CPVO · OCVV
Community Plant Variety Office
Office Communautaire des Variétés Végétales

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Fragaria L.

STRAWBERRY

UPOV Code: FRAGA

Adopted on XX/XX/2009

Entered into force on 01/11/2008

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/22/10 dated 09/04/2008 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies to fruit varieties of ***Fragaria* L.**

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 of technical examination and sending of Technical Questionnaire by the CPVO as well as submission date, quantity and quality of plant material by the applicant can be found in the S2 supplement of the CPVO Official Gazette and the CPVO website (www.cpvo.europa.eu).

Quality of plants: Should not be less than the standards laid down in Council Directive 2000/29/EC and its amendments concerning quarantine organisms, and Council Directive 2008/90/EC and Commission Directive 93/48/EEC and their amendments concerning organisms impairing quality, at the date of adoption of this protocol; please refer to “Eur-Lex” for the full text and in case of any subsequent amendments to the three aforesaid Directives.

Healthy plant material of the candidate variety should be delivered to the test station in accordance with the requirements outlined in the instructions sent by the CPVO for the submission of plant material, and which can also be consulted in the relevant entries for strawberry within the S2 Gazette and the CPVO website. In particular with respect to the phytosanitary requirements, the plant material must be accompanied by a valid certificate from a recognised authority attesting to the fact that the plant material sent for the DUS technical examination has shown negative laboratory test results for the list of pests and pathogens outlined in the pertinent entry of the examination office in the S2 Gazette/CPVO website, where the candidate strawberry variety is to undergo its DUS technical examination.

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 strawberry. 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) Plant: growth habit (characteristic 1)

b) Petal: colour of upper side (characteristic 27)

c) Fruit: size (characteristic 29)

d) Fruit: shape (characteristic 30)

e) Fruit: colour (characteristic 32)

f) Type of bearing (characteristic 48)

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 be designed to result in a total of at least 20 plants.

Unless otherwise indicated, all observations should be made on 20 plants or parts taken from each of 20 plants. In the case of parts of plants, the number to be taken from each of the plants should be 2.

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
6-35	1

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 variety description should be supplemented by:
(i) A colour photograph of transversally sliced fruit

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.

VI ENTRY INTO FORCE

The present protocol enters into force on 01/11/2008. Any ongoing DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the new TP. 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 the submission of plant material for the first growing period.

In cases where the CPVO requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process of being carried out at the moment of the 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.

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ANNEXES TO FOLLOW

ANNEX I PAGE

Legend:

(*) Asterisked characteristic – see Chapter 6.1.2
(+) See Explanation on the Table of Characteristics
(a)-(d) See Explanations on the Table of Characteristics
G Grouping characteristics

Types of expression of characteristics:

QL – Qualitative characteristic
QN – Quantitative characteristic
PQ – Pseudo-qualitative characteristic

Type of 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

When a method of observation is attributed to a certain characteristic, the first differentiation is made depending if the action taken is a visual observation (V) or a measurement (M).
The second differentiation deals with the number of observations the expert attributes to each variety, thus the attribution of either G or S.
If a single observation of a group consisting of an undefined number of individual plants is appropriate to assess the expression of a variety, we talk about a visual observation or a measurement made on a group of plants, thus we attribute the letter G (either VG or MG). If the expert makes more than one observation on that group of plants, the decisive part is that we have at the end only one data entry per variety which means that we have to deal with G (e.g. measurement of plant length on a plot – MG, visual observation of green colour of leaves on a plot – VG).
If it is necessary to observe a number of individual plants to assess the expression of a variety, we should attribute the letter S (thus either VS or MS). Single plant data entries are kept per variety for further calculations like the variety mean (e.g. measurement of length of ears – MS, visual observation of growth habit of single plants in grasses – VS). The number of individual plants to be observed in such cases is stated in section III.5.

ANNEX II

Technical Questionnaire

ANNEX I

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

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
1.	**1. (*)**	**VG**	**Plant: growth habit**		
(+)	**(+)**		upright	Benton, Darselect, Gorella	1
QN	**QN**	**(a)**	semi-upright	Cirafine, Senga Sengana	2
G			spreading	Darsidor, Pantagruella	3
2.	**2.**	**VG**	**Plant: density of foliage**		
(+)	**(+)**		sparse	Ciflorette, Elista	3
QN	**QN**	**(a)**	medium	Cirafine, Gorella	5
			dense	Cirano, Talisman	7
3.	**3.**	**VG**	**Plant: vigour**		
(+)	**(+)**		weak	Senga Precosa	3
QN	**QN**	**(a)**	medium	Gorella	5
			strong	Elsanta, Grande	7
4.	**4. (*)**	**VG**	**Plant: position of inflorescence in relation to foliage**		
QN	**QN**	**(c)**	beneath	Crusader	1
			same level	Astino, Cambridge Favourite	2
			above	Direktor Paul Wallbaum	3
5.	**5.**	**VG**	**Plant: number of stolons**		
	(*)		absent or very few	Leo Alba, Rügen	1
QN	**QN**	**(b)**	few	Marala, Sans Rivale	3
			medium	Anabelle, Gorella	5
			many	Cambridge Favourite, Macherauchs Frühernte	7

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
6.	**6.**	**VG**	**Stolon: anthocyanin coloration**		
(+)	**(+)**		absent or very weak	Tioga	1
QN	**QN**	**(b)**	weak	Cijosée, Tenira	3
			medium	Darselect, Gorella	5
			strong	Cigaline, Royal Sovereign	7
			very strong	Arking, Frel	9
7.	**7.**	**VG**	**Stolon: density of pubescence**		
QN	**QN**	**(b)**	sparse	Chandler, Elista, Vigerla	1
			medium	Cambridge Favourite, Gariguette	2
			dense	Grande, Siabelle	3
8.	**8.**	**VG/MG**	**Leaf: size**		
(+)	**(+)**		small	Everest	3
QN	**QN**	**(a)**	medium	Camarosa	5
			large	Darselect	7
9.	**9.**	**VG**	**Leaf: colour of upper side**		
PQ	**PQ**	**(a)**	yellow green	Tristar	1
			light green	Aliso, Cigaline, Georg Soltwedel	2
			medium green	Darselect, Gorella	3
			dark green	Direktor Paul Wallbaum, Macherauchs Frühernte	4
			blue green	Mrak	5
10.	**10. (*)**	**VG**	**Leaf: blistering**		
(+)	**(+)**		absent or weak	Anabelle, Bemanil, Marmion	1
QN	**QN**	**(a)**	medium	Cigaline, Senga Precosa	2
			strong	Cijosée, Jamil, Marie France	3

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
11.	**11.**	**VG**	**Leaf: glossiness**		
	(*)		absent or weak	Aptos, Bogota, Mrak	1
QN	**QN**	**(a)**	medium	Darestivale, Irvine	2
			strong	Mara des Bois, Sweet Delight, Tioga	3
12.	**12.**	**VG**	**Leaf: variegation**		
QL	**QL**	**(a)**	absent		1
			present		9
13.	**13. (*)**	**VG/MG**	**Terminal leaflet: length in relation to width**		
QN	**QN**	**(a)**	shorter	Siabelle	1
			equal	Chandler, Crusader	2
			moderately longer	Elsanta, Montrose, Redgauntlet	3
			much longer	Gariguette, Macherauchs Frühernte	4
14.	**14. (*)**	**VG**	**Terminal leaflet: shape of base**		
(+)	**(+)**		acute	Gorella, Regina	1
PQ	**PQ**	**(a)**	obtuse	Darselect, Senga Sengana	2
			rounded	Crusader, Florika, Marie France	3
15.	**15.**	**VG**	**Terminal leaflet: margin**		
(+)	**(+)**		serrate	Garriguette, Tenira	1
PQ	**PQ**	**(a)**	serrate to crenate		2
			crenate	Cambridge Favourite, Gentonova, Irvine	3
16.	**16.**	**VG**	**Terminal leaflet: shape in cross section**		
(+)	**(+)**		concave	Hapil, Ostara, Senga Precosa	1
QN	**QN**	**(a)**	straight	Georg Soltwedel, Mara des Bois	2
			convex	Cambridge Favourite, Domanil, Madame Moutot	3

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
17.	**17.**	**VG/MG**	**Petiole: length**		
QN	**QN**	**(a)**	short	Pantagruella	3
			medium	Polka	5
			long	Darselect	7
18.	**18.**	**VG**	**Petiole: attitude of hairs**		
(+)	**(+)**		upwards	Elista, Georg Soltwedel	1
QN	**QN**	**(a)**	slightly outwards	Darselect, Elsanta	2
			horizontal	Cambridge Favourite, Direktor Paul Wallbaum, Mara des Bois	3
19.	**19.**	**VG**	**Stipule: anthocyanin coloration**		
QN	**QN**	**(b)**	absent or very weak	Elista	1
			weak	Crusader	3
			medium	Gorella	5
			strong	Talisman	7
			very strong	Royal Sovereign	9
20.	**20.**	**VG**	**Inflorescence: number of flowers**		
QN	**QN**	**(c)**	few	Pantagruella	3
			medium	Lambada	5
			many	Elsanta	7
21.	**21.**	**VG**	**Pedicel: attitude of hairs**		
(+)	**(+)**		upwards	Cigaline	1
QN	**QN**	**(d)**	slightly outwards	Darselect	2
			horizontal	Parker	3
22.	**22.**	**VG/MG**	**Flower: diameter**		
QN	**QN**	**(c)**	small	Rapella, Redgauntlet	3
			medium	Gorella, Mara des Bois	5
			large	Darselect, Domanil	7

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
23.	**23. (*)**	**VG**	**Flower: arrangement of petals**		
(+)	**(+)**		free	Cirafine, Talisman	1
QN	**QN**	**(c)**	touching	Darsidor, Regina	2
			overlapping	Florika, Senga Gigana	3
24.	**24. (*)**	**VG**	**Flower: size of calyx in relation to corolla**		
(+)	**(+)**		smaller	Bogota, Grande, Nordika	1
QN	**QN**	**(c)**	same size	Darselect, Korona	2
			larger	Cigoulette, Regina	3
25.	**25. (*)**	**VG**	**Flower: stamen**		
QL	**QL**	**(c)**	absent	Pandora, Yamashka	1
			present	Gariguette	9
26.	**26.**	**VG**	**Petal: length in relation to width**		
QN	**QN**	**(c)**	much shorter	Florika, Senga Gigana	1
			moderately shorter	Gento Nova, Tioga	2
			equal	Darselect, Redgauntlet	3
			moderately longer	Ciflorette, Elsanta, Gorella	4
			much longer	Talisman	5
27.	**27.**	**VG**	**Petal: colour of upper side**		
	(*)		greenish white		1
PQ	**PQ**	**(c)**	white	Gariguette	2
			pink	Frel, Marajox, Pikan	3
G			red	Tarpan	4

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
28.	**28.**	**VG**	**Fruit: length in relation to width**		
	(*)		much shorter	Early Dawn	1
QN	**QN**	**(d)**	moderately shorter	Elista, Madame Moutot	2
			equal	Gento Nova, Gorella, Merton Dawn	3
			moderately longer	Gariguette, Talisman	4
			much longer	Ciflorette, Marie France	5
29.	**29.**	**VG**	**Fruit: size**		
	(*)		very small	Astino, Frel	1
(+)	**(+)**		small	Senga Precosa	3
QN	**QN**	**(d)**	medium	Mara des Bois, Senga Tigaiga	5
			large	Darselect, Domanil	7
G			very large	Maxim	9
30.	**30.**	**VG**	**Fruit: shape**		
	(*)		reniform	Early Dawn, Favette	1
(+)	**(+)**		conical	Gorella, Matis	2
PQ	**PQ**	**(d)**	cordate	Direktor Paul Wallbaum	3
			ovoid	Florika, Macherauchs Frühernte	4
			cylindrical	Chandler, Marie France	5
			rhomboid	Gariguette, Pantagruella	6
			obloid	Elista	7
			globose	Grande, Madame Moutot	8
G			wedged	Georg Soltwedel	9

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
31.	**31.**	**VG**	**Fruit: difference in shape of terminal and other fruits**		
(+)	**(+)**		none or very slight	Cambridge Favourite, Vigerla	1
QN	**QN**		slight	Gariguette, Senga Sengana	3
			moderate	Darselect, Gorella	5
			large	Bogota, Georg Soltwedel, Talisman	7
			very large	Maxim	9
32.	**32.**	**VG**	**Fruit: colour**		
	(*)		whitish yellow	Weiße Ananas	1
PQ	**PQ**	**(d)**	light orange	Madame Moutot, Merton Dawn	2
			medium orange	Cambridge Favourite	3
			orange red	Ciflorette, Gorella	4
			medium red	Elsanta, Royal Sovereign	5
			dark red	Seascape, Senga Sengana	6
G			blackish red	Honey Oya, Rubina	7
33.	**33.**	**VG**	**Fruit: evenness of colour**		
(+)	**(+)**		even or very slightly uneven	Valeta	1
QN	**QN**	**(d)**	slightly uneven	Tamella	2
			strongly uneven	Marie France	3
34.	**34.**	**VG**	**Fruit: glossiness**		
QN	**QN**	**(d)**	weak	Bemanil, Madame Moutot	1
			medium	Darselect, Macherauchs Frühernte	2
			strong	Elsanta, Redgauntlet	3
35.	**35.**	**VG**	**Fruit: evenness of surface**		
(+)	**(+)**		even or very slightly uneven	Valeta	1
QN	**QN**	**(d)**	slightly uneven	Senga Precosa	2
			strongly uneven	Redgauntlet	3

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
36.	**36.**	**VG**	**Fruit: width of band without achenes**		
(+)	**(+)**		absent or very narrow	Senga Sengana	1
QN	**QN**	**(d)**	narrow	Elsanta, Mara des Bois, Pandora	3
			medium	Darselect, Gariguette	5
			broad	Pantagruella	7
			very broad	Belrubi, Earliglo	9
37.	**37. (*)**	**VG**	**Fruit: position of achenes**		
(+)	**(+)**		below surface	Cirafine, Elista	1
QN	**QN**	**(d)**	level with surface	Darselect, Regina	2
			above surface	Brighton, Rigensa	3
38.	**38.**	**VG**	**Fruit: position of calyx attachment**		
(+)	**(+)**		inserted	Aliso, Favette	1
QN	**QN**	**(d)**	level with fruit	Cambridge Favourite, Talisman	2
			raised	Gariguette, Regina	3
39.	**39.**	**VG**	**Fruit: attitude of sepals**		
(+)	**(+)**		upwards	Bounty, Gariguette	1
QN	**QN**	**(d)**	outwards	Angélina, Framura	2
			downwards	Ciflorette, Elvira	3
40.	**40.**	**VG**	**Fruit: diameter of calyx in relation to diameter of fruit**		
(+)	**(+)**		much smaller	Favette, Lumina	1
QN	**QN**	**(d)**	slightly smaller	Ostara, Senga Sengana	2
			same size	Cirafine, Tenira	3
			slightly larger	Darselect, Senga Precosa	4
			much larger	Angélina, Cambridge Favourite	5

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
41.	**41.**	**VG**	**Fruit: adherence of calyx**		
QN	**QN**	**(d)**	very weak	Confitura, Primek	1
			weak	Senga Precosa, Siabelle	3
			medium	Mara des Bois, Senga Sengana	5
			strong	Darselect, Redgauntlet	7
			very strong	Rainier	9
42.	**42.**	**VG/MG**	**Fruit: firmness**		
QN	**QN**	**(d)**	very soft	Madame Moutot, Marie France	1
			soft	Gento, Grande	3
			medium	Gariguette, Gorella	5
			firm	Darselect, Tigaiga	7
			very firm	Holiday, Parker	9
43.	**43.**	**VG**	**Fruit: colour of flesh (excluding core)**		
(+)	**(+)**		whitish	Madame Moutot, Regina	1
PQ	**PQ**	**(d)**	light pink	Direktor Paul Wallbaum, Senga Precosa	2
			orange red	Elsanta, Talisman	3
			light red	Cambridge Favourite, Ciflorette	4
			medium red	Gariguette, Elista	5
			dark red	Senga Tigaiga	6
44.	**44.**	**VG**	**Fruit: colour of core**		
(+)	**(+)**		white		1
PQ	**PQ**	**(d)**	light red	Figaro	2
			medium red		3
45.	**45.**	**VG**	**Fruit: cavity**		
QN	**QN**	**(d)**	absent or small	Gerida, Onebor	1
			medium	Agana, Douglas	2
			large	Cortina, Fiesta	3

CPVO N°	UPOV N°	Observation	Characteristics	Examples	Note
46.	**46.**	**MG**	**Time of beginning of flowering**		
	(*)		very early	Karina, Sweet Charlie	1
QN	**QN**		early	Gariguette, Pantagruella	3
			medium	Cambridge Favourite, Elsanta	5
			late	Daisy, Tago	7
			very late	Marzheyw, Pandora	9
47.	**47.**	**MG**	**Time of beginning of fruit ripening**		
(+)	**(+)**		very early		1
QN	**QN**		early		3
			medium		5
			late		7
			very late		9
48.	**48. (*)**	**VG**	**Type of bearing**		
	(+)		not remontant	Cambridge Favourite, Gariguette	1
PQ	**PQ**		partially remontant	Redgauntlet, Sweet Charlie	2
			fully remontant	Brighton, Cirafine, Mara des Bois	3
G			day neutral	Florika	4

EXPLANATIONS AND METHODS

Explanations covering several characteristics

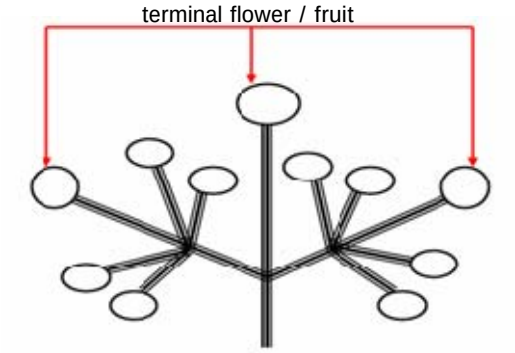
Characteristics containing the following key in the third column of the Table of Characteristics should be examined as indicated below:

(a) Observations on the plant and leaf which should be made on plants shortly before the beginning of fruit ripening. Observations on the leaf should be made on fully-developed leaves.

(b) Observations on the stipule and the stolon which should be made after the end of bearing (excluding day-neutral varieties).

(c) Observations of the inflorescence (including the flower) which should be made on plants when they are in full flower. Unless otherwise indicated, observations on the flower should not be made on the terminal flower. In the case of remontant varieties, the characteristics should be observed on the first flush of flowers.

(d) Unless otherwise indicated, observations on the fruit should not be made on terminal fruits.



Ad. 1: Plant: growth habit

1
upright

2
semi-upright

3
spreading

Ad. 2: Plant: density of foliage

3
sparse

5
medium

7
dense

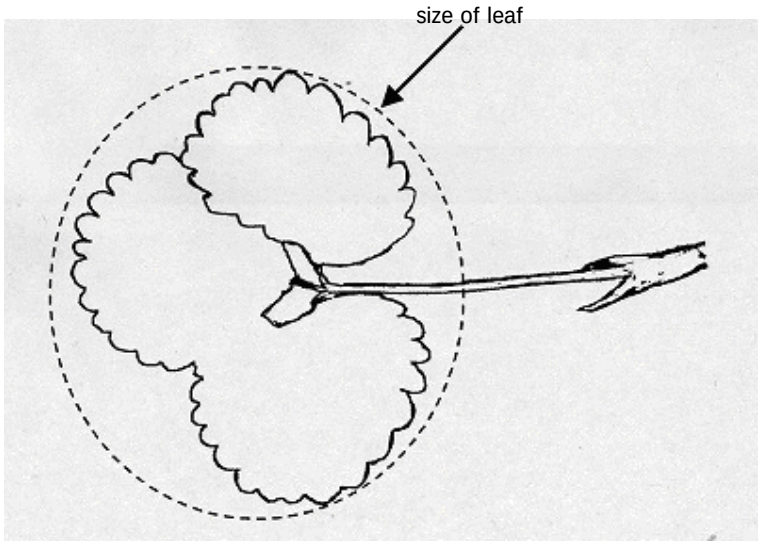
Ad. 3: Plant: vigour

The plant vigour should be considered as the overall abundance of vegetative growth.

Ad. 6: Stolon: anthocyanin coloration

The anthocyan coloration should be observed on the middle third of the stolon.

Ad. 8: Leaf: size



The size of leaf excludes the petiole and stipules.

Ad. 10: Leaf: blistering

1
absent or weak

2
medium

3
strong

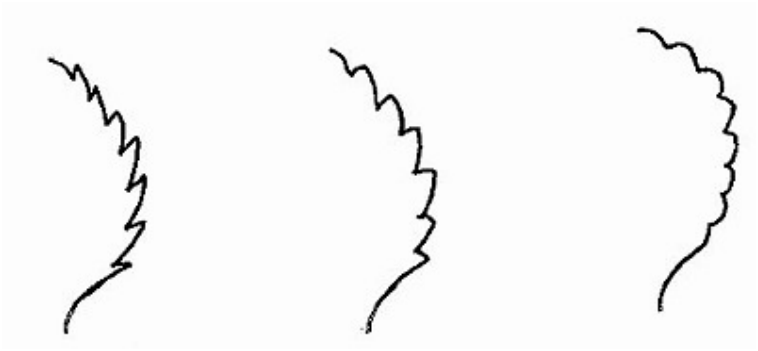
Ad. 14: Terminal leaflet: shape of base

1
acute

2
obtuse

3
rounded

Ad. 15: Terminal leaflet: margin



1
serrate

2
serrate to crenate

3
crenate

Ad. 16: Terminal leaflet: shape in cross section

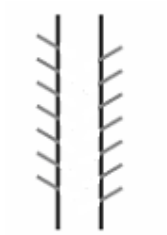
1
concave

2
straight

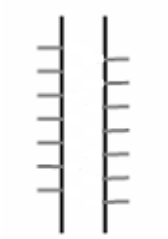
3
convex

Ad. 18: Petiole: attitude of hairs
Ad. 21: Pedicel: attitude of hairs

1
upwards

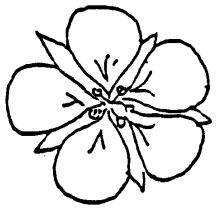


2
slightly outwards

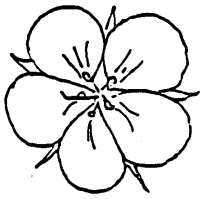


3
horizontal

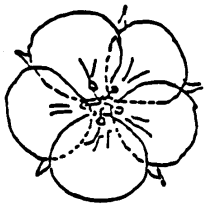
Ad. 23: Flower: arrangement of petals



1
free

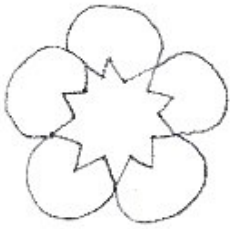


2
touching

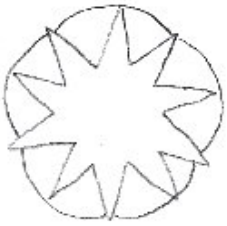


3
overlapping

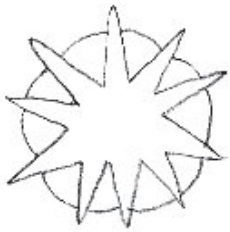
Ad. 24: Flower: size of calyx in relation to corolla



1
smaller



2
same size

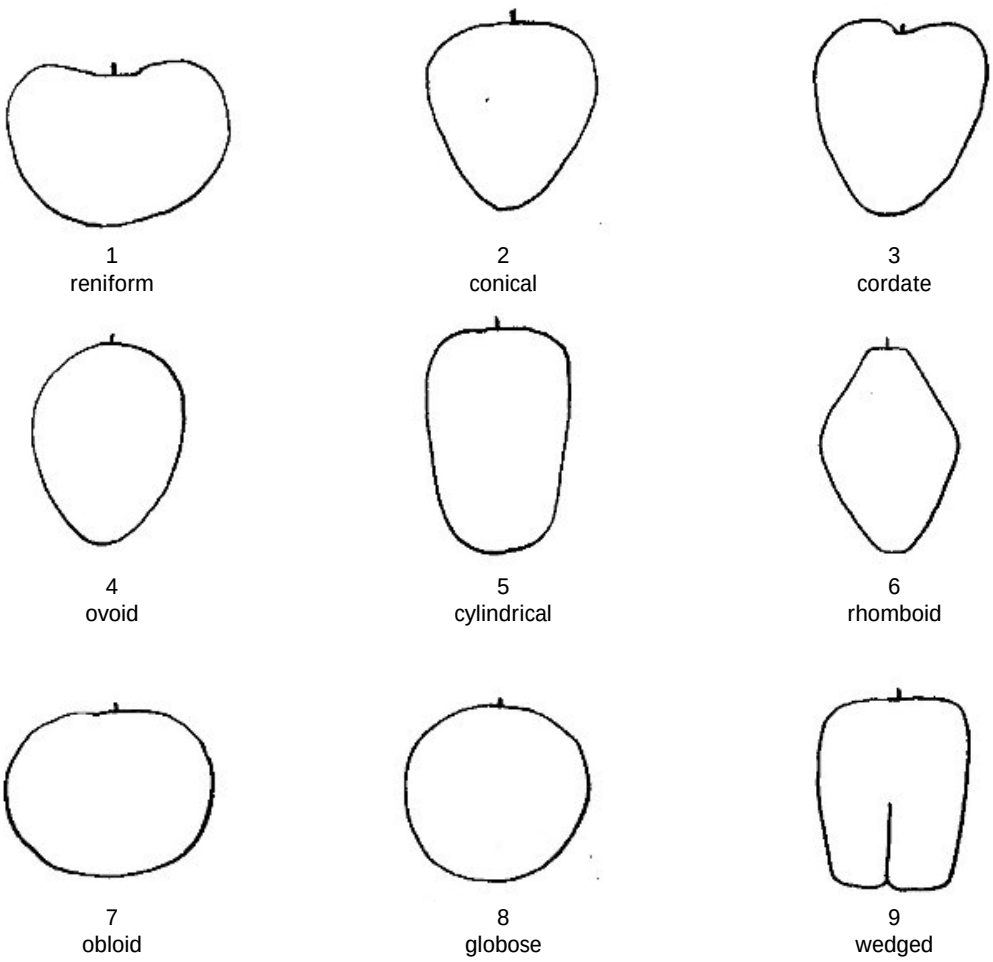


3
larger

Ad. 29: Fruit: size

The fruit size is determined by the length, height and thickness.

Ad. 30: Fruit: shape



1
reniform

2
conical

3
cordate

4
ovoid

5
cylindrical

6
rhomboid

7
obloid

8
globose

9
wedged

Ad. 31: Fruit: difference in shape of terminal and other fruits

The diagram under the section “explanations covering several characteristics” at the beginning of this chapter, illustrates the terminal and other fruits.

Ad. 33: Fruit: evenness of colour





1
even or very slightly uneven

2
slightly uneven

3
strongly uneven

Ad. 35: Fruit: evenness of surface

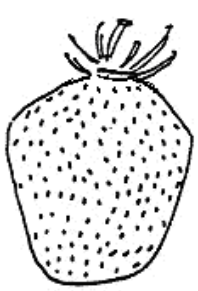


1
even or very slightly uneven

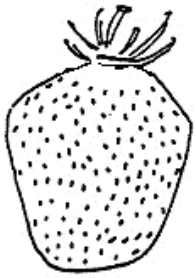
2
slightly uneven

3
strongly uneven

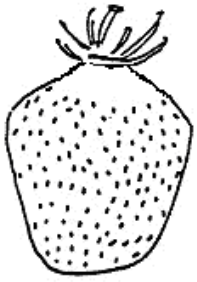
Ad. 36: Fruit: width of band without achenes



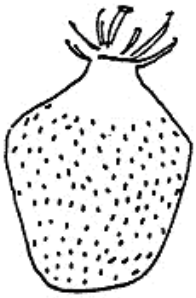
1
absent or very narrow



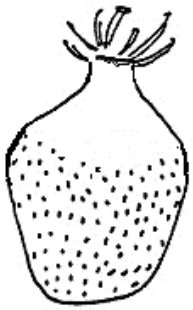
3
narrow



5
medium

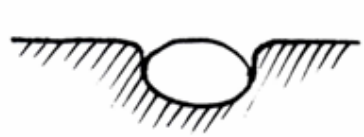


7
broad



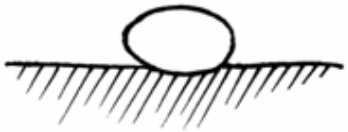
9
very broad

Ad. 37: Fruit: position of achenes



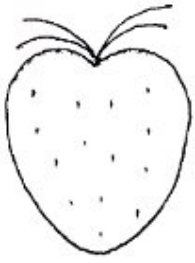
1
below surface

2
level with surface

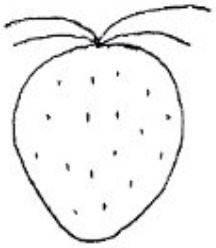


3
above surface

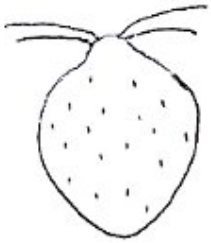
Ad. 38: Fruit: position of calyx attachment



1
inserted

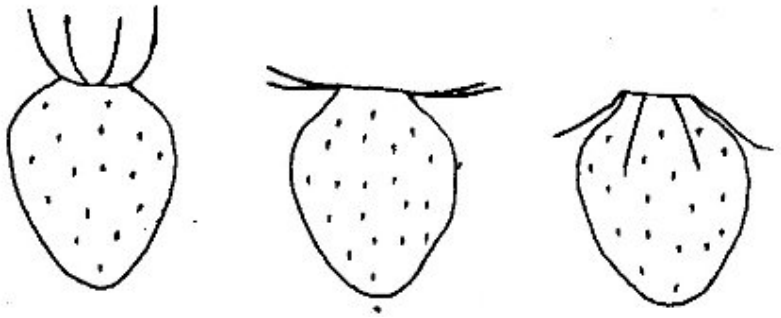


2
level with fruit



3
raised

Ad. 39: Fruit: attitude of sepals



1
upwards

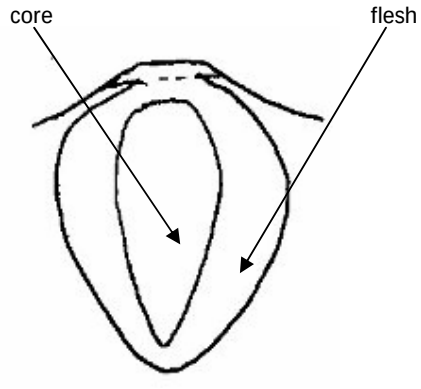
2
outwards

3
downwards

Ad. 40: Fruit: diameter of calyx in relation to diameter of fruit

The diameter of calyx is measured with the sepals held flat.

Ad. 43: Fruit: colour of flesh (excluding core)
Ad. 44: Fruit: colour of core



Ad. 47: Time of beginning of fruit ripening

The time when the first fruit in the first cluster ripens.

Ad. 48: Type of bearing

Not remontant:	Flowering and fruiting only once in a season;
Partly remontant:	The potential to flower and fruit twice in a season, but strongly influenced by the environment;
Fully remontant:	Flowering and fruiting twice in a season, largely irrespective of the environment;
Day neutral:	Flowering and fruiting multiple times, continuously in a season. Do not require decreasing day length for flower induction. In cases where stolons are observed, therefore, stolons produce flowers and fruits in the same season as the plant producing the stolon.

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ANNEX II

CPVO · OCVV
Community Plant Variety Office
Office Communautaire des Variétés Végétales

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

Species ***Fragaria*** **L.**

STRAWBERRY

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

Variety resulting from:

(a) Crossing
(i) controlled cross (indicate parent varieties) .....[ ]

(ii) partially unknown cross (indicate known parent varieties) .....[ ]

(iii) totally unknown cross .....[ ]

(b) Mutation (indicate parent variety) .....[ ]

(c) Discovery (indicate where, when and how the variety has been developed):.....[ ]

(d) Other (please provide details).....[ ]

4.2 Method of propagation

(a) Vegetative propagation

(i) cuttings ..... [ ]

(ii) in vitro propagation..... [ ]

(iii) other (state method)..... [ ]

(b) Seed propagated..... [ ]

(c) Other (please provide details)..... [ ]

4.3 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
5.1 (1)	**Plant: growth habit**		
	upright	Benton, Darselect, Gorella	1 [ ]
	semi upright	Cirafine, Senga Sengana	2 [ ]
	spreading	Darsidor, Pantagruella	3 [ ]
5.2 (27)	**Petal: colour of upper side**		
	greenish white		1 [ ]
	white	Gariguette	2 [ ]
	pink	Frel, Marajox, Pikan	3 [ ]
	red	Tarpan	4 [ ]
5.3 (29)	**Fruit: size**		
	very small	Astino, Frel	1 [ ]
	small	Senga Precosa	3 [ ]
	medium	Mara des Bois, Senga Tigaiga	5 [ ]
	large	Darselect, Domanil	7 [ ]
	very large	Maxim	9 [ ]

	Characteristics	Example varieties	Note
5.4 (30)	**Fruit: shape**		
	reniform	Early Dawn, Favette	1 [ ]
	conical	Gorella, Matis	2 [ ]
	cordate	Direktor Paul Wallbaum	3 [ ]
	ovoid	Florika, Macherauchs Frühernte	4 [ ]
	cylindrical	Chandler, Marie France	5 [ ]
	rhomboid	Gariguette, Pantagruella	6 [ ]
	obloid	Elista	7 [ ]
	globose	Grande, Madame Moutot	8 [ ]
	wedged	Georg Soltwedel	9 [ ]
5.5 (32)	**Fruit: colour**		
	whitish yellow	Weisse Ananas	1 [ ]
	light orange	Madame Moutot, Merton Dawn	2 [ ]
	medium orange	Cambridge Favourite	3 [ ]
	orange red	Ciflorette, Gorella	4 [ ]
	medium red	Elsanta, Royal Sovereign	5 [ ]
	dark red	Seascape, Senga Sengana	6 [ ]
	blackish red	Honey Oya, Rubina	7 [ ]
5.6 (48)	**Type of bearing**		
	not remontant	Cambridge Favourite, Gariguette	1 [ ]
	partially remontant	Redgauntlet, Sweet Charlie	2 [ ]
	fully remontant	Brighton, Cirafine, Mara des Bois	3 [ ]
	day neutral	Florika	4 [ ]

6. Similar varieties and differences from these varieties:

Denomination of similar variety	Characteristic in which the similar variety is different[1)]	State of expression of similar variety	State of expression of candidate variety

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

7. Additional information which may help to distinguish the variety

A representative printed-out colour photo of the variety **must** be added to the Technical Questionnaire.

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

[ ] YES, please specify

[ ] NO

7.3 Other information

[ ] YES, please specify

[ ] NO

7.4 Main use

a) Fruit[ ]

b) Ornamental [ ]

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)	[ ] Yes	[ ] No
(b) Chemical treatment (e.g. growth retardant or pesticide)	[ ] Yes	[ ] No
(c) Tissue culture	[ ] Yes	[ ] No
(d) Other factors	[ ] Yes	[ ] 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]