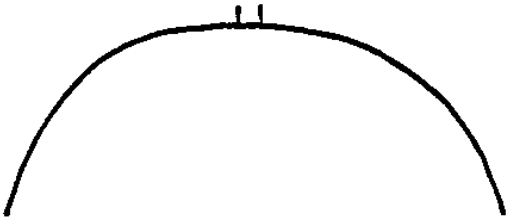


1
absent

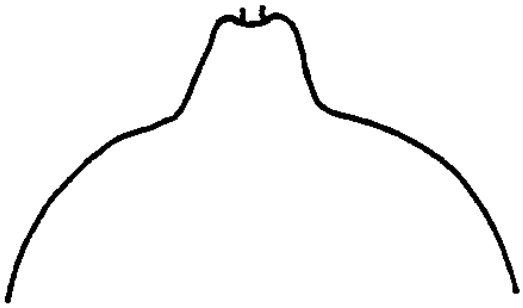


9
present

Ad. 41: Fruit: presence of neck

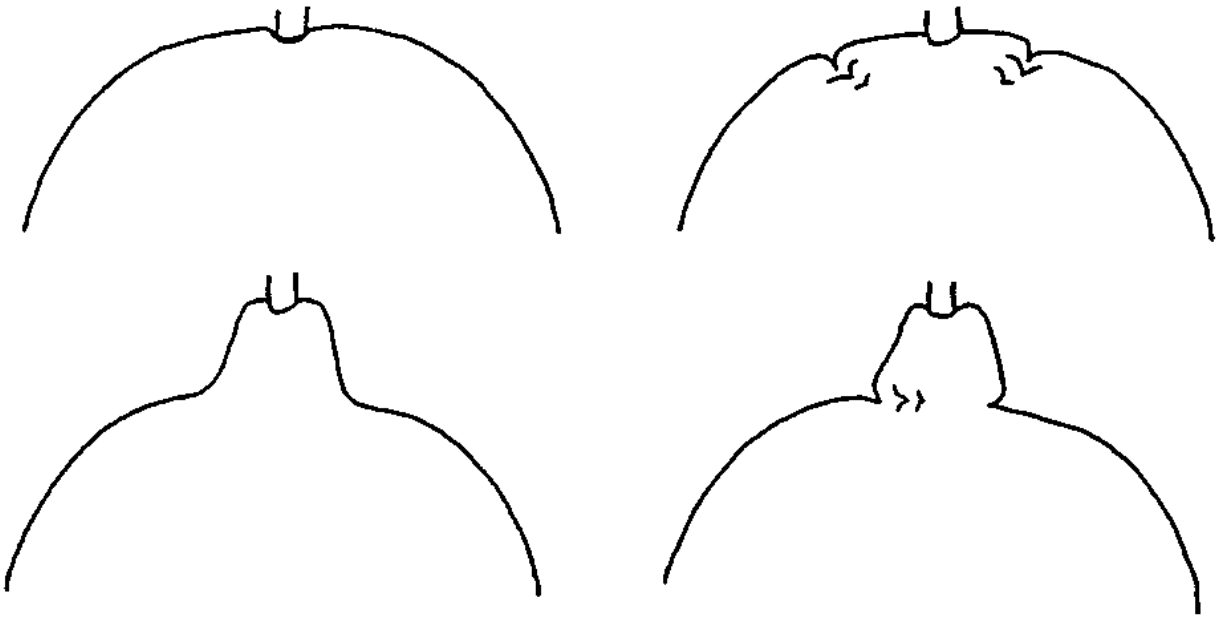


1
absent



9
present

Ad. 44: Fruit: presence of constriction at base (or *at stalk end?)*



1
absent

9
present

Ad. 48: Fruit local depression at stalk attachment (necked varieties only)

[drawings still missing]

1
absent or very shallow

2
shallow

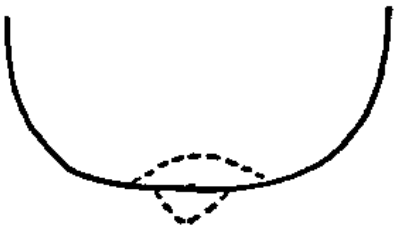
3
deep

Ad. 49: Fruit: presence of collar

1
absent

9
present

Ad. 53: 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. 54: Fruit: presence of depression at the apex (or *at distal end?)*

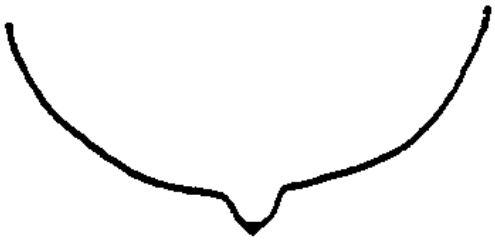
1
absent

9
present

Ad. 57: Fruit: presence of nipple

Not for this group ???

1
absent



9
present

Ad. 60: Fruit: type of areola

1
smooth

2
grooved

3
ridged

LIST OF EXAMPLE VARIETIES FOR MANDARINS- GROUP 1

Variety name	Group or specie	Observations	Sinonyms
AFOURER	TNR		MURCOTT AFOURER
ARRUFATINA	CLE		
CAMPEONA	OMH	Citrus nobilis	
CLEMENULES	CLE		CLEMENTINA DE NULES
COMUN	MMN		WILOWLEAF, AVANA, MEDITERRANEA
ELLENDALE	TNR		
ENCORE	OMH	Citrus nobilis x Citrus deliciosa	
FINO	CLE		CLEMENTINA FINA
FORTUNE	OMH	Citrus clementina x Citrus tangerina	
HERNANDINA	CLE		
HONEY	OMH	Citrus nobilis x Citrus deliciosa	
KARA	OMH	Citrus unshiu x Citrus nobilis	
KINOW	OMH	Citrus nobilis x Citrus deliciosa	
MAPO	TNL		
MARISOL	CLE		
MINNEOLA	TNL	Citrus paradisi x Citrus tangerina. Grapefruit DUNCAN x Mandarin DANCY	HONEYBELL
MURCOTT	TNR		
NOVA	OMH	Citrus clementina x Tangelo ORLANDO	CLEMENVILLA
OKITSU	SAT		
ORLANDO	TNL	Citrus paradisi x Citrus tangerina. Grapefruit DUNCAN x Mandarin DANCY	LAKE TANGELO
OROVAL	CLE		
ORTANIQUE	TNR		
OWARY	SAT		
PAGE	OMH	Tangelo MINNEOLA x Citrus clementina	
PIXIE	OMH	Citrus nobilis x Citrus tangerina	
TEMPLE	OMH	Citrus temple Ort ex Y Tan.	
WILKING	OMH	Citrus nobilis x Citrus deliciosa	

List of Groups of Citrus Varieties

GROUP

1. MANDARINS AND THEIR HYBRIDS
SAT: *Citrus unshiu* Marc. (Satsumas)
CLE: *Citrus clementina* Hort. ex Tan. (Clementines)
MMN**:** *Citrus deliciosa* Ten. (Mediterranean Mandarins)
PMN*:* *Citrus reticulata* Blanco (Ponkan Mandarins)
TNL: Tangerine x (Grapefruit or Pummelo) (Tangelos)
TNR: Tangerine x Orange (Tangors)
HOM: Other Mandarin Hybrids

2. ORANGES AND THEIR HYBRIDS
SWO: *Citrus sinensis* (L.) Osbeck (Sweet Oranges)
SOR: *Citrus aurantium* L. (Sour Oranges)
HOR: Other Orange Hybrids

3. LEMONS AND LIMES AND THEIR HYBRIDS
LEM: *Citrus limon (*L.) Burm.f. (Lemons)
LAL: *Citrus latifolia* Tan. (Acid Limes, Lime Bearss)
SWL: *Citrus limettioides* Tan. (Sweet Limes)
SAL: *Citrus aurantifolia* (Christm. ex Panz.) Swingle (Mexican Limes)
RLM: *Citrus jambhiri* Lush. (Rough Lemons)
HOL: Other Lemon and Lime Hybrids

4. GRAPEFRUIT AND PUMMELOS AND THEIR HYBRIDS
GRA: *Citrus paradisi* Macfad. (Grapefruit)
PUM: *Citrus grandis* (L.) Osbeck (Pummelos)

5. TRIFOLIATE ORANGES AND THEIR HYBRIDS
PON: *Poncirus* Raf. (Trifoliate Oranges)
CTG: *Poncirus* x Sweet Orange (Citranges)
CML: *Poncirus* x Grapefruit (Citrumelos)
CTL: *Poncirus* x Lemons (Citremons)
CTI: *Poncirus* x Mandarin (Citrandarins)
HOP: Other *Poncirus* Hybrids

TWF comment 2000: To supply common names in all four languages.

IX. Literature

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X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. GROUP

MANDARINS AND THEIR HYBRIDS

SAT:	*Citrus unshiu* Marc. (Satsumas)	[ ]
CLE:	*Citrus clementina* Hort. *ex* Tan. (Clementines)	[ ]
MMN**:**	*Citrus deliciosa* Ten. (Mediterranean Mandarins)	[ ]
PMN**:**	*Citrus reticulata* Blanco (Ponkan Mandarins)	[ ]
TNL:	Mandarin x Grapefruit or Pummelo (Tangelos)	[ ]
OMH:	**Other mandarins and hybrids**	[ ]

2. Applicant (name and address)

3. Proposed denomination or breeder's reference

4. Information on origin, maintenance and reproduction of the variety

4.1 Origin

(a) Seedling of unknown parentage [ ]

(b) Produced by controlled pollination [ ]
(indicate parent varieties)

– Seed bearing parent (indicate parent)

.....

– Pollen parent (indicate parent)

.....

(c) Produced by open pollination of [ ]
(indicate seed bearing parent plant)

.....

(d) Mutation or sport from (indicate original parent variety)

..... [ ]

(e) Discovery (indicate where and when)

..... [ ]

4.2 *In vitro* propagation

The plant material of the candidate variety has been obtained by *in vitro* propagation yes [ ]
no [ ]

4.3 Pollenizer

Good pollenizers of the candidate variety are the following varieties:

.....

4.4 Virus status

(a) The variety is free from all known viruses as follows: [ ]
(indicate from which viruses)

.....

(b) The plant material is virus tested [ ]
(indicate against which viruses)

.....

(c) The virus status is unknown [ ]

4.5 Other information

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the state of expression which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (33)	**Fruit: length**		
	short	Wilking	3[ ]
	medium	Clemenules	5[ ]
	long	Minneola	7[ ]
5.2 (34)	**Fruit: diameter**		
	small	Fino	3[ ]
	medium	Clemenules	5[ ]
	large	Ortanique	7[ ]
5.3 (41)	**Fruit: presence of neck**		
	absent	Clemenules	1[ ]
	present		9[ ]

	Characteristics	Example Varieties	Note
5.4 (72)	**Fruit surface: predominant color**		
	green		1[ ]
	yellow green		2[ ]
	light yellow		3[ ]
	medium yellow	Mapo	4[ ]
	green and yellow		5[ ]
	yellow orange		6[ ]
	medium orange	Clemenules	7[ ]
	dark orange		8[ ]
	orange red	Nova	9[ ]
	green and orange		10[ ]
	yellow and orange		11[ ]
	yellow and red		12[ ]
	orange and red		13[ ]
	pink	Not in the Table of Charac.?	*14[ ]*
	green and pink	Not in the Table of Charac.?	*15[ ]*
	yellow and pink	Not in the Table of Charac.?	*16[ ]*
	purple	Not in the Table of Charac.?	*17[ ]*
	red and purple	Not in the Table of Charac.?	*18[ ]*

	Characteristics	Example Varieties	Note
5.5 (97)	**Fruit: main color of flesh**		
	light green *(whitish?)*		1[ ]
	white *(light green?)*		2[ ]
	light yellow		3[ ]
	medium yellow		4[ ]
	light orange		5[ ]
	medium orange	Clemenules	6[ ]
	dark orange		7[ ]
	light pink	Not in the Table of Char.?	8[ ]
	medium pink	Not in the Table of Char.?	9[ ]
	dark pink	Not in the Table of Char.?	10[ ]
	green and pink	Not in the Table of Char.?	11[ ]
	yellow and pink	Not in the Table of Char.?	12[ ]
	red		13[ ]
	yellow and red		14[ ]
	purple		15[ ]
5.7 (125)	**Time of maturity of fruit for consumption**		
	early	Okitsu	3[ ]
	medium	Clemenules	5[ ]
	late	Murcott	7[ ]
5.8 (126)	**Plant: parthenocarpy**		
	absent	Temple	1[ ]
	present	Clemenules	9[ ]

6. Similar varieties and differences from these varieties

Denomination of similar variety	Characteristic in which the similar variety is different [o)]	State of expression of similar variety	State of expression of candidate variety

[o)] In the case of identical states of expressions of both varieties, please indicate the size of the difference.

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

7.3 Other information

A representative color photo of the variety should be included in 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 that question is yes, please attach a copy of such an authorization.

[End of document]