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WORKING PAPER ON REVISED TEST GUIDELINES FOR ORANGES AND THEIR HYBRIDS

(*Citrus sinensis* (L.) Osbeck (Sweet Oranges), *Citrus aurantium* L. (Sour Oranges))

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 Oranges** of the genus Citrus L., **and their hybrids:**

SWO: *Citrus sinensis* (L.) Osbeck (Sweet Oranges)
SOR: *Citrus aurantium* L. (Sour Oranges)

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 measurement, 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. **(To delete for this Group?)**

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

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

V. Grouping of Varieties

1. The collection 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(1).

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: surface: predominant color (characteristic 72)
(d) Fruit: presence of navel viewed internally (characteristic 108)
(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 (numbera), 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. (**To delete sentence for rootstocks:** *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:

SWO: *Citrus sinensis* (L.) Osbeck - Sweet Oranges
SOR: *Citrus aurantium* L. - Sour Oranges
HOR: Hybrids like Oranges

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				Salustiana	1
	spreading				Valencia late	2
	drooping				Washington navel	3
2.	**Tree: density of spines**					
	absent or very sparse				Washington navel	1
	sparse				Valencia late	2
	dense				Navelate	3
3.	**Tree: length of spines**	**Not for this Group**				
4. **(*)**	**Young leaf: presence of anthocyanin coloration *of tip?***	**Not for this Group**				
5.	**Young leaf: intensity of anthocyanin coloration *of tip?***	**Not for this Group**				
6.	**Leaf blade: length *of blade (apical leaflet in case of compound leaf)?***					
[5.]	short				Valencia late	3
	medium				Salustiana	5
	long				Navelina	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	**Leaf blade: width**					
[6.]	narrow				Lanelate	3
	medium				Salustiana	5
	broad				Washington navel	7
8.	**Leaf blade: ratio length/ width**					
[7.]	small				Navelate	3
	medium				Salustiana	5
	large				Lanelate	7
9.	**Leaf blade: shape *in cross section (as for 6)?***					
[8.]	straight or very weakly concave				Salustiana	1
	weakly concave				Washington Navel	2
	strongly concave				Sweet navel	3
10.	**Leaf blade: twisting**					
[9.]	absent or very weakly expressed				Washington navel	1
	weakly expressed					2
	strongly expressed					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	**Leaf blade: blistering**					
[10.]	absent or very weakly expressed				Washington navel	1
	weakly expressed				Summer navel	2
	strongly expressed				Navel Mas Baró	3
12.	**Leaf blade: intensity of green color**					
[11.]	light				Valencia late	3
	medium				Washington navel	5
	dark				Navelina	7
13.	**Leaf blade: pubescence on lower side**	**Not for this Group**				
14.	**Leaf blade: firmness**					
[13.]	weak					3
	medium				Washington navel	5
	strong					7
15.	**Leaf blade: undulation of margin**					
[14.]	absent or very weakly expressed				Washington navel	1
	weakly expressed					2
	strongly expressed					3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16.	**Leaf blade: incisions of margin**					
	entire (or *absent or very shallow?)*					1
[15.]	sinuate (or *shallow?)*					2
	crenate (or *deep?)*					3
	dentate					4
17. **(+)**	**Leaf blade: shape of apex**					
[16.]	acuminate					1
	acute				Salustiana	2
	obtuse					3
	rounded				Navelate	4
	emarginate *(?)*					
18. **(+)**	**Leaf blade: emargination at tip**					
	absent (or *absent or very shallow*?)				Washington navel	1
	present (or *shallow*?)					9 *(2?)*
	deep?					*(3?)*
19.	**Petiole: length**					
[18.]	short				Lanelate	3
	medium				Valencia	5
	long				Navelina	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20.	**Petiole: presence of wings**					
[19.]	absent				Salustiana	1
	present				Newhall	9
21.	**Petiole: width of wings**					
[19a.]	narrow				Newhall	3
	medium					5
	broad					7
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				Newhall	3
	medium				Lanelate	5
	long				Salustiana	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
26.	**Flower: width of petal**					
[25.]	narrow				Newhall	3
	medium				Lanelate	5
	broad				Salustiana	7
27.	**Flower: ratio length/width of petal**					
new	small				Summer navel	3
	medium				Washington navel	5
	large				Sanguinelli	7
28a	**Flower arrangement of stamens**					
(New	separate					1
JP)	partly united				Valencia late	2
	fully united					3
28.	**Flower: length of stamens**					
[27.]	short				Newhall	3
	medium				Washington navel	5
	long				Valencia late	7
29.	**Anther: color**					
[28.]	white					1
	light yellow				Washington navel	2
	medium yellow				Valencia late	3
30. **(*)**	**Anther: viable pollen**					
[29.]	absent				Washington navel	1
	present					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
31.	**Style: length**					
[31.]	short					3
	medium					5
	long					7
31.a	**Style: shape**					
[31.]	straight				Washington navel	3
new	arched					5
	kinked					7
32.	**Infructescence: clustering of fruits**	**Not for this Group**				
33.	**Fruit: length**					
(*)	short				Comuna	3
[34.]	medium				Valencia late	5
	long				Newhall	7
34.	**Fruit: diameter**					
(*)						
[35.]	small				Sanguinelli	3
	medium				Valencia late	5
	large				Washington navel	7
35.	**Fruit: ratio**					
(*)	**length/diameter**					
[36.]	small				Salustiana	3
	medium				Valencia late	5
	large				Newhall	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36. (*)	**Fruit: position of broadest part**					
[37.]	towards stalk end					1
	at middle				Washington navel	2
	towards distal end					3
37.	**Fruit: circumference Not for this Group**					
38. (+)	**Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)**					
[39.]	flattened				Salustiana	1
	slightly rounded				Valencia late	2
	strongly rounded					3
	tapered					4
39. (*) (+)	**Fruit: presence of depression at stalk end**					
[40.]	absent				Sanguinelli	1
	present				Washington navel	9
40.	**Fruit: depth of depression at stalk end**					
[41.]	shallow				Washington navel	3
	medium					5
	deep					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41.	**Fruit: presence of neck**	**Not for this Group**				
42.	**Fruit: length of neck**	**Not for this Group**				
43.	**Fruit: thickness of neck**	**Not for this Group**				
44. **(+)**	**Fruit: presence of constriction at stalk end**	**Not for this Group**				
45.	**Fruit: expression of constriction at stalk end**	**Not for this Group**				
46.	**Fruit: number of radial grooves at stalk end**					
	absent or very few				Valencia late	1
	few				Lanelate	2
	many					3
47.	**Fruit: length of radial grooves at stalk end**					
[45c.]	short					3
	medium					5
	long					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
48. **(+)**	**Fruit: local depression at stalk attachment (necked varieties only)**	**Not for this Group**				
49. **(+)**	**Fruit: presence of collar**					
	absent				Salustiana	1
[46a.]	present					9
50. [47.]	**Fruit: height of collar**	**Not for this Group**				
51.	**Fruit: diameter of collar**	**Not for this Group**				
52. [49.]	**Fruit: abscission layer between floral disc and fruit**	**Not for this Group**				
53. **(+)**	**Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)**					
[50.]	flattened				Hamlin	1
	slightly rounded				Valencia late	2
	strongly rounded					3
54. **(*)** **(+)**	**Fruit: presence of depression at distal end**					
[51.]	absent				Valencia late	1
	present					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
55. [52.]	**Fruit: depth of depression at distal end**	**Not for this Group**				
56. [53.]	**Fruit: diameter of depression at distal end**	**Not for this Group**				
57. **(*)**	**Fruit: presence of nipple**	**Not for this Group**				
58.	**Fruit: prominence of nipple**	**Not for this Group**				
59. **(*)**	**Fruit: presence of areola**					
	absent				Valencia late	1
[56.]	present				Peret	9
60. **(+)**	**Fruit: type of areola**					
	smooth				Peret	1
[57.]	grooved					2
	ridged					3
61.	**Fruit: conspicuousness of areola**					
[58.]	weak					1
	medium					2
	strong					3
62.	**Fruit: development of areola**					
[59.]	not complete				Peret	1
	complete					2

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
63.	**Fruit: diameter of areola**					
[60.]	small					3
	medium				Peret	5
	large					7
64.	**Fruit: diameter of stylar scar**					
[61.]	small				Salustiana	3
	medium					5
	large					7
64.bis	**Fruit: style**					
[62.]	absent				Valencia late	1
	present				Sangre oval	9
65.	**Fruit: protruding stylar point**	**Not for this Group**				
66.	**Fruit: persistence of style**					
[63.]	none				Valencia late	1
	partial				Sangre oval	2
	total					3
67.	**Fruit: presence of navel opening**					
[64.]	absent				Ricalate	1
	occasionally present				Navelate	2
	always present				Washington navel	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
68.	**Fruit: diameter of navel opening**					
[65.]	small				Navelate	3
	medium				Lanelate	5
	large				Washington navel	7
69.	**Fruit: bulging of navel**					
[66.]	absent or very weakly expressed				Washington navel	1
	weakly expressed					2
	strongly expressed					3
70.	**Fruit: presence of radial grooves at distal end**					
[68.]	absent				Valencia late	1
	present				Salustiana	9
71. [68a.]	**Fruit: expression of radial grooves at distal end**	**Not for this Group**				

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
72. (*)	**Fruit surface: predominant color**					
[69.]	yellow orange				Pinalate	6 ?
	medium orange				Valencia late	7 ?
	dark orange				Washington navel	8 ?
	orange red				Navelina	9 ?
	green and orange					10 ?
	yellow and orange					11 ?
	yellow and red					12 ?
	orange and red				Sanguinelli	13 ?
73.	**Fruit surface: presence of pubescence**	**Not for this Group**				
74.	**Fruit surface: intensity of pubescence**	**Not for this Group**				
75. (*)	**Fruit surface: glossiness**	**Not for this Group**				
[70.]						
76.	**Fruit surface: roughness**					
[71.]	smooth				Sangre Doble Fina	3
	medium				Valencia late	5
	rough					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
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
79.	**Fruit surface: conspicuousness of larger oil glands**					
[74.]	weak				Valencia late	3
	medium				Bonanza	5
	strong					7
80.	**Fruit surface: presence of pitting and pebbling on oil glands**					
[75.]	pitting and pebbling absent					1
	pitting absent, pebbling present					2
	pitting present, pebbling absent					3
	pitting and pebbling present					4

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
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**				
83. [77.a]	**Fruit surface: density of pebbling on oil glands**					
	sparse					3
	medium					5
	dense					7
84. [78.]	**Fruit surface: degree of pebbling on oil glands**					
	weak					3
	medium					5
	strong					7
85. **(*)**	**Fruit rind: thickness**					
[80.]	thin				Navelate	3
	medium				Valencia late	5
	thick				Newhall	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
86. **(*)**	**Fruit rind: adherence to flesh**	**Not for this Group**				
87.	**Fruit rind: strength**					
[83.]	weak					3
	medium					5
	strong					7
88.	**Fruit rind: oiliness**	**Not for this Group**				
[84.]						
89.	**Fruit rind: conspicuousness of oil glands on inner surface**	**Not for this Group**				
90. [86.]	**Fruit: color of albedo**					
	greenish					1
	white				Washington navel	2
	light yellow					3
	light orange					4
	pinkish					5
	reddish					6
91.	**Fruit: density of albedo**	**Not for this Group**				
[87.]						

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
92. [88.]	**Fruit: amount of albedo adhering to flesh (strands excluded)**	**Not for this Group**				
93.	**Fruit: presence of albedo strands**	**Not for this Group**				
94.	**Fruit: amount of albedo strands**	**Not for Group 2**				
95.	**Fruit: differently colored specks in flesh**					
	absent				Valencia late	1
	present				Sanguinelli	9
96.	**Fruit: bicolored segments**					
[91.]	absent				Valencia late	1
	present				Sanguinelli	9
97. **(*)**	**Fruit: main color of flesh**					
[92.]	light yellow					4 ?
	medium yellow					5 ?
	light orange				Valencia late	6 ?
	medium orange				Washington navel	7 ?
	dark orange					13 ?
	red				Caracara	14 ?
	yellow and red				Sanguinelli	15 ?
	purple					16 ?

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
98.	**Fruit: filling of core**					
[93.]	absent or very sparse					1
	sparse					3
	medium				Washington navel	5
	dense				Salustiana	7
	very dense					9
99.	**Fruit: diameter of core**					
[94.]	small				Salustiana	3
	medium				Valencia late	5
	large				Navelate	7
100.	**Fruit: rudimentary segments**					
[95.]	absent or very weakly expressed				Valencia late	1
	weakly expressed					2
	strongly expressed					3
101.	**Fruit: number of well developed segments**					
[96.]	few				Navelate	3
	medium				Sanguinelli	5
	many					7
102.	**Fruit: coherence of adjacent segment walls**					
[98.]	weak				Navelina	3
	medium				Valencia late	5
	strong					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
103.	**Fruit: strength of segment walls**					
[99.]	weak				Navelate	3
	medium				Valencia late	5
	strong				Berna	7
104.	**Fruit: length of juice vesicles**					
[100.]	short				Salustiana	3
	medium					5
	long				Washington navel	7
105.	**Fruit: thickness of juice vesicles**					
[100a	thin					3
	medium					5
	thick					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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
108. (*)	**Fruit: presence of navel viewed <u>internally</u>**					
[103.]	absent or very rare					1
	occasionally present					2
	always present				Navelate	3
109.	**Fruit: size of navel (viewed internally)**					
[104.]	short					3
	medium				Washington navel	5
	long				Navelate	7
110.	**Fruit: juice content**					
[106.]	low					3
	medium				Washington navel	5
	high				Salustiana	7
111.	**Fruit juice: total soluble solids**					
[107.]	low				Valencia late	3
	medium				Washington navel	5
	high				Navelate	7
112.	**Fruit juice: acidity**					
[108.]	low				Suceña	3
	medium				Washington navel	5
	high				Valencia late	7

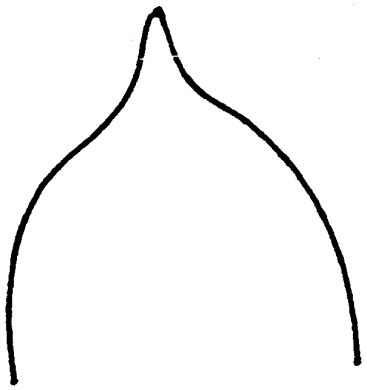
	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
113.	**Fruit: strength of fibre**					
[109.]	weak				Salustiana	3
	medium				Washington navel	5
	strong					7
114.	**Fruit: number of seeds *(autopollinated flowers)?***					
[110.]	absent or very few				Washington navel	1
	few				Valencia late	3
	medium					5
	many					7
	very many				Comuna	9
115. (*)	**Seed: polyembryony**					
[111.]	absent					1
	present				Valencia late	9
116.	**Seed: length**					
[113.]	short					3
	medium					5
	long					7
117.	**Seed: width**					
[114.]	narrow					3
	medium					5
	broad					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
118.	**Seed: surface (when fresh)**					
[115.]	smooth					1
	veined					2
	wrinkled					3
119.	**Seed: prominence of veins and/or wrinkles (as for 118)**					
[116.]	weak					3
	medium					5
	strong					7
120.	**Seed: external color *when fresh?***					
[117.]	greenish					1
	whitish				Comuna	2
	yellowish					3
	pinkish					4
	brownish					5
121.	**Seed: color of inner seed coat (as for 118)**					
[118.]	white				Sucreña	1
	light yellow					2
	light brown					3
	brown				Comuna	4
	dark brown					5
	red					6
	purple					7

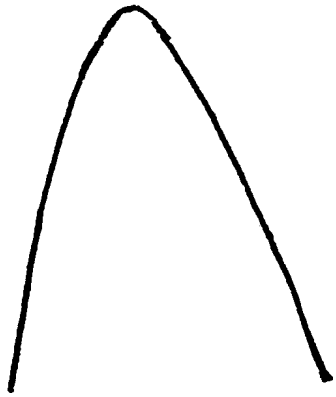
	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
122.	**Seed: color of cotyledons (as for 118, polyembryonic varieties only)**					
[119.]	white				Comuna	1
	cream					2
	light green					3
	dark green					4
123.	**Seed: external color when <u>dry</u>**	**Deleted from all groups**				
124.	**Flowering habit**	**Not for this Group**				
125. (*)	**Time of maturity of fruit for consumption**					
[122.]	early				Navelina	3
	medium				Salustiana	5
	late				Valencia late	7
126. (*)	**Plant: parthenocarpy**					
[122a.	absent				Comuna	1
	present				Washington navel	9
127.	**Plant: self-incompatability**					
new	absent					1
	present					9

VIII. Explanations on the Table of Characteristics

Ad. 17: Fully developed leaf: shape of apex (as for 6)

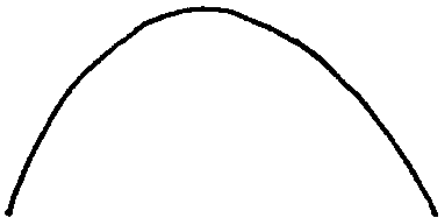


1
acuminate



2
acute

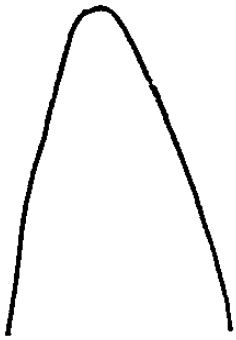
3
obtuse



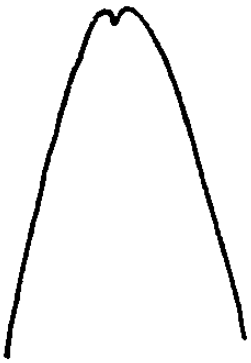
4
rounded

emarginate (5) ***(?)***

Ad. 18: Leaf blade: emargination at tip

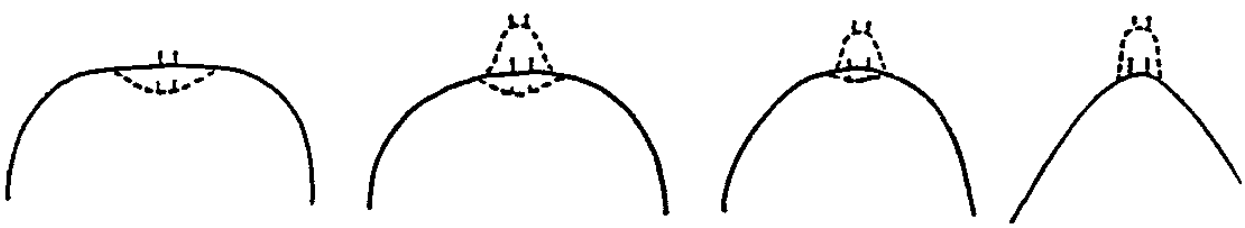


1
absent



9
present

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



1	2	3	4
flattened	slightly rounded	strongly rounded	tapered

Ad. 39: Fruit: presence of depression at stalk end

1	9
absent	present

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

[drawings still missing]
{not for this Group?????}

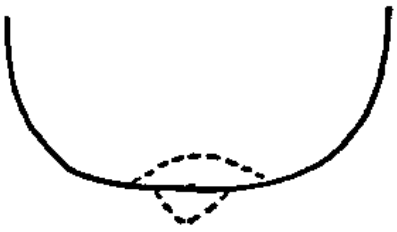
1	2	3
absent or very shallow	shallow	deep

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 distal end

1
absent

9
present

Ad. 60: Fruit: type of areola

1
smooth

2
grooved

3
ridged

LIST OF EXAMPLE VARIETIES FOR ORANGES- GROUP 2

Variety denomination	Group or specie	Observations
BONANZA	SWO	
CARACARA	SWO	
COMUNA	SWO	
HAMLIN	SWO	
LANELATE	SWO	
NAVEL MAS BARÓ	SWO	
NAVELATE	SWO	
NAVELINA	SWO	
NEWHALL	SWO	
PERET	SWO	
PINALATE	SWO	
RICALATE	SWO	
SALUSTIANA	SWO	
SANGRE DOBLEFINA	SWO	
SANGRE OVAL	SWO	
SANGUINELLI	SWO	
SUCREÑA	SWO	
SUMMER NAVEL	SWO	
SWEET NAVEL	SWO	
VALENCIA LATE	SWO	
WASHINGTON NAVEL	SWO	

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.

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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:

ORANGES AND THEIR HYBRIDS

SWO: *Citrus sinensis* (L.) Osbeck - Sweet Oranges [ ]

SOR: *Citrus aurantium* L. - Sour Oranges [ ]

HOR: Hybrids like Oranges (Changed) [ ]

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	Comuna	3[ ]
	medium	Valencia late	5[ ]
	long	Newhall	7[ ]
5.2 (34)	**Fruit: diameter**		
	small	Sanguinelli	3[ ]
	medium	Valencia late	5[ ]
	large	Washington navel	7[ ]

	Characteristics	Example Varieties	Note
5.3 (72)	**Fruit surface: predominant color**		
	green	*Not in the table of Charac.?*	1[ ]
	yellow green	*Not in the table of Charac.?*	2[ ]
	light yellow	*Not in the table of Charac.?*	3[ ]
	medium yellow	*Not in the table of Charac.?*	4[ ]
	green and yellow	*Not in the table of Charac.?*	5[ ]
	yellow orange	Pinalate	6[ ]
	medium orange	Valencia late	7[ ]
	dark orange	Washington navel	8[ ]
	orange red	Navelina	9[ ]
	green and orange		10[ ]
	yellow and orange		11[ ]
	yellow and red		12[ ]
	orange and red	Sanguinelli	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
5.4 (97)	**Fruit: main color of flesh**		
	light green	*Not in the Table of Charac.?*	1[ ]
	white	*Not in the Table of Charac.?*	2[ ]
	whitish	*Not in the Table of Charac.?*	3[ ]
	light yellow		4[ ]
	medium yellow		5[ ]
	light orange	Valencia late	6[ ]
	medium orange	Washington navel	7[ ]
	dark orange		8 *13?*[ ]
	light pink	*Not in the Table of Charac.?*	9[ ]
	medium pink	*Not in the Table of Charac.?*	10[ ]
	dark pink	*Not in the Table of Charac.?*	11[ ]
	green and pink	*Not in the Table of Charac.?*	12[ ]
	yellow and pink	*Not in the Table of Charac.?*	13[ ]
	red	Caracara	14[ ]
	yellow and red	Sanguinelli	15[ ]
	purple		16[ ]
5.5 (108)	**Fruit: presence of navel viewed <u>internally</u>**		
	absent or very rare		1[ ]
	occasionally present		2[ ]
	always present	Navelate	3[ ]
5.6 (125)	**Time of maturity of fruit for consumption**		
	early	Newhall	3[ ]
	medium	Salustiana	5[ ]
	late	Valencia late	7[ ]

	Characteristics	Example Varieties	Note
5.7 (126)	**Plant: parthenocarpy**		
	absent	Comuna	1[ ]
	present	Washington navel	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]