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Fragaria L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

*to be considered by the Technical Committee at its forty-fourth session,
 to be held in Geneva, from April 7 to 9, 2008*

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Fragaria</i> L.	Strawberry	Fraisier	Erdbeere	Fresa, Frutilla

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 *Fragaria* L. of the family *Rosaceae*.

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 young plants or seed.

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

Vegetatively propagated varieties: 20 young plants

Seed propagated varieties: sufficient seed to produce 40 plants, or 40 young plants

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 two independent growing cycles.

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*

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. In particular, it is essential that the plants produce a satisfactory crop of fruit in each of the two growing cycles.

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*

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.

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, 1 off-type is allowed.

4.2.3 For the assessment of uniformity of seed-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 40 plants, 2 off-types are allowed.

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) Petal: color of upper side (characteristic 27)
- (c) Fruit: size (characteristic 29)
- (d) Fruit: shape (characteristic 30)
- (e) Fruit: color (characteristic 32)
- (f) Type of bearing (characteristic 48)

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)-(d) 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	Plante : port	Pflanze: Wuchsform	Planta: porte		
QN (a)	upright	dressé	aufrecht	erecto	Benton, Darselect, Gorella	1
	semi-upright	demi-dressé	halbaufrecht	semierecto	Cirafine, Senga Sengana	2
	spreading	étalé	breitwüchsig	abierto	Darsidor, Pantagruella	3
2. (+)	Plant: density of foliage	Plante : densité du feuillage	Pflanze: Dichte des Laubes	Planta: densidad del follaje		
QN (a)	sparse	lâche	locker	escasa	Ciflorette, Elista	3
	medium	moyenne	mittel	media	Cirafine, Gorella	5
	dense	dense	dicht	densa	Cirano, Talisman	7
3. (+)	Plant: vigor	Plante : vigueur	Pflanze: Wuchsstärke	Planta: vigor		
QN (a)	weak	faible	gering	débil	Senga Precosa	3
	medium	moyenne	mittel	medio	Gorella	5
	strong	forte	stark	fuerte	Elsanta, Grande	7
4. (*)	Plant: position of inflorescence in relation to foliage	Plante : position de l'inflorescence par rapport au feuillage	Pflanze: Stellung des Blütenstandes im Verhältnis zum Laub	Planta: posición de la inflorescencia en relación con el follaje		
QN (c)	beneath	en dessous	unter dem Laub	por debajo	Crusader	1
	same level	au même niveau	in Laubhöhe	a la misma altura	Astino, Cambridge Favourite	2
	above	au-dessus	über dem Laub	por encima	Direktor Paul Wallbaum	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5. (*)	Plant: number of stolons	Plante : nombre de stolons	Pflanze: Anzahl Ausläufer	Planta: número de estolones		
QN (b)	absent or very few	nul ou très petit	fehlend oder sehr gering	ausente o muy escasos	Leo Alba, Rügen	1
	few	petit	gering	escaso	Marala, Sans Rivale	3
	medium	moyen	mittel	medio	Anabelle, Gorella	5
	many	grand	groß	muchos	Cambridge Favourite, Macherauchs Frühernte	7
6. (+)	Stolon: anthocyanin coloration	Stolon : pigmentation anthocyanique	Ausläufer: Anthocyanfärbung	Estolón: pigmentación antocianica		
QN (b)	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Tioga	1
	weak	faible	gering	débil	Cijosée, Tenira	3
	medium	moyenne	mittel	media	Darselect, Gorella	5
	strong	forte	stark	fuerte	Cigaline, Royal Sovereign	7
	very strong	très forte	sehr stark	muy fuerte	Arking, Frel	9
7.	Stolon: density of pubescence	Stolon : densité de la pilosité	Ausläufer: Dichte der Behaarung	Estolón: densidad de la pubescencia		
QN (b)	sparse	lâche	locker	laxa	Chandler, Elista, Vigerla	1
	medium	moyenne	mittel	media	Cambridge Favourite, Gariguetta	2
	dense	dense	dicht	densa	Grande, Siabelle	3
8. (+)	Leaf: size	Feuille : taille	Blatt: Größe	Hoja: tamaño		
QN (a)	small	petite	klein	pequeño	Everest	3
	medium	moyenne	mittel	medio	Camarosa	5
	large	grande	groß	grande	Darselect	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
9.	Leaf: color of upper side	Feuille : couleur de la face supérieure	Blatt: Farbe der Oberseite	Hoja: color del haz		
PQ	(a)					
	yellow green	jaune vert	gelbgrün	verde amarillento	Tristar	1
	light green	vert clair	hellgrün	verde claro	Aliso, Cigaline, Georg Soltwedel	2
	medium green	vert moyen	mittelgrün	verde medio	Darselect, Gorella	3
	dark green	vert foncé	dunkelgrün	verde oscuro	Direktor Paul Wallbaum, Macherauchs Frühernte	4
	blue green	bleu vert	blaugrün	azul oscuro	Mrak	5
10. (*) (+)	Leaf: blistering	Feuille : clôture	Blatt: Blasigkeit	Hoja: abullonado		
QN	(a)					
	absent or weak	absente ou faible	fehlend oder gering	ausente o débil	Anabelle, Bemanil, Marmion	1
	medium	moyenne	mittel	medio	Cigaline, Senga Precosa	2
	strong	forte	stark	fuerte	Cijosée, Jamil, Marie France	3
11. (*)	Leaf: glossiness	Feuille : brillance	Blatt: Glanz	Hoja: brillo		
QN	(a)					
	absent or weak	nulle ou faible	fehlend oder gering	ausente o débil	Aptos, Bogota, Mrak	1
	medium	moyenne	mittel	medio	Darestivale, Irvine	2
	strong	forte	stark	fuerte	Mara des Bois, Sweet Delight, Tioga	3
12.	Leaf: variegation	Feuille : panachure	Blatt: Panaschierung	Hoja: variegación		
QL	(a)					
	absent	absente	fehlend	ausente		1
	present	présente	vorhanden	presente		9

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
13. (*)	Terminal leaflet: length in relation to width	Foliole terminale : longueur par rapport à la largeur	Endfieder: Länge im Verhältnis zur Breite	Folíolo terminal: anchura en relación con la longitud		
QN	(a) shorter than broad	plus courte que large	kürzer als breit	más corto que ancho	Siabelle	1
	as long as broad	aussi longue que large	so lang wie breit	tan largo como ancho	Chandler, Crusader	2
	moderately longer than broad	légèrement plus longue que large	mäßig länger als breit	moderadamente más largo que ancho	Elsanta, Montrose, Redgauntlet	3
	much longer than broad	beaucoup plus longue que large	viel länger als breit	mucho más largo que ancho	Gariguette, Macherauchs Frühernte	4
14. (*) (+)	Terminal leaflet: shape of base	Foliole terminale : forme de la base	Endfieder: Form der Basis	Folíolo terminal: forma de la base		
PQ	(a) acute	pointue	spitz	aguda	Gorella, Regina	1
	obtuse	obtuse	stumpf	obtusa	Darselect, Senga Sengana	2
	rounded	arrondie	abgerundet	redondeada	Crusader, Florika, Marie France	3
15. (+)	Terminal leaflet: incisions of margin	Foliole terminale : incisions du bord	Endfieder: Randeinschnitte	Folíolo terminal: incisiones del borde		
PQ	(a) serrate	dentelé	gesägt	serradas	Garriguette, Tenira	1
	serrate to crenate	dentelé à crénelé	gesägt bis gekerbt	serradas a crenadas		2
	crenate	crénelé	gekerbt	crenadas	Cambridge Favourite, Gentonova, Irvine	3
16. (+)	Terminal leaflet: shape in cross section	Foliole terminale : forme en section transversale	Endfieder: Form im Querschnitt	Folíolo terminal: forma de la sección transversal		
QN	(a) concave	concave	konkav	cóncava	Hapil, Ostara, Senga Precosana	1
	straight	droite	eben	plana	Georg Soltwedel, Mara des Bois	2
	convex	convexe	konvex	convexa	Cambridge Favourite, Domanil, Madame Moutot	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17.	Petiole: length	Pétiole : longueur	Blattstiel: Länge	Pecíolo: longitud		
QN (a)	short	court	kurz	corta	Pantagruella	3
	medium	moyen	mittel	media	Polka	5
	long	long	lang	larga	Darselect	7
18. (+)	Petiole: attitude of hairs	Pétiole : port des poils	Blattstiel: Haarstellung	Pecíolo: porte de los pelos		
QN (a)	upwards	érigé	aufwärts	ascendente	Elista, Georg Soltwedel	1
	slightly outwards	légèrement étalé	leicht abstehend	ligeramente hacia afuera	Darselect, Elsanta	2
	horizontal	horizontal	waagerecht	horizontal	Cambridge Favourite, Direktor Paul Wallbaum, Mara des Bois	3
19.	Stipule: anthocyanin coloration	Stipule : pigmentation anthocyanique	Nebenblatt: Anthocyanfärbung	Estípulas: pigmentación antocianica		
QN (b)	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Elista	1
	weak	faible	gering	débil	Crusader	3
	medium	moyenne	mittel	media	Gorella	5
	strong	forte	stark	fuerte	Talisman	7
	very strong	très forte	sehr stark	muy fuerte	Royal Sovereign	9
20.	Inflorescence: number of flowers	Inflorescence : nombre de fleurs	Blütenstand: Anzahl Blüten	Inflorescencia: número de flores		
QN (c)	few	petit	gering	bajo	Pantagruella	3
	medium	moyen	mittel	medio	Lambada	5
	many	grand	groß	alto	Elsanta	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. VG (+)	Pedicle: attitude of hairs	Pédicelle : port des poils	Blütenstiel: Haarstellung	Pedicelo: porte de los pelos		
QN (d)	upwards	érigé	aufwärts	hacia arriba	Cigaline	1
	slightly outwards	légèrement étalé	leicht abstehend	ligeramente hacia afuera	Darselect	2
	horizontal	horizontal	waagerecht	horizontal	Parker	3
22.	Flower: diameter	Fleur : diamètre	Blüte: Durchmesser	Flor: diámetro		
QN (c)	small	petit	klein	pequeña	Rapella, Redgauntlet	3
	medium	moyen	mittel	media	Gorella, Mara des Bois	5
	large	grand	groß	grande	Darselect, Domanil	7
23. (*) (+)	Flower: relative position of petals	Fleur : position relative des pétales	Blüte: relative Stellung der Blütenblätter	Flor: posición relativa de los pétalos		
QN (c)	free	disjoints	freistehend	libre	Cirafine, Talisman	1
	touching	tangents	sich berührend	en contacto	Darsidor, Regina	2
	overlapping	chevauchants	überlappend	solapada	Florika, Senga Gigana	3
24. (*) (+)	Flower: size of calyx in relation to corolla	Fleur : taille du calice par rapport à celle de la corolle	Blüte: Größe des Kelchs im Verhältnis zur Krone	Flor: tamaño del cáliz en relación con la corola		
QN (c)	smaller	plus petit	kleiner	más pequeño	Bogota, Grande, Nordika	1
	same size	de même taille	gleich groß	tamaño idéntico	Darselect, Korona	2
	larger	plus grand	größer	mayor	Cigoulette, Regina	3
25. (*)	Flower: stamen	Fleur : étamine	Blüte: Staubfaden	Flor: estambre		
QL (c)	absent	absente	fehlend	ausente	Pandora, Yamasaka	1
	present	présente	vorhanden	presente	Gariguette	9

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	Petal: length in relation to width	Pétale : longueur par rapport à la largeur	Blütenblatt: Länge im Verhältnis zur Breite	Pétalo: anchura en relación con la longitud		
QN	(c)					
	much shorter than broad	plus court que large	viel kürzer als breit	mucho más corto que ancho	Florika, Senga Gigana	1
	moderately shorter than broad	légèrement plus court que large	mäßig kürzer als breit	moderadamente más corto que ancho	Gento Nova, Tioga	2
	as long as broad	aussi long que large	so lang wie breit	tan largo como ancho	Darselect, Redgauntlet	3
	moderately longer than broad	légèrement plus long que large	mäßig länger als breit	moderadamente más largo que ancho	Ciflorette, Elsanta, Gorella	4
	much longer than broad	beaucoup plus long que large	viel länger als breit	mucho más largo que ancho	Talisman	5
27. (*)	Petal: color of upper side	Pétale : couleur de la face supérieure	Blütenblatt: Farbe der Oberseite	Pétalo: color del haz		
PQ	(c)					
	greenish white	blanc verdâtre	grünlichweiß	blanco verdoso		1
	white	blanc	weiß	blanco	Gariguette	2
	pink	rose	rosa	rosa	Frel, Marajox, Pikan	3
	red	rouge	rot	rojo	Tarpan	4
28. (*)	Fruit: length in relation to width	Fruit : longueur par rapport à la largeur	Frucht: Länge im Verhältnis zur Breite	Fruto: anchura en relación con la longitud		
QN	(d)					
	much shorter than broad	plus court que large	viel kürzer als breit	mucho más corto que ancho	Early Dawn	1
	moderately shorter than broad	légèrement plus court que large	mäßig kürzer als breit	moderadamente más corto que ancho	Elista, Madame Moutot	2
	as long as broad	aussi long que large	so lang wie breit	tan largo como ancho	Gento Nova, Gorella, Merton Dawn	3
	moderately longer than broad	légèrement plus long que large	mäßig länger als breit	moderadamente más largo que ancho	Gariguette, Talisman	4
	much longer than broad	beaucoup plus long que large	viel länger als breit	mucho más largo que ancho	Ciflorette, Marie France	5

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
29. (*) (+)	Fruit: size	Fruit : taille	Frucht: Größe	Fruto: tamaño		
QN	(d)					
	very small	très petit	sehr klein	muy pequeño	Astino, Frel	1
	small	petit	klein	pequeño	Senga Precosa	3
	medium	moyen	mittel	medio	Mara des Bois, Senga Tigaiga	5
	large	grand	groß	grande	Darselect, Domanil	7
	very large	très grand	sehr groß	muy grande	Maxim	9
30. (*) (+)	Fruit: shape	Fruit : forme	Frucht: Form	Fruto: forma		
PQ	(d)					
	reniform	réniforme	nierenförmig	reniforme	Early Dawn, Favette	1
	conical	conique	kegelförmig	cónica	Gorella, Matis	2
	cordate	cordiforme	herzförmig	cordiforme	Direktor Paul Wallbaum	3
	ovate	ovale	eiförmig	oval	Florika, Macherauchs Frühernte	4
	cylindrical	cylindrique	zylindrisch	cilíndrica	Chandler, Marie France	5
	rhombic	losangique	rautenförmig	rómbica	Gariguettes, Pantagruella	6
	oblate	aplati	breitrund	aplanada	Elista	7
	circular	rond	rund	circular	Grande, Madame Moutot	8
	wedged	cunéiforme	keilförmig	cuneiforme	Georg Soltwedel	9

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31.	Fruit: difference in shape of primary and secondary fruits	Fruit : différence de forme des fruits aînés et cadets	Frucht: Unterschied in der Form zwischen Primär- und Sekundärfrüchten	Fruto: diferencia de forma entre los frutos primarios y los secundarios		
QN	none or very slight	aucune ou très petite	fehlend oder sehr gering	ninguna o muy leve	Cambridge Favourite, Vigerla	1
	slight	petite	gering	leve	Gariguette, Senga Sengana	3
	moderate	moyenne	mittel	moderada	Darselect, Gorella	5
	large	grande	stark	grande	Bogota, Georg Soltwedel Talisman	7
	very large	très grande	sehr stark	muy grande	Maxim	9
32. (*)	Fruit: color	Fruit : couleur	Frucht: Farbe	Fruto: color		
PQ (d)	whitish yellow	jaune blanchâtre	weißlichgelb	amarillo blanquecino	Weisse Ananas	1
	light orange	orange clair	hellorange	naranja claro	Madame Moutot, Merton Dawn	2
	medium orange	orange moyen	mittlorange	naranja medio	Cambridge Favourite	3
	orange red	rouge orangé	orangerot	rojo anaranjado	Ciflorette, Gorella	4
	medium red	rouge moyen	mittelrot	rojo medio	Elsanta, Royal Sovereign	5
	dark red	rouge foncé	dunkelrot	rojo oscuro	Seascape, Senga Sengana	6
	blackish red	rouge noirâtre	schwärzlichrot	rojo negruzco	Honey Oya, Rubina	7
33. (+)	Fruit: evenness of color	Fruit : uniformité de la couleur	Frucht: Gleichmäßigkeit der Farbe	Fruto: uniformidad del color		
QN (d)	even or very slightly uneven	uniforme ou très légèrement irrégulière	gleichmäßig oder leicht ungleichmäßig	uniforme o muy leve irregularidad	Valeta	1
	slightly uneven	légèrement irrégulière	leicht ungleichmäßig	ligeramente irregular	Tamella	2
	strongly uneven	fortement irrégulière	stark ungleichmäßig	muy irregular	Marie France	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
34.	Fruit: glossiness	Fruit : brillance	Frucht: Glanz	Fruto: brillo		
QN (d)	weak	faible	gering	débil	Bemanil, Madame Moutot	1
	medium	moyenne	mittel	medio	Darselect, Macherauchs Frühernte	2
	strong	forte	stark	fuerte	Elsanta, Redgauntlet	3
35.	Fruit: evenness of surface	Fruit : uniformité de la surface	Frucht: Gleichmäßigkeit der Oberfläche	Fruto: uniformidad del color		
(+)						
QN (d)	even or very slightly uneven	uniforme ou très légèrement irrégulière	gleichmäßig oder leicht ungleichmäßig	uniforme o muy leve irregularidad	Valeta	1
	slightly uneven	légèrement irrégulière	leicht ungleichmäßig	ligeramente irregular	Senga Precosana	2
	strongly uneven	fortement irrégulière	stark ungleichmäßig	muy irregular	Redgauntlet	3
36.	Fruit: width of band without achenes	Fruit : largeur de la zone sans akènes	Frucht: Breite der nüsschenfreie Zone	Fruto: anchura de la banda sin aquenios		
(+)						
QN (d)	absent or very narrow	nulle ou très petite	fehlend oder sehr schmal	ausente o muy estrecha	Senga Sengana	1
	narrow	petite	schmal	estrecha	Elsanta, Mara des Bois, Pandora	3
	medium	moyenne	mittel	mediana	Darselect, Gariguette	5
	broad	grande	breit	ancha	Pantagruella	7
	very broad	très grande	sehr breit	muy ancha	Belrubi, Earliglo	9
37.	Fruit: position of achenes	Fruit : implantation des akènes	Frucht: Position der Nüsschen	Fruto: posición de los aquenios		
(*)						
(+)						
QN (d)	below surface	enfoncés	eingesenkt	debajo de la superficie	Cirafine, Elista	1
	level with surface	affleurants	eben	a la misma altura que la superficie	Darselect, Regina	2
	above surface	en saillie	aufsitzend	por encima de la superficie	Brighton, Rigensa	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
38. (+)	Fruit: position of calyx attachment	Fruit : port de l'attache du calice	Frucht: Stellung des Kelchansatzes	Fruto: posición de la inserción del cáliz		
QN (d)	inserted	inséré	eingesenkt	insertada	Aliso, Favette	1
	level with fruit	au niveau du fruit	eben	a la misma altura que el fruto	Cambridge Favourite, Talisman	2
	raised	érigé	aufsitzend	elevada	Gariguet, Regina	3
39. (+)	Fruit: attitude of sepals	Fruit : port des sépales	Frucht: Haltung der Kelchblätter	Fruto: porte de los sépalos		
QN (d)	upwards	érigé	aufwärts	hacia arriba	Bounty, Gariguet	1
	outwards	étalé	abstehend	hacia afuera	Angélina, Framura	2
	downwards	retombant	abwärts	hacia abajo	Ciflorette, Elvira	3
40. (+)	Fruit: diameter of calyx in relation to fruit	Fruit : diamètre du calice par rapport à celui du fruit	Frucht: Durchmesser des Kelchs im Verhältnis zur Frucht	Fruto: diámetro del cáliz en relación con el fruto		
QN (d)	much smaller	beaucoup plus petit	viel kleiner	mucho menor	Favette, Lumina	1
	slightly smaller	légèrement plus petit	etwas kleiner	ligeramente menor	Ostara, Senga Sengana	2
	same size	de même taille	gleich groß	tamaño idéntico	Cirafine, Tenira	3
	slightly larger	légèrement plus grand	etwas größer	ligeramente mayor	Darselect, Senga Precosa	4
	much larger	beaucoup plus grand	viel größer	mucho mayor	Angélina, Cambridge Favourite	5
41.	Fruit: adherence of calyx	Fruit : adhérence du calice	Frucht: Anhaften des Kelchs	Fruto: adherencia del cáliz		
QN (d)	very weak	très faible	sehr gering	muy débil	Confitura, Primek	1
	weak	faible	gering	débil	Senga Precosa, Siabelle	3
	medium	moyenne	mittel	media	Mara des Bois, Senga Sengana	5
	strong	forte	stark	fuerte	Darselect, Redgauntlet	7
	very strong	très forte	sehr stark	muy fuerte	Rainier	9

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
42.	Fruit: firmness	Fruit : fermeté	Frucht: Festigkeit	Fruto: firmeza		
QN (d)	very soft	très mou	sehr weich	muy blanda	Madame Moutot, Marie France	1
	soft	mou	weich	blanda	Gento, Grande	3
	medium	moyen	mittel	media	Gariguette, Gorella	5
	firm	ferme	fest	firme	Darselect, Tigaiga	7
	very firm	très ferme	sehr fest	muy firme	Holiday, Parker	9
43.	Fruit: color of flesh (excluding core)	Fruit : couleur de la chair (à l'exclusion du cœur)	Frucht: Farbe des Fleisches (ohne Innenstrunk)	Fruto: color de la pulpa (excluido el corazón)		
(+)						
PQ (d)	whitish	blanchâtre	weißlich	blanquecino	Madame Moutot, Regina	1
	light pink	rose pâle	hellrosa	rosa claro	Direktor Paul Wallbaum, Senga Precosa	2
	orange red	rouge orangé	orangerot	rojo anaranjado	Elsanta, Talisman	3
	light red	rouge clair	hellrot	rojo claro	Cambridge Favourite, Ciflorette	4
	medium red	rouge moyen	mittelrot	rojo medio	Gariguette, Elista	5
	dark red	rouge foncé	dunkelrot	rojo oscuro	Senga Tigaiga	6
44.	Fruit: color of core	Fruit : couleur du cœur	Frucht: Farbe des Innenstrunks	Fruto: color del corazón		
(+)						
PQ (d)	white	blanc	weiß	blanco		1
	light red	rouge clair	hellrot	rojo claro	Figaro	2
	medium red	rouge moyen	mittelrot	rojo medio		3
45.	Fruit: cavity	Fruit : cavité	Frucht: Höhle	Fruto: cavidad		
QN (d)	absent or small	nulle ou petite	fehlend oder klein	ausente o pequeña	Gerida, Onebor	1
	medium	moyenne	mittel	mediana	Agana, Douglas	2
	large	grande	groß	grande	Cortina, Fiesta	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
46. (*)	Time of beginning of flowering	Époque de début de floraison	Zeitpunkt des Blühbeginns	Época de inicio de la floración		
QN	very early	très précoce	sehr früh	muy precoz	Karina, Sweet Charlie	1
	early	précoce	früh	precoz	Gariguette, Pantagruella	3
	medium	moyenne	mittel	media	Cambridge Favourite, Elsanta	5
	late	tardive	spät	tardía	Daisy, Tago	7
	very late	très tardive	sehr spät	muy tardía	Marzheyw, Pandora	9
47. (+)	Time of beginning of fruit ripening	Époque de début de maturité des fruits	Zeitpunkt des Beginns der Fruchtreife	Época de inicio de maduración del fruto		
QN	very early	très précoce	sehr früh	muy precoz		1
	early	précoce	früh	precoz		3
	medium	moyenne	mittel	media		5
	late	tardive	spät	tardía		7
	very late	très tardive	sehr spät	muy tardía		9
48. (*) (+)	Type of bearing	Type de fructification	Remontierneigung	Tipo de fructificación		
PQ	not remontant	non remontante	nicht remontierend	unífera	Cambridge Favourite, Gariguette	1
	partially remontant	partiellement remontante	teilweise remontierend	semibífera o semiflorecente	Redgauntlet, Sweet Charlie	2
	fully remontant	pleinement remontante	vollständig remontierend	bífera o refloreciente	Brighton, Cirafine, Mara des Bois	3
	day neutral	insensible à la photopériode	tagneutral	fotoindiferente o indiferente al fotoperíodo	Florika	4

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

- (a) All observations on the plant and leaf should be made on plants shortly before the beginning of fruit ripening. Observations on the leaf should be made on a fully-developed leaf.
- (b) All observations on the stipule and the stolon should be made after the end of bearing (excluding day-neutral varieties).
- (c) Unless otherwise indicated, all observations of the inflorescence (including the flower) should be made on plants when they are in full flower. Unless otherwise indicated, observations on the flower should be made on the secondary flower (i.e. not the terminal flower). In the case of remontant varieties, the characteristics should be observed on the first flush of flowers.
- (d) Unless otherwise indicated, all observations on the fruit should be made on secondary fruit (i.e. not the terminal fruit).

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: growth habit



1
upright



2
semi-upright



3
spreading

Ad. 2: Plant: density of foliage



3
sparse



5
medium



7
dense

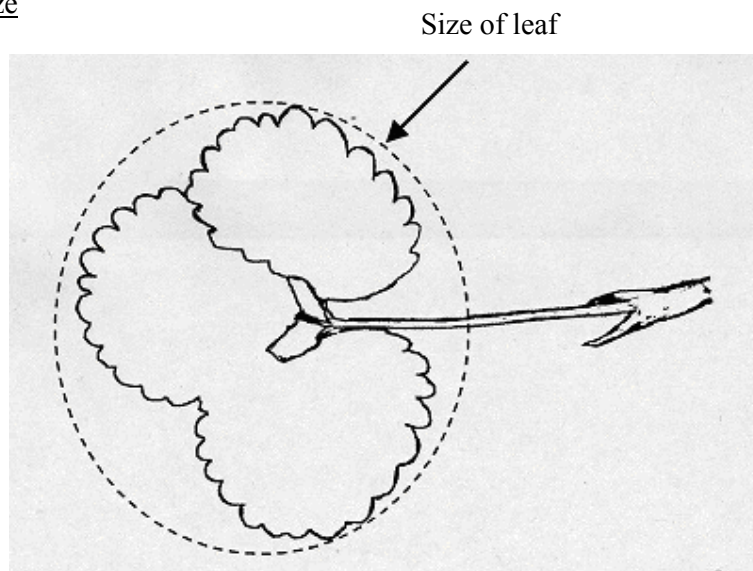
Ad. 3: Plant: vigor

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

Ad. 6: Stolon: anthocyanin coloration

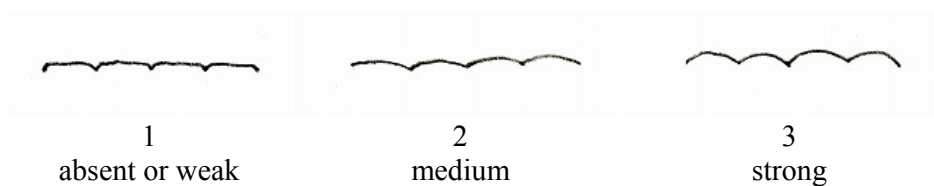
The anthocyan coloration should be observed on the middle third of the stolon.

Ad. 8: Leaf: size

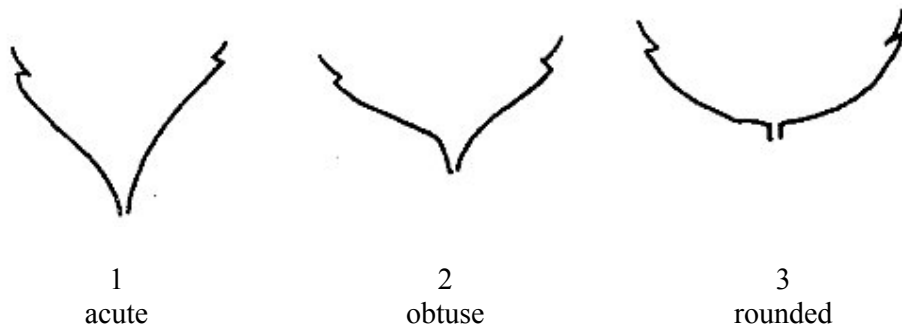


The size of leaf excludes the petiole and stipules.

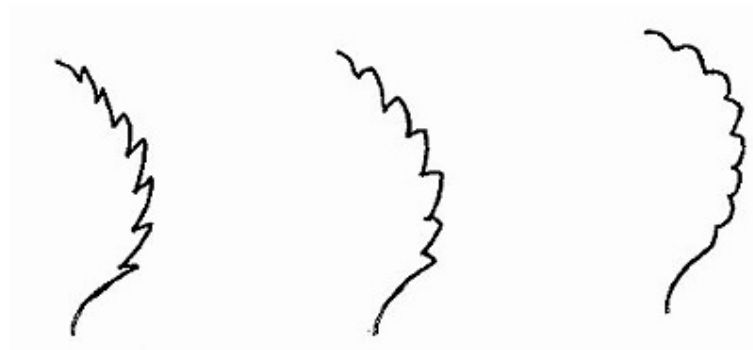
Ad. 10: Leaf: blistering



Ad. 14: Terminal leaflet: shape of base



Ad. 15: Terminal leaflet: incisions of margin

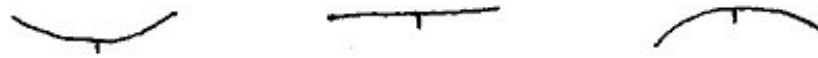


1
serrate

2
intermediate

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

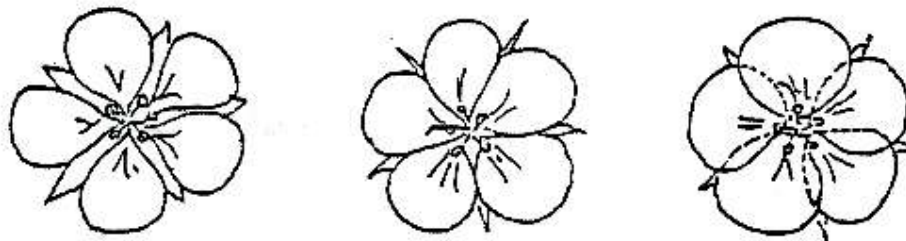


1
upwards

2
slightly
outwards

3
strongly
outwards

Ad. 23: Flower: relative position of petals

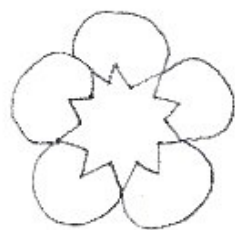


1
free

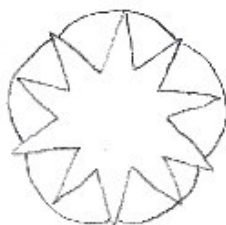
2
touching

3
overlapping

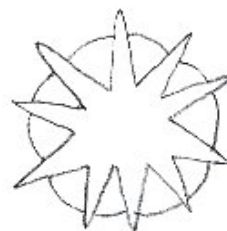
Ad. 24: Flower: size of calyx in relation to corolla



1
smaller



2
same size

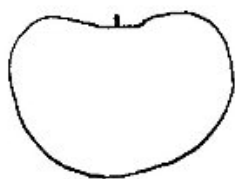


3
larger

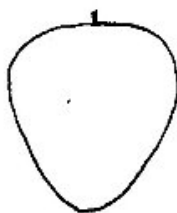
Ad. 29: Fruit: size

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

Ad. 30: Fruit: shape



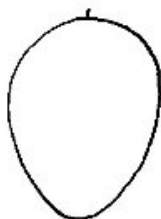
1
reniform



2
conical



3
cordate



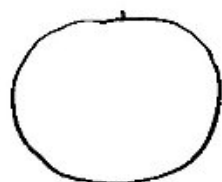
4
ovate



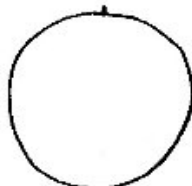
5
cylindrical



6
rhombic



7
oblate



8
circular



9
wedged

Ad. 31: Fruit: difference in shape of primary and secondary fruits

The “primary” fruit relates to fruits obtained from the first crop and “secondary” fruit relates to fruits obtained from the second crop.

Ad. 33: Fruit: evenness of color



1
even or very slightly uneven



2
slightly uneven



3
strongly uneven

Ad. 35: Fruit: evenness of surface

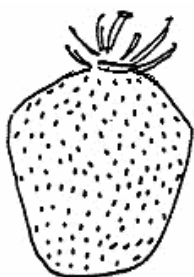


1
even or very slightly uneven

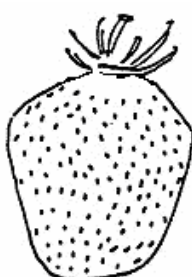
2
slightly uneven

3
strongly uneven

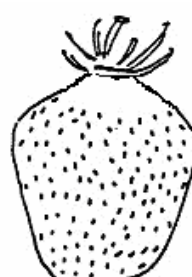
Ad. 36: Fruit: width of band without achenes



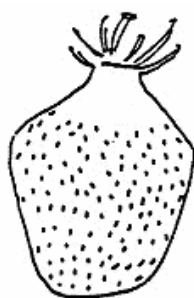
1
absent or very
narrow



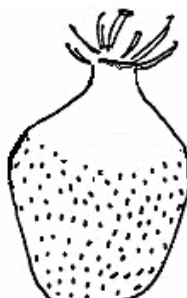
3
narrow



5
medium

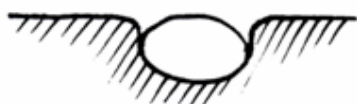


7
broad



9
very broad

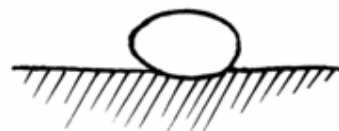
Ad. 37: Fruit: position of achenes



1
below surface

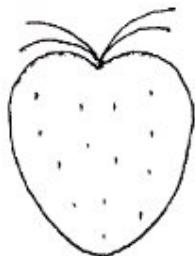


2
level with surface

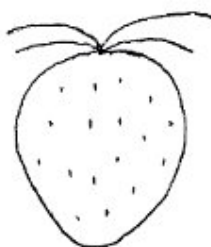


3
above surface

Ad. 38: Fruit: position of calyx attachment



1
inserted

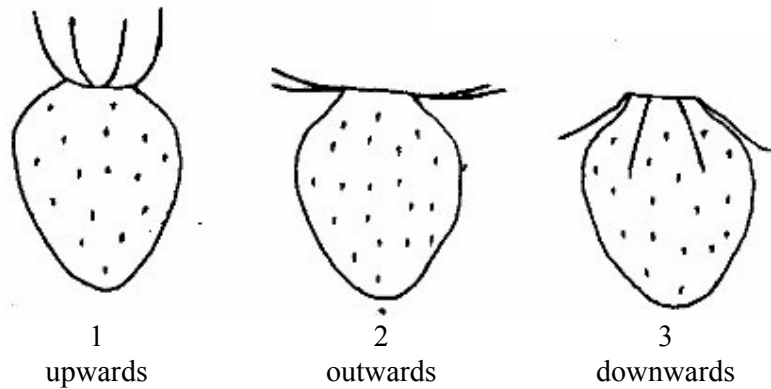


2
level with fruit



3
raised

Ad. 39: Fruit: attitude of sepals

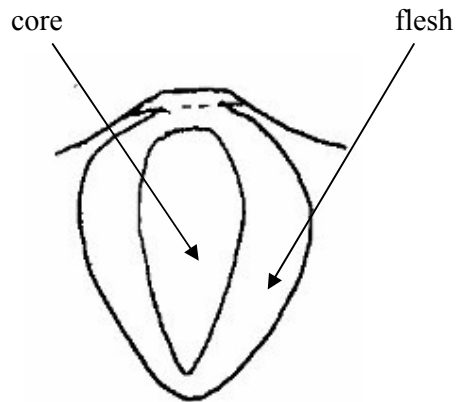


Ad. 40: Fruit: diameter of calyx in relation to fruit

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

Ad. 43: Fruit: color of flesh (excluding core)

Ad. 44: Fruit: color of core



Ad. 47: Time of beginning of fruit ripening

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

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 runners are observed, therefore, runners produce flowers and fruits in the same season as the plant producing the runner.

9. Literature

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10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	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 Genus 1.1.1 Botanical name Fragaria L. 1.1.2 Common name Strawberry 1.2 Species / Group (please complete)	
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:
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#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:
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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 Plant: growth habit (1)		
upright	Benton, Darselect, Gorella	1[]
semi-upright	Cirafine, Senga Sengana	2[]
spreading	Darsidor, Pantagruella	3[]
5.2 Petal: color of upper side (27)		
greenish white		1[]
white	Gariguette	2[]
pink	Frel, Marajox, Pikan	3[]
red	Tarpan	4[]
5.3 Fruit: size (29)		
very small	Astino, Frel	1[]
small	Senga Precosa	3[]
medium	Mara des Bois, Senga Tigaiga	5[]
large	Darselect, Domanil	7[]
very large	Maxim	9[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.4 Fruit: shape (30)		
reniform	Early Dawn, Favette	1[]
conical	Gorella, Matis	2[]
cordate	Direktor Paul Wallbaum	3[]
ovate	Florika, Macherauchs Frühernte	4[]
cylindrical	Chandler, Marie France	5[]
rhombic	Gariguette, Pantagruella	6[]
oblate	Elista	7[]
circular	Grande, Madame Moutot	8[]
wedged	Georg Soltwedel	9[]
5.5 Fruit: color (32)		
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[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.6	Type of bearing		
(48)			
	not remontant	Cambridge Favourite, Gariguette	1[]
	partially remontant	Redgauntlet, Sweet Charlie	2[]
	fully remontant	Brighton, Cirafine, Mara des Bois	3[]
	day neutral	Florika	4[]

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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
<i>Example</i>	<i>Fruit color</i>	<i>orange red</i>	<i>orange</i>
Comments:			

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#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 Main use

(a) Fruit []

(b) Ornamental []

7.4 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.

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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".

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes []

(please provide details as specified by the Authority)

No []

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]