



TG/137/4

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

BLUEBERRY

UPOV Codes: VACCI_ANG; VACCI_COR; VACCI_FOR; VACCI_MYD;
VACCI_MYR; VACCI_VIR; VACCI_SIM

(Vaccinium angustifolium Aiton; *V. corymbosum* L.; *V. formosum* Andrews;
V. myrtilloides Michx.; *V. myrtilillus* L.; *V. virgatum* Aiton; *V. simulatum* Small)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Vaccinium angustifolium</i> Aiton; <i>Vaccinium brittoni</i> Porter	Lowbush Blueberry; Upland Lowbush Blueberry	Bleuet; Bleuet nain; Petite myrtille sauvage; Airelle à feuilles étroites		Arándano bajo, Arándano salvaje
<i>Vaccinium corymbosum</i> L.	Highbush Blueberry; Northern Highbush	Myrtille géante américaine; Myrtille d'Amérique; Myrtille géante; Bleuet cultivé; Bleuet en corymbe; Bleuet à corymbes; Airelle en corymbe; Airelle à corymbes; Myrtille arbustive; Corymbelle	Kulturheidelbeere; Amerikanische Heidelbeere	Arándano americano, Arándano alto, Arándano gigante
<i>Vaccinium formosum</i> Andrews, <i>Vaccinium australe</i> Small	Swamp Highbush Blueberry; Swamp or Southern Highbush			
<i>Vaccinium myrtilloides</i> Michx.	Canada Blueberry; Sourtop Blueberry; Velvetleaf Blueberry	Bleuet; Airelle fausse-myrtille; Airelle du Canada; Bleuet du Canada	Kanadische Heidelbeere	
<i>Vaccinium myrtilillus</i> L.	Bilberry; Whinberry; Whortleberry	Myrtille; Airelle fausse-myrtille; Airelle à tige mince	Blaubeere, Heidelbeere	Arándano, Mirtillo, Ráspano
<i>Vaccinium virgatum</i> Aiton, <i>Vaccinium ashei</i> Reade	Rabbit-eye Blueberry; Southern Black Blueberry			Arándano ojo de conejo
<i>Vaccinium simulatum</i> Small	Upland Highbush Blueberry			

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 corrected 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 *Vaccinium angustifolium* Aiton (*Vaccinium brittoni* Porter); *Vaccinium corymbosum* L.; *Vaccinium formosum* Andrews (*Vaccinium australe* Small); *Vaccinium myrtilloides* Michx.; *Vaccinium myrtillus* L.; *Vaccinium virgatum* Aiton (*Vaccinium ashei* Reade); and *Vaccinium simulatum* Small, including their hybrids, of the family *Ericaceae*.

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 at least three well-developed shoots.

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

5 plants with at least three well-developed shoots.

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

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

3.3.2 Type of observation

The recommended method of observing the characteristic is indicated by the following key in the second column of the Table 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

3.4 *Test Design*

Each test should be designed to result in a total of at least 5 plants.

3.5 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations should be made on 5 plants or parts taken from each of 5 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, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no 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 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 2)
- (b) Fruit: color of skin (after removal of bloom) (characteristic 27)
- (c) Plant: fruiting type (characteristic 31)
- (d) Time of beginning of flowering on one-year-old shoot (characteristic 33)
- (e) Only varieties which fruit on one-year-old and current season's shoots: Time of beginning of flowering on current year's shoot (characteristic 34)
- (f) Time of beginning of fruit ripening on one-year-old shoot (characteristic 35)
- (g) Only varieties which fruit on one-year-old and current season's shoots: Time of beginning of fruit ripening on current year's shoot (characteristic 36).

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

MG, MS, VG, VS: see Chapter 3.3.2

(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. VG	Plant: vigor	Plante: vigueur	Pflanze: Wuchsstärke	Planta: vigor		
(*) (+)						
QN	(a) weak	faible	schwach	débil	Bluetta, Weymouth	3
	medium	moyenne	mittel	medio	Patriot, Bluejay	5
	strong	forte	stark	fuerte	Bluecrop, Duke, Earliblue	7
2. VG	Plant: growth habit	Plante: port	Pflanze: Wuchsform	Planta: porte		
(*)						
PQ	(a) upright	dressé	aufrecht	erecto	Ivanhoe	1
	semi upright	demi dressé	halbaufrecht	semierecto	Bluetta	2
	spreading	étalé	breitwüchsig	rastrero	Jersey	3
3. VG	One-year-old shoot: color	Rameau d'un an: couleur	Einjähriger Trieb: Farbe	Rama de un año: color		
PQ	(a) green	verte	grün	verde	Puru	1
	greenish red	rouge verdâtre	grünlichrot	rojo verdoso	Reka	2
	greyish red	rouge grisâtre	gräulichrot	rojo grisáceo	Berkeley	3
	reddish yellow	jaune rougeâtre	rötlichgelb	amarillo rojizo	Heerma	4
	reddish brown	brun rougeâtre	rötlichbraun	marrón rojizo	Earliblue	5
	dark red	rouge foncé	dunkelrot	rojo oscuro	Aron	6
4. VG	One-year-old shoot: length of internode (upper half)	Rameau d'un an: longueur de l'entre- nœud (moitié supérieure)	Einjähriger Trieb: Länge des Inter- nodiums (obere Hälfte)	Rama de un año: longitud del entre- nudo (mitad superior)		
QN	(a) short	court	kurz	corta		3
	medium	moyen	mittel	media		5
	long	long	lang	larga		7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5. MS/ VG (*)	Leaf: length	Feuille: longueur	Blatt: Länge	Hoja: longitud		
QN (b)	short	courte	kurz	corta	Darrow	3
	medium	moyenne	mittel	media	Bluecrop, Patriot	5
	long	longue	lang	larga	Collins, Berkeley, Toro	7
6. MS/ VG	Leaf: width	Feuille: largeur	Blatt: Breite	Hoja: anchura		
QN (b)	narrow	étroite	schmal	estrecha	Emil, Heerma, Putte	3
	medium	moyenne	mittel	media	Ama, Bluecrop	5
	broad	large	breit	ancha	Collins, Berkeley	7
7. MS/ VG	Leaf: ratio length/width	Feuille: rapport longueur/largeur	Blatt: Verhältnis Länge/Breite	Hoja: relación longitud/anchura		
QN (b)	small	petit	klein	pequeña	Gretha	3
	medium	moyen	mittel	media	Patriot	5
	large	grand	groß	grande	Heerma	7
8. VG (*)	Leaf: shape	Feuille: forme	Blatt: Form	Hoja: forma		
PQ (b)	lanceolate	lancéolée	lanzettlich	lanceolada	Weymouth	1
	ovate	ovale	eiförmig	oval	Puru	2
	elliptic	elliptique	elliptisch	elíptica	Rancocas, Earliblue	3
	oblong	oblongue	rechteckig	oblonga	Berkeley, Bluetta, Jersey	4
9. VG	Leaf: color of upper side	Feuille: couleur de la face supérieure	Blatt: Farbe der Oberseite	Hoja: color del haz		
QL (b)	yellow	jaune	gelb	amarillo	Geerdens	1
	green	verte	grün	verde		2

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10. VG (*)	<u>Only varieties with green leaf color:</u> Leaf: intensity of green color on upper side	<u>Seulement variétés à feuilles de couleur verte:</u> Feuille: intensité de la couleur verte sur la face supérieure	<u>Nur Sorten mit grüner Blattfarbe:</u> Blatt: Intensität der Grünfärbung an der Oberseite	<u>Sólo variedades con hoja de color verde:</u> Hoja: intensidad del color verde del haz		
QN (b)	light	claire	hell	clara	Earliblue	3
	medium	moyenne	mittel	media	Berkeley, Toro	5
	dark	foncée	dunkel	oscura	Weymouth, Darrow	7
11. VG (*)	Leaf: margin	Feuille: bord	Blatt: Rand	Hoja: margen		
QL (b)	entire	entier	ganzrandig	entero	Blueray, Jersey	1
	serrate	denté	gesägt	serrado	Brigitta, Rancocas	2
12. VG	Flower bud: anthocyanin coloration	Bourgeon: pigmentation anthocyanique	Blütenknospe: Anthocyanfärbung	Botón floral: pigmentación antocianica		
QN (a)	weak	faible	gering	débil	Hele	3
	medium	moyenne	mittel	media	Patriot	5
	strong	forte	stark	fuerte	Bluecrop	7
13. MS/ VG	Inflorescence: length (excluding peduncle)	Inflorescence: longueur (à l'exclusion du pédoncule)	Blütenstand: Länge (ohne Blütenstandsstiel)	Inflorescencia: longitud (excluido el pedúnculo)		
QN (c)	short	courte	kurz	corta	Bluetta, Collins	3
	medium	moyenne	mittel	media	Duke, Earliblue	5
	long	longue	lang	larga	Berkeley, Bluecrop	7
14. VG	Flower: shape of corolla	Fleur: forme de la corolle	Blüte: Form der Krone	Flor: forma de la corola		
PQ (c)	urceolate	urcéolée	urnenförmig	urceolada	Maru	1
	campanulate	campanulée	glockenförmig	acampanada		2
	cylindrical	cylindrique	zylindrisch	cilíndrica	Reka	3

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15. VG (*)	Flower: size of corolla tube	Fleur: taille du tube de la corolle	Blüte: Größe der Kronenröhre	Flor: tamaño del tubo de la corola		
QN (c)	small	petit	klein	pequeño	Blueray	3
	medium	moyen	mittel	medio	Heerma	5
	large	grand	groß	grande	Collins	7
16. VG (*)	Flower: anthocyanin coloration of corolla tube	Fleur: pigmentation anthocyanique du tube de la corolle	Blüte: Anthocyanfärbung der Kronenröhre	Flor: pigmentación antocianica del tubo de la corola		
QN (c)	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Maru	1
	weak	faible	gering	débil	Ama	3
	medium	moyenne	mittel	media	Gretha	5
	strong	forte	stark	fuerte	Bluecrop	7
17. VG	Flower: ridges on corolla tube	Fleur: cannelures sur le tube de la corolle	Blüte: Rippen an der Kronenröhre	Flor: aristas en el tubo de la corola		
QL (c)	absent	absentes	fehlend	ausentes		1
	present	présentes	vorhanden	presentes		9
18. VG	Fruit cluster: density	Bouquet de fruit: densité	Fruchtgruppe: Dichte	Racimos de fruto: densidad		
QN (d)	sparse	lâche	locker	baja	Rahi	3
	medium	moyenne	mittel	media	Toro	5
	dense	dense	dicht	alta	Tifblue	7
19. VG (*)	Unripe fruit: intensity of green color	Fruit non mûr: intensité de la couleur verte	Unreife Frucht: Intensität der Grünfärbung	Fruto no maduro: intensidad del color verde		
QN	light	claire	hell	clara	Heerma	3
	medium	moyenne	mittel	media	Ama	5
	dark	foncée	dunkel	oscura	Berkeley	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20. VG	Fruit: size	Fruit: taille	Frucht: Größe	Fruto: tamaño		
(*)						
QN	(d) small	petit	klein	pequeño	Ama	3
	medium	moyen	mittel	medio	Concord	5
	large	gros	groß	grande	Darrow	7
21. VG	Fruit: shape in longitudinal section	Fruit: forme en section longitudinale	Frucht: Form im Längsschnitt	Fruto: forma en sección longitudinal		
(*)						
(+)						
PQ	(d) elliptic	elliptique	elliptisch	elíptica	Northland	1
	round	arrondi	rund	redonda	Bluecrop, Jersey	2
	oblate	aplatis	breitrund	oblata	Earliblue	3
22. VG	Fruit: attitude of sepals	Fruit: port des sépales	Frucht: Haltung der Kelchblätter	Fruto: porte de los sépalos		
QN	(d) erect	dressé	aufrecht	erecto	Powderblue	1
	erect to semi-erect	dressé à demi-dressé	aufrecht bis halbaufrecht	entre erecto y semierecto		2
	semi-erect	demi-dressé	halbaufrecht	semierecto	Tifblue	3
23. VG	Fruit: type of sepals	Fruit: type de sépales	Frucht: Typ der Kelchblätter	Fruto: tipo de sépalos		
QN	(d) incurving	incurvé	aufgebogen	incurvado	Delite	1
	straight	droit	gerade	recto	Powderblue	2
	reflexed	récurvé	zurückgebogen	recurvado	Tifblue	3
24. VG	Fruit: diameter of calyx basin	Fruit: diamètre de la cuvette du calice	Frucht: Durchmesser der Kelchhöhle	Fruto: diámetro de la cavidad del cáliz		
QN	(d) small	petit	klein	pequeño	Blueray	3
	medium	moyen	mittel	medio	Bluecrop	5
	large	grand	groß	grande	Darrow	7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25.	VG	Fruit: depth of calyx basin	Fruit: profondeur de la cuvette du calice	Frucht: Tiefe der Kelchhöhle	Fruto: profundidad de la cavidad del cáliz	
QN	(d)	shallow	peu profonde	flach	poco profunda	Collins 3
		medium	moyenne	mittel	media	Blueray 5
		deep	profonde	tief	profunda	Heidi, Jersey 7
26.	VG	Fruit: intensity of bloom	Fruit: intensité de la pruine	Frucht: Intensität der Bereifung	Fruto: intensidad de la pruina	
QN	(d)	very weak	très faible	sehr gering	muy débil	Goldtraube 1
		weak	faible	gering	débil	Gretha 3
		medium	moyenne	mittel	media	Ama, Bluetta 5
		strong	forte	stark	fuerte	Darrow, Gila 7
27.	VG	Fruit: color of skin (after removal of bloom)	Fruit: couleur de l'épiderme (après retrait de la pruine)	Frucht: Farbe der Schale (nach Entfernung der Bereifung)	Fruto: color de la epidermis (tras quitar la pruina)	
PQ	(d)	light blue	bleu clair	hellblau	azul claro	Berkeley 1
		medium blue	bleu moyen	mittelblau	azul medio	Patriot 2
		dark blue	bleu foncé	dunkelblau	azul oscuro	Heerma 3
		blue red	bleu rouge	blaurot	rojo azulado	Delite 4
28.	VG/ MG	Fruit: firmness	Fruit: fermeté	Frucht: Festigkeit	Fruto: firmeza	
QN	(d)	soft	mou	weich	blando	3
		medium	intermédiaire	mittel	medio	O'Neil 5
		firm	ferme	fest	firme	Duke 7
		very firm	très ferme	sehr fest	muy firme	Rahi 9
29.	VG	Fruit: sweetness	Fruit: goût sucré	Frucht: Süße	Fruto: dulzor	
QN	(d)	low	faible	gering	bajo	Bluetta 3
		medium	moyen	mittel	medio	Collins 5
		high	fort	stark	alto	Goldtraube 7

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
30. VG (* (+)	Fruit: acidity	Fruit: acidité	Frucht: Säure	Fruto: acidez		
QN	(d) low	faible	gering	baja	Gretha	3
	medium	moyenne	mittel	media	Darrow	5
	high	forte	stark	alta	Ascorba, Bluecrop	7
31. VG (* (+)	Plant: fruiting type	Plante: type de fructification	Pflanze: Fruchungstyp	Planta: tipo de fructificación		
QL	(c) on one-year-old shoots only	seulement sur des rameaux d'un an	nur an einjährigen Trieben	sólo en ramas de un año	Darrow, Patriot	1
	on one-year-old and current season's shoots	sur des rameaux d'un an et des rameaux en croissance	an einjährigen Trieben und an Jahrestrieben	en ramas de un año y en ramas de la estación	Concord, Burlington	2
32. MG (* (+)	Time of vegetative bud burst	Époque de débourrement	Zeitpunkt des Aufbruchs der vegetativen Knospe	Época de aparición de la yema de madera		
QN	early	précoce	früh	temprana	Patriot, Weymouth	3
	medium	moyenne	mittel	media	Bluecrop	5
	late	tardive	spät	tardía	Blueray	7
33. MG (* (+)	Time of beginning of flowering on one-year-old shoot	Époque du début de la floraison sur les rameaux d'un an	Zeitpunkt des Blühbeginns am einjährigen Trieb	Época de inicio de la floración en la rama de un año		
QN	very early	très précoce	sehr früh	muy temprana	Patriot	1
	early	précoce	früh	temprana	Weymouth	3
	medium	moyenne	mittel	media	Berkeley	5
	late	tardive	spät	tardía	Darrow	7
	very late	très tardive	sehr spät	muy tardía	Jersey	9

	English	français	Deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
34.	MG	<u>Only varieties which fruit on one-year-old and current season's shoots:</u>	<u>Seulement variétés avec fruit sur les rameaux d'un an et les rameaux en croissance :</u>	<u>Nur Sorten, die am einjährigen Trieb und am Jahrestrieb Früchte tragen:</u>	<u>Sólo variedades que fructifican en ramas de un año y en ramas de la estación:</u>	
(*)	Time of beginning of flowering on current year's shoot	Époque du début de la floraison sur les rameaux en croissance	Zeitpunkt des Blühbeginns am Jahrestrieb	Época de inicio de la floración en la rama del corriente año		
(+)						
QN	early	précoce	früh	temprana	O'Neal	3
	medium	moyenne	mittel	media	JU83	5
	late	tardive	spät	tardía		7
35.	MG	<u>Time of beginning of fruit ripening on one-year-old shoot</u>	<u>Zeitpunkt des Beginns der Fruchtreife am einjährigen Trieb</u>	<u>Época de inicio de la madurez del fruto en la rama de un año</u>		
(*)		Époque du début de la maturation des fruits sur les rameaux d'un an				
(+)						
QN	very early	très précoce	sehr früh	muy temprana	Bluetta	1
	early	précoce	früh	temprana	Blueray	3
	medium	moyenne	mittel	media	Heerma	5
	late	tardive	spät	tardía	Darrow	7
	very late	très tardive	sehr spät	muy tardía	Elizabeth	9
36.	MG/ QN	<u>Only varieties which fruit on one-year-old and current season's shoots:</u>	<u>Nur Sorten, die am einjährigen Trieb und am Jahrestrieb Früchte tragen:</u>	<u>Sólo variedades que fructifican en ramas de un año y en ramas de la estación:</u>		
(*)	Time of beginning of fruit ripening on current year's shoot	Seulement variétés avec fruit sur les rameaux en croissance: Époque du début de la maturation des fruits sur les rameaux en croissance	Zeitpunkt des Beginns der Fruchtreife am Jahrestrieb	Época de inicio de la madurez del fruto en la rama del corriente año		
(+)						
QN	early	précoce	früh	temprana	O'Neal	3
	medium	moyenne	mittel	media	JU83	5
	late	tardive	spät	tardía		7

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:

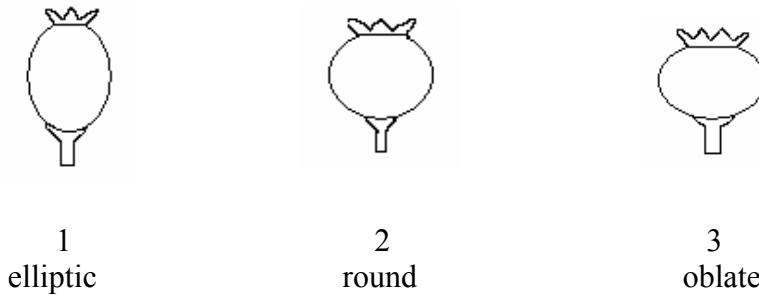
- (a) Observations on the plant should be made on unpruned bushes in the dormant season.
- (b) Observations on the leaf should be made on fully developed leaves in early summer.
- (c) Observations on the inflorescence and flower should be made at the time of full flowering.
- (d) Unless otherwise stated, observations on the fruit should be made on physiologically ripe fruits.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: vigor

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

Ad. 21: Fruit: shape in longitudinal section



Ad. 28: Fruit: firmness

Firmness should be determined by hand in comparison to the example varieties, or measured using a penetrometer.

Ad. 29: Fruit: sweetness

Ad. 30: Fruit: acidity

Sweetness and acidity should be observed by tasting in comparison to the example varieties.

Ad. 32: Time of vegetative bud burst

The time of vegetative bud burst is when the first vegetative buds begin to burst.

Ad. 33: Time of beginning of flowering on one-year old shoot

Ad. 34: Only varieties which fruit on one-year-old and current season's shoots: Time of beginning of flowering on current year's shoot

The time of beginning of flowering is when 10% of the flowers are fully open.

Ad. 35: Time of beginning of fruit ripening on one-year-old shoot

Ad. 36: Only varieties which fruit on one-year-old and current season's shoots: Time of beginning of fruit ripening on current year's shoot

The time of beginning of fruit ripening is when 10% of the fruits are ripe.

9. Literature

Ebert, G., 2005: Anbau von Heidelbeeren und Cranberries. Ulmer Verlag, Stuttgart, DE.

Liebster, G., 1961: Die Kulturheidelbeere. Parey Verlag, Berlin und Hamburg, DE.

Rejman, A., 1994: Pomologia. PWRiL, Warszawa, PL.

Rejman, A., Pliszka, K., 1988: Borówka wysoka. PWRiL, Warszawa, PL.

Sękowski, B., 1993: Pomologia systematyczna. PWN, Warszawa, PL.

Sorge, P., 1984: Beerenobstsorten. J. Neumann-Neudamm, Melsungen, DE.

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

1. Subject of the Technical Questionnaire

1.1.1 Botanical name []

1.1.2 Common name

1.2.1 Botanical name []

1.2.2 Common name

1.3.1 Botanical name []

1.3.2 Common name

1.4.1 Botanical name []

1.4.2 Common name

1.5.1 Botanical name []

1.5.2 Common name

1.6.1 Botanical name []

1.6.2 Common name

1.7.1 Botanical name []

1.7.2 Common name

1.8 Hybrid: please indicate name(s) of species used in the crossing

Botanical name []

TECHNICAL QUESTIONNAIRE

Page {x} of {y}

Reference Number:

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. 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 (2)		
upright	Ivanhoe	1[]
semi upright	Bluetta	2[]
spreading	Jersey	3[]
5.2 Fruit: color of skin (after removal of bloom) (27)		
light blue	Berkeley	1[]
medium blue	Patriot	2[]
dark blue	Heerma	3[]
blue red	Delite	4[]
5.3 Plant: fruiting type (31)		
on one-year-old shoots only	Darrow, Patriot	1[]
on one-year-old and current season's shoots	Concord, Burlington	2[]
5.4 Time of beginning of flowering on one-year-old shoot (33)		
very early	Patriot	1[]
early	Weymouth	3[]
medium	Berkeley	5[]
late	Darrow	7[]
very late	Jersey	9[]
5.5 <u>Only varieties which fruit on one-year-old and current season's shoots:</u> Time of beginning of flowering on current year's shoot (34)		
early	O'Neal	3[]
medium	JU83	5[]
late		7[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.6 (35)	Time of beginning of fruit ripening on one-year-old shoot		
	very early	Bluetta	1[]
	early	Blueray	3[]
	medium	Heerma	5[]
	late	Darrow	7[]
	very late	Elizabeth	9[]
5.7 (36)	<u>Only varieties which fruit on one-year-old and current season's shoots:</u> Time of beginning of fruit ripening on current year's shoot		
	early	O'Neal	3[]
	medium	JU83	5[]
	late		7[]

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: size</i>	<i>small</i>	<i>medium</i>

Comments:

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

A representative color photograph of the variety should accompany the Technical Questionnaire.

8. Authorization for release
- (a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?
- Yes [] No []
- (b) Has such authorization been obtained?
- Yes [] No []
- If the answer to (b) is yes, please attach a copy of the authorization.

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

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