



PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

***Ranunculus asiaticus* L.; *Ranunculus cortusifolius* Willd.;
Hybrids between *Ranunculus asiaticus* L. and *Ranunculus cortusifolius* Willd.**

RANUNCULUS

UPOV Code: RANUN_ASI; RANUN_COR; RANUN_ACO

Adopted on 22/12/2021

Entry into force on 22/12/2021

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1. SUBJECT OF THE PROTOCOL AND REPORTING

1.1 Scope of the technical protocol

This Technical Protocol applies to all varieties of *Ranunculus asiaticus*L.; *Ranunculus cortusifolius*Willd. As well as to hybrids between *Ranunculus asiaticus* L. and *Ranunculus cortusifolius*Willd.

The protocol describes the technical procedures to be followed in order to meet the requirements of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on documents agreed by the International Union for the Protection of New Varieties of Plants (UPOV), such as the General Introduction to DUS (UPOV Document TG/1/3 http://www.upov.int/export/sites/upov/resource/en/tg_1_3.pdf), its associated TGP documents (<http://www.upov.int/tgp/en/>) and the relevant UPOV Test Guideline TG/334/1 dated 17/12/2020 (<https://www.upov.int/edocs/tgdocs/en/tg334.pdf>) for the conduct of tests for Distinctness, Uniformity and Stability.

1.2 Entry into Force

The present protocol enters into force on **22/12/2021**. Any ongoing DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the Technical Protocol. Technical examinations of candidate varieties are carried out according to the TP in force when the DUS test starts. The starting date of a DUS examination is considered to be the due date for submitting of plant material for the first test period.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the technical examination started.

1.3 Reporting between Examination Office and CPVO and Liaison with Applicant

1.3.1 Reporting between Examination Office and CPVO

The Examination Office shall deliver to the CPVO a preliminary report ("the preliminary report") no later than two weeks after the date of the request for technical examination by the CPVO.

The Examination Office shall also deliver to the CPVO a report relating to each growing period ("the interim report") and, when the Examination Office considers the results of the technical examination to be adequate to evaluate the variety or the CPVO so requests, a report relating to the examination ("the final report").

The final report shall state the opinion of the Examination Office on the distinctness, uniformity and stability of the variety. Where it considers those criteria to be satisfied, or where the CPVO so requests, a description of the variety shall be added to the report.

If a report is negative the Examination Office shall set out the detailed reasons for its findings.

The interim and the final reports shall be delivered to the CPVO as soon as possible and no later than on the deadlines as laid down in the designation agreement.

1.3.2 Informing on problems in the DUS test

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 pertinent agreement, on matters of particular urgency, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

1.3.3 Sample keeping in case of problems

If the technical examination has resulted in a negative report, the CPVO shall inform the Examination Office as soon as possible in case that a representative sample of any relevant testing material shall be kept.

2. MATERIAL REQUIRED

2.1 Plant material requirements

Information with respect to the agreed closing dates and submission requirements of plant material for the technical examination of varieties can be found on <https://public.plantvarieties.eu/publication> in the special issue S2/S3 of the Official Gazette of the Office. General requirements on submission of samples are also to be found following the same link.

2.2 Informing the applicant of plant material requirements

The CPVO informs the applicant that

- he is responsible for ensuring compliance with any customs and plant health requirements.
- the plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.
- 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.

2.3 Informing about problems on the submission of material

The Examination Office shall report to the CPVO immediately in cases where the test material of the candidate variety has not arrived in time or in cases where the material submitted does not fulfil the conditions laid down in the request for material issued by the CPVO.

In cases where the examination office encounters difficulties to obtain plant material of reference varieties the CPVO should be informed.

3. METHOD OF EXAMINATION

3.1 Number of growing cycles

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

The testing of a variety may be concluded when the Examination Office can determine with certainty the outcome of the test.

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" http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf.

3.3 Conditions for Conducting the Examination

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.

Because daylight varies, colour determinations made against a colour 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. The colour chart and version used should be specified in the variety description.

3.4 Test design

3.4.1 Each test should be designed to result in a total of at least 15 plants.

3.4.2 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 Special tests for additional characteristics

In accordance with Article 23 of Implementing Rules N° 874/2009 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 characteristics listed in the protocol.

3.6 Constitution and maintenance of a variety collection

The process for the constitution and the maintenance of a variety collection can be summarized as follows:

Step 1: Making an inventory of the varieties of common knowledge

Step 2: Establishing a collection ("variety collection") of varieties of common knowledge which are relevant for the examination of distinctness of candidate varieties

Step 3: Selecting the varieties from the variety collection which need to be included in the growing trial or other tests for the examination of distinctness of a particular candidate variety.

3.6.1 Forms of variety collection

The variety collection shall comprise variety descriptions and may comprise living plant material. The variety description shall be produced by the EO unless special cooperation exists between EOs and the CPVO. The variety collection shall comprise images (e.g. photographs, illustrations or digitalized images) of representative parts of the plants of each variety, produced by the respective EO. The descriptive and pictorial information produced by the EO shall be held and maintained in a form of a database.

3.6.2 Making an inventory of varieties of common knowledge for inclusion in the variety collection

The inventory shall include varieties protected under National and Community PBR, varieties in trade or in commercial registers.

In addition to the above, the inventory shall be extended to the appropriate to

- any commercial document in which varieties are marketed as propagating or harvested material, especially when there is no official registration system;
- any list including varieties which are publicly available within plant collections (varieties included in genetic resource collections, collection of old varieties, etc.);
- information provided by relevant plant experts;
- relevant example varieties referred to in the technical protocols

4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY

The prescribed procedure is to assess distinctness, uniformity and stability in a growing trial.

4.1 Distinctness

4.1.1 General recommendations

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 9 'Examining Distinctness' (http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf) prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in this Technical Protocol.

Further guidance is provided in documents TGP/9 "Examining Distinctness" and TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability".

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 Technical Protocols are familiar with the recommendations contained in the UPOV-General Introduction to DUS prior to making decisions regarding distinctness.

4.1.4 Number of plants/parts of plants to be examined

Unless otherwise indicated, for the purposes of distinctness, 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, disregarding any off-type plants.

4.1.5 Method of observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the third column of the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG:	single measurement of a group of plants or parts of plants
MS:	measurement of a number of individual plants or parts of plants
VG:	visual assessment by a single observation of a group of plants or parts of plants
VS:	visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. colour charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 **Uniformity**

4.2.1 It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 10 'Examining Uniformity' (http://www.upov.int/edocs/tgpdocs/en/tgp_10.pdf) prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in this Technical Protocol:

4.2.2 This Technical Protocol has been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation the recommendations in the UPOV-General Introduction to DUS and document TGP/13 "Guidance for new types and species", Section 4.5 "Testing Uniformity" should be followed.

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 15 plants, 1 off-type is allowed.

4.3 **Stability**

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 11 'Examining Stability' (http://www.upov.int/edocs/tgpdocs/en/tgp_11.pdf)

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.

Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. **GROUPING OF VARIETIES AND ORGANISATION 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 organise the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- a) Plant: height (characteristic 1)
- b) Basal leaf: type (characteristic 2)
- c) Cauline leaf: type (characteristic 6)
- d) Flower: type (characteristic 15)
- e) Flower: diameter (characteristic 16)
- f) Petal: main colour of inner side (characteristic 22) with the following groups:
 - Group 1: white
 - Group 2: green
 - Group 3: yellow
 - Group 4: orange
 - Group 5: pink
 - Group 6: red
 - Group 7: purple
 - Group 8: violet
- g) Petal: secondary colour of inner side (characteristic 23) with the following groups:
 - Group 1: absent
 - Group 2: white
 - Group 3: green
 - Group 4: yellow
 - Group 5: orange
 - Group 6: pink
 - Group 7: red
 - Group 8: purple
 - Group 9: violet
- h) Petal: distribution of secondary colour of inner side (characteristic 24)
- i) Petal: tertiary colour of inner side (characteristic 26) with the following groups:
 - Group 1: absent
 - Group 2: white
 - Group 3: green
 - Group 4: yellow
 - Group 5: orange
 - Group 6: pink
 - Group 7: red
 - Group 8: purple
 - Group 9: violet
- j) Petal: main colour of outer side (characteristic 29) with the following groups:
 - Group 1: white
 - Group 2: green
 - Group 3: yellow
 - Group 4: orange
 - Group 5: pink
 - Group 6: red
 - Group 7: purple
 - Group 8: violet
- k) Petal: secondary colour of outer side (characteristic 30) with the following groups:
 - Group 1: absent
 - Group 2: white
 - Group 3: green
 - Group 4: yellow
 - Group 5: orange
 - Group 6: pink
 - Group 7: red
 - Group 8: purple
 - Group 9: violet

- l) Petal: tertiary colour of inner side (characteristic 33) with the following groups:
- Group 1: absent
 - Group 2: white
 - Group 3: green
 - Group 4: yellow
 - Group 5: orange
 - Group 6: pink
 - Group 7: red
 - Group 8: purple
 - Group 9: violet

- 5.4** If other characteristics than those from the Technical Protocol are used for the selection of varieties to be included into the growing trial, the EO shall inform the CPVO and seek the prior consent of the CPVO before using these characteristics.
- 5.5** Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the UPOV-General Introduction to DUS and document TGP/9 "Examining Distinctness".

6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS

6.1 Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the table of characteristics. 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 or by specific legislation on plant health. In the latter case, the CPVO should be informed.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N°874/2009, to insert additional characteristics and their expressions in respect of a variety.

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. All relevant states of expression are presented in the characteristic.

Further explanation of the presentation of states of expression and notes is provided in UPOV document TGP/7 "Development of Test Guidelines".

6.3 Example Varieties

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

6.4 Legend

For column 'CPVO N°':

G	Grouping characteristic	-see Chapter 5
QL	Qualitative characteristic	
QN	Quantitative characteristic	
PQ	Pseudo-qualitative characteristic	
(+)	Explanations for individual characteristics	-see Chapter 8.2

For column 'UPOV N°':

The numbering of the characteristics is provided as a reference to the UPOV guideline.

(*)	UPOV Asterisked characteristic	- Characteristics that are important for the international harmonization of variety descriptions.
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For column 'Stage, method':

MG, MS, VG, VS		-see Chapter 4.1.5
(a)-(d)	Explanations covering several Characteristics	-see Chapter 8.1

7. TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note	
1. (+)	1. (*)	MG/MS /VG	Plant: height			
			QN	very short		1
				very short to short		2
				short	Salonica No Niji	3
				short to medium		4
				medium	Ableigong	5
				medium to tall		6
				tall	Rax Artemis	7
				tall to very tall		8
G			very tall		9	
2. (+)	2. (*)	VG	Basal leaf: type			
			QL	simple	Seiren	1
				ternate	Abtanatos	2
				biterminate	Rocyellow	3
G			triterminate		4	
3. (+)	3.	MG/MS /VG	Basal leaf: length of petiole			
			QN	very short		1
				very short to short		2
				short	Ableigong	3
				short to medium		4
				medium	Abtanatos	5
				medium to long		6
				long	Abepona	7
				long to very long		8
	very long		9			

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
4. (+) QN	4. (*)	MG/MS /VG	Basal leaf: length of leaf blade		
			very short		1
			very short to short		2
			short	Rocyellow	3
			short to medium		4
			medium	Abtanatos	5
			medium to long		6
			long	Abizanagi	7
			long to very long		8
		very long		9	
5. (+) QN	5. (*)	MG/MS /VG	Basal leaf: width of leaf blade		
			very narrow		1
			very narrow to narrow		2
			narrow	Rocyellow	3
			narrow to medium		4
			medium	Abtanatos	5
			medium to broad		6
			broad	Abmeneo	7
			broad to very broad		8
		very broad		9	
6. (+) QL G	6. (*)	VG	Cauline leaf: type		
			simple	Seiren	1
			ternate	Ableigong	2
			biternate	Abperkons	3
		triternate	Rocyellow	4	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
7. (+) QN	7.	MG/MS /VG	Cauline leaf: length of petiole		
			very short		1
			very short to short		2
			short	Rax Artemis	3
			short to medium		4
			medium	Abizanagi	5
			medium to long		6
			long	Abperkons	7
			long to very long		8
		very long		9	
8. (+) QN	8. (*)	MG/MS /VG	Cauline leaf: length of leaf blade		
			very short		1
			very short to short		2
			short	Abrochi	3
			short to medium		4
			medium	Abmeneo	5
			medium to long		6
			long	Abogma	7
			long to very long		8
		very long		9	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
9. (+) QN	9. (*)	MG/MS /VG	Cauline leaf: width of leaf blade		
			very narrow		1
			very narrow to narrow		2
			narrow		3
			narrow to medium		4
			medium	Abulanji	5
			medium to broad		6
			broad	Abogma	7
			broad to very broad		8
		very broad		9	
10.	10.	VG	Cauline leaf: intensity of green colour on upper side		
			light	Aya Poissy	1
			medium	Abperkons	2
		dark	Rocyellow	3	
11.	11.	VG	Cauline leaf: glossiness on upper side		
			absent or weak	Abmeneo	1
			medium	Abrochi	2
		strong	Abogma	3	
12.	12. (*)	MG/MS /VG	Flowering stem: number of flowers		
			very few	Abumbreon	1
			few	Abizanagi	2
			medium	Abperkons	3
			many	Rax Phytalos	4
		very many	Rocyellow	5	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note		
13. (+)	13. (*)	MG/MS /VG	Flowering stem: thickness				
			QN	very thin		1	
				thin		2	
				medium	Abmeneo	3	
				thick	Abrochi	4	
			very thick	Ableigong	5		
14. (+)	14.	VG	Flower bud: colour				
			PQ	light green	Abxocolt	1	
				medium green	Abavesca	2	
				dark green	Abtanatos	3	
				purple	Ablackest	4	
				green and purple	Rax Europe	5	
			greyish purple	Abperkons	6		
15. (+)	15. (*)	VG	Flower: type				
			QL	(a)	single	Rax Lycia	1
					semi-double	Rax Ariadne	2
G			double	M White	3		
16. (+)	16. (*)	MG/MS /VG	Flower: diameter				
			QN	(a)	very small		1
					very small to small		2
					small	Aborione	3
					small to medium		4
					medium	Abogma	5
					medium to large		6
					large	Rocyellow	7
					large to very large		8
G			very large		9		

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
17. (+) QN	17.	MG/MS /VG (a)	Flower: height		
			very short		1
			very short to short		2
			short	Rocyellow	3
			short to medium		4
			medium	Abulanji	5
			medium to tall		6
			tall	Ableigong	7
			tall to very tall		8
very tall		9			
18. QN	18. (*)	MG/MS /VG (a)	Only varieties with Flower: type: <u>semi-double and double</u>: Flower: number of petals		
			very few	Rax Artemis	1
			very few to few		2
			few		3
			few to medium		4
			medium	Ableigong	5
			medium to many		6
			many	Abogma	7
			many to very many		8
very many		9			
19. (+) QN	19.	VG (a)	Flower: size of green coloured part at centre		
			absent or very small		1
			small		2
			medium		3
			large		4
very large		5			

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
20. (+)	20.	MG/MS /VG	Petal: length		
QN		(a), (b)	very short		1
			very short to short		2
			short	Abmeneo	3
			short to medium		4
			medium	Abulanji	5
			medium to long		6
			long		7
			long to very long		8
			very long		9
21. (+)	21.	MG/MS /VG	Petal: width		
QN		(a), (b)	very narrow		1
			very narrow to narrow		2
			narrow	Rax Lycia	3
			narrow to medium		4
			medium	Abulanji	5
			medium to broad		6
			broad	Abizanagi	7
			broad to very broad		8
			very broad		9
22.	22. (*)	VG	Petal: main colour of <u>inner</u> side		
PQ G		(a), (b), (c)	RHS Colour Chart (indicate reference number)		
23.	23. (*)	VG	Petal: secondary colour of <u>inner</u> side		
PQ G		(a), (b), (c)	RHS Colour Chart (indicate reference number)		

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
24. (+)	24. (*)	VG	Petal: distribution of secondary colour of <u>inner</u> side		
PQ		(a), (b), (c)	none		1
			at base	Seiren	2
			basal half	Abairesekui	3
			distal half		4
			at apex		5
			marginal part	Abepona	6
			central part	Absalecami	7
G			throughout		8
25. (+)	25.	VG	Petal: pattern of secondary colour of <u>inner</u> side		
PQ		(a), (b), (c)	solid		1
			flushed		2
			striped		3
			irregular		4
26.	26. (*)	VG	Petal: tertiary colour of <u>inner</u> side		
PQ		(a), (b), (c)	RHS Colour Chart (indicate reference number)		
G					
27. (+)	27. (*)	VG	Petal: distribution of tertiary colour of <u>inner</u> side		
PQ		(a), (b), (c)	none		1
			at base		2
			basal half		3
			distal half		4
			at apex		5
			marginal part		6
			central part		7
			throughout		8

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
28. (+)	28.	VG	Petal: pattern of tertiary colour of <u>inner</u> side		
PQ		(a), (b), (c)	solid		1
			flushed		2
			striped		3
			irregular		4
29.	29. (*)	VG	Petal: main colour of <u>outer</u> side		
PQ G		(a), (b), (c)	RHS Colour Chart (indicate reference number)		
30.	30. (*)	VG	Petal: secondary colour of <u>outer</u> side		
PQ G		(a), (b), (c)	RHS Colour Chart (indicate reference number)		
31. (+)	31.	VG	Petal: distribution of secondary colour of <u>outer</u> side		
PQ		(a), (b), (c)	none		1
			at base		2
			basal half		3
			distal half		4
			at apex		5
			marginal part		6
			central part		7
			longitudinal stripes		8
			throughout		9
32. (+)	32.	VG	Petal: pattern of secondary colour of <u>outer</u> side		
PQ		(a), (b), (c)	solid		1
			flushed		2
			striped		3
			irregular		4

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
33.	33.	VG	Petal: tertiary colour of <u>outer</u> side		
PQ	(*)	(a),	RHS Colour Chart		
G		(b), (c)	(indicate reference number)		
34.	34.	VG	Petal: distribution of tertiary colour of <u>outer</u> side		
PQ		(a),	none		1
		(b), (c)	at base		2
			basal half		3
			distal half		4
			at apex		5
			marginal part		6
			central part		7
			longitudinal stripes		8
			throughout		9
35.	35.	VG	Petal: pattern of tertiary colour of <u>outer</u> side		
(+)		(a),	solid		1
PQ		(b), (c)	flushed		2
			striped		3
			irregular		4
36.	36.	VG	Petal: incisions of margin		
(+)		(a), (b)	absent or weak	Abmeneo	1
QN			medium	Abumbreon	2
			strong	Seiren	3
37.	37.	VG	Petal: undulation of margin		
(+)	(*)	(a), (b)	absent or weak	Abmeneo	1
QN			medium	Abumbreon	2
			strong	Abairesekui	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
38.	38.	VG	Petal: glossiness		
QN		(a), (b)	absent or weak	Abmeneo	1
			medium	Aborione	2
			strong	Abgunray	3
39.	39.	VG	<u>Only varieties with Flower: type: single and semi-double: Anther: colour</u>		
PQ		(d)	green		1
			yellow		2
			purple		3
			violet		4
40.	40.	VG	<u>Only varieties with Flower: type: single and semi-double: Stigma: colour</u>		
PQ		(d)	green		1
			yellow		2
			purple		3
			violet		4

8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

8.1 Explanations covering several characteristics

Unless otherwise indicated observations should be made at the time of full flowering.

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

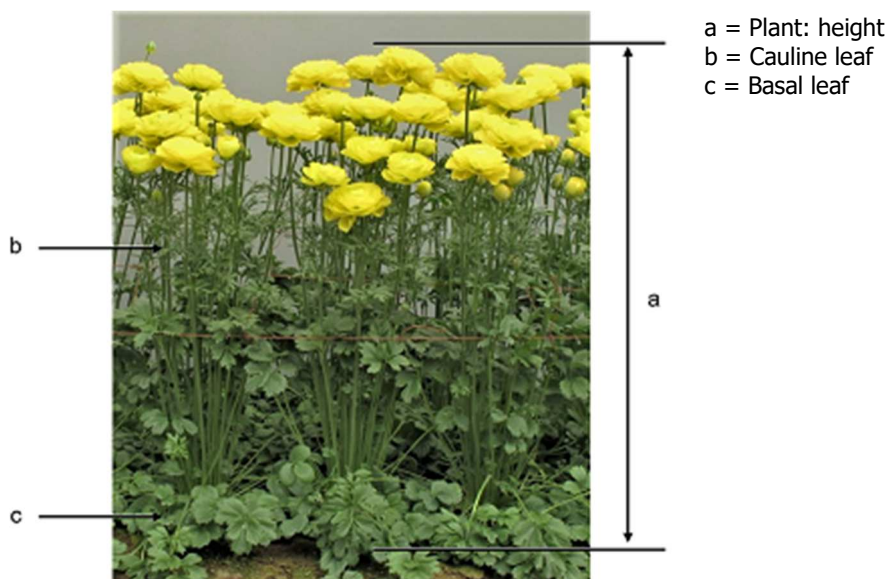
- a) Observations should be made on a fully opened flower at the time of anther dehiscence.
- b) Observations should be made on:
Semi-double flowers: on a petal from the middle whorl.
Double flowers: on a petal from the 3rd outer whorl.
- c) The main colour is the colour with the largest surface area. The colour with the second largest area is the secondary colour. In cases where the areas of the colours are too similar to reliably decide which colour has the largest area, the darker colour is considered to be the main colour.

The tertiary colour is the colour with the third largest area. In cases where the areas of the secondary and the tertiary colour are too similar to reliably decide which colour has the third largest area, the lighter colour is considered to be the tertiary colour.
- d) Observations should be made just before anthers opening.

8.2 Explanations for individual characteristics

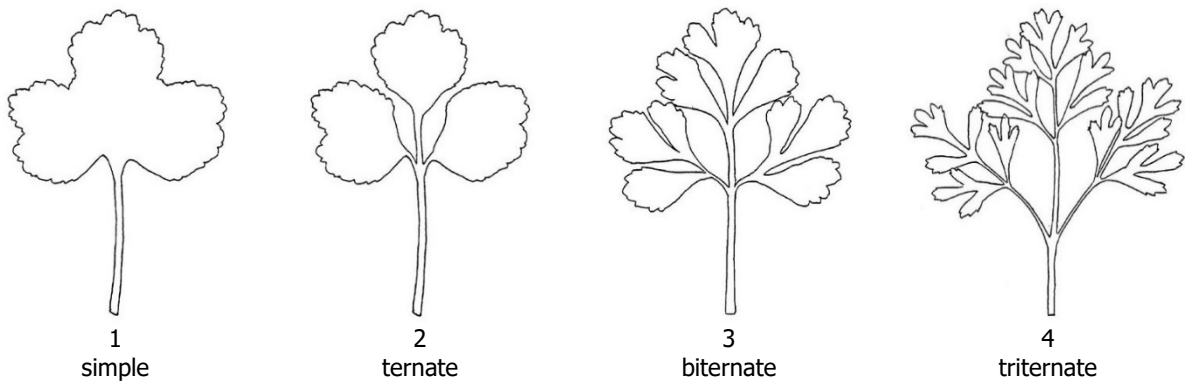
Ad. 1: Plant: height

Observations should be made from the surface of the growing medium to the top of the tallest flower.



Ad. 2: Basal leaf: type

Observations should be made on the predominant leaf type



Ad. 3: Basal leaf: length of petiole

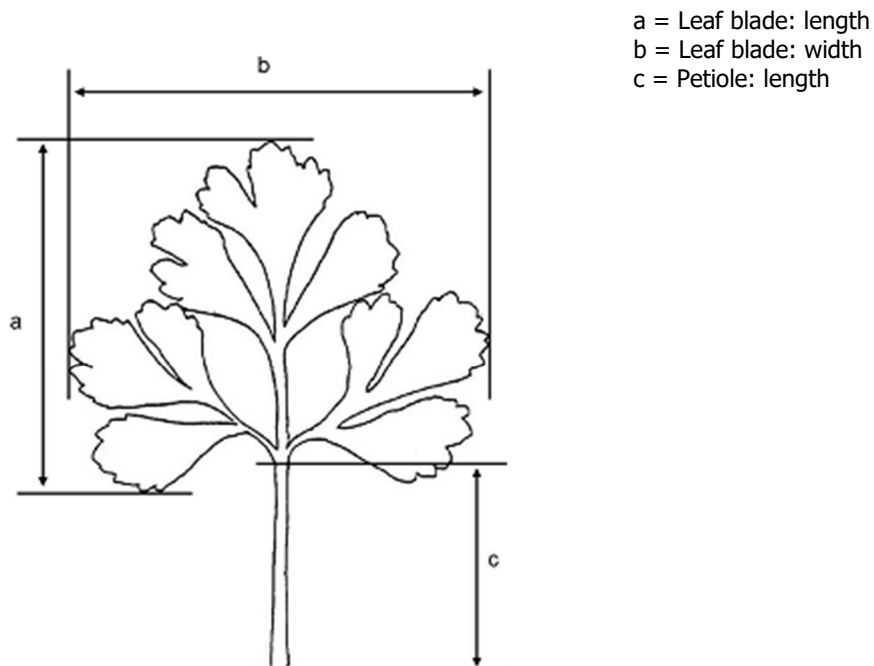
Ad. 4: Basal leaf: width of petiole

Ad. 5: Basal leaf: width of leaf blade

Ad. 7: Cauline leaf: length of petiole

Ad. 8: Cauline leaf: length of leaf blade

Ad. 9: Cauline leaf: width of leaf blade



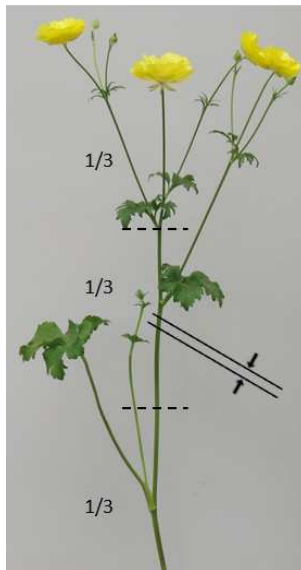
Ad. 6: Cauline leaf: type

Observations should be made on the predominant leaf type.

See Ad. 2.

Ad. 13: Flowering stem: thickness

The thickness should be observed on the middle third of a flowering stem.



Ad. 14: Flower bud: colour

Observations should be made when the flower bud is fully formed.

Ad. 15: Flower: type



1
single



2
semi-double

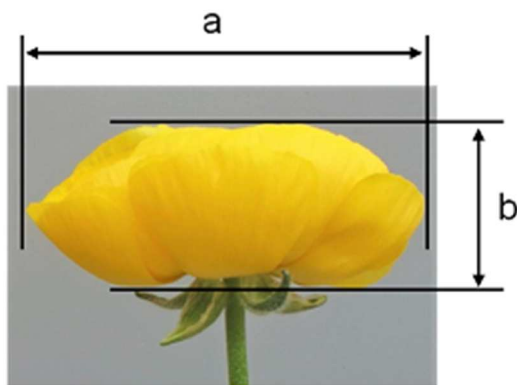


3
double

1. Single: flowers with one row of petals.
2. Semi-double: flowers with more than one row of petals, and clearly visible pistils and stamens.
3. Double: double flowers where a pistil and stamen are not visible.

Ad. 16: Flower: diameter

Ad. 17: Flower: height



a = Flower: diameter
b = Flower: height

Ad. 19: Flower: size of green coloured part at centre



1
absent or very small



2
small



3
medium



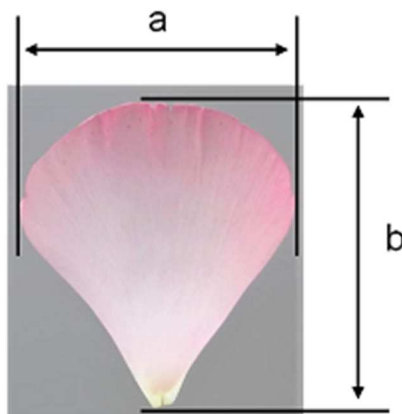
4
large



5
very large

Ad. 20: Petal: length

Ad. 21: Petal: width



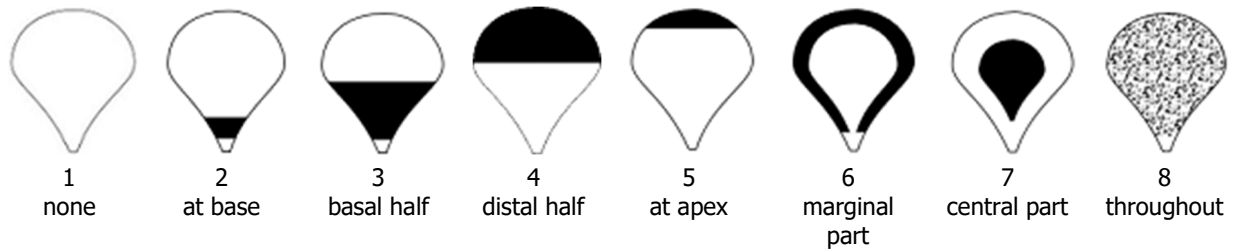
a = Petal: width
b = Petal: length

Ad. 24: Petal: distribution of secondary colour of inner side

Ad. 27: Petal: distribution of tertiary colour of inner side

Ad. 31: Petal: distribution of secondary colour of outer side

Ad. 24: Petal: distribution of tertiary colour of outer side

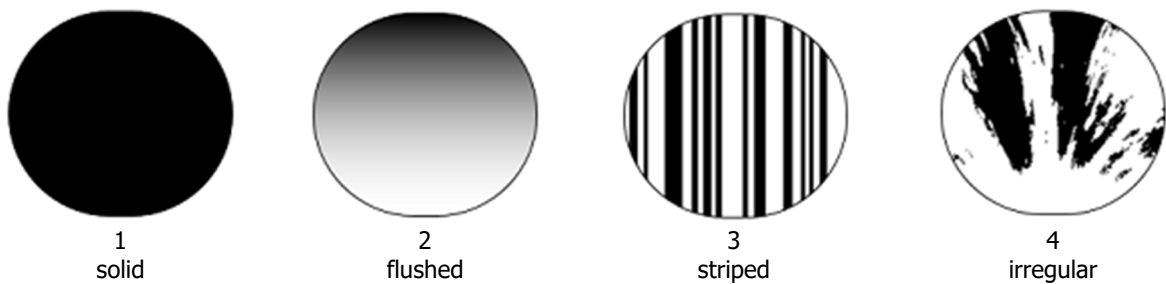


Ad. 25: Petal: pattern of secondary colour of inner side

Ad. 28: Petal: pattern of tertiary colour of inner side

Ad. 32: Petal: pattern of secondary colour of outer side

Ad. 35: Petal: pattern of tertiary colour of outer side



Ad. 36: Petal: incisions of margin



1
absent or weak



2
medium



3
strong

Ad. 37: Petal: undulation of margin



1
absent or weak



2
medium



3
strong

9. LITERATURE

Tsukamoto, Y., 1994: The Grand Dictionary of Horticulture, Volume 1. Shogakukan. Tokyo, JP, pp.692-696

10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the [CPVO website](#) under the following reference:
CPVO-TQ/334/1 – *Ranunculus asiaticus* L.; *Ranunculus cortusifolius* Willd. – garden ranunculus

Link to the e-TQ:

<https://applyfor.plantvarieties.eu/myprv.oa/#!/en/oa/show/questionnaire/TQ/12697/en>