



European Union  
Community Plant Variety Office

## **PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS**

*Citrus* L. – Group 2

**ORANGES**

UPOV Species Code: CITRU, CITRU\_AUM, CITRU\_SIN

Adopted on 18/11/2004

## I SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV guideline TG/202/1 dated 09/04/2003 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies for all varieties of the following group of the genus *Citrus* L. (*Rutaceae*), and their hybrids: ORANGES. See below the list of species and their subgroups :

<i>Botanical taxon</i>	<i>Subgroup</i>	<i>Common name</i>
<i>Citrus aurantium</i> L.	SOR	Sour Orange
<i>Citrus aurea</i> hort. ex Tanaka	SWO	
<i>Citrus canaliculata</i> hort. ex Yu. Tan	SOR	
<i>Citrus funadoko</i> hort. ex Yu. Tanaka	SWO	
<i>Citrus iriomotensis</i> hort. ex Tanaka	HOR	
<i>Citrus iyo</i> hort. ex Tanaka	SWO	
<i>Citrus luteoturgida</i> hort. ex Tanaka	SWO	
<i>Citrus maderaspatana</i> hort. ex Tan.	SOR	
<i>Citrus myrtifolia</i> Raf.	SOR	
<i>Citrus neoaurantium</i> Tanaka	SOR	
<i>Citrus oblonga</i> hort. ex Yu. Tanaka	SWO	
<i>Citrus papillaris</i> Blanco	HOR	
<i>Citrus pseudopapillaris</i> Tanaka	HOR	
<i>Citrus rokugatsu</i> hort. ex Yu. Tanaka	SOR	
<i>Citrus shunkokan</i> hort. ex Tanaka	SWO	
<i>Citrus sinensis</i> (L.) Osbeck	SWO	Sweet Orange
<i>Citrus sinograndis</i> hort. ex Yu. Tanaka	SWO	
<i>Citrus taiwanica</i> Tanaka & Y. Shimada	HOR	
<i>Citrus tamurana</i> hort. ex Tanaka	SWO	
<i>Citrus tankan</i> Hayata	SWO	
<i>Citrus ujukitsu</i> Tanaka	SWO	
<i>Citrus yanbaruensis</i> hort. ex Tanaka	SOR	

## II SUBMISSION OF SEED AND OTHER PLANT MATERIAL

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

A sub-sample of the material submitted for test will be held in the variety collection as the definitive sample of the candidate variety.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. Immediately after the closing date for the receipt of plant material the Examination Office should inform the CPVO whether acceptable plant material has been received or not. However if unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

The final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date of plant material, quantity and quality by the applicant can be found in the S2 supplement of the CPVO Official Gazette and the CPVO website ([www.cpvo.europa.eu](http://www.cpvo.europa.eu)).

Quality of plants: As regards the health status, should not be less than the standards laid down in Council Directive 77/93/EEC, 92/34/EEC and 2000/29/EC. The plant material must be free from:

**Insects, mites and nematodes at all stages of their development**

- *Aleurothrixus floccosus* (Mashell)
- *Meloidogyne* spp.
- *Parabemisia myricae* (Kuwana)
- *Tylenchulus semipenetrans*

### **Fungi**

- *Phytophthora* spp.

### **Viruses and virus-like organisms, and in particular**

- Citrus leaf rugose
- Disease that induce psorosis-like young leaves symptoms such as: psorosis, ring pot cristicortis, impietratura, concave gum.
- Infectious variegation
- Viroids such as exocortis, cachexiaxyloporosis

Chemical treatment: The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of individual plants in sample:

- Species
- File number of the application allocated by the CPVO
- Breeder's reference
- Examination office's reference (if known)
- Name of applicant
- The phrase "On request of the CPVO"

## **III CONDUCT OF TESTS**

### 1. Variety collection

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a variety collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

The composition of the variety collection in each Examination Office depends on the environmental conditions in which the Examination Office is located.

Variety collections will be held under conditions which ensure the long term maintenance of each accession. It is the responsibility of Examination Offices to replace reference material which has deteriorated or become depleted. Replacement material can only be introduced if appropriate tests confirm conformity with the existing reference material. If any difficulties arise for the replacement of reference material, Examination Offices must inform the CPVO. If authentic plant material of a variety cannot be supplied to an Examination Office the variety will be removed from the variety collection.

2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties. Examination Offices should therefore make efforts to co-ordinate the work with other Offices involved in DUS testing of oranges. There should be at least an exchange of technical questionnaires for each candidate variety, and during the test period, Examination Offices should notify each other and the CPVO of candidate varieties which are likely to present problems in establishing distinctness. In order to solve particular problems Examination Offices may exchange plant material.

3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the Annex 1. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 1239/95, to insert additional characteristics and their expression in respect of a variety.

4. Grouping of varieties

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. 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 and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping could be the following:

- a) Fruit : length (characteristic 29)
- b) Fruit : diameter (characteristic 30)
- c) Fruit surface: predominant colour(s) (characteristic 51)
- d) Fruit: presence of navel (viewed internally) (characteristic 73)
- e) Time of maturity of fruit for consumption (characteristic 88)
- f) Parthenocarpy (characteristic 89)
- g) Self-incompatibility (characteristic 90)

5. Trial designs and growing conditions

The minimum duration of tests (independent growing cycles) will normally include at least two satisfactory crops of fruit. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows

Each test should include 5 plants.

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

Leaf: 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.

Flower: Unless otherwise indicated, 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.

Observations on the open flower should be made on the first day of opening.

Fruit: Observations on the fruit should be made at the stage of optimum ripeness. The fruit should be tested weekly and harvested as soon as this stage has been reached.

All fruits for observations should be taken from the periphery of the tree and fruit misformed as a result of clustering should not be sampled.

Fruit surface and fruit rind: Observations on the fruit surface and on the fruit rind should be made at the middle, between the base and apex of the fruit.

The observation on the oiliness of the fruit rind should be made, by peeling the fruit, within three to seven days after harvesting.

Fruit flesh: Observations on the flesh of the fruit should be made on a cross section through the middle of the fruit.

Seed: Observations on the seed should be made on the fresh seed.

## 6. Special tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

## 7. Standards for decisions

### a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

### b) **Uniformity**

A candidate will be considered to be sufficiently uniform if the number of off-types does not exceed the number of plants as indicated in the table below. A population standard of 1% and an acceptance probability of 95% should be applied.

Table of maximum numbers of off-types allowed for uniformity standards.

Number of plants	off-types allowed
$\leq 5$	0

c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

**IV REPORTING OF RESULTS**

After each recording season the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after two fruiting periods but in some cases three fruiting periods may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

**V LIAISON WITH THE APPLICANT**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report as well as the final report shall be sent by the Examination Office to the CPVO.

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QN Quantitative characteristic	
PQ Pseudo-qualitative characteristic	
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## ANNEX II

Technical Questionnaire

## ANNEX I

### TABLE OF CHARACTERISTICS TO BE USED IN DUS-TEST AND PREPARATION OF DESCRIPTIONS

CPVO N°	UPOV N°	Characteristics	Examples	Note	
1. QL	1.	Ploidy	diploid	Valencia Late (SWO)	2
			triploid		3
			tetraploid		4
2. (+) PQ	2.	Tree: growth habit	upright	Salustiana (SWO)	1
			spreading	Valencia Late (SWO)	2
			drooping	Washington Navel (SWO)	3
3. QN	3.	Tree: density of spines	absent or sparse	Navelina (SWO),	1
			intermediate	Valencia Late (SWO)	2
			dense	Navelate (SWO)	3
4. QN	4.	Tree: length of spines	short	Navelate (SWO)	3
			medium		5
			long		7
5. QN	5.	Leaf blade: length (apical leaflet in case of compound leaf)	short		3
			medium	Washington Navel (SWO)	5
			long		7
6. QN	6.	Leaf blade: width (apical leaflet in case of compound leaf)	narrow	Peret (SWO)	3
			medium	Valencia Late (SWO)	5
			broad		7
7. QN	7.	Leaf blade: ratio length/width (apical leaflet in case of compound leaf)	small	Navelate (SWO)	3
			medium	Valencia Late (SWO)	5
			large	Peret (SWO)	7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
8.  QN	8.	<b>Leaf blade: shape in cross section (apical leaflet in case of compound leaf)</b>	straight or weakly concave	1	
			intermediate	Washington Navel (SWO)	2
			strongly concave		3
9.  QN	9.	<b>Leaf blade: twisting</b>	absent or weak	Washington Navel (SWO)	1
			intermediate		2
			strong		3
10.  QN	10.	<b>Leaf blade: blistering</b>	absent or weak	Washington Navel (SWO)	1
			intermediate		2
			strong		3
11.  QN	11.	<b>Leaf blade: green colour</b>	light		3
			medium	Washington Navel (SWO)	5
			dark	Navelina (SWO)	7
12.  QN	12.	<b>Leaf blade: undulation of margin</b>	absent or weak	Washington Navel (SWO)	1
			intermediate		2
			strong		3
13.  PQ	13.	<b>Leaf blade: incisions of margin</b>	absent	Valencia Late (SWO)	1
			crenate		2
			dentate		3
14. (+)  PQ	14.	<b>Leaf blade: shape of apex</b>	acuminate		1
			acute	Salustiana (SWO)	2
			obtuse		3
			rounded		4
15. (+)  QL	15.	<b>Leaf blade: emargination at tip</b>	absent		1
			present		9

CPVO N°	UPOV N°	Characteristics	Examples	Note	
16. QN	16.	<b>Petiole: length</b>	short	3	
			medium	Valencia Late (SWO)	5
			long	Peret (SWO)	7
17. QL	17.	<b>Petiole: presence of wings</b>	absent	Valencia Late (SWO)	1
			present	Sevillano (SOR)	9
18. QN	18.	<b><u>Varieties with petiole wings present only:</u> Petiole: width of wings</b>	narrow		3
			medium	Sevillano (SOR)	5
			broad		7
19. QN	19.	<b>Flower: diameter of calyx</b>	small		3
			medium		5
			large		7
20. QN	20.	<b>Flower: length of petal</b>	short	Newhall (SWO)	3
			medium	Valencia Late (SWO)	5
			long	Sevillano (SOR)	7
21. QN	21.	<b>Flower: width of petal</b>	narrow		3
			medium	Newhall (SWO)	5
			broad	Salustiana (SWO)	7
22. QN	22.	<b>Flower: ratio length/width of petal</b>	small		3
			medium	Washington Navel (SWO)	5
			large		7
23. QN	23.	<b>Flower: length of stamens</b>	short	Newhall (SWO)	3
			medium	Valencia Late (SWO)	5
			long	Sevillano (SOR)	7
24. QL	24.	<b>Flower: basal union of stamens</b>	absent	Valencia Late (SWO)	1
			present		9

CPVO N°	UPOV N°	Characteristics	Examples	Note	
25. PQ	25	<b>Anther: colour</b>	white	1	
			light yellow	Washington Navel (SWO)	2
			medium yellow	Valencia Late (SWO)	3
26. QL	26.	<b>Anther: viable pollen</b>	absent	Washington Navel (SWO)	1
			present	Pineapple (SWO)	9
27. QN	27.	<b>Style: length</b>	short	Valencia Late (SWO)	3
			medium	Sevillano (SOR)	5
			long		7
28. PQ	28.	<b>Style: shape</b>	straight	Washington Navel (SWO)	1
			arched		2
			kinked		3
29. QN	29.	<b>Fruit: length</b>	short		3
			medium	Valencia Late (SWO)	5
			long	Newhall (SWO)	7
30. QN	30.	<b>Fruit: diameter</b>	small	Sanguinelli (SWO)	3
			medium	Valencia Late (SWO)	5
			large	Washington Navel (SWO)	7
31. QN	31.	<b>Fruit: ratio length/diameter</b>	small		3
			medium	Valencia Late (SWO)	5
			large	Sanguinelli (SWO)	7
32. QN	32.	<b>Fruit: position of broadest part</b>	towards stalk end		1
			at middle	Washington Navel (SWO)	2
			towards distal end		3

CPVO N°	UPOV N°	Characteristics	Examples	Note	
33. (+)  PQ	33.	<b>Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)</b>	flattened	1	
			slightly rounded	Valencia Late (SWO)	2
			strongly rounded	Sanguinelli (SWO)	3
			tapered		4
34. (+)  QL	34.	<b><u>Only varieties without fruit neck:</u> Fruit: presence of depression at stalk end</b>	absent	Valencia Late (SWO)	1
			present		9
35.  QN	35.	<b><u>Only varieties without fruit neck:</u> Fruit: depth of depression at stalk end</b>	shallow	Washington Navel (SWO)	3
			medium		5
			deep		7
36.  QN	36.	<b>Fruit: number of radial grooves at stalk end</b>	absent or few	Valencia Late (SWO)	1
			intermediate		2
			many		3
37.  QN	37.	<b>Fruit: length of radial grooves at stalk end</b>	short		3
			medium		5
			long		7
38. (+)  QL	38.	<b>Fruit: presence of collar</b>	absent	Valencia Late (SWO)	1
			present		9
39. (+)  QN	39.	<b>Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)</b>	flattened	Sevillano (SOR)	1
			slightly rounded	Valencia Late (SWO)	2
			strongly rounded	Sanguinelli (SWO)	3

CPVO N°	UPOV N°	Characteristics		Examples	Note
40. (+) QL	40.	Fruit: presence of depression at distal end	absent	Valencia Late (SWO)	1
			present	Sevillano (SOR)	9
41. QL	41.	Fruit: presence of areola	absent	Valencia Late (SWO)	1
			incomplete		2
			complete	Peret (SWO)	3
42. (+) QN	42.	Fruit: type of areola	smooth	Peret (SWO)	1
			grooved		2
			ridged		3
43. QN	43.	Fruit: diameter of areola	small		3
			medium	Peret (SWO)	5
			large		7
44. QN	44.	Fruit: diameter of stylar scar	small	Valencia Late (SWO)	3
			medium		5
			large		7
45. PQ	45.	Fruit: persistence of style	none	Valencia Late (SWO)	1
			partial	Sangre Oval (SWO)	2
			totale		3
46. PQ	46.	Fruit: presence of navel opening	absent	Valencia Late (SWO)	1
			occasionally present		2
			always present	Washington Navel (SWO)	3
47. QN	47.	Fruit: diameter of navel opening	small	Navelate (SWO)	3
			medium		5
			large	Washington Navel (SWO)	7
48. QL	48.	Fruit: bulging of navel	absent or weak	Washington Navel (SWO)	1
			intermediate		2
			strong		3

CPVO N°	UPOV N°	Characteristics		Examples	Note
49.	49.	<b>Fruit: presence of radial grooves at distal end</b>	absent	Valencia Late (SWO)	1
			present		9
50.	50.	<b>Fruit: colour variegation</b>	absent	Sanguinelli (SWO)	1
			present	Valencia Late (SWO)	9
51.	51.	<b>Fruit surface: predominant colour(s)</b>	yellow orange	Pinalate (SWO)	1
			medium orange	Valencia Late (SWO)	2
			dark orange	Washington Navel (SWO)	3
			orange red	Sanguinelli (SWO)	4
			red		5
52.	52.	<b>Fruit surface: roughness</b>	smooth	Sangre Doblefina (SWO)	3
			medium	Valencia Late (SWO)	5
			rough	Sevillano (SOR)	7
53.	53.	<b>Fruit surface: size of oil glands</b>	all more or less the same size		1
			larger ones interspersed by smaller ones		2
54.	54.	<b>Fruit surface: size of larger oil glands</b>	small		3
			medium		5
			large		7
55.	55.	<b>Fruit surface: conspicuousness of larger oil glands</b>	weak		3
			medium		5
			strong		7



CPVO N°	UPOV N°	Characteristics	Examples	Note
56.  PQ	56.	<b>Fruit surface: presence of pitting and pebbling on oil glands</b>	pitting and pebbling absent	1
			pitting absent, pebbling present	2
			pitting present, pebbling absent	3
			pitting and pebbling present	4
57.  QN	60.	<b>Fruit rind: thickness</b>	thin	Navelate (SWO) 3
			medium	Valencia Late (SWO) 5
			thick	Washington Navel (SWO) 7
58.  QN	61.	<b>Fruit rind: strength</b>	weak	3
			medium	5
			strong	7
59.  PQ	62.	<b>Fruit: colour of albedo</b>	greenish	1
			white	Valencia Late (SWO) 2
			light yellow	3
			light orange	4
			pink	5
			reddish	6
60.  QL	63.	<b>Fruit: differently coloured specks in flash</b>	absent	Valencia Late (SWO) 1
			preent	Sanguinelli (SWO) 9
61.  QL	64.	<b>Fruit: bicoloured segments</b>	absent	Valencia Late (SWO) 1
			present	Sanguinelli (SWO) 9
62.  PQ	65.	<b>Fruit: main colour of flesh</b>	light orange	Valencia Late (SWO) 1
			medium orange	Washington Navel (SWO) 2
			dark orange	3
			orange red	Sanguinelli (SWO) 4
			red	Caracara (SWO) 5

CPVO N°	UPOV N°	Characteristics		Examples	Note
63. QL	66.	Fruit: bitterness of flesh	absent	Valencia Late (SWO)	1
			present	Sevillano (SOR)	9
64. QN	67.	Fruit: filling of core	absent or very sparse		1
			sparse	Sevillano (SOR)	3
			medium	Washington Navel (SWO)	5
			dense	Salustiana (SWO)	7
			very dense		9
65. QN	68	Fruit: diameter of core	small		3
			medium		5
			large		7
66. QN	69.	Fruit: presence of rudimentary segments	absent or weak	Valencia Late (SWO)	1
			intermediate		2
			strong		3
67. QN	70.	Fruit: number of well developed segments	few	Navelate (SWO)	3
			medium	Sanguinelli (SWO)	5
			many		7
68. QN	71.	Fruit: coherence of adjacent segment walls	weak	Navelina (SWO)	3
			medium	Valencia Late (SWO)	5
			strong		7
69. QN	72.	Fruit: strength of segment walls	weak	Navelate (SWO)	3
			medium	Valencia Late (SWO)	5
			strong		7
70. QN	73.	Fruit: length of juice vesicles	short		3
			medium		5
			long		7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
71. QN	74.	<b>Fruit: thickness of juice vesicles</b>	thin	3	
			medium	5	
			thick	7	
72. QN	76.	<b>Fruit: coherence of juice vesicles</b>	weak	3	
			medium	5	
			strong	7	
73. PQ	77.	<b>Fruit: presence of navel (viewed internally)</b>	absent or very rare	Valencia Late (SWO)	1
			occasionally present		2
			always present	Washington Navel (SWO)	3
74. QN	78.	<b>Fruit: size of navel (viewed internally)</b>	small		3
			medium	Washington Navel (SWO)	5
			large	Navelate (SWO)	7
75. QN	79.	<b>Fruit: juiciness</b>	low		3
			medium	Valencia Late (SWO)	5
			high		7
76. QN	80.	<b>Fruit juice: total soluble solids</b>	low		3
			medium	Washington Navel (SWO)	5
			high	Navelate (SWO)	7
77. QN	81.	<b>Fruit juice: acidity</b>	low	Sucreña (SWO)	3
			medium	Washington Navel (SWO)	5
			high	Valencia Late (SWO)	7
78. QN	82.	<b>Fruit: strength of fibre</b>	weak	Navelate (SWO)	3
			medium	Valencia Late (SWO)	5
			strong		7

CPVO N°	UPOV N°	Characteristics	Examples	Note	
79. (+)  QN	83.	<b>Fruit: number of seeds (controlled manual self- pollination)</b>	absent or very few	Washington Navel (SWO)	1
			few	Valencia Late (SWO)	3
			medium		5
			many		7
			very many	Comuna (SWO)	9
80. (+)  QN	84.	<b>Fruit: number of seeds (open pollination)</b>	absent or very few	Salustiana (SWO)	1
			few	Valencia Late (SWO)	3
			medium		5
			many	Comuna (SWO)	7
81.  QL	85.	<b>Seed: polyembryony</b>	absent		1
			present	Valencia Late (SWO)	9
82.  QN	86.	<b>Seed: length</b>	short		3
			medium		5
			long		7
83.  QN	87.	<b>Seed: width</b>	narrow		3
			medium		5
			broad		7
84.  QL	88.	<b>Seed: surface</b>	smooth		1
			wrinkled		2
85.  PQ	90.	<b>Seed: external colour</b>	greenish		1
			whitish	Comuna (SWO)	2
			yellowish		3
			pinkish		4
			brownish		5

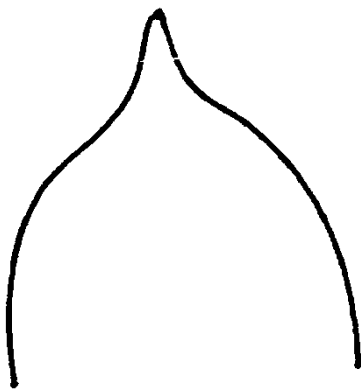
CPVO N°	UPOV N°	Characteristics		Examples	Note
86.  PQ	91.	Seed: colour of inner seed coat	white	Sucreña (SWO)	1
			light yellow		2
			light brown		3
			medium brown	Comuna (SWO)	4
			dark brown		5
			red		6
			purple		7
87.  PQ	92.	<u>Only varieties with seed: polyembryony present: Seed: colour of cotyledons</u>	white	Comuna (SWO)	1
			cream		2
			light		3
			dark green		4
88.  QN	93.	Time of maturity of fruit for consumption	early	Navelina (SWO)	3
			medium	Salustiana (SWO)	5
			late	Valencia Late (SWO)	7
89.  QL	94.	Parthenocarpy	absent		1
			present	Washington Navel (SWO)	9
90. (+)  QL	95.	Self-incompatibility	absent	Pineapple (SWO)	1
			present		9

## EXPLANATIONS AND METHODS

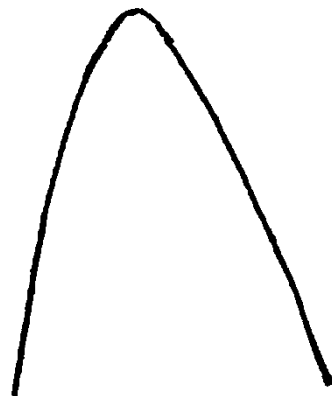
### Ad. 2 : Tree: Growth habit

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

### Ad. 14 : Leaf blade: shape of apex



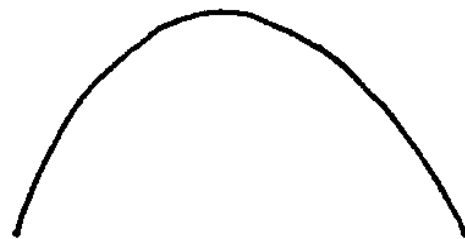
1  
acuminate



2  
acute

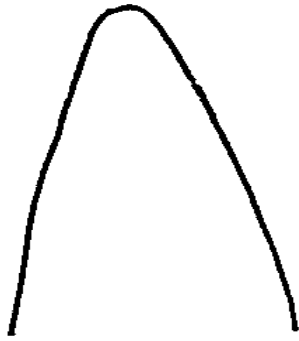


3 4  
obtuse

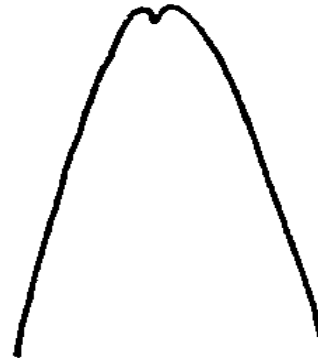


rounded

Ad. 15 : Leaf blade: emargination at tip

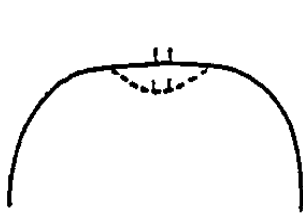


1  
absent

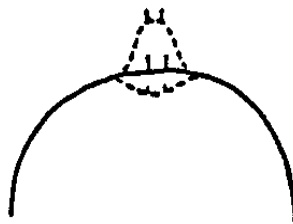


9  
present

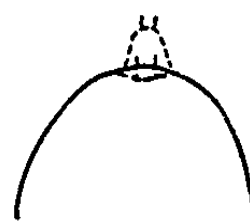
Ad. 33 : Fruit: general shape of proximal part (excluding neck, collar and depression at stalk end)



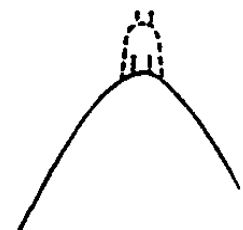
1  
flattened



2  
slightly rounded

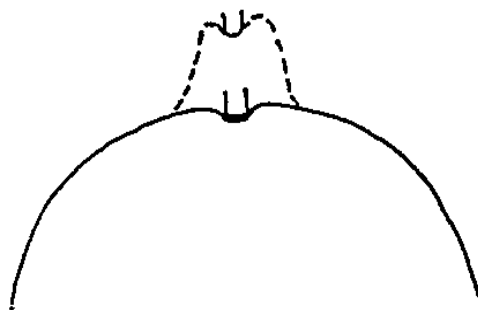


3  
strongly rounded

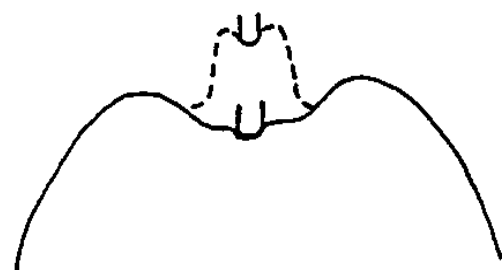


4  
tapered

Ad. 34 : Only varieties without fruit neck: Fruit: presence of depression at stalk end



1  
absent

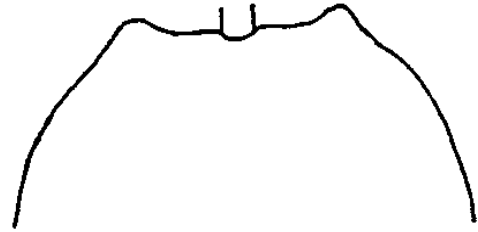


9  
present

Ad. 38 : Fruit: presence of collar

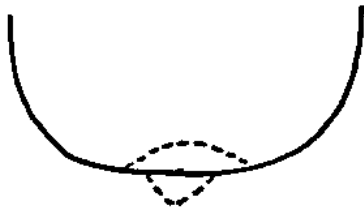


1  
absent



9  
present

Ad. 39 : Fruit: general shape of distal part (excluding nipple, bulging of navel and depression at distal end)



1  
flattened

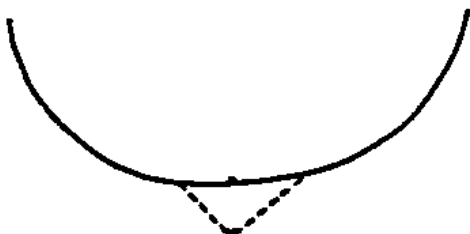


2  
slightly rounded



3  
strongly rounded

Ad 40 : Fruit: presence of depression at distal end



1  
absent



9  
present



Ad. 42 : Fruit: type of areola



1  
smooth



2  
grooved



3  
ridged

Ad. 79 : Fruit: number of seeds (controlled manual self-pollination)

Manual self-pollination is necessary to ensure a consistent production of seed.

Ad 80 : Fruit: number of seeds (open pollination)

Open pollination means natural pollination between trees of the same variety.

Ad. 90 : Plant: self-incompatibility

A variety is self-incompatible when the fertile pollen of its own flower or of other flowers of the same variety is not able to fertilize the ovary.

The test on self-incompatibility has to be carried out on at least 10 flowers.

Choose flowers with petals which are just before opening and open the flower manually. Then separate and cut the anthers. Take viable pollen from other flowers of the same variety and put it on the stigma. Cover the flowers with muslin in order to avoid accidental pollination by other pollen. If the mature fruit bears no seeds, the variety is self-incompatible. If the mature fruit bears seeds, the variety is self-compatible.

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## ANNEX II



European Union  
Community Plant Variety Office

### TECHNICAL QUESTIONNAIRE

to be completed in connection with an application for Community Plant Variety Rights  
Please answer all questions. A question without any answer will lead to a non-attribution  
of an application date. In cases where a field / question is not applicable, please state so.

1. **Botanical taxon:** Name of the genus, species or sub-species to which the variety belongs and common name

*Citrus L. – Group 2*

ORANGES

2. **Applicant(s):** Name(s) and address(es), phone and fax number(s), Email address, and where appropriate name and address of the procedural representative

3. **Variety denomination**

a) Where appropriate proposal for a variety denomination:

b) Provisional designation (breeder's reference):

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

**4.1 Breeding, maintenance and reproduction of the variety**

Please indicate breeding scheme, parents and other relevant information

- (a) Seedling of unknown parentage.....[ ]
- (b) Produced by controlled pollination (indicate parent varieties).....[ ]
  - (i) Seed bearing parent
  
  - (ii) Pollen parent
- (c) Produced by open pollination of (indicate seed bearing parent only) .....[ ]
- (d) Mutation or sport from (indicate original parent variety).....[ ]
- (e) Discovery (indicate where and when) .....[ ]

**4.2 Method of propagation**

- (a) Cuttings ..... [ ]
- (b) *In vitro* propagation ..... [ ]
- (c) Seed ..... [ ]
- (d) Other (please specify):..... [ ]

**4.3 Virus status**

The variety is:

- (i) Virus free (indicate viruses) ..... [ ]
- (ii) Virus tested (indicate against which virus) ..... [ ]
- (iii) The virus status is unknown ..... [ ]

**4.4 Geographical origin of the variety:** the region and the country in which the variety was bred or discovered and developed

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

Characteristics	Example varieties	Note
<b>5.1 (29)</b>  Fruit: length		
short		3 [ ]
medium	Valencia Late (SWO)	5 [ ]
long	Newhall (SWO)	7 [ ]
<b>5.2 (30)</b>  Fruit: diameter		
small	Sanguinelli (SWO)	3 [ ]
medium	Valencia Late (SWO)	5 [ ]
large	Washington Navel (SWO)	7 [ ]

	Characteristics	Example varieties	Note
<b>5.3 (51)</b>	<b>Fruit surface: predominant colour(s)</b>		
	yellow orange	Pinalate (SWO)	1 [ ]
	medium orange	Valencia Late (SWO)	2 [ ]
	dark orange	Washington Navel (SWO)	3 [ ]
	orange red	Sanguinelli (SWO)	4 [ ]
	red		5 [ ]
<b>5.4 (62)</b>	<b>Fruit: main colour of flesh</b>		
	light orange	Valencia Late (SWO)	1 [ ]
	medium orange	Washington Navel (SWO)	2 [ ]
	dark orange		3 [ ]
	orange red	Sanguinelli (SWO)	4 [ ]
	red	Caracara (SWO)	5 [ ]
<b>5.5 (73)</b>	<b>Fruit: presence of navel (viewed internally)</b>		
	absent or very rare	Valencia Late (SWO)	1 [ ]
	occasionally present		2 [ ]
	always present	Washington Navel (SWO)	3 [ ]
<b>5.6 (88)</b>	<b>Time of maturity of fruit for consumption</b>		
	early	Navelina (SWO)	3 [ ]
	medium	Salustiana (SWO)	5 [ ]
	late	Valencia Late (SWO)	7 [ ]
<b>5.7 (89)</b>	<b>Parthenocarpy</b>		
	absent		1 [ ]
	present	Washington Navel (SWO)	9 [ ]
<b>5.8 (90)</b>	<b>Self-incompatibility</b>		
	absent	Pineapple (SWO)	1 [ ]
	present		9 [ ]

<b>6. Similar varieties and differences from these varieties:</b>			
Denomination of similar variety	Characteristic in which the similar variety is different <sup>1)</sup>	State of expression of similar variety	State of expression of candidate variety
<hr/> <p><sup>1)</sup> In the case of identical states of expressions of both varieties, please indicate the size of the difference</p>			
<p><b>7. Additional information which may help to distinguish the variety</b>            A representative printed-out colour photo of the variety <b>must</b> be added to the Technical Questionnaire.</p>			
<p><b>7.1 Resistance to pests and diseases</b></p>			
<p><b>7.2 Special conditions for the examination of the variety</b></p> <p><input type="checkbox"/> YES, please specify</p> <p><input type="checkbox"/> NO</p>			
<p><b>7.3 Other information</b></p> <p><input type="checkbox"/> YES, please specify</p> <p><input type="checkbox"/> NO</p>			

**8. GMO-information required**

The variety represents a Genetically Modified Organism within the meaning of Article 2(2) of Council Directive EC/2001/18 of 12/03/2001.

YES                       NO

If yes, please add a copy of the written attestation of the responsible authorities stating that a technical examination of the variety under Articles 55 and 56 of the Basic Regulation does not pose risks to the environment according to the norms of the above-mentioned Directive.

**9. Information on plant material to be examined**

**9.1** The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

**9.2** The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma)      | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (b) Chemical treatment (e.g. growth retardant or pesticide) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (c) Tissue culture  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| (d) Other factors   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

Please provide details of where you have indicated "Yes":



I/we hereby declare that to the best of my/our knowledge the information given in this form is complete and correct.

Date

Signature

Name

[End of document]