CPVO · OCVV
Community Plant Variety Office
Office Communautaire des Variétés Végétales

PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

Prunus avium (L.) L.

SWEET CHERRY

UPOV Code: PRUNU_AVI

Adopted on 14/03/2025

Entry into force on 01/01/2025

CPVO-TP/035/3 based on the version 5 of the CPVO-TP/template

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1. SUBJECT OF THE PROTOCOL AND REPORTING

1.1 Scope of the technical protocol

This Technical Protocol applies to all varieties of *Prunus avium* (L.) L. except for varieties used only as rootstock varieties (see CPVO-TP/187).

The protocol describes the technical procedures to be followed in order to meet the requirements of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on documents agreed by the International Union for the Protection of New Varieties of Plants (UPOV), such as the General Introduction to DUS (UPOV Document TG/1/3 http://www.upov.int/export/sites/upov/resource/en/tg_1_3.pdf), its associated TGP documents (http://www.upov.int/tgp/en/) and the relevant UPOV Test Guideline TG/35/8 dated 09/08/2024 (https://www.upov.int/edocs/tgdocs/en/tg035.pdf) for the conduct of tests for Distinctness, Uniformity and Stability.

1.2 Entry into Force

The present protocol enters into force on **01/01/2025**. Any ongoing DUS examination of candidate varieties for which the first growing cycle for the purpose of observations has started (following the adequate period of establishment) before the aforesaid date will not be affected by the approval of the Technical Protocol.
Technical examinations of candidate varieties are carried out according to the TP in force when the first growing cycle for the purpose of observations following the adequate period of establishment starts.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the first growing cycle for the purpose of observations following the adequate period of establishment started.

1.3 Reporting between Examination Office and CPVO and Liaison with Applicant

1.3.1 Reporting between Examination Office and CPVO

The Examination Office shall deliver to the CPVO a preliminary report ("the preliminary report") no later than four weeks after the date of the request for technical examination by the CPVO and in any case preferably before the submission period of the plant material.

The Examination Office shall also deliver to the CPVO a report relating to each growing period ("the interim report") and, when the Examination Office considers the results of the technical examination to be adequate to evaluate the variety or the CPVO so requests, a report relating to the examination ("the final report").

The final report shall state the opinion of the Examination Office on the distinctness, uniformity and stability of the variety. Where it considers those criteria to be satisfied, or where the CPVO so requests, a description of the variety shall be added to the report.

If a report is negative the Examination Office shall set out the detailed reasons for its findings.

The variety description should be supplemented by a representative picture of:

(i) description of the fruit, (entire and cut)

The interim and the final reports shall be delivered to the CPVO as soon as possible and no later than on the deadlines as laid down in the designation agreement.

1.3.2 Informing on problems in the DUS test

In cases where the Examination Office identifies issues during the course of the technical examination that may lead to a negative report, the Examination Office shall inform the CPVO and in urgent cases the applicant/holder as soon as such issues become obvious.

1.3.3 Sample keeping in case of problems

As far as feasible the Examination Office shall keep a representative sample of any relevant testing material of the candidate variety and reference variety(ies) if the technical examination has resulted in a negative report. As soon as possible, the CPVO shall inform the Examination Office when the material can be destroyed.

2. MATERIAL REQUIRED

2.1 Plant material requirements

Information with respect to the agreed closing dates and submission requirements of plant material for the technical examination of varieties can be found on https://public.plantvarieties.eu/publication in the special issue S2/S3 of the Official Gazette of the Office. General requirements on submission of samples are also to be found following the same link.

2.2 Informing the applicant of plant material requirements

The CPVO informs the applicant that:

- he is responsible for ensuring compliance with any customs and plant health requirements;
- the plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease;
- 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.

2.3 Informing about problems on the submission of material

The Examination Office shall report to the CPVO immediately in cases where the test material of the candidate variety has not arrived in time or in cases where the material submitted does not fulfil the conditions laid down in the request for submission of plant material issued by the CPVO.

In cases where the examination office encounters difficulties to obtain plant material of reference varieties the CPVO should be informed in writing.

3. METHOD OF EXAMINATION

3.1 Number of growing cycles

3.1.1 The duration of tests should be two independent growing cycles for the purpose of observation of characteristics following an adequate number of growing cycles for establishment of plants; at the end of each growing cycle for the purpose of observation of characteristics the competent authority will determine whether or not the following growing cycle is required.

The testing of a variety may be concluded when the entrusted examination office can determine with certainty the outcome of the test.

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

The two independent growing cycles may be observed from a single planting, examined in two separate 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/or vegetative), 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" http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf.

3.3 Conditions for Conducting the Examination

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

The optimum stage of development for the assessment of each characteristic is indicated by a number in the third column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8 3.

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 Special tests for additional characteristics

In accordance with Article 23 of Implementing Rules N° 874/2009 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, a special test may be undertaken providing that a technically acceptable test procedure can be devised.

Special tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characteristics listed in the protocol.

3.6 Constitution and maintenance of a variety collection

The process for the constitution and the maintenance of a variety collection can be summarized as follows:

Step 1: Making an inventory of the varieties of common knowledge.

Step 2: Establishing a collection ("variety collection") of varieties of common knowledge which are relevant for the examination of distinctness of candidate varieties.

Step 3: Selecting the varieties from the variety collection which need to be included in the growing trial or other tests for the examination of distinctness of a particular candidate variety.

3.6.1 Forms of variety collection
The variety collection shall comprise variety descriptions and living plant material, thus a living reference collection. The variety description shall be produced by the EO unless special cooperation exists between EOs and the CPVO. The descriptive and pictorial information produced by the EO shall be held and maintained in a form of a database.

In addition, the variety collection shall comprise images (e.g., photographs, illustrations or digitalized images) of representative parts of the plants of each variety, produced by the respective EO.

3.6.2 Living Plant Material
The EO shall collect and maintain living plant material of varieties of the species concerned in the variety collection.

3.6.3 Range of the variety collection
The living variety collection shall cover at least those common knowledge varieties that are suitable to grow in the climatic conditions of a respective EO.

3.6.4 Making an inventory of varieties of common knowledge for inclusion in the variety collection
The inventory shall include varieties protected under National and Community PBR, varieties of National Catalogues (where such catalogues exist) and varieties in trade or in commercial registers.
The inventory shall take into account the list of varieties which are the subject of an on-going application for protection or official registration (candidate varieties).

In addition to the above, the inventory shall be extended to the appropriate to
- relevant example varieties referred to in the technical protocols.
- any commercial document in which varieties are marketed as propagating or harvested material, especially when there is no official registration system.
- any list including varieties which are publicly available within plant collections (varieties included in genetic resource collections, collection of old varieties, etc.).
- information provided by relevant plant experts.

3.6.5 Maintenance and renewal/update of a living variety collection

The EO shall maintain the variety collection under appropriate growing conditions (e.g., glasshouse, orchard, in vitro), where it shall be ensured that the plants are adequately irrigated, fertilised, pruned and protected from harmful pests and diseases.

Living material in variety collections representing varieties for which a DUS test was carried out at that EO shall be renewed after verification in a side-by-side comparison. In case where no living material is available anymore in the collection, such verification could be done with any other test that has proven to give similar results between the material in the collection and the new material.

4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY

The prescribed procedure is to assess distinctness, uniformity and stability in a growing trial.

4.1 Distinctness

4.1.1 General recommendations

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 9 'Examining Distinctness' (http://www.upov.int/edocs/tgpdocs/en/tgp_9.pdf) prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in this Technical Protocol.

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 Technical Protocols are familiar with the recommendations contained in the UPOV-General Introduction to DUS prior to making decisions regarding distinctness.

4.1.4 Number of plants/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 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 third column of 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., colour 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 this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 10 'Examining Uniformity' (http://www.upov.int/edocs/tgpdocs/en/tgp_10.pdf) prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in this Technical Protocol:

4.2.2 This Technical Protocol has been developed for the examination of vegetatively varieties. For varieties with other types of propagation the recommendations in the UPOV-General Introduction to DUS and document TGP/13 "Guidance for new types and species", Section 4.5 "Testing Uniformity" should be followed.

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-type is allowed.

4.3 Stability

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 11 'Examining Stability' (http://www.upov.int/edocs/tgpdocs/en/tgp_11.pd)

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.

Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. GROUPING OF VARIETIES AND ORGANISATION 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 organise 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 colour of skin (characteristic 34)

d) Fruit: main colour of flesh (characteristic 39)

e) Fruit: firmness (characteristic 42)

f) Time of beginning of flowering (characteristic 48)

g) Time of beginning of fruit ripening (characteristic 49)

5.4 If characteristics other than those mentioned in the list of grouping characteristics and/or from the table of characteristics and/or from the Technical Questionnaire – sections 5 and 7. are used for the selection of varieties to be included into the growing trial, the EO shall inform the CPVO and seek the prior consent of the CPVO before using these characteristics.

5.5 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the UPOV-General Introduction to DUS and document TGP/9 "Examining Distinctness".

6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS

6.1 Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the table of characteristics. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted or by specific legislation on plant health. In the latter case, the CPVO should be informed.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N°874/2009, to insert additional characteristics and their expressions in respect of a variety.

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

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

6.3 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.4 Legend

For column 'CPVO N°':

G	Grouping characteristic	-see Chapter 5
QL	Qualitative characteristic	
QN	Quantitative characteristic	
PQ	Pseudo-qualitative characteristic	
(+)	Explanations for individual characteristics	-see Chapter 8.2

For column 'UPOV N°':
The numbering of the characteristics is provided as a reference to the UPOV guideline.

(*)	UPOV Asterisked characteristic	- Characteristics that are important for the international harmonization of variety descriptions.

For column 'Stage, method':

MG, MS, VG, VS		-see Chapter 4.1.5
(a)-(e)	Explanations covering several Characteristics	-see Chapter 8.1
00-99	Explanations on growth stages	-see Chapter 8.3

7. TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
1. (+)	**1.**	**VG**	**Tree: vigour**		
QN			very weak		1
		81	weak	Frisco, PA2UNIBO	2
			medium	Early Korwik, Glenred	3
			strong	Louis, Rosilam	4
			very strong	Babelle, Regina	5
2. (+)	**2. (*)**	**VG**	**Tree: habit**		
PQ		**(a)**	upright	Baïa, Lapins, Melitopol'skaya rannyaya	1
		00	semi-upright	Burlat, Napoléon	2
			spreading	Fertard, Sumtare, Vera	3
			drooping	Annabella, Vanda	4
3. (+)	**3. (*)**	**VG**	**Tree: density of branching**		
QN		**(a)**	very sparse	Baïa	1
		00	sparse	Merton Glory, Rainier	2
			medium	Firelam, Hedelfinger Riesenkirsche	3
			dense	Glenoia	4
			very dense	Alex, Emma, Fertard	5
4.	**4.**	**MG/VG**	**One-year-old shoot: number of lenticels**		
QN		**(a)**	very few	Ferdouce, Karl	1
		00	few	Kordia, PA4UNIBO, Sam	2
			medium	Hedelfinger Riesenkirsche, Pacific Red, Van	3
			many	Krupnoplodnaya, Querfurter Königskirsche, Rosilam	4
			very many	Cambrina, Royal Bailey	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
5. (+)	**5.**	**VG**	**One-year-old shoot: position of vegetative bud in relation to shoot**		
QN		**(a)**	adpressed	Duroni 3	1
		00	erect	Rivedel	2
			semi-erect	Magar, Rita, Sunburst	3
6.	**6.**	**VG**	**Young shoot: anthocyanin coloration of apex**		
QN			absent or very weak	Drogans Gelbe Knorpelkirsche, Royal Helen	1
		33	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.	**7.**	**VG**	**Young shoot: pubescence of apex**		
QN			absent or very sparse	PA2UNIBO	1
		33	sparse	Habunt, Hedelfinger Riesenkirsche, Van	2
			medium	Henriette, Kassins Frühe	3
			dense	Burlat, Early Rivers, Rocket	4
			very dense	Rosie, Swing	5
8. (+)	**8.**	**VG**	**Fruiting spur: shape of apex**		
PQ			acute	Bedel, Santina	1
		50	obtuse	Magar, Rivedel	2
			rounded	Duroni 3, Van	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
9.	**9.**	**MG/VG**	**Leaf blade: length**		
QN		**(b)**	very short		1
		39	very short to short	Noire de Meched	2
			short	Cambrina, Sumtare, Szomolyai fekete	3
			short to medium	Hedelfinger Riesenkirsche	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.	**10.**	**MG/VG**	**Leaf blade: width**		
QN		**(b)**	very narrow		1
		39	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

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
11.	**11. (*)**	**MG/VG**	**Leaf blade: ratio length/width**		
QN		**(b)**	very low		1
		39	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
12.	**12.**	**VG**	**Leaf blade: intensity of green colour of upper side**		
QN		**(b)**	very light	Bigarreau d'Or	1
		39	light	Cambrina, Sumtare	2
			medium	Napoléon, PA5UNIBO, Vanda	3
			dark	Burlat, Royal Hazel	4
			very dark	Big Star, Frisco	5
13.	**13.**	**MG/VG**	**Leaf: length of petiole**		
QN		**(b)**	very short		1
		39	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

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
14.	**14. (*)**	**MG/VG**	**Leaf: ratio length of blade/length of petiole**		
QN		**(b)**	very low		1
		39	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
15.	**15.**	**VG**	**Leaf: predominant number of nectaries**		
QL		**(b)**	two	Narana	1
		39	more than two	ZAI107CZ	2
16.	**16.**	**VG**	**Leaf: colour of nectaries**		
PQ		**(b)**	greenish yellow	Drogans Gelbe Knorpelkirsche, Firelam, Van	1
		39	orange yellow	Hudson, Reverchon, Royal Hazel	2
			red	Burlat, Early Rivers, Germersdorfi 45, Glenoia, Sylvia	3
			purple	Gege, Paulus, Rocket	4
17. (+)	**17.**	**MG/VG**	**Flower: diameter**		
QN		**(c)**	very small		1
		65	small	Annus, Szomolyai fekete	2
			medium	Sylvia, Van	3
			large	Aida, Burlat	4
			very large	Rosilam, Walter	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
18. (+)	**18.**	**MG**	**Flower: shape of petal**		
PQ		**(c)**	circular	Kordia, Rosie, Scheider Späte Knorpelkirsche	1
		65	medium ovate	Burlat, Royal Hazel, Sunburst	2
			broad ovate	Firelam, Hedelfinger Riesenkirsche, Van	3
19. (+)	**19.**	**VG**	**Flower: arrangement of petal**		
QN		**(c)**	free	Burlat, Royal Hazel, Sunburst	1
		65	intermediate	Germersdorfi 45, Nimba, Van	2
			overlapping	Hudson, Royal Edie	3
20. (+)	**20.**	**VG**	**Anthers: position in relation to top of petals**		
QN			below	Burlat, PA7UNIBO	1
		65	same level	Redlam	2
			above	Royal Hazel	3
21. (+)	**21.**	**VG**	**Stigma: position in relation to anthers**		
QN			below	Napoléon, PA6UNIBO	1
		65	same level	Tip Top, Van	2
			above	Burlat, Redlam	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
22. (+)	**22. (*)**	**MG/MS /VG**	**Fruit: size**		
QN		**(d)**	very small	Müncheberger Frühernte, Szomolyai fekete	1
		87	very small to small	Cristobalina, Merton Crane	2
			small	Ulster	3
			small to medium	Alex	4
			medium	Bing, Burlat, Rainier	5
			medium to large	Belge, Sunburst	6
			large	Folfer, Rosie	7
			large to very large	Baïa, Louis	8
G			very large		9
23.	**23.**	**MG/VG**	**Fruit: height**		
QN		**(d), (e)**	very short	PA1UNIBO, Van	1
		87	short	Burlat, Sunburst	2
			medium	Reverchon	3
			large	Ferdiva, Hedelfinger Riesenkirsche	4
			very large	Rocket, Summit	5
24.	**24.**	**MG/VG**	**Fruit: width**		
QN		**(d), (e)**	very narrow	Hedelfinger Riesenkirsche	1
		87	narrow	Ferdiva, Walter	2
			medium	Burlat, Reverchon	3
			broad	Feroni, Summit	4
			very broad	PA6UNIBO, Sunburst	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
25.	**25.**	**MG/VG**	**Fruit: ratio height/width**		
QN		**(d), (e)**	very low	Masdel, Sunburst	1
		87	low		2
			medium	Rocket, Summit	3
			high		4
			very high	Ferdiva, Hedelfinger Riesenkirsche	5
26. (+)	**26. (*)**	**VG**	**Fruit: shape in ventral view**		
PQ		**(d), (e)**	broad ovate	Alex, Burlat, Glenoia	1
		87	reniform	Big Star, Royal Edie, Van, Vera	2
			cordate	Louis, PA7UNIBO, Summit	3
			transverse elliptic	Ferdiva, Hedelfinger Riesenkirsche, Walter	4
G			circular	Reverchon	5
27. (+)	**27.**	**VG**	**Fruit: shape in cross section**		
PQ		**(d)**	circular	Duroni 3, Hamid	1
		87	elliptic	Pacific Red, Swing	2
			angular	PA7UNIBO	3
28. (+)	**28.**	**VG**	**Fruit: shape of base**		
PQ		**(d), (e)**	truncate or weakly cordate	Duroni 3	1
		87	medium cordate	Burlat, Van	2
			strongly cordate	PA7UNIBO, Summit	3
29. (+)	**29.**	**VG**	**Fruit: shape of apex in dorsal view**		
PQ		**(d)**	concave	Fertille, Redlam	1
		87	flat	Henriette, Van	2
			convex	PA6UNIBO, Sunburst	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
30.	**30.**	**VG**	**Fruit: suture**		
QN		**(d), (e)**	absent or slightly conspicuous	Klara, Rosalolam	1
		87	moderately conspicuous	Cambrina, Rocket, Stella	2
			strongly conspicuous	Betti, Regina, SPC106	3
31.	**31. (*)**	**MG/VG**	**Fruit: length of stalk**		
QN		**(d)**	very short	Folfer, Walter	1
		87	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
32.	**32.**	**MG/VG**	**Fruit: thickness of stalk**		
QN		**(d)**	very thin	PA6UNIBO	1
		87	thin	Ferdiva, Hedelfinger Riesenkirsche, Kordia	2
			medium	Germersdorfi 45, Sunburst, Vanda	3
			thick	Lalastar, Van	4
			very thick	Black Star, Folfer	5
33.	**33.**	**VG**	**Fruit: adherence of stalk**		
QN		**(d)**	absent or weak	ZAI107CZ	1
		87	medium	Pacific Red, ZAI89CZ	2
			strong	Brooks, Redlam	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
34.	**34. (*)**	**MG/VG**	**Fruit: ground colour of skin**		
PQ		**(d)**	yellow	Bigarreau d'Or , Dönnissens Gelbe Knorpelkirsche	1
		87	orange red		2
			light red	Krupnoplodnaya	3
			medium red	Alex, Sunburst	4
			brown red	Burlat, Kordia, Lapins	5
			dark red	Hedelfinger Riesenkirsche, Stella	6
G			blackish	Annabella, Knauffs Schwarze, Namosa	7
35.	**35. (*)**	**VG**	**Fruit: relative area of over colour**		
QN		**(d)**	absent or very small	Bigarreau d'Or	1
		87	small	Napoléon	2
			medium	Rosilam	3
			large	ZAI99CZ	4
			very large	Burlat	5
36.	**36.**	**VG**	**Fruit: size of lenticels on skin**		
QN		**(d)**	very small	PC7146-8	1
		87	small	Emma, Hedelfinger Riesenkirsche	2
			medium	Frisco, Guillaume	3
			large	Reverchon, Rosie	4
			very large	Royal Hazel	5
37.	**37.**	**MG/VG**	**Fruit: number of lenticels on skin**		
QN		**(d)**	absent or very few	Henriette, PC7146-8	1
		87	few	Burlat, Rita, Swing	2
			medium	Babelle, Sunburst	3
			many	Marmotte, Royal Helen, Vera	4
			very many	Royal Hazel	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
38. (+)	**38.**	**VG**	**Fruit: thickness of skin**		
QN		**(d)**	thin	Glenred, Müncheberger Frühernte, Royal Edie	1
		87	medium	Big Star, Cambrina, Germersdorfi 45	2
			thick	Carmen, Walter	3
39. (+)	**39. (*)**	**VG**	**Fruit: main colour of flesh**		
PQ		**(d)**	whitish	Baïa, Napoléon, Rosilam	1
		87	yellow	Cambrina, Dönnissens Gelbe Knorpelkirsche	2
			pink	Glenred, Reverchon, Sunburst	3
			medium red	Germersdorfi 45, Hedelfinger Riesenkirsche, Redlam, Swing	4
G			dark red	Emma, Fernbird 765, Rubin, Szomolyai fekete	5
40.	**40.**	**VG**	**Fruit: secondary colour of flesh**		
PQ		**(d)**	none	Belge, Van	1
		87	whitish	Fernbird 765	2
			yellow		3
			pink		4
			medium red		5
			dark red		6

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
41.	**41.**	**VG**	**Fruit: colour of juice**		
PQ		**(d)**	colourless	Dönnissens, Gelbe Knorpelkirsche, Rosilam	1
		87	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.	**42. (*)**	**MG/MS /VG**	**Fruit: firmness**		
QN		**(d)**	very soft	Early Rivers	1
		87	soft	Narana, Sunburst	2
			medium	Bedel, Carmen, Emma, Germersdorfer, PC7146-8, Reverchon, Van	3
			firm	Folfer, Kavics, Kordia, PA2UNIBO, Regina, Sumtare	4
G			very firm	Balrine, Ferdiva	5
43. (+)	**43.**	**MG/VG**	**Fruit: sweetness**		
QN		**(d)**	low	Müncheberger Frühernte	1
		87	low to medium		2
			medium	Burlat, Sunburst	3
			medium to high		4
			high	Bigarreau d'Or, Kordia	5
44. (+)	**44.**	**MG/VG**	**Fruit: acidity**		
QN		**(d)**	low	Burlat, Müncheberger Frühernte	1
		87	medium	Napoléon, Van	2
			high	Sunburst	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
45. (+)	**45. (*)**	**MG/VG**	**Stone: size**		
QN		**(d)**	very small	Rosie	1
		87	small	Van, ZAI107CZ	2
			medium	Burlat, Early Korwik	3
			large	Feroni, PA7UNIBO	4
			very large	Carmen, Rocket	5
46.	**46.**	**MG/VG**	**Fruit: ratio size of fruit/size of stone**		
QN		**(d)**	very low	Brooks, Large red	1
		87	low		2
			medium	Hedelfinger Riesenkirsche, Techlovan	3
			high		4
			very high	Sumtare, Sunburst	5
47.	**47. (*)**	**VG**	**Stone: shape in ventral view**		
PQ		**(d)**	medium elliptic	Kordia, Napoléon	1
		87	broad elliptic	Rita	2
			circular	Germersdorfi 45, Van	3
			ovate		4

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
48. (+)	**48. (*)**	**MG/VG**	**Time of beginning of flowering**		
QN			very early	Cristobalina, Royal Hazel	1
		61	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
G			very late	Hamid, Klara	9
49. (+)	**49. (*)**	**MG/VG**	**Time of beginning of fruit ripening**		
QN			very early	Cristobalina, Ferprime, Hâtive de Bâle, Müncheberger Frühernte	1
		87	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
G			very late	13S-2009	9

8.EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

8.1 Explanations covering several characteristics

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

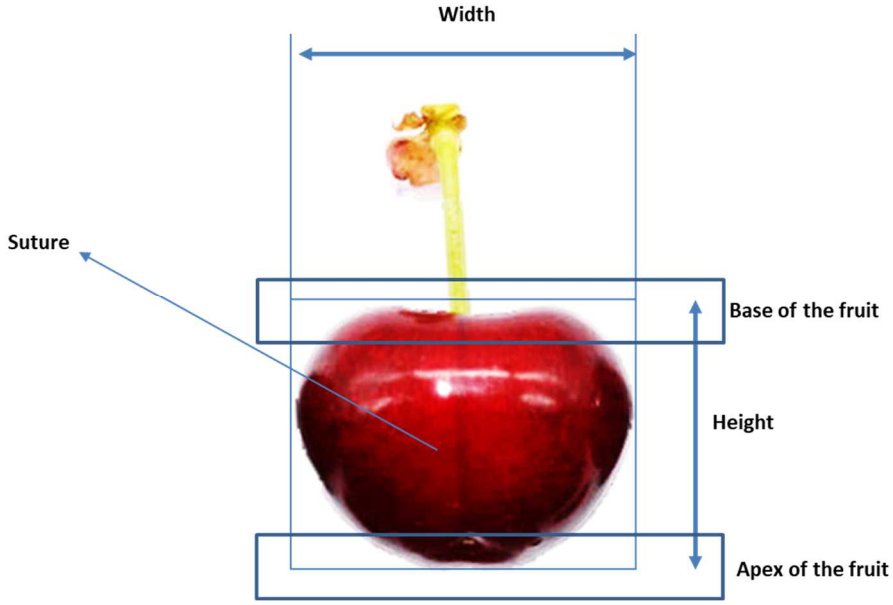
a) Observations should be made during winter, on trees after at least one satisfactory crop of fruits.

b) Observations should be made on fully developed leaves on the middle of a fruiting spur in summer.

c) Observations should be made on fully developed flowers at the beginning of anther dehiscence.

d) Observations should be made at full fruit maturity.

e) Observations should be made in ventral view.

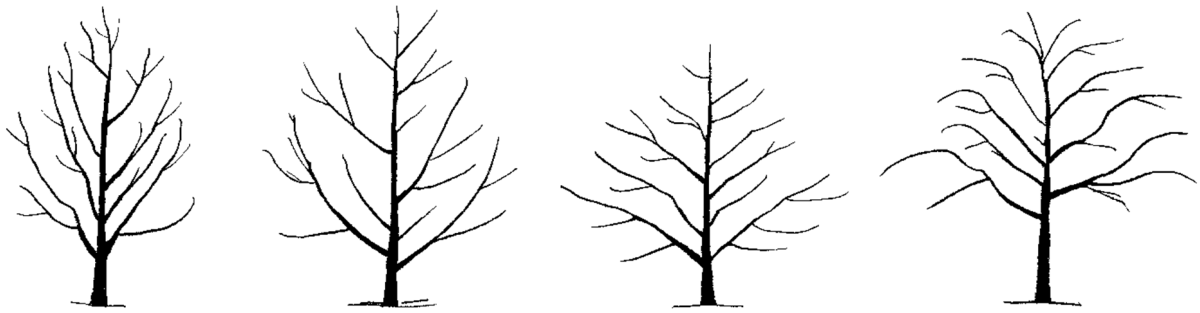


8.2 Explanations for individual characteristics

Ad. 1: Tree: vigour

Observations should be made on the overall abundance of vegetative growth, when the tree has reached the peak of vegetative growth.

Ad. 2: Tree: habit



1 upright | 2 semi-upright | 3 spreading | 4 drooping

Ad. 3: Tree: density of branching

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

1 very sparse | 2 sparse | 3 medium | 4 dense | 5 very dense

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

1 adpressed | 2 erect | 3 semi-erect

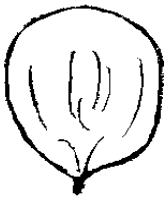
Ad. 8: Fruiting spurt: shape of apex

1 acute | 2 obtuse | 3 rounded

Ad. 17: Flower: diameter

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

Ad. 18: Flower: shape of petal



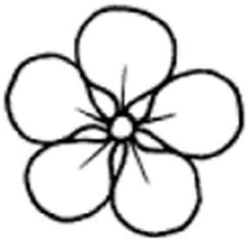
1
circular

2
medium obovate

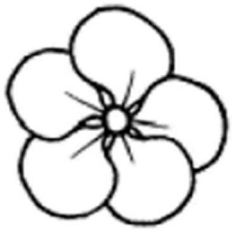
3
broad obovate

Ad. 19: Flower: arrangement of petals

1
free



2
intermediate



3
overlapping

Ad. 20: Anthers: position in relation to top of petals

1
below

2
same level

3
above

Ad. 21: Stigma: position in relation to anthers

1
below

2
same level

3
above

Ad. 22: Fruit: size

Observations should be made by weighing or by observing the length and width.

Ad. 262: Fruit: shape in ventral view

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

Ad. 27: Fruit: shape in cross-section


1
circular


2
elliptic


3
angular

Ad. 28: Fruit: shape of base


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 colour of flesh

The main colour of the flesh is the colour with the largest surface area.

Ad. 43: Fruit: sweetness

The sweetness of the fruit should be observed in degrees Brix.

Ad. 44: Fruit: acidity

The acidity of the fruit should be observed as the titrable acidity in meq 100/ml.

Ad. 45: Stone: size

Observations should be made by weighing or by observing the length and width.

Ad. 48: Time of beginning of flowering

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

Ad. 49: Time of beginning of fruit ripening

The time of beginning of fruit ripening is reached when 10% of the fruits are eating ripe. Fruit ripening should be considered as the time when the fruit can be most easily removed from the stalk and are ready to be eaten.

8.3 Explanations on growth stages

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 5: 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 of 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

8.4 Other names of example varieties

Denomination	Synonyms
Areko	Hamid
Early Rivers	Bigarreau précoce de Rivers; Guigne; Franse Vroege; Freinsheimer Schloßkirsche; Frühe Rivers; Heidelberger Schloßkirsche; Kastanka; Kastinky; Lindekers; Precoce de Clies; Rivers Early; Rivers Frühe
Hedelfinger Riesenkirsche	Géant d'Hedelfingen
Kordia	Techlovicka II, Techlo
Magar	Baron
Pico Colorado	Scarlet Peak
Pico Negro	Black Peak
Rosie	Rosie Rainier
Valerij Cskalov	Valery Tschkalov, Valery Chkalov

9. LITERATURE

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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, US, 533 p.

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

10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO/TQ-035/3 – *Prunus avium* (L.) L. – sweet cherry