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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

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DRAFT

SWEET CHERRY

UPOV Code(s): PRUNU_AVI

Prunus avium (L.) L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from France
to be considered by the
Technical Working Party for Fruit Crops
at its fifty-fourth session, to be held in Nîmes, France,
from 2023-07-03 to 2023-07-07*

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>Prunus avium</i> (L.) L., <i>Cerasus avium</i> (L.) Moench	Sweet Cherry	Bigarreaux, C�risier doux	S��kirsche	Cerezo dulce, Mollar

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/187/2 Prunus Rootstocks

TG/230/1 Duke Cherry, Sour Cherry

* 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 *Prunus avium* (L.) L. except for varieties used only as rootstock varieties (see TG/187/2).

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 one-year old grafts, budsticks or dormant shoots for grafting.

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

3 trees or 3 budsticks or 3 dormant shoots for grafting, sufficient to propagate 3 trees.
The rootstock to be used is specified by the competent authority.

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 trees 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 concluded 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 The optimum stage of development for the assessment of each characteristic is indicated by a number in the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

3.3.3 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 3 trees.

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 3 plants or parts of plants taken from each of 3 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 3.

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 3 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 further examined by testing a new seed or 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) Fruit: size (characteristic 22)
- (b) Fruit: shape in ventral view (characteristic 26)
- (c) Fruit: ground color of skin (characteristic 34)
- (d) Fruit: main color of flesh (characteristic 39)
- (e) Fruit: firmness (characteristic 42)
- (f) Time of beginning of flowering (characteristic 46)
- (g) Time of beginning of fruit ripening (characteristic 47)

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)-(e) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8.3

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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	QN	VG	(+)				
	Tree: vigor						
	very weak						1
	weak					Frisco, PA2UNIBO	2
	medium					Early Korwik, Glenred	3
	strong					Louis, Rosilam	4
	very strong					Babelle, Regina	5
2. (*)	PQ	VG	(+)	(a)	BBCH00		
	Tree: habit						
	upright					Baïa, Lapins, Melitopol'skaya rannyaya	1
	semi-upright					Burlat, Napoléon	2
	spreading					Fertard, Sumtare, Vera	3
	drooping					Annabella, Vanda	4
3. (*)	QN	VG	(+)	(a)	BBCH00		
	Tree: density of branching						
	very sparse					Baïa	1
	sparse					Merton Glory, Rainier	2
	medium					Firelam, Hedelfinger Riesenkirsche	3
	dense					Glendioa	4
	very dense					Alex, Emma, Fertard	5
4.	QN	MG/VG		(a)	BBCH00		
	One-year-old shoot: number of lenticels						
	very few					Ferdouce, Karl	1
	few					Kordia, PA4UNIBO, Sam	2
	medium					Hedelfinger Riesenkirsche, Pacific Red, Van	3
	many					Krupnoplodnaya, Querfurter Königskirsche, Rosilam	4
	very many					Cambrina, Royal Bailey	5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	QN	VG	(+)	(a)				
	One-year-old shoot: position of vegetative bud in relation to shoot							
	adpressed						Duroni 3	1
	erect						Rivedel	2
	semi-erect						Magar, Rita, Sunburst	3
6.	QN	VG			BBCH33			
	Young shoot: intensity of anthocyanin coloration of apex							
	absent or very weak						Drogans Gelbe Knorpelkirsche, Royal Helen	1
	weak						Emma, Merton Glory, Van	2
	medium						Areko, Napoléon, Rebekka	3
	strong						Namosa, Nimba, Rivan	4
	very strong						Aida, Big Star, Merton Heart, Pat	5
7.	QN	VG			BBCH33			
	Young shoot: pubescence of apex							
	absent or very weak						PA2UNIBO	1
	weak						Habunt, Hedelfinger Riesenkirsche, Van	2
	medium						Henriette, Kassins Frühe	3
	strong						Burlat, Early Rivers, Rocket	4
	very strong						Rosie, Swing	5
8.	PQ	VG	(+)		BBCH50			
	Fruiting spur: shape of apex							
	acute						Bedel, Santina	1
	obtuse						Magar, Rivedel	2
	rounded						Duroni 3, Van	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	QN	MG/VG	(b)	BBCH39		
	Leaf blade: length					
	very short					1
	very short to short				Noire de Meched	2
	short				Cambrina, Sumtare, Szomolyai fekete	3
	short to medium				Géant d'Hedelfingen	4
	medium				Karl, Napoléon, Vanda	5
	medium to long				PC7146-8, Starking Hardy Giant	6
	long				Feria, Merton Crane	7
	long to very long				Babelle, Rubilam	8
	very long				Habunt	9
10.	QN	MG/VG	(b)	BBCH39		
	Leaf blade: width					
	very narrow					1
	very narrow to narrow				Saint Genis Laval	2
	narrow				Sumtare, Sylvia	3
	narrow to medium				Royal Marie	4
	medium				Guillaume, Poisdel, Stella	5
	medium to broad				PA2UNIBO	6
	broad				Badacsonyi, Germersdorfi 45, Glenoia, Merton Crane	7
	broad to very broad				PA1UNIBO, Rosilam	8
	very broad				Babelle	9
11. (*)	QN	MG/VG	(b)	BBCH39		
	Leaf blade: ratio length/width					
	very low					1
	very low to low				Emma	2
	low				Badacsonyi, Hudson	3
	low to medium				Rocket	4
	medium				Bing, Merton Crane, Walter	5
	medium to high				Glenoia	6
	high				Hedelfinger Riesenkirsche, Poisdel, Sylvia, Vanda	7
	high to very high				Karl, PC7146-8	8
	very high				Babelle, Habunt	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12.	QN	VG	(b)	BBCH39			
	Leaf blade: intensity of green color of upper side						
		very light				Bigarreau d'Or	1
		light				Cambrina, Sumtare	2
		medium				Napoléon, PA5UNIBO, Vanda	3
		dark				Burlat, Royal Hazel	4
		very dark				Big Star, Frisco	5
13.	QN	MG/VG	(b)	BBCH39			
	Leaf: length of petiole						
		very short					1
		very short to short				Nimba, Redlam	2
		short				Sylvia, Van	3
		short to medium				Glenoia	4
		medium				Sam, Stella	5
		medium to long				PA6UNIBO	6
		long				Badacsonyi, Merton Crane	7
		long to very long				13N0770, PA5UNIBO	8
		very long					9
14. (*)	QN	MG/VG	(b)	BBCH39			
	Leaf: ratio length of blade / length of petiole						
		very low					1
		very low to low				Tardif de Vignola	2
		low				Badacsonyi, Lambert, PC7146-8	3
		low to medium				Big Star	4
		medium				Burlat, Sam	5
		medium to high				Rosie	6
		high				Hedelfinger Riesenkirsche, Stella	7
		high to very high				Tip Top	8
		very high				Redlam	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15.	QN	VG	(b)	BBCH39		
	Leaf: predominant number of nectaries					
	two				Narana	1
	more than two				ZAI107CZ	2
16.	PQ	VG	(b)	BBCH39		
	Leaf: color of nectaries					
	greenish yellow				Drogans Gelbe Knorpelkirsche, Firelam, Van	1
	orange yellow				Hudson, Reverchon, Royal Hazel	2
	red				Burlat, Early Rivers, Germersdorfi 45, Glenoia, Sylvia	3
	purple				Gege, Paulus, Rocket	4
17.	QN	VG	(+)	BBCH 65		
	Anthers: position in relation to the top of petals					
	below				Burlat, PA7UNIBO	1
	same level				Redlam	2
	above				Royal Hazel	3
18.	QN	VG	(+)	BBCH 65		
	Stigma: position in relation to anthers					
	below				Napoléon, PA6UNIBO	1
	same level				Tip Top, Van	2
	above				Burlat, Redlam	3
19.	QN	MG/VG	(+)	(c)	BBCH 65	
	Flower: diameter					
	very small					1
	small				Annus, Szomolyai fekete	2
	medium				Sylvia, Van	3
	large				Aida, Burlat	4
	very large				Rosilam, Walter	5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20.	PQ	MG	(+)	(c)	BBCH 65			
	Flower: shape of petal							
	circular						Kordia, Rosie, Schneiders spaete Knorpelkirsche	1
	medium obovate						Burlat, Royal Hazel, Sunburst	2
	broad obovate						Firelam, Hedelfinger Riesenkirsche, Van	3
21.	QN	VG	(+)	(c)	BBCH 65			
	Flower: arrangement of petals							
	free						Burlat, Royal Hazel, Sunburst	1
	intermediate						Germersdorfi 45, Nimba, Van	2
	overlapping						Hudson, Royal Edie	3
22. (*)	QN	MG/VG	(+)	(d)	BBCH87			
	Fruit: size							
	very small						Munchenberger, Szomolyai fekete	1
	very small to small						Cristobalina, Merton Crane	2
	small						Ulster	3
	small to medium						Alex, Bing	4
	medium						Burlat, Rainier, Tip Top	5
	medium to large						Belge, Sunburst	6
	large						Folfer, Rosie	7
	large to very large						Baïa, Louis	8
	very large							9
23.	QN	MG/VG		(d), (e)	BBCH87			
	Fruit: height							
	very short						PA1UNIBO, Van	1
	short						Burlat, Sunburst	2
	medium						Reverchon	3
	large						Ferdiva, Hedelfinger Riesenkirsche	4
	very large						Rocket, Summit	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24.	QN	MG/VG	(d), (e)	BBCH87		
	Fruit: width (in ventral view)					
	very narrow				Hedelfinger Riesenkirsche	1
	narrow				Ferdiva, Walter	2
	medium				Burlat, Reverchon	3
	broad				Feroni, Summit	4
	very broad				PA6UNIBO, Sunburst	5
25.	QN	MG/VG	(d), (e)	BBCH87		
	Fruit: ratio height/width (in ventral view)					
	very low				Masdel, Sunburst	1
	low					2
	medium				Rocket, Summit	3
	high					4
	very high				Ferdiva, Hedelfinger Riesenkirsche	5
26. (*)	PQ	VG	(+)	(d), (e)	BBCH87	
	Fruit: shape in ventral view					
	oblate				Alex, Burlat, Glenoia	1
	reniform				Big Star, Royal Edie, Van, Vera	2
	cordate				Louis, PA7UNIBO, Summit	3
	broad elliptic				Ferdiva, Hedelfinger Riesenkirsche, Walter	4
	circular				Reverchon	5
27.	PQ	VG	(+)	(d)	BBCH87	
	Fruit: shape at stalk end					
	circular				Duroni 3, Hamid	1
	elliptic				Pacific Red, Swing	2
	angular				PA7UNIBO	3

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28.	PQ	VG	(+)	(d)	BBCH87			
	Fruit: shape of base in ventral view							
	truncate or weakly cordate						Duroni 3	1
	medium cordate						Burlat, Van	2
	strongly cordate						PA7UNIBO, Summit	3
29.	PQ	VG	(+)	(d)	BBCH87			
	Fruit: shape of apex in dorsal view							
	concave						Fertille, Redlam	1
	flat						Henriette, Van	2
	convex						PA6UNIBO, Sunburst	3
30.	QN	VG		(d)	BBCH87			
	Fruit: suture							
	absent or slightly conspicuous						Klara, Rosalolam	1
	moderately conspicuous						Cambrina, Rocket, Stella	2
	strongly conspicuous						Betti, Regina, SPC106	3
31. (*)	QN	MG/VG		(d)	BBCH87			
	Fruit: length of stalk							
	very short						Folfer, Walter	1
	very short to short						Rubilam, Van	2
	short						Babelle, Burlat, Royal Edie, Szomolyai fekete	3
	short to medium						Duroni 3, Frisco	4
	medium						Hedelfinger, Riesenkirsche, Henriette, Summit	5
	medium to long						Regina, SPC106, Sunburst	6
	long						Belge, Kordia, Noire de Meched	7
	long to very long						Hâtive de Bâle, Vanda	8
	very long						Delflash, Louis	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32.	QN	MG/VG	(d)	BBCH87			
	Fruit: thickness of stalk						
	very thin					PA6UNIBO	1
	thin					Ferdiva, Hedelfinger Riesenkirsche, Kordia	2
	medium					Germersdorfi 45, Sunburst, Vanda	3
	thick					Lalastar, Van	4
	very thick					Black Star, Folfer	5
33.	QN	VG	(d)	BBCH87			
	Fruit: adherence to stalk						
	absent or weak					ZAI107CZ	1
	medium					Pacific Red, ZAI89CZ	2
	strong					Brooks, Redlam	3
34. (*)	PQ	MG/VG	(d)	BBCH87			
	Fruit: ground color of skin						
	yellow					Bigarreau d'Or, Dönnissens Gelbe Knorpelkirsche	1
	orange red						2
	light red					Krupnoplodnaya	3
	red					Alex, Sunburst	4
	brown red					Burlat, Kordia, Lapins	5
	dark red					Hedelfinger Riesenkirsche, Stella	6
	blackish					Annabella, Knauffs Schwarze, Namosa	7
35. (*)	QN	VG	(d)	BBCH87			
	Fruit: relative area of over color						
	absent or very small					Bigarreau d'Or	1
	small					Napoléon	2
	medium					Rosilam	3
	large					ZAI99CZ	4
	very large					Burlat	5

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
36.	QN	VG	(d)	BBCH87			
	Fruit: size of lenticels on skin						
		very small				PC7146-8	1
		small				Emma, Hedelfinger Riesenkirsche	2
		medium				Frisco, Guillaume	3
		large				Reverchon, Rosie	4
		very large				Royal Hazel	5
37.	QN	MG/VG	(d)	BBCH87			
	Fruit: number of lenticels on skin						
		absent or very few				Henriette, PC7146-8	1
		few				Burlat, Rita, Swing	2
		medium				Babelle, Sunburst	3
		many				Marmotte, Royal Helen, Vera	4
		very many				Royal Hazel	5
38.	QN	VG	(+)	(d)	BBCH87		
	Fruit: thickness of skin						
		thin				Glenred, Müncheberger Frühernte, Royal Edie	1
		intermediate				Big Star, Cambrina, Germersdorfi 45	2
		thick				Carmen, Walter	3
39. (*)	PQ	VG	(+)	(d)	BBCH87		
	Fruit: main color of flesh						
		whitish				Baïa, Napoléon, Rosilam	1
		yellow				Cambrina, Dönnissens Gelbe Knorpelkirsche	2
		pink				Glenred, Reverchon, Sunburst	3
		medium red				Germersdorfi 45, Hedelfinger Riesenkirsche, Redlam, Swing	4
		dark red				Emma, Fernbird 765, Rubin, Szomolyai fekete	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40.	PQ	VG	(d)	BBCH87		
	Fruit: secondary color of flesh					
	none				Belge, Van	1
	whitish				Fernbird 765	2
	yellow					3
	pink					4
	medium red					5
	dark red					6
41.	PQ	VG	(d)	BBCH87		
	Fruit: color of juice					
	colorless				Dönnissens Gelbe Knorpelkirsche, Rosilam	1
	light yellow				13N0770, Baïa, Napoléon	2
	pink				Areko, Reverchon, Rocket, Sunburst	3
	red				Betti, PA2UNIBO, Sam, Van	4
	purple				Emma, Hedelfinger Riesenkirsche, Kavics, PA3UNIBO	5
42. (*)	QN	MG/VG	(d)	BBCH87		
	Fruit: firmness					
	very soft				Early Rivers	1
	soft				Narana, Sunburst	2
	medium				Bedel, Carmen, Emma, Germersdorfer, PC7146-8, Reverchon, Van	3
	firm				Folfer, Kavics, Kordia, PA2UNIBO, Regina, Sumtare	4
	very firm				Balrine, Ferdiva	5
43. (*)	QN	MG/VG	(+)	(d)	BBCH87	
	Stone: size					
	very small				Rosie	1
	small				Van, ZAI107CZ	2
	medium				Burlat, Early Korwik	3
	large				Feroni, PA7UNIBO	4
	very large				Carmen, Rocket	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	QN	MG/VG	(d)	BBCH87		
	Fruit: ratio size of fruit/size of stone					
	very low				Brooks, Large red	1
	low					2
	medium				Hedelfinger Riesenkirsche, Techlovan	3
	high					4
	very high				Sumtare, Sunburst	5
45. (*)	PQ	VG	(d)	BBCH87		
	Stone: shape in ventral view					
	elliptic				Kordia, Napoléon	1
	broad elliptic				Rita	2
	circular				Germersdorfi 45, Van	3
	ovate					4
46. (*)	QN	MG/VG	(+)	BBCH61		
	Time of beginning of flowering					
	very early				Cristobalina, Royal Hazel	1
	very early to early				Christiana, Folfer, Müncheberger Frühernte, Panaro 1	2
	early				Marmotte, PA2UNIBO, Sumste, Sumtare	3
	early to medium				Burlat, Lapins	4
	medium				Merton Glory, Napoléon, Royal Helen, Sumele, Sunburst	5
	medium to late				Carmen, Karl, Kordia, Rubilam	6
	late				Germersdorfi 45, Habunt, Noire de Meched, Regina, Reverchon	7
	late to very late				Betti, Duroni 3	8
	very late				Hamid, Klara	9

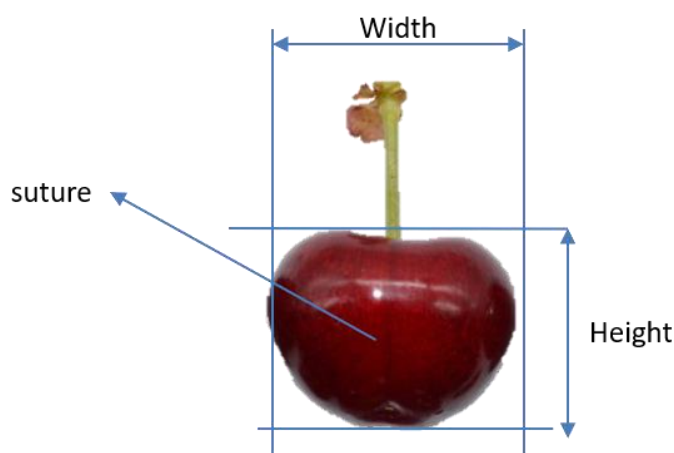
	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
47. (*)	QN	MG/VG	(+)	BBCH87			
	Time of beginning of fruit ripening						
	very early					Cristobalina, Ferprime, Hâtive de Bâle, Müncheberger Frühernte	1
	very early to early					Nimba, Rivedel	2
	early					Burlat, Early Rivers, Panaro 1, Valerij Cskalov	3
	early to medium					Bedel, Folfer	4
	medium					Fertille, Guillaume, Summit, Sunburst	5
	medium to late					Babelle, Duroni 3, Glenoia, PA5UNIBO	6
	late					Belge, Hedelfinger Riesenkirsche, Katalin, Klara, Kordia	7
	late to very late					Fertard, Regina, Sumtare	8
	very late					Staccato	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) Tree / One year old shoot: unless otherwise stated, all observations on the tree and on the one-year old shoot should be made during winter, on trees that have fruited at least once.
- (b) Leaf: unless otherwise stated, all observations should be made on fully developed leaves on the middle of a fruiting spur in summer.
- (c) Flower: unless otherwise stated, all observations on the flower should be made on fully developed flowers at the beginning of anther dehiscence.
- (d) Fruit and stone: all observations on the fruit and the stone should be made at full maturity (BBCH 87).
- (e) Ventral view of the fruit



8.2 *Explanations for individual characteristics*

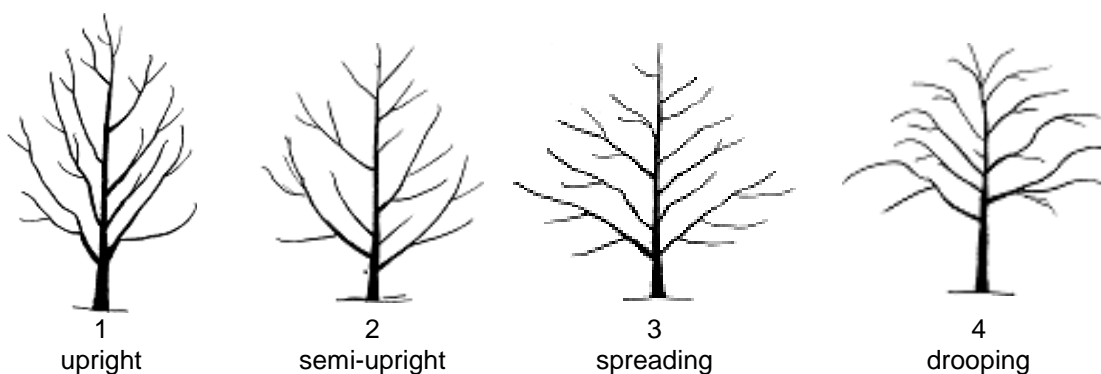
Ad. 1: Tree: vigor

The tree vigor should be considered as the overall abundance of vegetative growth, observed when the tree is in peak vegetative growth.

Ad. 2: Tree: habit

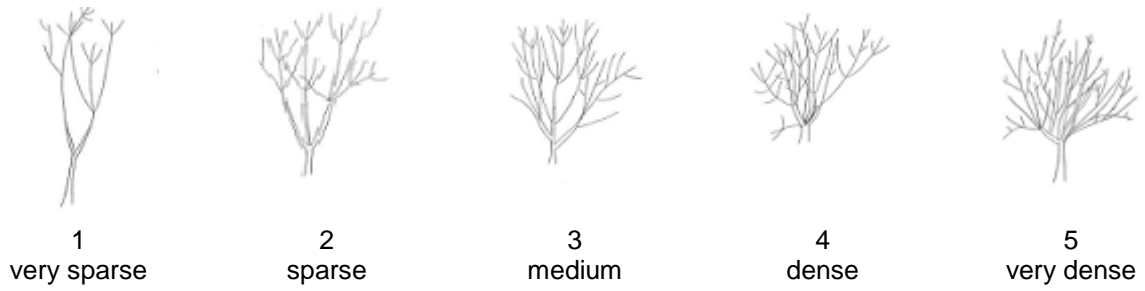
See Ad. 3

The observations should be made during winter after at least one satisfactory crop of fruit.

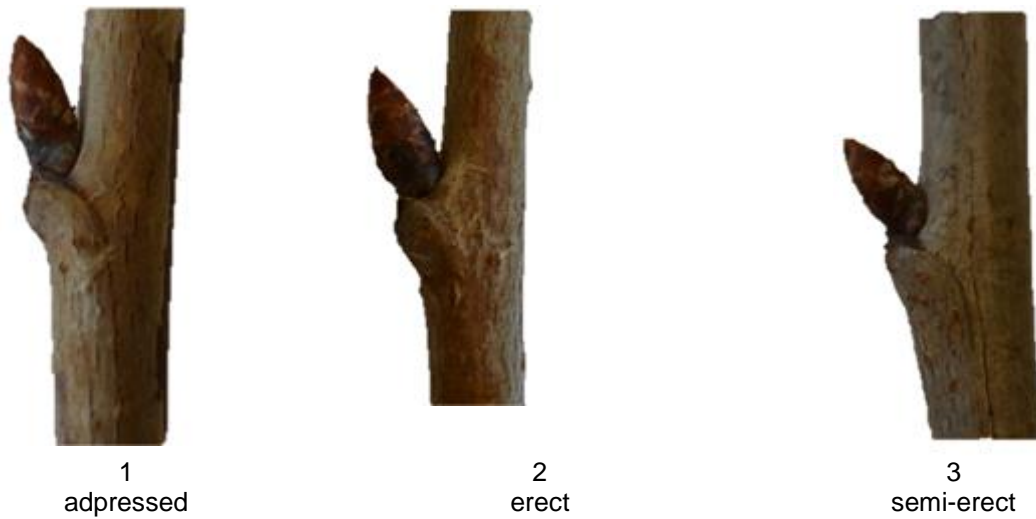


Ad. 3: Tree: density of branching

Observations should be carried out in the winter, on scaffold branches with the density of branching being indicated by the number of lateral branches and shoots, excluding fruiting shoots.



Ad. 5: One-year-old shoot: position of vegetative bud in relation to shoot



Ad. 8: Fruiting spur: shape of apex

The observation should be made on fruiting spur.



Ad. 17: Anthers: position in relation to the top of petals



1
below



2
same level



3
above

Ad. 18: Stigma: position in relation to anthers



1
below



2
same level



3
above

Ad. 19: Flower: diameter

Observations or measurements should be made on completely opened flowers with petals pressed into horizontal position.

Ad. 20: Flower: shape of petal



1
circular

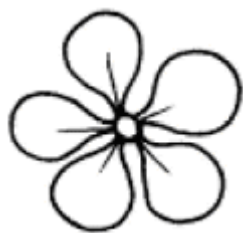


2
medium obovate



3
broad obovate

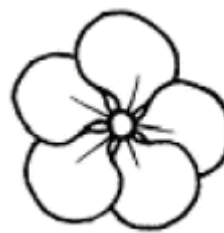
Ad. 21: Flower: arrangement of petals



1
free



2
intermediate



3
overlapping

Ad. 22: Fruit: size

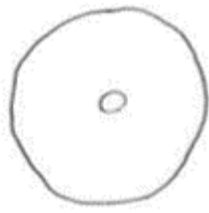
Should be assessed by weighing fruit or measuring fruit caliber.

Ad. 26: Fruit: shape in ventral view

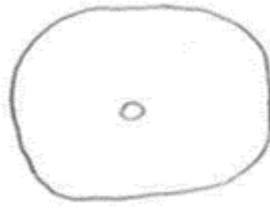
		← broadest part →	
		below middle	at middle
ratio height/width			
high	 3 cordate		
medium	 2 reniform	 5 circular	
low	 1 oblate	 4 broad elliptic	

Ad. 27: Fruit: shape at stalk end

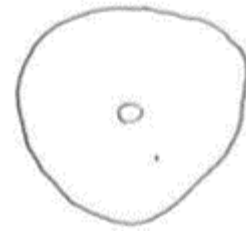
The observation should be done from above.



1
circular



2
elliptic



3
angular

Ad. 28: Fruit: shape of base in ventral view



1
truncate or weakly cordate



2
medium cordate



3
strongly cordate

Ad. 29: Fruit: shape of apex in dorsal view



1
concave



2
flat



3
convex

Ad. 38: Fruit: thickness of skin

Observations should be made by eating the fruits.

Ad. 39: Fruit: main color of flesh

The main color of the flesh is the most extended color of the flesh.

Ad. 43: Stone: size

Can be observed by weighting or sizing the stone.

Ad. 46: Time of beginning of flowering

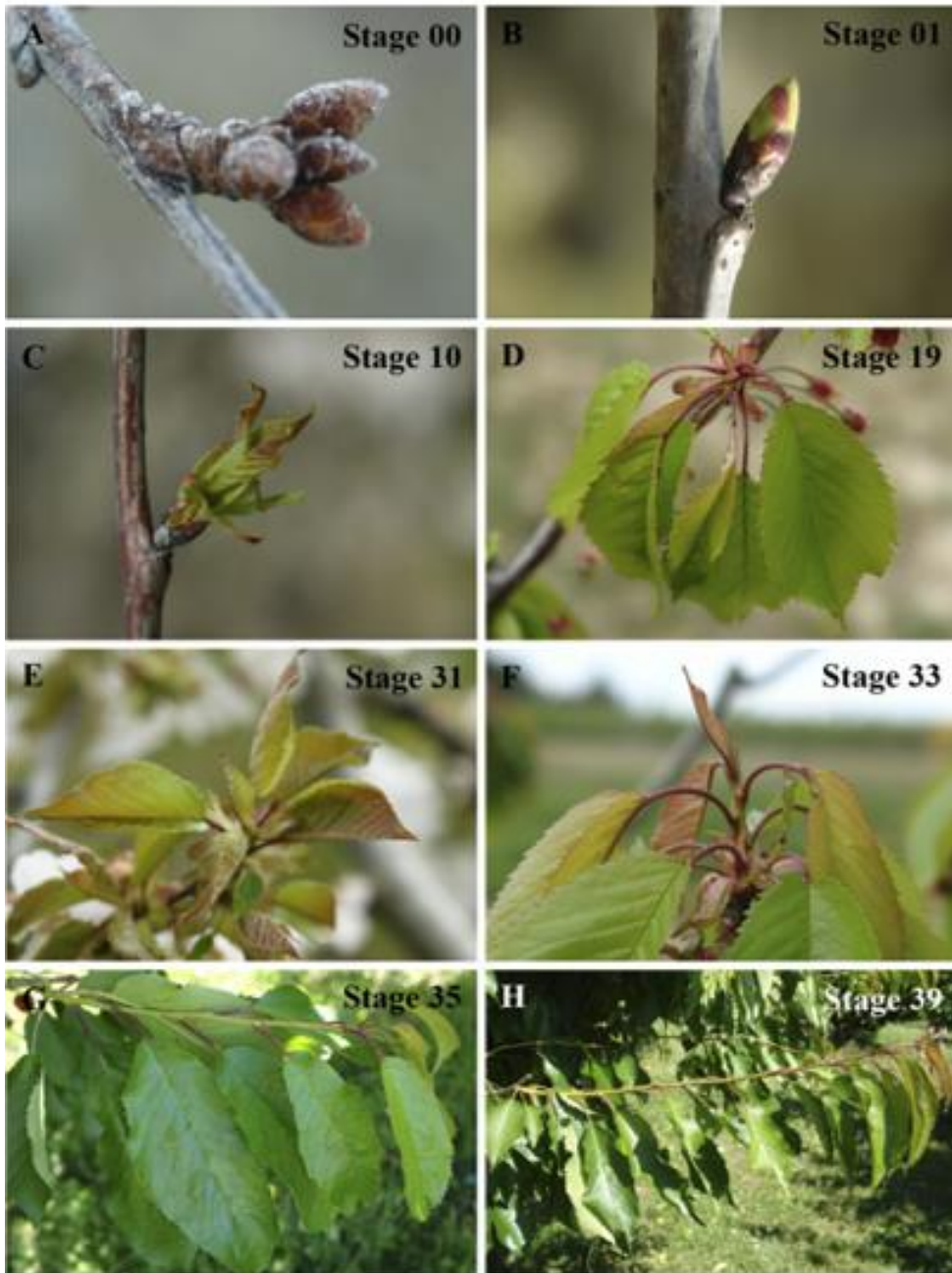
When 5-10% open flowers can be observed.

Ad. 47: Time of beginning of fruit ripening

When 5-10% ripe fruits can be observed. Fruit ripening should be considered as the time of eating ripeness, when the fruit can be most easily removed from the stalk.

- 8.3 *Phenological growth stages of sweet cherry according to the BBCH scale* (Fadon, E., Herrero M., Rodrigo J., 2015: "Flower development in sweet cherry framed in the BBCH scale". *Scientia Horticulturae* (192), 141-147)

BBCH code	Description
Principal growth Stage 0: bud development	
00	Dormancy
01	Beginning bud swelling
03	End of leaf bud swelling
09	Green leaf tips visible
Principal growth Stage 1: leaf development	
10	First leaves separating
11	First leaves unfolded
19	First leaves fully expanded
Principal growth Stage 3: shoot development	
31	Beginning of shoot growth
32	20% of final shoots length
33	30% of final shoots length
3. . .	Stages continuous till. . .
39	90% of final shoots length
Principal growth Stage 5: reproductive development or inflorescence emergence	
50	Dormancy, inflorescence bud closed
51	Inflorescence buds swelling
53	Bud burst
54	Inflorescence enclosed by light green scales
55	Single flower buds visible
56	Flower pedicel elongating
57	Sepals open
59	Balloon
Principal growth Stage 6: flowering	
60	First flowers open
61	Beginning of flowering
62	20% of flowers open
63	30% of flowers open
64	40% of flowers open
65	Full flowering
67	Flower fading
69	End of flowering
Principal growth Stage 7: fruit development	
71	Ovary growing
72	Sepals beginning to fall
73	Second fruit fall
75	50% of final fruit size
76	60% of final fruit size
77	70% of final fruit size
78	80% of final fruit size
79	90% of final fruit size
Principal growth Stage 8: ripening or maturity	
81	Beginning of fruit colouring
85	Colouring advanced
87	Fruit ripe for picking
Principal growth Stage 9: senescence, beginning of dormancy	
91	Shoot growth completed; foliage still fully green
92	Leaves begin to discolour
93	Beginning of leaf fall
95	50% of leaves fallen
97	All leaves fallen









Example varieties synonyms and trademarks

denomination	synonyme or trade mark
13N0770	Stardust
Areko	Hamid
Bedel	Bellise
Early Rivers	Bigarreau précoce de Rivers, Guigne
Kordia	Techlovicka II
Magar	Baron, Garnet
PA1UNIBO	Sweet Aryana
PA2UNIBO	Sweet Lorenz
PA3UNIBO	Sweet Gabriel
PA4UNIBO	Sweet Valina
PA5UNIBO	Sweet Saretta
PA6UNIBO	Marysa
PA7UNIBO	Sweet Stephany
Panaro 1	Sweet Early
PC7146-8	Benton
Pico Colorado	Scarlet Peack
Pico Negro	Black Peack
Rivedel	Earlise
Rosie	Rosie Rainier
SPC106	Sofia
Sumele	Satin
Sumpaca	Celeste
Sumste	Samba
Sumtare	Sweet Heart
Valerij Cskalov	Valery Tschkalov
ZAI107CZ	Royal Lafayette
ZAI89CZ	Royal Hermione

9. Literature

Fadon, E., Herrero M., Rodrigo J., 2015: "Flower development in sweet cherry framed in the BBCH scale".
Scientia Horticulturae (192), 141-147

Quero-García J, Iezzoni A, Puławska J, Lang G (eds) (2017) *Cherries: Botany, Production and Uses*. CABI, Oxfordshire (GB), Boston (USA), 533 p.

Webster AD, Looney NE (eds) (1996) *Cherries: Crop Physiology, Production and Uses*. CABI, Wallingford (GB), 513 p.

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="Prunus avium (L.) L."/>
1.2	Common name	<input type="text" value="Sweet Cherry"/>
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:

--

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2	Method of propagating the variety	
4.2.1	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 Tree: habit (2)		
upright	Baia, Lapins, Melitopol'skaya rannyaya	1 []
semi-upright	Burlat, Napoléon	2 []
spreading	Fertard, Sumtare, Vera	3 []
drooping	Annabella, Vanda	4 []
5.2 Fruit: size (22)		
very small	Munchenberger, Szomolyai fekete	1 []
very small to small	Cristobalina, Merton Crane	2 []
small	Ulster	3 []
small to medium	Alex, Bing	4 []
medium	Burlat, Rainier, Tip Top	5 []
medium to large	Belge, Sunburst	6 []
large	Folfer, Rosie	7 []
large to very large	Baia, Louis	8 []
very large		9 []
5.3 Fruit: shape in ventral view (26)		
oblate	Alex, Burlat, Glenoia	1 []
reniform	Big Star, Royal Edie, Van, Vera	2 []
cordate	Louis, PA7UNIBO, Summit	3 []
broad elliptic	Ferdiva, Hedelfinger Riesenkirsche, Walter	4 []
circular	Reverchon	5 []
5.4 Fruit: ground color of skin (34)		
yellow	Bigarreau d'Or, Dönnissens Gelbe Knorpelkirsche	1 []
orange red		2 []
light red	Krupnoplodnaya	3 []
red	Alex, Sunburst	4 []
brown red	Burlat, Kordia, Lapins	5 []
dark red	Hedelfinger Riesenkirsche, Stella	6 []
blackish	Annabella, Knauffs Schwarze, Namosa	7 []

Characteristics	Example Varieties	Note
5.5 Fruit: main color of flesh (39)		
whitish	Baïa, Napoléon, Rosilam	1 []
yellow	Cambrina, Dönnissens Gelbe Knorpelkirsche	2 []
pink	Glenred, Reverchon, Sunburst	3 []
medium red	Germersdorfi 45, Hedelfinger Riesenkirsche, Redlam, Swing	4 []
dark red	Emma, Fernbird 765, Rubin, Szomolyai fekete	5 []
5.6 Fruit: firmness (42)		
very soft	Early Rivers	1 []
soft	Narana, Sunburst	2 []
medium	Bedel, Carmen, Emma, Germersdorfer, PC7146-8, Reverchon, Van	3 []
firm	Folfer, Kavics, Kordia, PA2UNIBO, Regina, Sumtare	4 []
very firm	Balrine, Ferdiva	5 []
5.7 Time of beginning of flowering (46)		
very early	Cristobalina, Royal Hazel	1 []
very early to early	Christiana, Folfer, Müncheberger Frühernte, Panaro 1	2 []
early	Marmotte, PA2UNIBO, Sumste, Sumtare	3 []
early to medium	Burlat, Lapins	4 []
medium	Merton Glory, Napoléon, Royal Helen, Sumele, Sunburst	5 []
medium to late	Carmen, Karl, Kordia, Rubilam	6 []
late	Germersdorfi 45, Habunt, Noire de Meched, Regina, Reverchon	7 []
late to very late	Betti, Duroni 3	8 []
very late	Hamid, Klara	9 []
5.8 Time of beginning of fruit ripening (47)		
very early	Cristobalina, Ferprime, Hâtive de Bâle, Müncheberger Frühernte	1 []
very early to early	Nimba, Rivedel	2 []
early	Burlat, Early Rivers, Panaro 1, Valerij Cskalov	3 []
early to medium	Bedel, Folfer	4 []
medium	Fertille, Guillaume, Summit, Sunburst	5 []
medium to late	Babelle, Duroni 3, Glenoia, PA5UNIBO	6 []
late	Belge, Hedelfinger Riesenkirsche, Katalin, Klara, Kordia	7 []
late to very late	Fertard, Regina, Sumtare	8 []
very late	Staccato	9 []

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>			
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

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

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]