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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

PORTULACA

UPOV Code: PORTU_OLE

Portulaca oleracea L.

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by the
Technical Working Party for Vegetables
at its forty-first session, to be held in Nairobi, Kenya, from June 11 to 15, 2007,

Technical Working Party for Ornamental Plants and Forest Trees,
at its fortieth session, to be held in Kunming, China, from July 2 to 6, 2007

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Portulaca oleracea L.	Portulaca, Purslane	Pourpier	Portulak	Verdolaga

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS
These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

[*] These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Portulaca oleracea* L.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of rooted cuttings or seed.

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

vegetatively propagated varieties: 25 rooted cuttings;

seed-propagated varieties: 600 seeds.

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 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 it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

The minimum duration of tests should normally be a single growing cycle.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 The plants should be grown in open field to observe the plant growth habit (characteristic 1).

3.3.3 Unless otherwise stated, all observations should be made at the time of full flowering.

3.3.4 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

3.4 Test Design

3.4.1 In the case of vegetatively propagated varieties, each test should be designed to result in a total of at least 20 plants.

3.4.2 In the case of seed-propagated varieties, each test should be designed to result in a total of at least 40 plants.

3.4.3 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Number of Plants / Parts of Plants to be Examined

3.5.1 Vegetatively propagated varieties: unless otherwise indicated, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

3.5.2 Seed-propagated varieties: unless otherwise indicated, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test.

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide

assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

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

4.2 Uniformity

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

4.2.2 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 20 plants, one off-type is allowed.

4.2.3 For the assessment of uniformity of seed-propagated varieties which are cross-pollinated, the recommendations in the General Introduction for cross-pollinated varieties should be followed, as appropriate.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: growth habit (characteristic 1)
(b) Flower: petaloid staminodes (characteristic 14)
(c) Flower: diameter (characteristic 16)
(d) Corolla lobe: number of colors (macule excluded) (characteristic 17)
(e) Corolla lobe: main color (characteristic 18)
(f) Only varieties with more than one color
Corolla lobe: secondary color (macule excluded) (characteristic 19)
(g) Only varieties with more than one color
Corolla lobe: distribution of secondary color (macule excluded) (characteristic 20)

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

(a)-(f) See Explanations on the Table of Characteristics in Chapter 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.2

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*) (+)		**Plant: growth habit**					
QL	**(a)**	semi-upright				Summer Duet Rose	1
		creeping				Yubi Apricot	2
2.		**Only semi-upright varieties: Plant: height**					
QN	**(a)**	short					3
		medium				Summer Baby Orange	5
		tall					7
3. (*) (+)		**Plant: width**					
QN	**(a)**	narrow				Summer Joy Rose	3
		medium				Summer Baby Orange	5
		broad					7
4. (*)		**Plant: number of shoots**					
QN	**(a)**	few					3
		medium				Summer Baby Pink	5
		many				Summer Baby Orange	7
5. (*)	**(a)**	**Shoot: anthocyanin coloration**					
QN		absent or very weak				Sun White	1
		weak				Summer Joy Pink	3
		medium				Yubi Apricot	5
		strong				Yubi Rose	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6. (*)		**Leaf: petiole**					
QL	**(a) (b)**	absent				Sun White	1
		present				Yubi Rose	9
7.		**Leaf blade: length**					
QN	**(a) (b)**	short					3
		medium				Summer Joy Deep Rose	5
		long					7
8. (*)		**Leaf blade: width**					
QN	**(a) (b)**	narrow				Valencia Ivory Poach	3
		medium				Summer Joy Red	5
		broad					7
9. (*) (+)		**Leaf blade: shape**					
QL	**(a) (b)**	elliptic				Sun Yellow	1
		spatulate				Summer Baby Orange	2
10. (*)		**Leaf blade: intensity of green color**					
QN	**(a) (b) (c)**	light				Summer Baby Pink	3
		medium				Yubi Apricot	5
		dark					7
11. (*)		**Leaf blade: variegation**					
QL	**(a) (b) (c)**	absent				Yubi Apricot	1
		present				Flare Cherry	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12. (*)		**Leaf blade: color of variegation**					
PQ	**(a) (b) (c)**	light green yellow				Flare Cherry	1
		grayish green					2
		pink white				Valencia Ivory Poach	3
13. (*)		**Leaf blade: anthocyanin coloration of margin**					
QL	**(a) (b) (c)**	absent				Yubi Apricot	1
		present				Summer Baby Orange	9
14. (*) (+)		**Flower: petaloid staminodes**					
QL	**(a) (d)**	absent				Summer Joy Pink	1
		present				Summer Baby Orange	9
15. (*) (+)		**Only varieties with petaloid staminodes absent: Flower: shape in profile**					
QN	**(a) (d) (e)**	flat to slightly concave				Summer Duet Rose	1
		moderately concave				Summer Joy Golden	2
		strongly concave				Summer Joy Red	3
16. (*)		**Flower: diameter**					
QN	**(a) (d) (e)**	small				Valencia Ivory Poach	3
		medium				Yubi Apricot	5
		large				Summer Joy Red	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17. (*)		**Corolla lobe: number of colors (macule excluded)**					
QL	**(d) (f)**	one				Summer Joy Red	1
		two				Sun Rise	2
		more than two					3
18. (*) (+)		**Corolla lobe: main color**					
PQ	**(d) (f)**	RHS Colour Chart (indicate reference number)					
19. (*) (+)		**<u>Only varieties with more than one color:</u> Corolla lobe: secondary color (macule excluded)**					
PQ	**(d) (f)**	RHS Colour Chart					
20. (*) (+)		**<u>Only varieties with more than one color:</u> Corolla lobe: distribution of secondary color (macule excluded)**					
PQ	**(d) (f)**	in stripes				Yubi Apricot	1
		color gradient towards tip				Summer Duet Ero	2
		on margin				Summer Duet Rose	3
		at tip					4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. (*) (+)		**<u>Only varieties with more than two color</u>: Corolla lobe: distribution of third color (macule excluded)**					
PQ	**(d) (f)**	in stripes				Yubi Apricot	1
		color gradient towards tip				Summer Duet Ero	2
		on margin				Summer Duet Rose	3
		at tip					4
22. (*) (+)		**Corolla lobe: macule**					
QL	**(d) (f)**	absent				Summer Joy Wine Red	1
		present				Yubi Apricot	9
23. (*)		**Corolla lobe: color of macule**					
PQ	**(d) (f)**	RHS Colour Chart (indicate reference number)					
24. (*)		**Petaloid staminodes: main color**					
PQ	**(d) (f)**	RHS Colour Chart (indicate reference number)					
25.		**Corolla lobe: length**					
QN	**(d)**	short				Valencia Ivory Poach	3
		medium				Summer Joy Wine Red	5
		long				Summer Joy Red	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.		**Corolla lobe: width**					
QN	**(d)**	narrow				Summer Baby Orange	3
		medium				Sono Pink	5
		broad				Summer Joy Pink	7
27. (*) (+)		**Corolla lobe: emagination**					
QN	**(d) (f)**	absent or very shallow				Yubi Apricot	1
		medium				Yubi Rose	2
		deep					3
28.		**Calyx: anthocyanin coloration**					
QL	**(d)**	absent				Sun White	1
		present				Yubi Rose	9
29.		**Style: anthocyanin coloration**					
QN	**(d)**	absent or very weak				Sono Cream	1
		weak				Valencia Ivory Poach	3
		medium				Yubi Rose	5
		strong				Yubi Apricot	7
30. (*)		**Time of beginning of flowering**					
QN		early				Summer Baby Lemon Yellow	3
		medium				Summer Joy Ero	5
		late				Valencia Ivory Poach	7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Unless otherwise noted, all characteristics should be observed at time of full flowering.

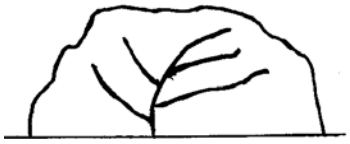
Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) Observations on the plant and the shoot should be made at month after first flowering.
(b) Observations on the leaf should be made on fully expanded leaves in the middle third of the flowering shoot.
(c) All observations of the leaf color should be made on the upper side.
(d) Observations on the flower should be made on a fully opened flower at anther dehiscence.
(e) Observations on the shape in profile and the diameter of the flower should be made before pollination at early morning.
(f) All observations of the corolla lobe should be made on the upper side.

8.2 Explanations for individual characteristics

Ad. 1: Plant: growth habit

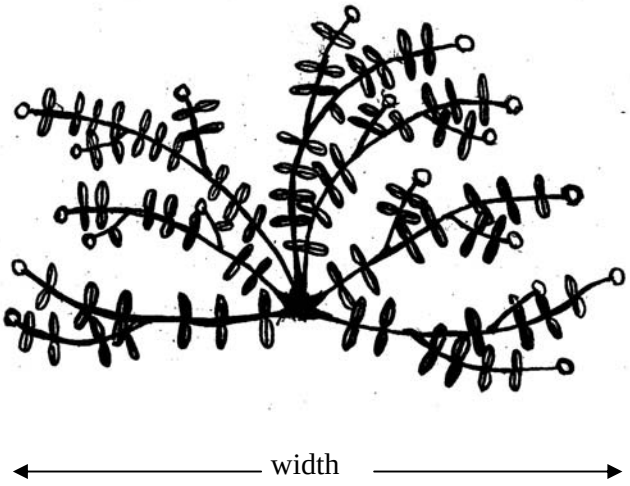
The plants should be grown in open field to observe the plant growth habit (characteristic 1).



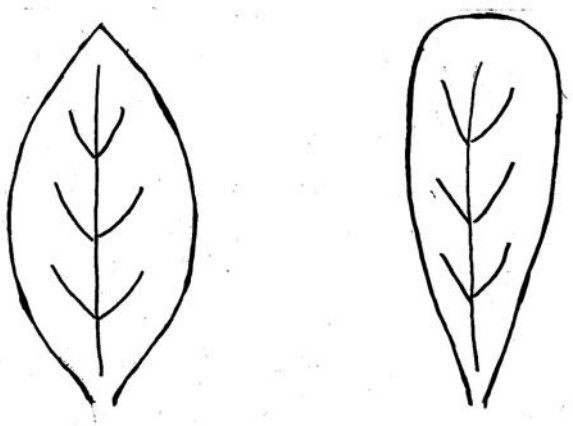
1
semi-upright

2
creeping

Ad. 3: Plant: width



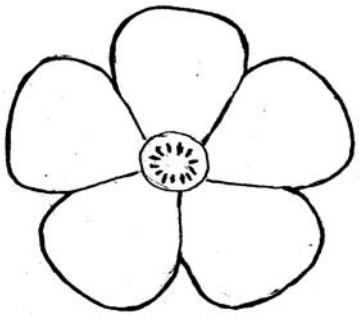
Ad. 9: Leaf blade: shape



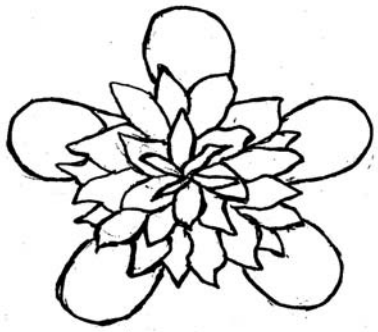
1
elliptic

2
spatulate

Ad. 14: Flower: petaloid staminodes



1
absent



2
present

Ad. 15: Only varieties with petaloid staminodes absent: Flower: shape in profile

1
flat to slightly concave

2
moderately concave

3
strongly concave

Ad. 18: Corolla lobe: main color

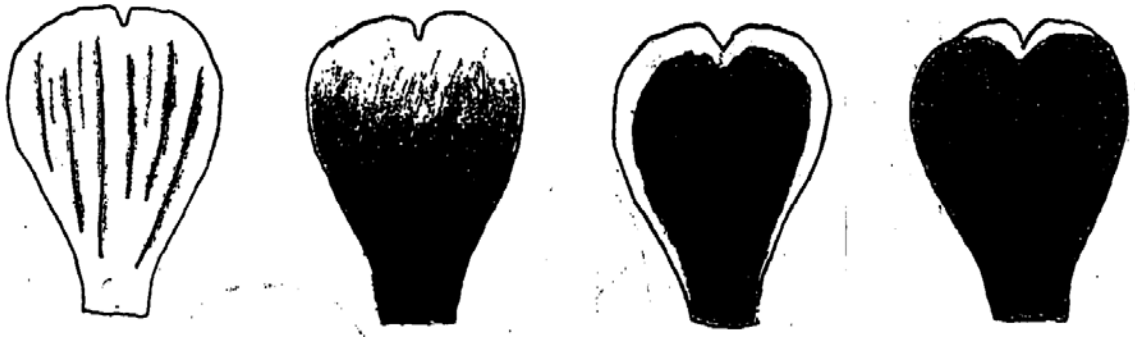
The main color is the color with the largest surface area.

Ad. 19: Only varieties with more than one color: Corolla lobe: secondary color (macule excluded)

The secondary color is the color with secondary large surface area.
If there is the third color on corolla lobe, should be remarked as the third color.

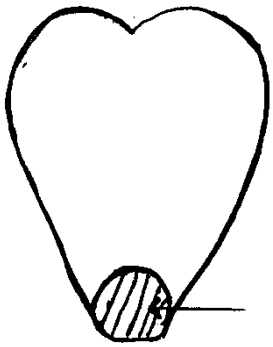
Ad. 20: Only varieties with more than one color: Corolla lobe: distribution of secondary color (macule excluded)

Ad. 21: Only varieties with more than two color: Corolla lobe: distribution of third color (macule excluded)

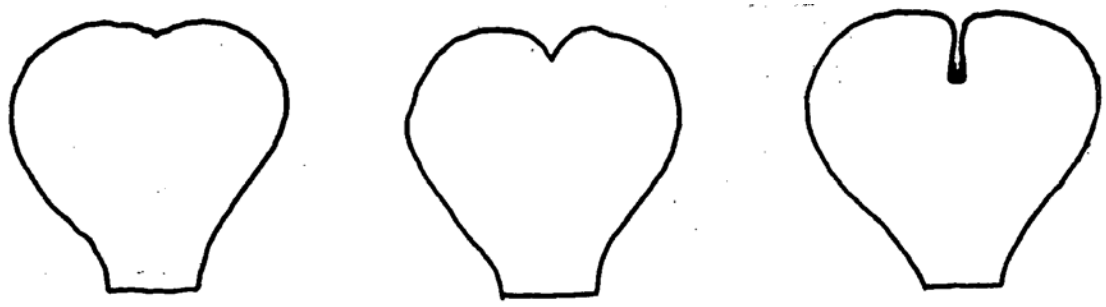


1	2	3	4
in stripes	color gradient towards tip	on margin	at tip

Ad. 22: Corolla lobe: macule



Ad. 27: Corolla lobe: emagination



1	2	3
absent or very shallow	medium	deep

9. Literature

Honda, S., 1991: Illustrated Horticultural Flora in Color, The Hokuryukan Ltd., Tokyo, JP, 22pp.

Makino, T., 1979: Makino's New Illustrated Flora of Japan, The Hokuryukan Ltd., Tokyo, JP, pp.138 to139

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Suzuki, N., 1998: The Color Dictionary of Horticulture, The Yama & Keikoku Ltd., Tokyo, JP, pp. 344 to 345

Tsukamoto, Y., 1984: The Grand Dictionary of Flower Horticulture, The Youkendo Ltd., Tokyo, JP, pp. 710 to711

Tsukamoto, Y., 1991: The Grand Dictionary of Horticulture Volume3, The Shogakukan Ltd., Tokyo, JP, 40 pp.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)

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

1. Subject of the Technical Questionnaire

1.1 Botanical Name	*Portulaca oleracea* L.
1.2 Common name	Portulaca

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(b) partially known cross [ ]
(please state known parent variety(ies))

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)”

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

4.2.3 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

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

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: growth habit**		
	semi-upright	Summer Duet Rose	1[ ]
	creeping	Yubi Apricot	2[ ]
5.2 (14)	**Flower: petaloid staminodes**		
	absent	Summer Joy Pink	1[ ]
	present	Summer Baby Orange	9[ ]
5.3 (16)	**Flower: diameter**		
	small	Valencia Ivory Poach	3[ ]
	medium	Yubi Apricot	5[ ]
	large	Summer Joy Red	7[ ]
5.4 (17)	**Corolla lobe: number of colors (macule excluded)**		
	one	Summer Joy Red	1[ ]
	two	Sun Rise	2[ ]
	more than two		3[ ]
5.5 (18)	**Corolla lobe: main color**		
	RHS Colour Chart (indicate reference number)		
5.6 (19)	**<u>Only varieties with more than one color</u>: Corolla lobe: secondary color (macule excluded)**		
	RHS Colour Chart (indicate reference number)		

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.7 (20)	**<u>Only varieties with more than one color</u>: Corolla lobe: distribution of secondary color (macule excluded)**		
	in stripes	Yubi Apricot	1[ ]
	color gradient towards tip	Summer Duet Ero	2[ ]
	on margin	Summer Duet Rose	3[ ]
	at tip		4[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Flower: diameter*	*medium*	*large*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color photograph of the variety should accompany 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 (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

9. Information on plant material to be examined or submitted for examination.

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]