

UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

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. myrtillus* L.; *V. virgatum* Aiton; [*Vaccinium simulatum* Small])

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Poland

*to be considered by the Technical Working Party for Fruit Crops at its thirty-seventh session,
to be held in Salvador, Bahia State, Brazil, from August 21 to 25, 2006*

Alternative Names: **

Botanical name	English	French	German	Spanish
<i>Vaccinium angustifolium</i> Aiton, <i>Vaccinium brittoni</i> Porter	Lowbush Blueberry; Upland Lowbush Blueberry			
<i>Vaccinium corymbosum</i> L.	Highbush Blueberry; NZ: Suggest Northern Highbush	Myrtille en Corymbe	Kulturheidelbeere, Amerikanische Heidelbeere	Arándano americano
<i>Vaccinium formosum</i> Andrews, <i>Vaccinium australe</i> Small	Swamp Highbush Blueberry; NZ: Suggest Swamp or Southern Highbush			
<i>Vaccinium myrtilloides</i> Michx.	Canada Blueberry; Sourtop Blueberry; Velvetleaf Blueberry		Kanadische Heidelbeere	
<i>Vaccinium myrtillus</i> L.	Bilberry; Whinberry; Whortleberry		Blaubeere	
<i>Vaccinium virgatum</i> Aiton, <i>Vaccinium ashei</i> Reade	Rabbit-eye Blueberry; Southern Black Blueberry			
[<i>Vaccinium simulatum</i> Small] DE: to include:	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.

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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); [*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

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.

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: attitude of one-year-old shoot (characteristic 2)
- (b) Leaf: shape (characteristic 8)
- (c) Flower: size of corolla tube (characteristic 12)
- (d) Fruit: size (characteristic 17)
- (e) Fruit: intensity of blue color of skin (after removal of bloom) (characteristic 23)
- (f) **Fruiting: type (..) (NZ proposal)**
- (g) Time of beginning of flowering on one-year-old shoot (characteristic 27)
- (h) Time of beginning of fruit ripening (characteristic 28)

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: single measurement of a group of plants or parts of plants – see Chapter 3.3.2

MS: measurement of a number of individual plants or parts of plants – see Chapter 3.3.2

VG: visual assessment by a single observation of a group of plants or parts of plants – 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 (*)						
(+) (a)	weak				Bluetta, Weymouth	3
QN	medium				Patriot, Bluejay	5
	strong				Duke, Earliblue, Bluecrop	7

2. VG Plant: habit (*)						
PQ (a)	upright				Ivanhoe	1
	semi upright				Bluetta	2
	spreading				Jersey	3

NZ: char. 2: Suggest: " Plant: habit: upright (1), semi upright (2), spreading (3)". Considered this easier to assess and more useful than shoot information. When looking at shoots you need to consider length and also where on the bush you look. PL: agree to NZ suggestion (as it is in proj. 1)

3. VG One-year-old shoot: color						
PQ (a)	greenish				Puru	1
	greenish red				Reka	2
	grayish red				Berkeley	3
	reddish yellow				Heerma	4
	reddish brown				Earliblue	5
	dark red				Aron	6

DE: char. 3: to add states: greenish ('Puru'), greenish red ('Reka'), dark red ('Aron')

4. MG/ VG One-year-old shoot: length of internode (upper half)						
PQ (a)	short					3
QN	medium					5
	long					7

DE: char. 4: do not agree with the indication "MG"

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5. MG/ Leaf: length						
(*) VG						
QN	(b) short				Darrow	3
	medium				Bluecrop, Patriot	5
	long				Collins, Berkeley, Toro	7
PL: char. 5: to add example variety: state 5 'Bluecrop', state 7 'Toro'						
DE: char. 5: to add example variety: state 5 'Patriot'						
6. MG/ Leaf: width						
VG						
QN	(b) narrow				Bluecrop, Heerma, Emil, Putte	3
	medium				Ama, Bluecrop	5
	broad				Collins, Berkeley	7
PL: char. 6: to delete example variety 'Bluecrop' from state 3, to move it to state 5; to add example variety: state 3 'Emil', 'Putte'						
DE: char. 6: to add example variety: state 5 'Ama'						
7. MG/ Leaf: ratio						
VG length/width						
QN	(b) small				Gretha	3
	medium				Patriot	5
	large				Heerma	7
DE: char. 7: to add example varieties: state 3 'Gretha', state 5 'Patriot', state 7 'Heerma'						
8. VG Leaf: shape						
(*)						
PQ	(b) lanceolate				Weymouth	1
	ovate	■	■	■	Puru	2
	elliptic				Rancocas, Earliblue	3
	oblong				Jersey, Bluetta, Berkeley	4
DE: char. 8: to insert a state: "ovate", with the example variety 'Puru'						

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
8a	Leaf: color of upper side					
PQ (b)	yellow				Geerdens	1
	green					2

DE: after char. 8: to insert new characteristic (8a): Leaf: color of upper side

9. (*)	VG Leaf: intensity of green color on upper side					
QN (b)	light				Earliblue	3
	medium				Berkeley, Toro	5
	dark				Weymouth, Darrow	7

PL: char. 9: to add example varieties: state 5 'Berkeley' and 'Toro' PL: if all agree to the DE suggestion for char. 8b, to delete "green" in heading for char. 9

10. (*)	VG Leaf: margin					
QL (b)	entire				Blueray, Jersey	1
	serrate				Brigitta, Rancocas	2

PL: char. 10: to add example variety: state 2 'Brigitta'

11.	MS/ VG Inflorescence: length (excluding peduncle)					
QN (c)	short				Bluetta, Collins	3
	medium				Duke, Earliblue	5
	long				Berkeley, Bluecrop	7

DE: char. 11: do not agree with the indication "MG" (?)

11a (+)	VG Flower bud: anthocyanin coloration					
QN	weak				Hele	3
	medium				Patriot	5
	strong				Bluecrop	7

DE: after char. 11: to add new characteristic (11a): Flower bud: anthocyanin coloration;

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12. VG	Flower: size of corolla tube					
(*)						
QN	(c) small				Blueray	3
	medium				Heerma	5
	large				Collins	7

NZ: char. 12: Suggest: "Flower: length of corolla tube: short (3), medium (5), long (7)"; PL agree; new example varieties are needed

12a VG	Flower: width of corolla tube					
QN	(c) narrow					3
	medium					5
	broad					7

PL: if all agree to NZ suggestion (length of corolla tube) to add after char. 12 new characteristic (12a): „Flower: width of corolla tube” + example varieties

13. VG	Flower: anthocyanin coloration of corolla tube					
(*)						
QN	(c) absent or very weak					1
	weak				Ama	3
	medium				Gretha	5
	strong				Bluecrop	7

NZ: char. 13: To add state: "absent or very weak (1)"; PL agree; NZ to provide an example variety

14. VG	Flower: ridges on corolla tube					
(+)						
QL	(c) absent					1
	present					9

DE: char. 14: further explanation (or figures) are needed

TWF/36 comments to char. 14: explanation to be provided by Japan

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14a	Fruit cluster: density					
QN	(d) sparse					3
	medium					5
	dense					7

NZ: to consider new characteristic (14a): "Fruit cluster: density" (Really an inflorescence characteristic but you need to look at berry cluster for a meaningful observation); NZ to provide example varieties

15. VG Plant: type of bearing

QL	(c) on one-year-old shoots only					1
	on one-year-old and current season's shoots				Concord, Burlington	2

NZ: char. 18: Suggest states: globose (1), oblate (flat globose) (2), oblong (3) (or elliptic may be more accurate); PL: to leave as it is

16. VG Unripe fruit: intensity of green color (*)

QN	light				Heerma	3
	medium				Ama	5
	dark				Berkeley	7

17. VG Fruit: size (*)

QN	(d) small				Ama	3
	medium				Concord	5
	large				Darrow	7

18. VG Fruit: shape (*)

PQ	(d) oblong				Northland	1
	globose				Bluecrop, Jersey	2
	flat globose				Earliblue	3

NZ: char. 18: Suggest states: globose (1), oblate (flat globose) (2), oblong (3) (or elliptic may be more accurate); PL: to leave as it is

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
19. VG	Fruit: attitude of sepal					
PQ	(d) converging				Bluecrop, Sunshine Blue	1
	erect				Blueray, Heidi	2
	spreading				Top Hat	3
	reflexed				Berkeley	4

NZ: char. 19: This seems to be two characters in one: attitude and curvature (distal part). The sepals are erect or semi erect and in combination incurving, straight, reflexed. Suggest 19a: "Sepal: attitude: erect (1), semi erect (2)" and 19b: "Sepal: type: incurving (1), straight (2), reflexed (3)" PL: agree; NZ to provide example varieties for 19a & 19b

19a. VG	Fruit: attitude of sepals					
PQ	(d) erect					1
	semi erect					2
19b. VG	Fruit: type of sepals					
PQ	(d) incurving					1
	straight					2
	reflexed					3

20. VG	Fruit: diameter of calyx basin					
QN	(d) small				Blueray	3
	medium				Bluecrop	5
	large				Darrow	7

NZ: char. 20: Is it actually the diameter of the calyx basin alone or the diameter of the whole calyx? PL: calyx basin

21 VG	Fruit: depth of calyx basin					
QN	(d) shallow				Top Hat, Collins	3
	medium				Blueray	5
	deep				Heidi, Jersey	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22. VG	Fruit: intensity of bloom					
(*)						
QN	(d) very weak				Goldtraube	1
	weak				Gretha	3
	medium				Ama, Bluetta	5
	strong				Darrow, Gila	7

DE: char. 22: to add the example varieties: state 3 'Gretha', state 5 'Ama', state 7 'Gila'

23. VG	Fruit: intensity of blue color of skin (after removal of bloom)					
(*)						
QN	(d) light				Berkeley	3
	medium				Patriot	5
	dark				Heerma	7

23a		Fruit: firmness				
QN	(d)	soft				3
		medium				5
		firm				7

NZ: to consider new characteristic (23a): "Fruit: firmness"; PL: agree; NZ to provide example varieties

24. VG	Fruit: sweetness					
(*)						
QL	(d) low				Bluetta	3
QN	medium				Collins	5
	high				Goldtraube	7
25. VG	Fruit: acidity					
(*)						
QL	(d) low				Gretha	3
QN	medium				Darrow	5
	high				Ascorba, Bluecrop	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26. MG	Time of vegetative bud burst					
(*)						
(+)	early				Patriot, Weymouth	3
QN	medium				Bluecrop	5
	late				Blueray	7
27. MG	Time of beginning of flowering on one-year-old shoot					
(*)						
(+)						
QN	very early				Patriot	1
	early				Weymouth	3
	medium				Berkeley	5
	late				Darrow	7
	very late				Jersey	9
27a. MG	Varieties which fruit on one-year-old shoots and current season's shoots (see char. 15): Time of beginning of flowering on current year's shoot					
(*)						
(+)						
QN	very early					1
	early					3
	medium					5
	late					7
	very late					9

NZ: Suggest a new char. 27a: Only varieties which fruit on current year's shoot: Time of beginning of flowering on current year's shoot (with states as for 27); NZ to provide example varieties

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
28. MG (*) (+)	Time of beginning of fruit ripening on one-year-old shoot					
QN (d)	very early				Bluetta	1
	early				Blueray	3
	medium				Heerma	5
	late				Darrow	7
	very late				Elizabeth	9
28a. MG (*) (+)	Varieties which fruit on one-year-old shoots and current season's shoots (see char. 15): Time of beginning of fruit ripening on current year's shoot					
QN	very early					1
	early					3
	medium					5
	late					7
	very late					9

NZ: char. 28: Suggest to add: "... on one year old shoot" and add a new char. 28a: "Only varieties which fruit on current year's shoot: Time of beginning of fruit ripening on current year's shoot" (with states as for 28); NZ to provide example varieties

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** ~~of the first bud burst~~ (NZ suggestion)
- (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. 11a: Flower bud: anthocyanin coloration

(DE: to add an explanation if necessary)

Ad. 14: Flower: ridges on corolla tube

(TWF/36: Explanation to be provided by Japan)

Ad. 26: Time of vegetative bud burst

Observation should be made at the time when the vegetative buds begin to **burst**

Ad. 27: Time of beginning of flowering on one-year old shoot

Observation should be made when 10% open flowers can be observed

Ad. 28: Time of beginning of fruit ripening

Observation should be made on plants, when 10% ripe fruits can be observed

9. Literature

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

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																																																		
<p>1. Subject of the Technical Questionnaire</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; padding: 5px;">1.1.1 Botanical name</td> <td style="width: 55%; padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"><i>Vaccinium angustifolium</i> Aiton (<i>Vaccinium brittoni</i> Porter)</div> </td> <td style="width: 20%; text-align: right; padding: 5px;">[]</td> </tr> <tr> <td style="padding: 5px;">1.1.2 Common name</td> <td style="padding: 5px;"> <div style="border: 1px solid black; padding: 2px;">Lowbush Blueberry, Upland Lowbush Blueberry</div> </td> <td></td> </tr> <tr> <td style="padding: 5px;">1.2.1 Botanical name</td> <td style="padding: 5px;"> <div style="border: 1px solid black; padding: 2px;"><i>Vaccinium corymbosum</i> L.</div> </td> <td style="text-align: right; padding: 5px;">[]</td> </tr> <tr> <td style="padding: 5px;">1.2.2 Common name</td> <td style="padding: 5px;"> <div style="border: 1px solid black; padding: 2px;">Highbush Blueberry, Northen Highbush</div> </td> <td></td> </tr> <tr> <td style="padding: 5px;">1.3.1 Botanical name</td> <td style="padding: 5px;"> <div style="border: 1px solid black; 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TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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)

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)

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics		Example Varieties	Note
5.1 Plant: attitude of one-year-old shoot (2)			
erect		Ivanhoe	1 []
semi-erect		Bluetta	3 []
horizontal		Jersey	5 []
5.2 Leaf: shape (8)			
lanceolate		Weymouth	1 []
elliptic		Rancocas, Earliblue	2 []
oblong		Jersey, Bluetta, Berkeley	3 []
5.3 Flower: size of corolla tube (12)			
small		Blueray	3 []
medium		Heerma	5 []
large		Collins	7 []
5.4 Fruit: size (17)			
small		Ama	3 []
medium		Concord	5 []
large		Darrow	7 []
5.5 Fruit: intensity of bloom (22)			
very weak		Goldtraube	1 []
weak			3 []
medium		Bluetta	5 []
strong		Darrow	7 []
5.6 Fruit: intensity of blue color of skin (after removal of bloom) (23)			
light		Berkeley	3 []
medium		Patriot	5 []
dark		Heerma	7 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.7 Time of beginning of flowering on one-year-old shoot (27)		
very early	Patriot	1 []
early	Weymouth	3 []
medium	Berkeley	5 []
late	Darrow	7 []
very late	Jersey	9 []
5.8 Time of beginning of fruit ripening (28)		
very early	Bluetta	1 []
early	Blueray	3 []
medium	Heerma	5 []
late	Darrow	7 []
very late	Elizabeth	9 []

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.

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]