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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

RASPBERRY

UPOV Code(s): RUBUS_IDA

Rubus idaeus L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from Germany
to be considered by the
Technical Working Party for Fruit Crops
at its fifty-third session, to be held virtually,
from 2022-07-11 to 2022-07-15*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Rubus idaeus</i> L.	Raspberry	Framboisier	Himbeere	Frambueso, Sangüeso

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.

Other associated UPOV documents: TG/37 (Blackberry)

* 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 *Rubus idaeus* L. and to its hybrids with *Rubus occidentalis* L.

2. Material Required

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

2.2 The material is to be supplied in the form of plants with good root formation and with a satisfactory number of adventitious buds on the roots.

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

10 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*

3.1.1 The minimum duration of tests should normally be two independent growing cycles.

3.1.2 The two independent growing cycles may be observed from a single planting, examined in two separate growing cycles.

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

3.1.4 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

3.1.5 The testing of a variety may be conducted when the competent authority 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".

3.3 *Conditions for Conducting the Examination*

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

3.3.2 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color 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 10 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 *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.

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts of plants taken from each of 5 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 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. color 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 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 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 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 10 plants, 1 off-type is 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 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 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) Very young shoot: anthocyanin coloration of apex during rapid growth (characteristic 3)
- (b) Spines: presence (characteristic 10)
- (c) Current year’s cane: flower (characteristic 22)
- (d) Fruit: color (characteristic 33)
- (e) Time of beginning of flowering on current season’s cane (characteristic 40)
- (f) Time of beginning of fruit ripening on previous year’s cane (characteristic 41)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

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*

6.2.1 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.

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

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

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7	
		Name of characteristics in English	Nom du caractère en français	Name des Merkmals auf Deutsch	Nombre del carácter en español		
		states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

- 1 Characteristic number
- 2 (*) Asterisked characteristic – see Chapter 6.1.2
- 3 Type of expression
 QL Qualitative characteristic – see Chapter 6.3
 QN Quantitative characteristic – see Chapter 6.3
 PQ Pseudo-qualitative characteristic – see Chapter 6.3
- 4 Method of observation (and type of plot, if applicable)
 MG, MS, VG, VS – see Chapter 4.1.5
- 5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
- 6 (a)-(f) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Not applicable

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	PQ	VG	(+)			
	Plant: habit					
	upright				Ontario, Watson	1
	semi-upright				Autumn Bliss, Preußen, Schönemann	2
	arching				Joan Squire, Meeker	3
2. (*)	QN	MG/VG	(+)			
	Plant: number of current season's canes					
	very few					1
	very few to few					2
	few				Joy, Tulameen	3
	few to medium				Qualicum	4
	medium				Driskasptwo, Fruatfri, Isabel, Malling Delight, Rafzelsa	5
	medium to many				Adelita, Dolomia Plus, Golden Bliss, Grandeur, Multiraspa, Regina	6
	many				Bountiful, Poranna Rosa	7
	many to very many				Carmelina, Cascade Dawn, ma 2920	8
	very many					9
3. (*)	QN	VG	(a)			
	Very young shoot: anthocyanin coloration of apex during rapid growth					
	absent or very weak				Gevalo	1
	very weak to weak				Rusilva	2
	weak				Brilliance, Driscoll Sevillana, Sapphire, Schönemann	3
	weak to medium				Fruatfri, Satine, Sugana	4
	medium				Regina, Tulameen	5
	medium to strong				Malling Freya, Maravilla	6
	strong				Joy, Polka, Sanibelle	7
	strong to very strong				Royalty	8
	very strong				Glen Moy, Malling Delight, Multiraspa	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
4.	QN	VG	(b)				
	Current season's cane: bloom						
		absent or very weak				Adelita, Lupita, Majestic	1
		very weak to weak				Bountiful, Diamond, Elegance	2
		weak				Drirasptwo, Fruatfri, Regina	3
		weak to medium				Meeker, Qualicum, Rubifall	4
		medium				ma 2920, Rafzeter, Rafzmach	5
		medium to strong				Lagorai Plus, NR 7, Schönemann	6
		strong				Advabereen, Malling Freya, Sanibelle	7
		strong to very strong				Brilliance, Pokusa	8
		very strong				Francesca, Ontario, Royalty	9
5.	QN	VG	(b)				
	Current season's cane: anthocyanin coloration						
		absent or very weak				Golden Bliss, Poranna Rosa, Sungold, Valentina	1
		very weak to weak				ma 2920, Sapphire	2
		weak				Cardinal, Vajolet	3
		weak to medium				Evita, Fruatfri, Tulameen	4
		medium				Holyoke, Rafzaqu, Satine	5
		medium to strong				Advarberimar, Autumn Treasure, Glen Ample, Lagorai Plus	6
		strong				Driraspfour, Malling Juno	7
		strong to very strong				Rafzmach, Sanibelle, Tulameen Plus	8
		very strong					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	QN	MG/VG	(b)			
	Current season's cane: length of internode					
	very short					1
	very short to short				NR 7	2
	short				Autumn Treasure, NY One, Poranna Rosa	3
	short to medium				Francesca, Maravilla, Octavia	4
	medium				Driscoll Madonna, Glen Ample, Holyoke	5
	medium to long				Polka	6
	long				Caliber, Seneca	7
	long to very long					8
	very long					9
7.	QN	MG/VG	(+)	(b)		
	Current season's cane: length of vegetative bud					
	short				Autumn Bliss, Drisraspsix	1
	medium				Driscoll Madonna, Grandeur	2
	long				Schönemann	3
8. (*)	QN	MG/VG	(+)	(b)		
	Cane: length					
	very short					1
	very short to short				NR 7	2
	short					3
	short to medium				Advabertwee, Gevalo, Loganlike	4
	medium				Advarberimar	5
	medium to long				Drisraspone, Radiance	6
	long				Driscoll Madonna, Schönemann, Tulameen	7
	long to very long				Meeker, Royalty	8
	very long				Malling Leo	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9	(*)	PQ	VG	(+)			
		Dormant cane: color					
		brownish grey				Malling Leo, Schönemann	1
		greyish brown				Malling Orion	2
		brown				Caliber, Glen Clova	3
		purplish brown				Festival, Malling Landmark	4
		brownish purple				Royalty, Titan	5
10	(*)	QL	VG	(c)			
		Spines: presence					
		absent				Glen Moy	1
		present				Malling Promise	9
11	(*)	QN	VG	(c)			
		Spines: density					
		absent or very sparse				Ontario	1
		very sparse to sparse				Festival, Korbfüller	2
		sparse				Valentina	3
		sparse to medium				Lagorai Plus, Maravilla, Pearl, Tulameen	4
		medium				Annamaria, Lupita, Octavia	5
		medium to dense				ma 2920, Schönemann	6
		dense				Drirasptwo, Fruatfri, NY One, Regina	7
		dense to very dense				Golden Bliss	8
		very dense				Lloyd George	9
12		QN	VG	(+)	(c)		
		Spines: size of base					
		very small					1
		very small to small				Gleam, Tola	2
		small				Caroline, Driscoll Pacifica, Rafzmach	3
		small to medium				Lupita, NY One, Octavia, Radiance	4
		medium				Cardinal, Regina	5
		medium to large				Fruatfri, Isabel, Vajolet	6
		large				BP 1, Dolomia Plus, Drirasptwo	7
		large to very large				JEF-FL	8
		very large				Lowden	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13	QN	MG/VG	(+)	(c)		
	Spines: length					
	very short				Resa, Tola	1
	short				Carmelina, Grandeur	2
	medium				Amaranta, Fruatfri, Regina	3
	long				BP 1, Drisrasptwo	4
	very long				Lowden	5
14	PQ	VG		(c)		
	Spines: color					
	green				Golden Bliss, Malling Delight	1
	brownish green				Brilliance, Holyoke	2
	greenish brown				Advabereen, Drisraspfour, Radiance	3
	brown				Glen Magna, Rusilva	4
	purplish brown				Cardinal, Fruatfri, Rafzeter	5
	brownish purple				BP 1, Caroline, Maravilla, Octavia	6
	purple				Driscoll Madonna, Pokusa, Polka, Sugana	7
15	(*)	QN	VG		(d)	
	Leaf: green color of upper side					
	greenish yellow				JDEBOER005	1
	light green				Skeena, Watson	2
	medium green				Annamaria, Autumn Bliss, Isabel, Multiraspa	3
	dark green				Dolomia Plus	4
16	(*)	PQ	VG		(d)	
	Leaf: predominant number of leaflets					
	three				Veten, Zefa 3	1
	equally three and five				Malling Exploit, Multiraspa, Sirius	2
	five				Ontario, Pujallup, Rusilva	3

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17	QN	VG	(d)				
	Leaf: profile of leaflets in cross section						
	concave					Glen Clova, Glen Moy	1
	straight					Gevalo	2
	convex					Gigant	3
18 (*)	QN	VG	(d)				
	Leaf: rugosity						
	very weak					Heritage, Watson	1
	weak					Rusilva	2
	medium					Caliber, Malling Landmark, Pujallup	3
	strong					Malling Exploit, Spica	4
	very strong					Korbfüller	5
19	QN	VG	(+)	(d)			
	Leaf: relative position of lateral leaflets						
	free					Willamette	1
	touching					Malling Orion	2
	overlapping					Gigant, Resa, Rumiloba	3
20	QN	MG/VG	(d)				
	Terminal leaflet: length						
	very short						1
	very short to short						2
	short					NR 7	3
	short to medium					JDEBOER005	4
	medium					Glen Carron	5
	medium to long					Advabereen, ma 2920, NY One, Sanibelle	6
	long					Amaranta, Drisrasptwo, Elegance, Versailles	7
	long to very long					BP 1, Dolomia Plus, Polka	8
	very long					Motueka, Tea	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21	QN	MG/VG	(d)			
	Terminal leaflet: width					
	very narrow					1
	very narrow to narrow					2
	narrow				Summit	3
	narrow to medium				Caroline	4
	medium				Advabertwee, Drirasponse	5
	medium to broad				Brilliance, Cardinal, Joan J, Rafzaqu, Rubaca	6
	broad				Fruatfri, Pokusa, Sugana	7
	broad to very broad				Annamaria, Regina	8
	very broad				Malling Sirius, Tea	9
22 (*)	QL	VG	(e)			
	Current year's cane: flower					
	absent					1
	present					9
23	QN	MG/VG	(e)			
	Pedice: number of spines					
	absent or very few				Glen Moy, Malling Juno	1
	very few to few				JDEBOER005, Resa, Wakefield	2
	few				Bountiful, Lagorai Plus, Valentina	3
	few to medium				Diamond, Drirasponse, NY One	4
	medium				Cardinal, Fruatfri, Octavia	5
	medium to many				Francesca, Maravilla, Sugana	6
	many				Holyoke, Isabel, Poranna Rosa	7
	many to very many				Autumn Bliss, Satine	8
	very many				Ariadne, Golden Bliss	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24	(*)	QN	VG	(e)			
		Peduncle: anthocyanin coloration					
		absent or very weak				Golden Bliss, Orange Marie	1
		very weak to weak				Autumn Bliss, Driscoll Pacifica, Joan J	2
		weak				Fruatfri, Lupita	3
		weak to medium				NR 7	4
		medium				Grandeur, Isabel, Radiance	5
		medium to strong				Malling Juno, Qualicum	6
		strong				Advabereen, Brilliance	7
		strong to very strong				ABB 122, Glen Doll	8
		very strong				Rafzmach	9
25		QN	MG/VG	(+)	(e)		
		Flower: diameter					
		very small					1
		very small to small				Trent	2
		small				Bella, Korfu Wonder	3
		small to medium				Brilliance, Elegance, Radiance	4
		medium				Bountiful, ma 2920, Pearl	5
		medium to large				Joan J	6
		large				Evita, Lagorai Plus, Malling Freya	7
		large to very large				Amaranta	8
		very large					9
26		QN	VG	(e)			
		Previous year's cane: attitude of fruiting lateral					
		erect				Advarberimar, NR 7	1
		semi-erect				Bountiful, Pearl, Sapphire	2
		horizontal to drooping				Malling Freya	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
27	(*) QN MG/VG	(e)				
	Pevious year's cane: length of fruiting lateral					
	very short					1
	very short to short				Vene	2
	short				Cola 1, Glen Moy	3
	short to medium				Driscoll Pacifica	4
	medium				Fruatfri, Radiance, Sugana	5
	medium to long				Grandeur, Regina, Versailles	6
	long				Glen Ample	7
	long to very long				Malling Leo	8
	very long					9
28	(*) QN MG/VG	(e), (f)				
	Fruit: length					
	very short					1
	very short to short					2
	short				Vene	3
	short to medium				Boheme	4
	medium				Octavia, Sugana	5
	medium to long				Brilliance, Carmelina, Rafzaqu	6
	long				Driscoll Pacifica, Radiance	7
	long to very long				Lagorai Plus, Maravilla	8
	very long				Evita	9
29	(*) QN MG/VG	(e), (f)				
	Fruit: width					
	very narrow					1
	very narrow to narrow					2
	narrow					3
	narrow to medium				Chiliwak	4
	medium				Carmelina, ma 2920, Rafzmach	5
	medium to broad				Drirasptwo, NY One	6
	broad				Bountiful, Lagorai Plus, Pearl	7
	broad to very broad				Adelita, Amaranta, NR 7	8
	very broad					9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30	(*) QN	MG/VG	(e), (f)			
	Fruit: ratio length/ width					
	very small					1
	very small to small					2
	small				Orange Marie	3
	small to medium				Poranna Rosa	4
	medium				Glen Ample, Octavia, Sugana	5
	medium to large				Advabertwee, Driskasptwo, Grandeur, NY One, Radiance	6
	large				Dolomia Plus, Driscoll Madonna, Pearl, Sapphire	7
	large to very large				Amaranta, Autumn Treasure, Malling Freya	8
	very large					9
31	(*) PQ	VG	(+)	(e), (f)		
	Fruit: general shape in lateral view					
	circular				Lowden, Orange Marie	1
	broad conical				Autumn Bliss, Cardinal, Glen Ample, Octavia	2
	conical				Autumn Treasure, Driscoll Madonna, Francesca, Maravilla	3
	trapezoidal				Titan	4
32	QN	VG	(e), (f)			
	Fruit: size of single drupe					
	very small					1
	small				Jochems Roem	2
	medium				Carmelina, Qualicum	3
	large				Holyoke, Joan J, Maravilla, Octavia	4
	very large				Pokusa	5

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33	(*)	PQ	VG	(e), (f)			
		Fruit: color					
		yellow				Golden Bliss, Sungold	1
		orange				Valentina	2
		light red				Annamaria, Maravilla, Qualicum	3
		medium red				Diamond, Pearl, Sapphire	4
		dark red				Bella, BP 1	5
		purple				Deep Purple, Royalty	6
		dark purple				Lowden	7
34		QN	VG	(e), (f)			
		Fruit: glossiness					
		very weak					1
		weak				Glen Magna, Poranna Rosa	2
		medium				Malling Juno, Pearl, Sapphire	3
		strong				Adelita, Advabertwee, Sanibelle	4
		very strong				Resa	5
35	(*)	QN	MG/VG	(e), (f)			
		Fruit: firmness					
		very soft					1
		soft				Fallred, Salviraspa	2
		medium				Brilliance, Carmelina, Francesca	3
		firm				Advabereen, Maravilla	4
		very firm					5
36		PQ	VG	(+)	(e), (f)		
		Fruit: color of torus at distal end					
		greenish				NR 7	1
		whitish					2
		yellowish white				Driraspthirteen	3
		orange reddish				Driraspsix	4

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37	(*) QN	MG/VG				
	Time of vegetative bud burst					
	very early					1
	very early to early				Vene	2
	early				Grandeur	3
	early to medium				Advabertwee, Brilliance, Qualicum	4
	medium				Advarberimar, Diamond, Lagorai Plus, Regina	5
	medium to late				Glen Ample, Vajolet	6
	late				Glen Magna, Lowden	7
	late to very late				Driraspfour	8
	very late				Gaia	9
38	(*) QN	MG/VG				
	Time of cane emergence					
	very early					1
	very early to early				Driraspthirteen, Majestic	2
	early				Sungold	3
	early to medium				Advarberimar, ma 2920, Maravilla	4
	medium				Cardinal, Grandeur, Lagorai Plus, Sugana	5
	medium to late				Amaranta, Tulameen Plus	6
	late				Glen Fyne	7
	late to very late				Glen Ample	8
	very late				Malling Juno, Valentina	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39	(*)	QN	MG/VG	(+)	(e)	
	Time of beginning of flowering on previous year's cane					
	very early					1
	very early to early				Malling Freya	2
	early				Advabereen, Malling Juno, NY One	3
	early to medium				Brilliance, Fruatfri, Glen Fyne	4
	medium				Diamond, Sapphire	5
	medium to late				Drirasponse, Grandeur	6
	late				Octavia, Tulameen Plus	7
	late to very late				Annamaria	8
	very late					9
40	(*)	QN	MG/VG	(+)	(e)	
	Time of beginning of flowering on current season's cane					
	very early					1
	very early to early				Polana	2
	early				Adelita, Joan J, Polka	3
	early to medium				Brilliance, Cardinal, Grandeur, ma 2920, Radiance	4
	medium				Rafzaqu, Regina	5
	medium to late				Francesca, Maravilla, Sugana	6
	late				Advabertwee, Annamaria, Tulameen Plus, Vajolet	7
	late to very late				Drirasponse, Lagorai Plus	8
	very late				Driscoll Madonna, Pearl	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41	(*)	QN	MG/VG	(+)	(e)	
	Time of beginning of fruit ripening on previous year's cane					
	very early					1
	very early to early				ABB 122, Malling Freya	2
	early				Advabereen, Lupita, ma 2920, Valentina	3
	early to medium				Adelita, Advarberimar, BP 1, Driscoll Madonna	4
	medium				Advabertwee, NR 7, Radiance	5
	medium to late				Mayfair, Satine	6
	late				Grandeur, Malling Sirius, Octavia	7
	late to very late				Lowden	8
	very late				Augusta	9
42	(*)	QN	MG/VG	(+)	(e)	
	Time of beginning of fruit ripening on current year's cane					
	very early					1
	very early to early				Mayfair	2
	early				Driscoll Madonna, Isabel, Sugana	3
	early to medium				Advarberimar, Grandeur, Lagorai Plus	4
	medium				Diamond, Drisrasptwo, Elegance, NY One	5
	medium to late				Brilliance, NR 7, Octavia	6
	late				Caroline, Glen Ample	7
	late to very late				ABB 122	8
	very late					9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

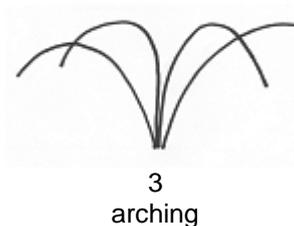
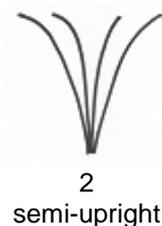
- (a) Very young shoot: Observations on the very young shoot should be made when the shoots are about 15 cm long.
- (b) Current season's cane: Observations on the current season's cane should be made when the cane is about 1 m to 1.50 m long. For varieties flowering and fruiting on the previous year's cane these observations should be made just after harvest, for varieties flowering and fruiting on the current year's cane these observations should be made just before or at harvest. The bloom of the current season's cane should only be observed when fully grown.
- (c) Spines: Observations on spines should be made in the middle third of the current season's cane, when the cane is fully developed.
- (d) Leaf: Observations on the leaf should be made on fully developed leaves from the middle third of the cane.
- (e) Flower/fruit: Observations on the flower and the fruit should be recorded from canes with flowers and fruits appearing first in the vegetation period (either on previous year's canes in summer or on current year's canes in autumn). When flowers or fruits have been observed on the current year's cane, they will not be observed on the same canes in the following year.

(consider to add:) In the absence of previous year's canes observations should be carried out on current year's canes only.

- (f) Fruit: Observations on the fruit should be made on fruit picked during the second and third harvest.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: habit

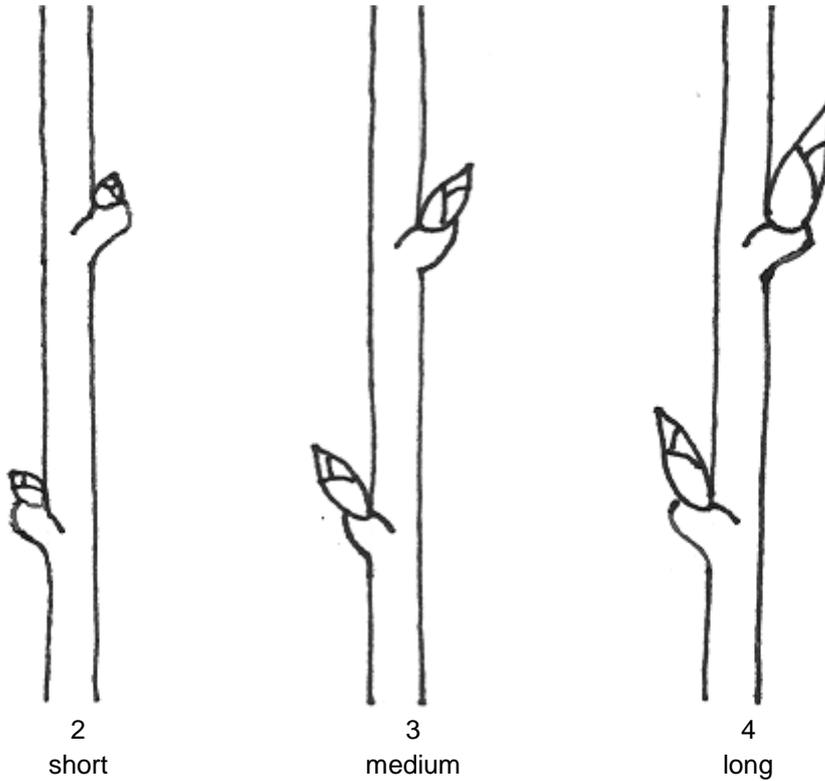


Ad. 2: Plant: number of current season's canes

The number of current season's canes should be considered as the number per meter length of the row before thinning, for the first time observed in the beginning of the second year.

Ad. 7: Current season's cane: length of vegetative bud

Observations on the vegetative bud should be made in the middle third of the cane.



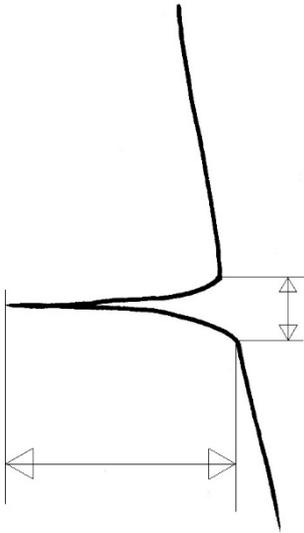
Ad. 8: Cane: length

The length of the cane should be assessed as the length of a current year's cane at the end of the vegetation period.

Ad. 9: Dormant cane: color

If the canes peel, the dominant color should be the color of the bark in an unpeeled area.

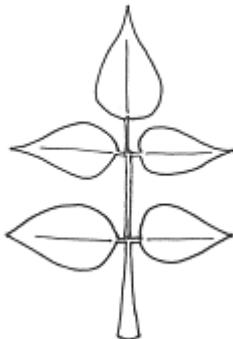
Ad. 12: Spines: size of base



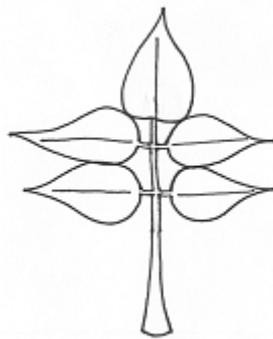
Ad. 13: Spines: length

See Ad. 12

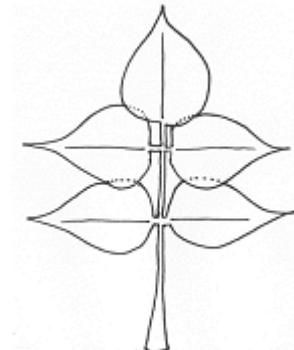
Ad. 19: Leaf: relative position of lateral leaflets



1
free



2
touching

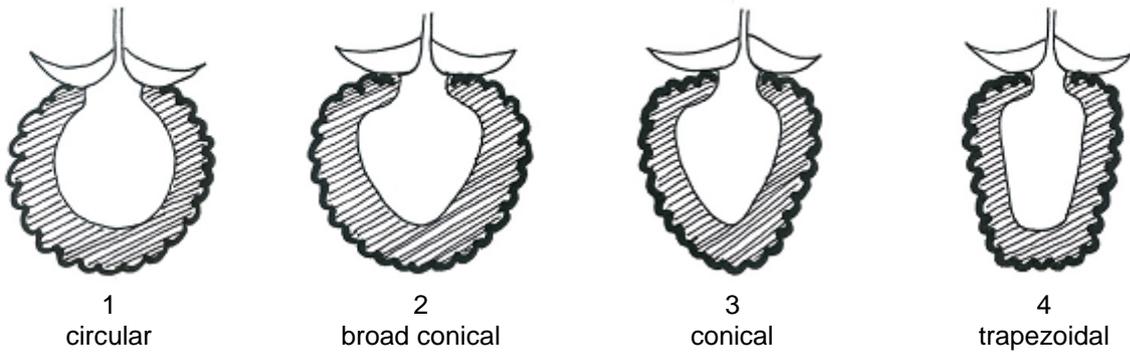


3
overlapping

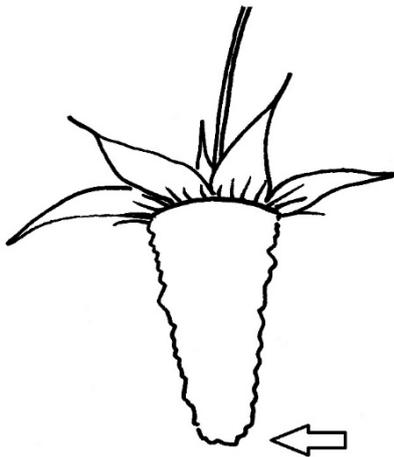
Ad. 25: Flower: diameter

The diameter of the flower should be assessed with petals pressed into horizontal position.

Ad. 31: Fruit: general shape in lateral view



Ad. 36: Fruit: color of torus at distal end



Ad. 39: Time of beginning of flowering on previous year's cane

The time of beginning of flowering should be considered as the time when 10% of the flowers have opened.

Ad. 40: Time of beginning of flowering on current season's cane

See Ad. 39

Ad. 41: Time of beginning of fruit ripening on previous year's cane

The time of beginning of fruit ripening is when the fruit is most easily removed from the plug.

Ad. 42: Time of beginning of fruit ripening on current year's cane

See Ad. 41

9. Literature

Bundessortenamt, 2006: Beschreibende Sortenliste Himbeere, Brombeere, Deutscher Landwirtschaftsverlag GmbH, Hannover, Germany.

Edin, M.; Gaillard, P.; Massardier, P., 1999: Le framboisier. Monographie Ctifl.

Leemans, J.A.; Nannenga, E.T., 1957: A Morphological Classification of Raspberry varieties. Instituut voor de veredeling van tuinbouwgewassen, Wageningen, The Netherlands.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights		
1. Subject of the Technical Questionnaire		
1.1	Botanical name	<input type="text" value="Rubus idaeus L."/>
1.2	Common name	<input type="text" value="Raspberry"/>
2. Applicant		
	Name	<input type="text"/>
	Address	<input type="text"/>
	Telephone No.	<input type="text"/>
	Fax No.	<input type="text"/>
	E-mail address	<input type="text"/>
	Breeder (if different from applicant)	<input type="text"/>
3. Proposed denomination and breeder's reference		
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

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 variety)

(.....) x (.....)

female parent male parent

(b) partially known cross

(please state known parent variety(ies))

(.....) x (.....)

female parent male parent

(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)

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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4.2	Method of propagating the variety	
4.2.1	Vegetative propagation	
(a)	<i>In vitro</i> propagation	[]
(b)	Rhizomes	[]
(c)	Other (state method)	[]
	<input type="text"/>	
4.2.2	Other (Please provide details)	[]
	<input type="text"/>	

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: number of current season's canes (2)		
very few		1 []
very few to few		2 []
few	Joy, Tulameen	3 []
few to medium	Qualicum	4 []
medium	Drirasptwo, Fruatfri, Isabel, Malling Delight, Rafzelsa	5 []
medium to many	Adelita, Dolomia Plus, Golden Bliss, Grandeur, Multiraspa, Regina	6 []
many	Bountiful, Poranna Rosa	7 []
many to very many	Carmelina, Cascade Dawn, ma 2920	8 []
very many		9 []
5.2 Dormant cane: color (9)		
brownish grey	Malling Leo, Schönemann	1 []
greyish brown	Malling Orion	2 []
brown	Caliber	3 []
purplish brown	Festival, Malling Landmark	4 []
brownish purple	Royalty, Titan	5 []
5.3 Spines: presence (10)		
absent	Glen Moy	1 []
present	Malling Promise	9 []
5.4 Current year's cane: flower (22)		
absent		1 []
present		9 []

Characteristics	Example Varieties	Note
5.5 Fruit: ratio length/ width (30)		
very small		1 []
very small to small		2 []
small	Orange Marie	3 []
small to medium	Poranna Rosa	4 []
medium	Glen Ample, Octavia, Sugana	5 []
medium to large	Advabertwee, Drisrasptwo, Grandeur, NY One, Radiance	6 []
large	Dolomia Plus, Driscoll Madonna, Pearl, Sapphire	7 []
large to very large	Amaranta, Autumn Treasure, Malling Freya	8 []
very large		9 []
5.6 Fruit: general shape in lateral view (31)		
circular	Lowden, Orange Marie	1 []
broad conical	Autumn Bliss, Cardinal, Glen Ample, Octavia	2 []
conical	Autumn Treasure, Driscoll Madonna, Francesca, Maravilla	3 []
trapezoidal	Titan	4 []
5.7 Fruit: color (33)		
yellow	Golden Bliss, Sungold	1 []
orange	Valentina	2 []
light red	Annamaria, Maravilla, Qualicum	3 []
medium red	Diamond, Pearl, Sapphire	4 []
dark red	Bella, BP 1	5 []
purple	Deep Purple, Royalty	6 []
dark purple	Lowden	7 []
5.8 Time of beginning of fruit ripening on previous year's cane (41)		
very early		1 []
very early to early	ABB 122, Malling Freya	2 []
early	Advabereen, Lupita, ma 2920, Valentina	3 []
early to medium	Adelita, Advaberimar, BP 1, Driscoll Madonna	4 []
medium	Advabertwee, NR 7, Radiance	5 []
medium to late	Mayfair, Satine	6 []
late	Grandeur, Malling Sirius, Octavia	7 []
late to very late	Lowden	8 []
very late	Augusta	9 []

Characteristics	Example Varieties	Note
5.9 Fruit: bearing type		
mainly on previous year's cane in summer	Malling Promise	1 []
bith on previous year's cane in summer and on current year's cane in autumn	Isabel	2 []
mainly on current year's cane in autumn	Autumn Bliss	3 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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: firmness</i>	<i>very soft</i>	<i>firm</i>
Comments:			

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

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

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

Yes No

(If yes, please provide details)

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

Yes No

(If yes, please provide details)

7.3 Other information

A representative color photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.

The key points to consider when taking a photograph of the candidate variety are:

- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)"

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (<http://www.upov.int/tgp/en/>).

[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

Virus status

The variety is free from all known viruses as follows:
 (indicate from which viruses)

The plant material is virus tested:
 (indicate against which viruses)

The virus status is unknown

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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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.

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

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes []	No []
(b) Chemical treatment (e.g. growth retardant, pesticide)	Yes []	No []
(c) Tissue culture	Yes []	No []
(d) Other factors	Yes []	No []

Please provide details for where you have indicated "yes".

.....

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

Applicant's name

Signature Date

[End of document]