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

PROTOCOL FOR DISTINCTNESS, UNIFORMITY AND STABILITY TESTS

Vitis L.

GRAPEVINE

UPOV Code: VITIS

Adopted on 01/04/2009

Entered into force on 01/01/2008

I SUBJECT OF THE PROTOCOL

The protocol describes the technical procedures to be followed in order to meet the Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on general UPOV Document TG/1/3 and UPOV Guideline TG/50/9 dated 09/04/2008 for the conduct of tests for Distinctness, Uniformity and Stability. This protocol applies for all varieties of ***Vitis* L.**

II SUBMISSION OF SEED AND OTHER PLANT MATERIAL

1. The Community Plant Variety Office (CPVO) is responsible for informing the applicant of

- the closing date for the receipt of plant material;
- the minimum amount and quality of plant material required;
- the examination office to which material is to be sent.

A sub-sample of the material submitted for test will be held in the variety collection as the definitive sample of the candidate variety.

The applicant is responsible for ensuring compliance with any customs and plant health requirements.

2. Final dates for receipt of documentation and material by the Examination Office

The final dates for receipt of requests, technical questionnaires and the final date or submission period for plant material will be decided by the CPVO and each Examination Office chosen.

The Examination Office is responsible for immediately acknowledging the receipt of requests for testing, and technical questionnaires. Immediately after the closing date for the receipt of plant material the Examination Office should inform the CPVO whether acceptable plant material has been received or not. However if unsatisfactory plant material is submitted the CPVO should be informed as soon as possible.

3. Plant material requirements

The final dates for request for technical examination and sending of Technical Questionnaire by the CPVO as well as submission date, quantity and quality of plant material by the applicant can be found in the S2 supplement of the CPVO Official Gazette and the CPVO website (www.cpvo.europa.eu).

Quality of plants:..... Should not be less than the standards laid down in Council Directive 2000/29/EC and its amendments concerning quarantine organisms, and Council Directive 68/193/EEC and their amendments concerning organisms impairing quality, at the date of adoption of this protocol; please refer to "Eur-Lex" for the full text and in case of any subsequent amendments to the two aforesaid Directives.

Healthy plant material of the candidate variety should be delivered to the test station in accordance with the requirements outlined in the instructions sent by the CPVO for the submission of plant material, and which can also be consulted in the relevant entries for grapevine within the S2 Gazette and the CPVO website.

Chemical treatment: ..... The plant material must not have undergone any treatment unless the CPVO and the examination office allow or request such treatment. If it has been treated, full details of the treatment must be given.

Labelling of individual plants in sample:
- Species
- File number of the application allocated by the CPVO
- Breeder's reference
- Examination office's reference (if known)
- Name of applicant
- The phrase "On request of the CPVO"

III CONDUCT OF TESTS

1. Variety collection

A variety collection will be maintained for the purpose of establishing distinctness of the candidate varieties in test. A variety collection may contain both living material and descriptive information. A variety will be included in a variety collection only if plant material is available to make a technical examination.

Pursuant to Article 7 of Council Regulation No. 2100/94, the basis for a collection should be the following:

- varieties listed or protected at the EU level or at least in one of the EEA Member States;
- varieties protected in other UPOV Member States;
- any other variety in common knowledge.

The composition of the variety collection in each Examination Office depends on the environmental conditions in which the Examination Office is located.

Variety collections will be held under conditions which ensure the long term maintenance of each accession. It is the responsibility of Examination Offices to replace reference material which has deteriorated or become depleted. Replacement material can only be introduced if appropriate tests confirm conformity with the existing reference material. If any difficulties arise for the replacement of reference material, Examination Offices must inform the CPVO. If authentic plant material of a variety cannot be supplied to an Examination Office the variety will be removed from the variety collection.

2. Material to be examined

Candidate varieties will be directly compared with other candidates for Community plant variety rights tested at the same Examination Office, and with appropriate varieties in the variety collection. When necessary an Examination Office may also include other candidates and varieties. Examination Offices should therefore make efforts to co-ordinate the work with other Offices involved in DUS testing of grapevine. There should be at least an exchange of technical questionnaires for each candidate variety, and during the test period, Examination Offices should notify each other and the CPVO of candidate varieties which are likely to present problems in establishing distinctness. In order to solve particular problems Examination Offices may exchange plant material.

3. Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the Annex 1. 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. In the latter case, the CPVO should be informed. In addition the existence of some other regulation e.g. plant health, may make the observation of the characteristic impossible.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N° 1239/95, to insert additional characteristics and their expression in respect of a variety.

4. Grouping of varieties

The varieties and candidates to be compared will be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety and which in their various states of expression are fairly evenly distributed throughout the collection. In the case of continuous grouping characteristics overlapping states of expression between adjacent groups is required to reduce the risks of incorrect allocation of candidates to groups. The characters used for grouping could be the following:

a) Young shoot : openness of tip (characteristic 2)

b) Young leaf : colour of upper side of blade (characteristic 6)

c) Young leaf: prostrate hairs between main veins on lower side of blade (characteristic 7)

d) Flower: sexual organs (characteristic 16)

e) Mature leaf: number of lobes (characteristic 20)

f) Time of beginning of berry ripening (characteristic 31)

g) Berry: shape (characteristic 36)

h) Berry: colour of skin (with bloom) (characteristic 37)

i) Berry: anthocyanin coloration of flesh (characteristic 40)

j) Berry: particular flavour (characteristic 42)

k) Berry: formation of seeds (characteristic 43)

5. Trial designs and growing conditions

The minimum duration of tests (independent growing cycles) will normally include at least two satisfactory crops of fruit. Tests will be carried out under conditions ensuring normal growth. The size of the plots will be such that plants or parts of plants may be removed for measuring and counting without prejudice to the observations which must be made up to the end of the growing period.

The test design is as follows

Each test should include 5 plants.

Unless otherwise indicated, all observations should be made on 5 plants or parts taken from each of 5 plants.

6. Special tests

In accordance with Article 83(3) of Council Regulation No. 2100/94 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 characters listed in the protocol.

7. Standards for decisions

a) **Distinctness**

A candidate variety will be considered to be distinct if it meets the requirements of Article 7 of Council Regulation No. 2100/94.

b) **Uniformity**

A candidate will be considered to be sufficiently uniform if the number of off-types does not exceed the number of plants as indicated in the table below. A population standard of 1% and an acceptance probability of 95% should be applied.

Table of maximum numbers of off-types allowed for uniformity standards.

Number of plants	off-types allowed
≤ 5	0

c) **Stability**

A candidate will be considered to be sufficiently stable when there is no evidence to indicate that it lacks uniformity.

IV REPORTING OF RESULTS

After each recording season the results will be summarised and reported to the CPVO in the form of a UPOV model interim report in which any problems will be indicated under the headings distinctness, uniformity and stability. Candidates may meet the DUS standards after two fruiting periods but in some cases three fruiting periods may be required. When tests are completed the results will be sent by the Examination Office to the CPVO in the form of a UPOV model final report.

If it is considered that the candidate complies with the DUS standards, the final report will be accompanied by a variety description in the format recommended by UPOV. If not, the reasons for failure and a summary of the test results will be included with the final report.

The CPVO must receive interim reports and final reports by the date agreed between the CPVO and the examination office.

Interim reports and final examination reports shall be signed by the responsible member of the staff of the Examination Office and shall expressly acknowledge the exclusive rights of disposal of CPVO.

V LIAISON WITH THE APPLICANT

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

The interim report as well as the final report shall be sent by the Examination Office to the CPVO.

VI ENTRY INTO FORCE

The present protocol enters into force on **01 January 2008**. Any ongoing DUS examination of candidate varieties with observations started before the aforesaid date will not be affected by the approval of the new TP. Technical examinations of candidate varieties are carried out according to the TP in force the first observations are made on characteristics in an independent growing cycle.

In cases where the CPVO requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process of being carried out at the moment of the 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 technical examination started.

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ANNEXES TO FOLLOW

ANNEX I PAGE

Legend:

(+) See Explanations on the Table of characteristics
(a)-(b) See Explanations on the Table of Characteristics
G Grouping characteristics
07-00 See Explanations on the Table of Characteristics

Types of expression of characteristics:

QL – Qualitative characteristic
QN – Quantitative characteristic
PQ – Pseudo-qualitative characteristic

Type of 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

When a method of observation is attributed to a certain characteristic, the first differentiation is made depending if the action taken is a visual observation (V) or a measurement (M).

The second differentiation deals with the number of observations the expert attributes to each variety, thus the attribution of either G or S.
If a single observation of a group consisting of an undefined number of individual plants is appropriate to assess the expression of a variety, we talk about a visual observation or a measurement made on a group of plants, thus we attribute the letter G (either VG or MG). If the expert makes more than one observation on that group of plants, the decisive part is that we have at the end only one data entry per variety which means that we have to deal with G (e.g. measurement of plant length on a plot – MG, visual observation of green colour of leaves on a plot – VG).
If it is necessary to observe a number of individual plants to assess the expression of a variety, we should attribute the letter S (thus either VS or MS). Single plant data entries are kept per variety for further calculations like the variety mean (e.g. measurement of length of ears – MS, visual observation of growth habit of single plants in grasses – VS). The number of individual plants to be observed in such cases is stated in section III.5.

In the third column of the Table of Characteristics for each characteristic are indicated the code numbers of the International Organisation of Vine and Wine (O.I.V.) (O-...) and International Plant Genetic Resources Institute (IPGRI, now operating as "Biodiversity International") (I-...) of the corresponding characteristic in their Descriptor lists for grapevine varieties and *Vitis* species, drawn up jointly by the O.I.V., IPGRI and UPOV, in order to avoid risks of mistakes and errors resulting from the multiplicity and heterogeneity of existing lists of distinctive characteristics.
O-... code number of O.I.V.
I-... code number of IPGRI

ANNEX II

ANNEX I

TABLE OF CHARACTERISTICS TO BE USED IN DUS-TEST AND PREPARATION OF DESCRIPTIONS

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
1.	**1.**	**07-09**	**Time of bud burst**		
	(*)	**O-301**	very early	Nero	1
(+)	**(+)**	**I-7.1.1**	early	Chardonnay	3
QN	**QN**	**MG**	medium	Cabernet Sauvignon	5
			late	Mourvèdre	7
			very late	Airen	9
2.	**2.**	**53-69**	**Young shoot: openness of tip**		
	(*)	**O-001**	closed	Riparia Gloire de Montpellier	1
(+)	**(+)**	**I-6.1.1**	slightly open	3309 Couderc	2
QN	**QN**	**VG**	half open	Kober 5 BB	3
			wide open	Cina	4
G			fully open	Pinot noir, Riesling	5
3.	**3.**	**53-69**	**Young shoot: <u>prostrate</u> hairs on tip**		
	(*)	**O-004**	absent or very sparse	3309 Couderc	1
(+)	**(+)**	**I-6.1.3**	sparse	Chasselas blanc	3
QN	**QN**	**VG**	medium	Pinot noir	5
			dense	Lipovina	7
			very dense	Meunier	9
4.	**4.**	**53-69**	**Young shoot: anthocyanin coloration of <u>prostrate</u> hairs on tip**		
	(*)	**O-003**	absent or very weak	Furmint	1
(+)	**(+)**	**I-6.1.2**	weak	Riesling	3
QN	**QN**	**VG**	medium	Barbera	5
			strong	Cabernet Sauvignon	7
			very strong	Cina	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
5.	**5.**	**53-69**	**Young shoot: <u>erect</u> hairs on tip**		
(+)	**(+)**	**O-005**	absent or very sparse	Rupestris du Lot	1
QN	**QN**	**I-6.1.4**	sparse	3309 Couderc	3
		VG	medium	3306 Couderc	5
			dense	Riparia Gloire de Montpellier	7
			very dense		9
6.	**6.**	**53-69 O-051**	**Young leaf: colour of <u>upper</u> side of blade**		
	(*)	**I-6.1.16**	yellow green	Furmint	1
(+)	**(+)**	**VG**	green	Silvaner	2
PQ	**PQ**		green with anthocyanin spots	Riesling	3
			light copper red	Kober 5 BB	4
			dark copper red	Chasselas blanc	5
G			wine red	Deckrot	6
7.	**7.**	**53-69**	**Young leaf: prostrate hairs between main veins on lower side of blade**		
	(*)	**O-053**	absent or very sparse	Rupestris du Lot	1
(+)	**(+)**	**I-6.1.17**	sparse	Muscat à petits grains blancs	3
QN	**QN**	**VG**	medium	Merlot, Riesling	5
			dense	Clairette	7
G			very dense	Meunier	9
8.	**8.**	**53-69**	**Young leaf: erect hairs on main veins on lower side of blade**		
(+)	**(+)**	**O-056**	absent or very sparse	Rupestris du Lot	1
QN	**QN**	**I-6.1.20**	sparse	3309 Couderc	3
		VG	medium	Kober 125 AA	5
			dense	Teleki 8 B	7
			very dense	Riparia Scribner	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
9.	**9.**	**60-69**	**Shoot: attitude (before tying)**		
(+)	**(+)**	**O-006**	erect	Garnacha tinta	1
QN	**QN**	**I-6.1.5**	semi-erect	Muscat Ottonel	3
		VG	horizontal	Barbera	5
			semi-drooping	Aramon noir	7
			drooping	Albillo Real	9
10.	**10.**	**60-69 O-007**	**Shoot: colour of <u>dorsal</u> side of internodes**		
(+)	**(+)**	**I-6.1.6**	green	Sauvignon	1
QN	**QN**	**VG**	green and red	Carignan	2
		(a)	red	Riesling	3
11.	**11.**	**60-69 O-008**	**Shoot: colour of <u>ventral</u> side of internodes**		
	(*)	**I-6.1.7**	green	Sauvignon	1
(+)	**(+)**	**VG**	green and red	Carignan	2
QN	**QN**	**(a)**	red	Mourvèdre	3
12.	**12.**	**60-69 O-009**	**Shoot: colour of <u>dorsal</u> side of nodes**		
(+)	**(+)**	**I-6.1.8**	green	Sauvignon	1
QN	**QN**	**VG**	green and red	Barbera	2
		(a)	red	Kober 5 BB	3
13.	**13.**	**60-69 O-010**	**Shoot: colour of <u>ventral</u> side of nodes**		
(+)	**(+)**	**I-6.1.9**	green	3309 Couderc	1
QN	**QN**	**VG**	green and red	Börner	2
		(a)	red	Kober 5 BB	3

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
14.	**14.**	**60-69**	**Shoot: <u>erect</u> hairs on internodes**		
		O-012	absent or very sparse	3309 Couderc	1
QN	**QN**	**I-6.1.11**	sparse	161-49 Couderc	3
		VG	medium	Teleki 8 B	5
		(a)	dense	Kober 125 AA, Riparia Scribner	7
			very dense	Cina	9
15.	**15.**	**60-73**	**Shoot: length of tendrils**		
		O-017	very short	Rupestris du Lot	1
QN	**QN**	**I-6.1.15**	short	Aramon noir	3
		VG	medium	Pinot noir	5
		(a)	long	Chasselas blanc	7
			very long	Emperor	9
16.	**16.**	**61-68**	**Flower: sexual organs**		
	(*)	**O-151**	fully developed stamens and no gynoecium	Rupestris du Lot	1
(+)	**(+)**	**I-6.2.1**	fully developed stamens and reduced gynoecium	3309 Couderc	2
QL	**QL**	**VG**	fully developed stamens and fully developed gynoecium	Chasselas blanc	3
G			reflexed stamens and fully developed gynoecium	Kober 5 BB, Ohanes	4
17.	**17.**	**75-81**	**Mature leaf: size of blade**		
	(*)	**O-065**	very small	Paulsen 1103	1
QN	**QN**	**I-6.1.21**	small	Gamay	3
		VG	medium	Cabernet Sauvignon	5
		(b)	large	Carignan	7
			very large	Bobal, Emperor	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
18.	**18.**	**75-81**	**Mature leaf: shape of blade**		
	(*)	**O-067**	cordate	Petit Verdot	1
(+)	**(+)**	**I-6.1.22**	wedge-shaped	Riparia Gloire de Montpellier	2
PQ	**PQ**	**VG**	pentagonal	Chasselas blanc	3
		(b)	circular	Clairette	4
			kidney-shaped	Rupestris du Lot	5
19.	**19.**	**75-81**	**Mature leaf: blistering of upper side of blade**		
QN	**QN**	**O-075**	absent or very weak	Rupestris du Lot	1
		I-6.1.26	weak	Chasselas blanc	3
		VG	medium	Semillon	5
		(b)	strong	Merlot	7
			very strong	Brancellao	9
20.	**20.**	**75-81**	**Mature leaf: number of lobes**		
	(*)	**O-068**	one	Rupestris du Lot	1
(+)	**(+)**	**I-6.1.23**	three	Chenin blanc	2
QN	**QN**	**VG**	five	Chasselas blanc	3
		(b)	seven	Vermentino	4
G			more than seven	Hebron	5
21.	**21.**	**75-81**	**Mature leaf: depth of upper lateral sinuses**		
(+)	**(+)**	**O- -**	absent or very shallow	Melon	1
QN	**QN**	**I-6.1.34**	shallow	Gamay	3
		VG	medium	Merlot	5
		(b)	deep	Chasan	7
			very deep	Chasselas Cioutat	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
22.	**22.**	**75-81**	**<u>Only varieties with lobed leaves:</u> Mature leaf: arrangement of lobes of upper lateral sinuses**		
(+)	**(+)**	**O-082**	open	Folle Blanche	1
QN	**QN**	**I-6.1.33**	closed	Chasselas blanc	2
		VG	slightly overlapped	Cabernet Sauvignon	3
		(b)	strongly overlapped	Clairette	4
23.	**23.**	**75-81**	**Mature leaf: arrangement of lobes of petiole sinus**		
	(*)	**O-079**	very wide open	Rupestris du Lot	1
(+)	**(+)**	**I-6.1.30**	wide open	Riparia Gloire de Montpellier	2
QN	**QN**	**VG**	half open	Aramon noir	3
		(b)	slightly open	Sauvignon	4
			closed	Chasselas blanc	5
			slightly overlapped	Aubun	6
			half overlapped	Riesling	7
			strongly overlapped	Clairette	8
			very strongly overlapped	Domina	9
24.	**24.**	**75-81 O- -**	**Mature leaf: length of teeth**		
	(*)	**I-6.1.28**	short	Pinot noir	3
(+)	**(+)**	**VG**	medium	Merlot	5
QN	**QN**	**(b)**	long	Carignan	7
25.	**25.**	**75-81**	**Mature leaf: ratio length/width of teeth**		
	(*)	**O-078**	very small	157-11 Couderc	1
(+)	**(+)**	**I-6.1.29**	small	Silvaner	3
QN	**QN**	**VG**	medium	Chasselas blanc	5
		(b)	large	Muscat of Alexandria	7
			very large	Sangiovese	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
26.	**26.**	**75-81**	**Mature leaf: shape of teeth**		
	(*)	**O-076**	both sides concave		1
(+)	**(+)**	**I-6.1.27**	both sides straight	Muscat à petits grains blancs	2
PQ	**PQ**	**VG**	both sides convex	Chenin blanc	3
		(b)	one side concave, one side convex	Aspiran	4
			mixture of both sides straight and both sides convex	Cabernet franc	5
27.	**27.**	**75-81**	**Mature leaf: proportion of main veins on upper side of blade with anthocyanin coloration**		
	(*)	**O- -**	absent or very low	Garnacha tinta	1
(+)	**(+)**	**I-6.1.24**	low	Muscat of Alexandria	3
QN	**QN**	**VG**	medium	Dornfelder	5
		(b)	high	Deckrot	7
			very high	Cabernet Mitos	9
28.	**28.**	**75-81**	**Mature leaf: prostrate hairs between main veins on lower side of blade**		
	(*)	**O-084**	absent or very sparse	Chasselas blanc	1
QN	**QN**	**I-6.1.35**	sparse	Gamay	3
		VG	medium	Cabernet Sauvignon	5
		(b)	dense	Clairette	7
			very dense	Isabella	9
29.	**29.**	**75-81**	**Mature leaf: erect hairs on main veins on lower side of blade**		
	(*)	**O-087**	absent or very sparse	Rupestris du Lot	1
QN	**QN**	**I-6.1.38**	sparse	Perle de Csaba	3
		VG	medium	Muscat Ottonel	5
		(b)	dense	Kober 125 AA	7
			very dense	Börner	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
30.	**30.**	**75-81**	**Mature leaf: length of petiole compared to length of middle vein**		
(+)	**(+)**	**O-093**	much shorter		1
QN	**QN**	**I-6.1.40**	moderately shorter	Riparia Gloire de Montpellier	2
		VG	equal	Garnacha tinta	3
		(b)	moderately longer	Cardinal Rg	4
			much longer		5
31.	**31.**	**81**	**Time of beginning of berry ripening**		
	(*)	**O-303**	very early	Perle de Csaba	1
(+)	**(+)**	**I-7.1.4**	early	Pinot noir	3
QN	**QN**	**MG**	medium	Riesling	5
			late	Carignan	7
G			very late	Olivette noire	9
32.	**32.**	**89**	**Bunch: size (peduncle excluded)**		
	(*)	**O- -**	very small	Kober 5 BB	1
QN	**QN**	**I-6.2.2**	small	Riesling	3
		VG	medium	Chasselas blanc	5
			large	Trebbiano Toscano	7
			very large	Nehelescol	9
33.	**33.**	**89**	**Bunch: density**		
	(*)	**O-204**	very lax	Uva rara	1
(+)	**(+)**	**I-6.2.3**	lax	Cardinal	3
QN	**QN**	**VG**	medium	Chasselas blanc	5
			dense	Sauvignon	7
			very dense	Meunier	9

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
34.	**34.**	**89**	**Bunch: length of peduncle of primary bunch**		
	(*)	**O-206**	very short	Silvaner	1
(+)	**(+)**	**I-6.2.4**	short	Gewürztraminer	3
QN	**QN**	**VG**	medium	Marsanne	5
			long	Alphonse Lavallée	7
			very long	Freisa	9
35.	**35.**	**89**	**Berry: size**		
	(*)	**O--**	very small	Corinthe noir	1
QN	**QN**	**I-6.2.5**	small	Riesling	3
		VG	medium	Blauer Portugieser	5
			large	Muscat of Alexandria	7
			very large	Alphonse Lavallée	9
36.	**36.**	**89**	**Berry: shape**		
	(*)	**O-223**	obloid	Tompa	1
(+)	**(+)**	**I-6.2.6**	globose	Chasselas blanc	2
PQ	**PQ**	**VG**	broad ellipsoid	Müller Thurgau	3
			narrow ellipsoid	Olivette noire	4
			cylindrical	Kahlili belyi	5
			obtuse ovoid	Ahmeur bou Ahmeur	6
			ovoid	Bicane	7
			obovoid		8
			horn-shaped	Santa Paula	9
G			finger-shaped	Black finger	10

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
37.	**37.**	**89**	**Berry: colour of skin (without bloom)**		
	(*)	**O-225**	green	King Husainy	1
PQ	**PQ**	**I-6.2.8**	yellow green	Chasselas blanc	2
		VG	yellow	Palatina	3
			yellow rose	Moscatel grano menudo rojo	4
			rose	Chasselas rose	5
			red	Molinera gorda	6
			grey red	Pinot gris	7
			dark red violet	Cardinal	8
G			blue black	Pinot noir	9
38.	**38.**	**89**	**Berry: ease of detachment from pedicel**		
		O-240	difficult	Carignan	1
QN	**QN**	**I-6.2.13**	moderately easy	Silvaner	2
		VG	very easy	Isabella	3
39.	**39.**	**89**	**Berry: thickness of skin**		
		O-228	thin	Chasselas blanc	1
QN	**QN**	**I-7.1.6**	medium	Carignan	2
		VG	thick	Servant	3
40.	**40.**	**89**	**Berry: anthocyanin coloration of flesh**		
	(*)	**O-231**	absent or very weak	Pinot noir	1
QN	**QN**	**I-6.2.9**	weak	Gamay de Bouze	3
		VG	medium	Gamay de Chaudenay	5
			strong	Alicante Bouschet	7
G			very strong	Deckrot	9
41.	**41.**	**89**	**Berry: firmness of flesh**		
		O-235	soft or slightly firm	Pinot noir	1
QN	**QN**	**I-6.2.11**	moderately firm	Italia	2
		VG	very firm	Sugraone, Sultanina	3

CPVO N°	UPOV N°	Stage, method	Characteristics	Examples	Note
42.	**42.**	**89**	**Berry: particular flavour**		
	(*)	**O-236**	none	Auxerrois	1
PQ	**PQ**	**I-6.2.12**	muscat	Muscat of Alexandria	2
		VG	foxy	Isabella	3
			herbaceous	Cabernet Sauvignon	4
G			other than muscat, foxy or herbaceous	Chardonnay, Merlot, Pinot noir, Riesling	5
43.	**43. (*)**	**89**	**Berry: formation of seeds**		
(+)	**(+)**	**O-241**	none	Corinthe noir	1
QL	**QL**	**I-6.2.7**	rudimentary	Sultanina	2
G		**VG**	complete	Riesling	3
44.	**44.**	**91-00**	**Woody shoot: main colour**		
		O-103	yellowish brown	Garnacha tinta	1
PQ	**PQ**	**I-6.1.42**	orange brown	Malvar, Blauer Portugieser	2
		VG	dark brown	Chasselas blanc	3
			reddish brown	3309 Couderc	4
			violet	Aestivalis Jäger	5

EXPLANATIONS AND METHODS

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

(a) Shoot: Observations on the shoot which should be made in the middle third of shoot.

(b) Mature leaf: Observations on the mature leaf which should be made on leaves in the middle third of the shoot just above the raceme.

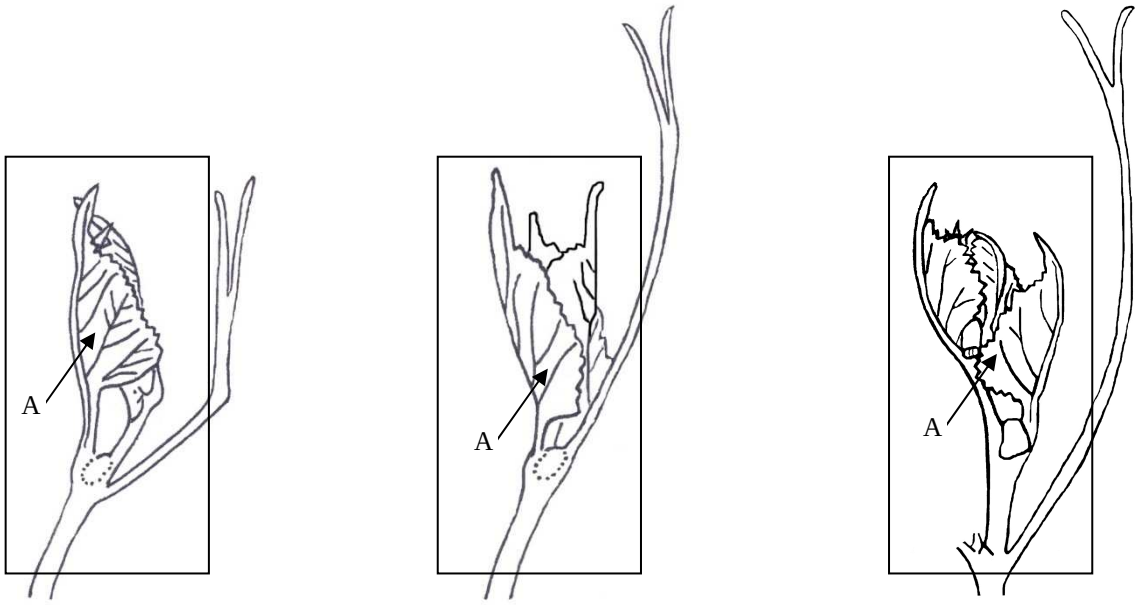
Ad. 1: Time of bud burst

The time of bud burst is when 50% of the plants are at the bud burst stage. A plant is at bud burst stage when 50% of the buds are at least at growth stage 07.

Pruning can influence the time of bud burst; therefore, all material should undergo the same pruning management.

Ad. 2 to 5: Young shot: tip (part in squares to be observed

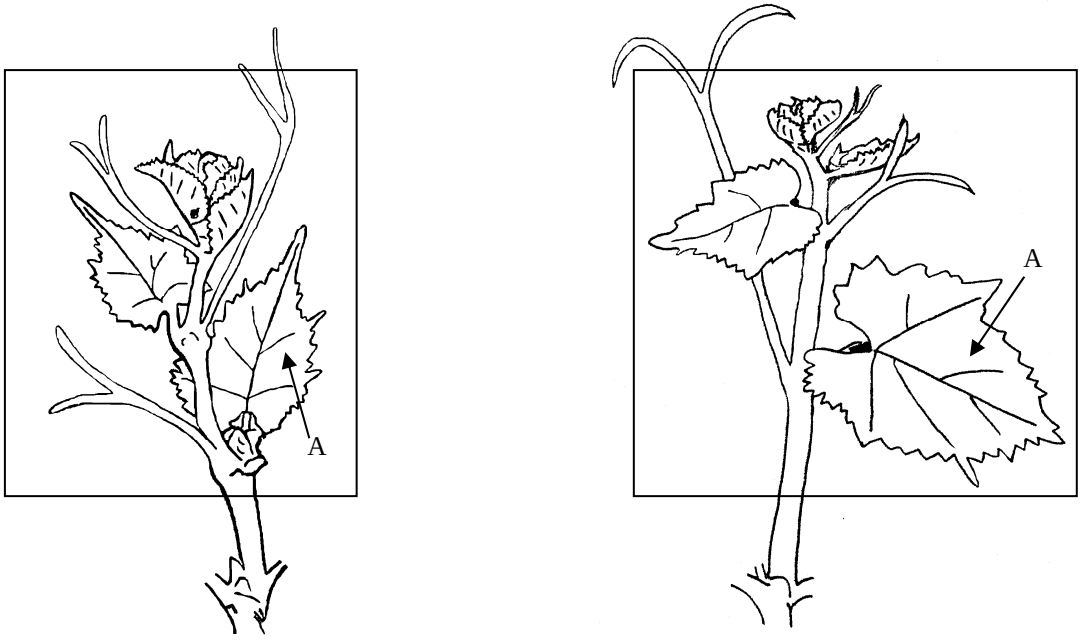
Young shoot: openness of tip (2):



1
closed

2
slightly open

3
half open



4
wide open

5
fully open

The openness of tip results from the attitude of the young leaves. The leaves indicated with 'A' have about the same physiological age. Openness of tip is correlated with elongation of the shoot tip.

Ad. 3: Young shoot: prostrate hairs on tip
Ad. 4: Young shoot: anthocyanin coloration of prostrate hairs on tip
Ad. 5: Young shoot: erect hairs on tip

Wide open or fully open tips (characteristic 2) to be observed with inclusion of first 2 distal unfolded leaves. Leaves of closed, slightly open or half open tips to be unfolded to enable observations on corresponding part of tip.

Ad. 6: Young leaf: colour of upper side of blade

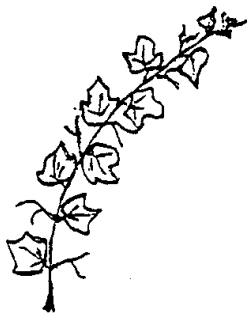
Observation on first 2 distal unfolded leaves in case of closed, slightly open or half open tips (characteristic 2). Observation on first 4 distal unfolded leaves in case of wide open or fully open tips.
The states green with anthocyanin spots (3); light copper red (4); dark copper red (5); and wine red (6) correspond to an increasing amount of anthocyanin coloration.

Ad. 7: Young leaf: prostrate hairs between main veins on lower side of blade
Ad. 8: Young leaf: erect hairs on main veins on lower side of blade

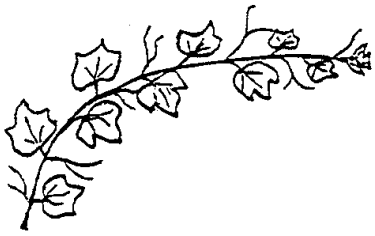
Observation on second distal unfolded leaf in case of closed, slightly open or half open tips (characteristic 2). Observation on fourth distal unfolded leaf in case of wide open or fully open tips.

Ad. 9: Shoot: attitude(before tying)

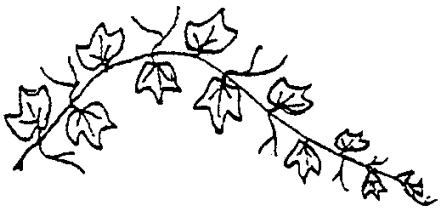
1
erect



3
semi-erect



5
horizontal



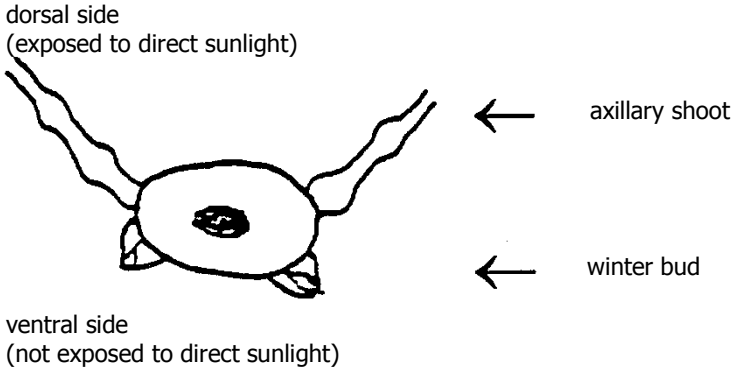
7
semi-drooping

9
drooping

Observation of this characteristic is difficult in windy locations where the shoots have to be tied early.

Ad. 10: Shoot: colour of dorsal side of internodes
Ad. 11: Shoot: colour of ventral side of internodes
Ad. 12: Shoot: colour of dorsal side of nodes
Ad. 13: Shoot: colour of ventral side of nodes

Cross section of shoot



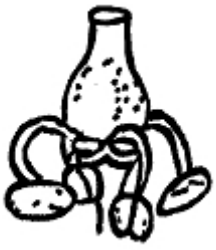
The states: green (1); green and red (2); and red (3) correspond to the proportion of anthocyanin coloration: absent or low (1); medium (2); and high (3).

Ad. 16: Flower: sexual organs

1
fully developed stamens
and no gynoecium

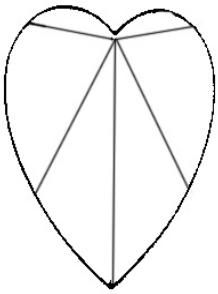
2
fully developed stamens
and reduced gynoecium

3
fully developed stamens
and fully developed gynoecium



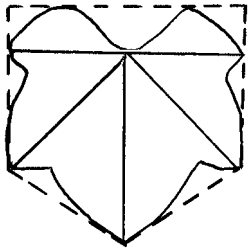
4
reflexed stamens
and fully developed gynoecium

Ad. 18. Mature leaf: shape of blade



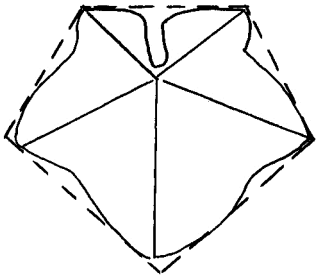
(rounded lateral outline)

1
cordate



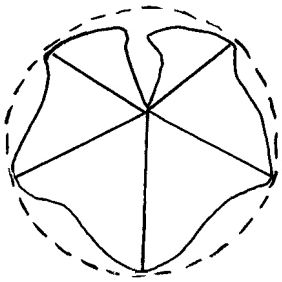
(forms a pentagon with parallel sides)

2
wedge-shaped



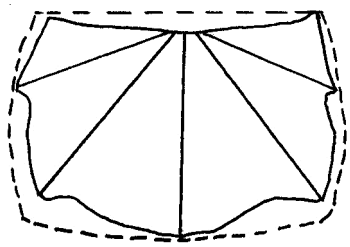
(forms a pentagon with broadest part towards the base)

3
pentagonal



(forms a pentagon with broadest part towards the apex)

4
circular



(broader than long)

5
kidney-shaped

Ad. 20: Mature leaf: number of lobes

A lobe is that part of the leaf which lies between two leaf sinuses. A leaf sinus results from a clear interruption of teeth on the leaf margin. A leaf showing no lateral sinus is considered to consist of one lobe.

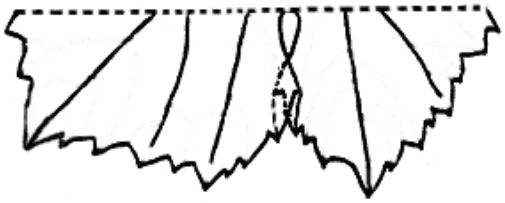
Within the same plant leaves with different number of lobes can appear. The predominant number of lobes has to be observed.

Ad. 21: Mature leaf: depth of upper lateral sinuses
Ad. 22: Only varieties with lobed leaves: Mature leaf: arrangement of lobes of upper lateral sinuses

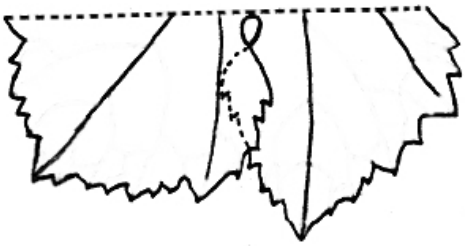
A sinus results from a clear interruption of teeth on the leaf margin. The upper lateral sinuses are situated between the middle vein and the next lateral main vein

1
open

2
closed



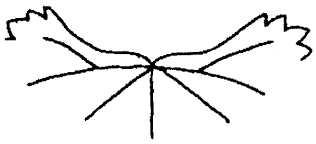
3
slightly overlapped



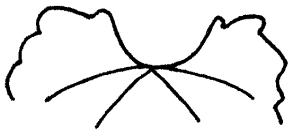
4
strongly overlapped

Ad. 23: Mature leaf: arrangement of lobes of petiole sinus

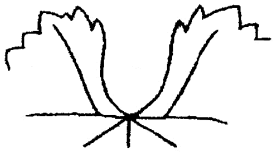
Leaves must be flattened for notation.



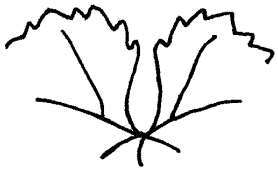
1
very wide open



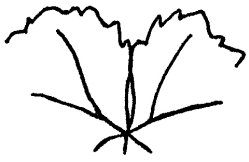
2
wide open



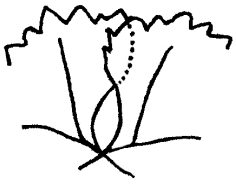
3
half open



4
slightly open

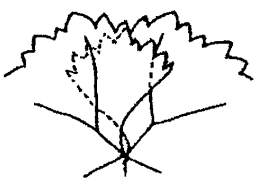


5
closed

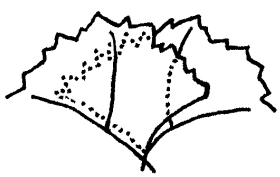


6
slightly overlapped

7
half overlapped



8
strongly overlapped

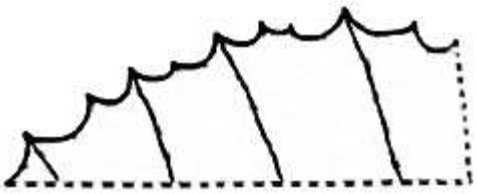


9
very strongly overlapped

Ad. 24: Mature leaf: length of teeth
Ad. 25: Mature leaf: ratio length/width of teeth
Ad. 26: Mature leaf: shape of teeth

All observations should be made between lateral main veins on the teeth of secondary veins.

Ad. 26: Mature leaf: shape of teeth

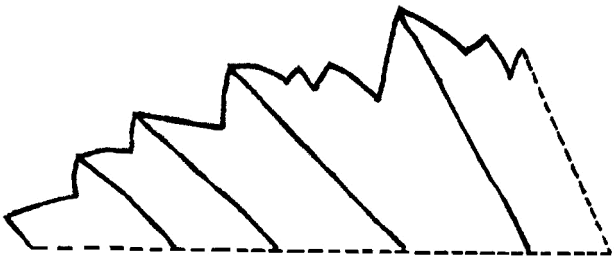


1
both sides concave

2
both sides straight

3
both sides convex

4
one side concave, one side convex

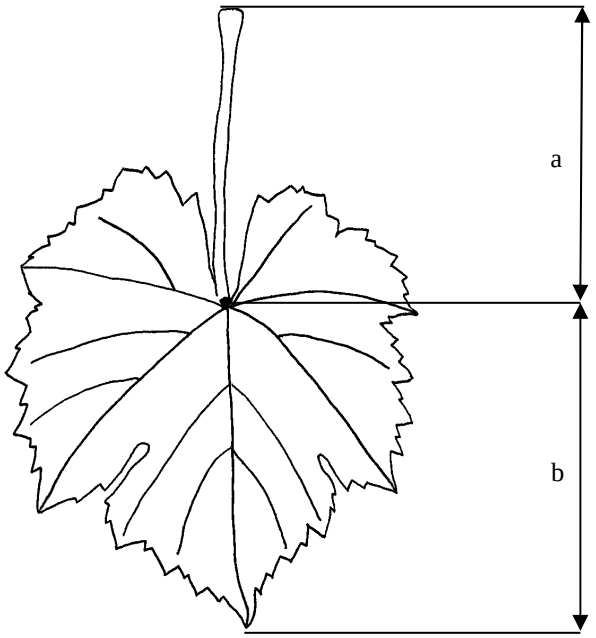


5
mixture of both sides straight and both sides convex

Ad. 27: Mature leaf: proportion of main veins on upper side of blade with anthocyanin coloration

The characteristic should be observed as the proportion of the total length of main veins with anthocyanin coloration. Interruptions in the anthocyanin coloration should not be included in that proportion.

Ad. 30: Mature leaf: length of petiole compared to length of middle vein



a = length of petiole
b = length of middle vein

Ad. 31: Time of beginning of berry ripening

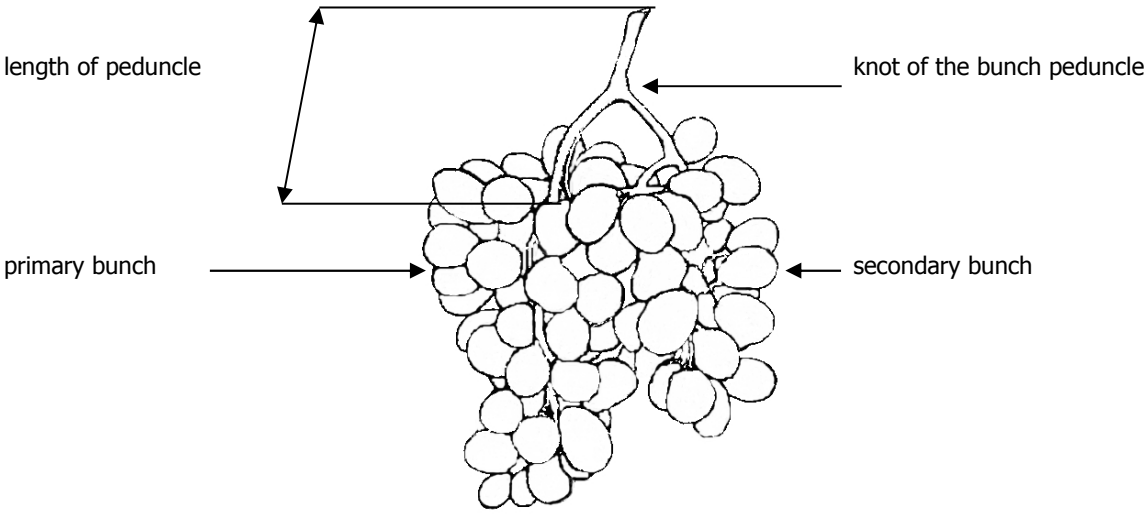
To be observed when about 50% of the berries on 50% of the plants start to become soft. Berries will be deformed when lightly pressed between fingers.

Ad. 33: Bunch: density

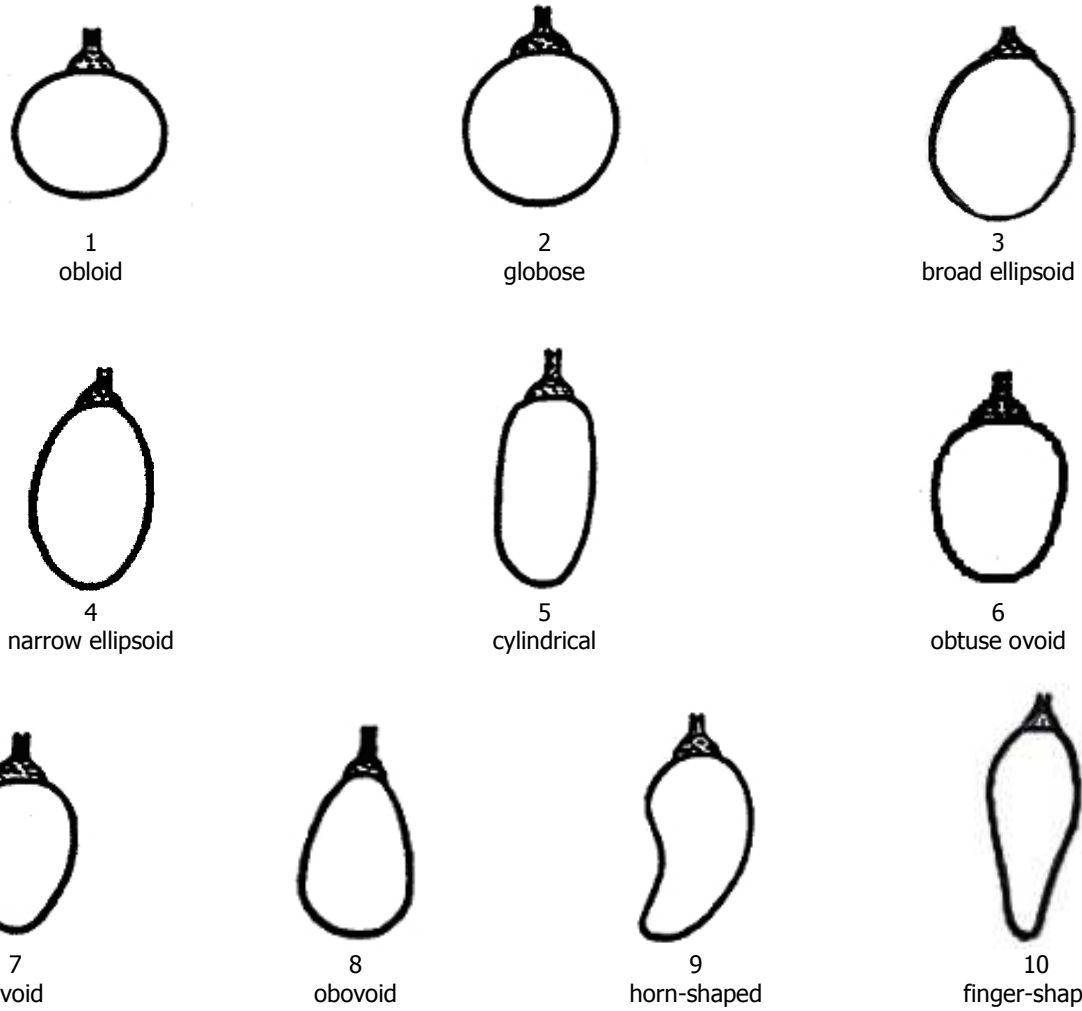
1 = berries in grouped formation, many visible pedicels
3 = single berries, some pedicels visible
5 = densely distributed berries, pedicels not visible, berries movable
7 = berries not readily movable
9 = berries pressed out of shape.

Ad. 34: Bunch: length of peduncle of primary bunch

The distance from insertion point of peduncle on shoot to 1st ramification of primary bunch should be measured. Above the 1st ramification there is a knot like thickening on the peduncle from which a secondary bunch or a tendril may arise which should not be confused with the 1st ramification.



Ad. 36: Berry: shape



1
obloid

2
globose

3
broad ellipsoid

4
narrow ellipsoid

5
cylindrical

6
obtuse ovoid

7
ovoid

8
obovoid

9
horn-shaped

10
finger-shaped

Ad. 43: Berry: formation of seeds

1 = no formation of seeds (parthenocarpic, type Corinthe)
2 = seeds with soft seed coat, embryo or endosperm not completely developed (stenospermocarpic, type Sultanina)
3 = seeds fully developed

Encoding and description of the phenological stages of grapevine according to the extended BBCH scale[1]

BBCH-Code	Description
Principal growth stage 0	Sprouting/Bud development
00	Dormancy: winter buds pointed to rounded, light or dark brown according to cultivar; bud scales more or less closed according to cultivar
01	Beginning of bud swelling: buds begin to expand inside the bud scales
03	End of bud swelling: buds swollen, but not green
05	"Wool stage": brown wool clearly visible
07	Beginning of bud burst: green shoot tips just visible
09	Bud burst: green shoot tips clearly visible
Principal growth stage 1	Leaf development
11	First leaf unfolded and spread away from shoot
12	2nd leaves unfolded
13	3rd leaves unfolded
1-	Stages continuous till …
19	9 or more leaves unfolded
Principal growth stage 5	Inflorescence emerge
53	Inflorescences clearly visible
55	Inflorescences swelling, flowers closely pressed together
57	Inflorescences fully developed, flowers separating
Principal growth stage 6	Flowering
60	First flowerhoods detached from the receptacle
61	Beginning of flowering: 10% of flowerhoods fallen
62	20% of flowerhoods fallen
63	Early flowering: 30% of flowerhoods fallen
64	40% of flowerhoods fallen
65	Full flowering: 50% of flowerhoods fallen
66	60% of flowerhoods fallen
67	70% of flowerhoods fallen
68	80% of flowerhood fallen
69	End of flowering
Principal growth stage 7	Development of fruits
71	Fruit set: young fruits begin to swell, remains of flowers lost
73	Berries groat-sized, bunches begin to hang
75	Berries pea-sized, bunches hang
77	Berries beginning to touch
79	Majority of berries touching
Principal growth stage 8	Ripening of berries
81	Beginning of ripening: berries begin to develop variety-specific colour
83	Berries developing colour
85	Softening of berries
89	Berries ripe for harvest
Principal growth stage 9	Senescence
91	After harvest; end of wood maturation
92	Beginning of leaf discolouration
93	Beginning of leaf-fall
95	50% of leaves fallen
97	End of leaf-fall
99	Harvested product

[1] Published in Lorenz et al., 1994, and in Meier, 1997 (see Literature).

Synonyms and skin colour of berry for example varieties

Example Varieties	Skin color of berry *	Synonyms
Ahmeur bou Ahmeur	Rs	
Airen	B	
Albillo Real	B	
Alicante Bouschet	N	Garnacha Tintorera
Alphonse Lavallée	N	Ribier
Aramon noir	N	
Aspiran	N	
Aubun	N	
Auxerrois	B	
Barbera	N	
Bicane	B	
Black finger	N	
Blauer Portugieser	N	Portugieser, Portugais bleu, Modry Portugal
Bobal	N	
Brancellao	N	
Cabernet franc	N	
Cabernet Mitos	N	
Cabernet-Sauvignon	N	
Cardinal	Rg	
Carignan	N	Cariñena, Mazuela
Chardonnay	B	
Chasan	B	
Chasselas blanc	B	Weißer Gutedel
Chasselas Cioutat	B	
Chasselas rose	Rs	Roter Gutedel
Chenin blanc	B	
Clairette	B	
Corinthe noir	N	Black Corinth, Corinto nero, Korinthiaki, Corinto negro
Deckrot	N	
Domina	N	
Dornfelder	N	
Emperor	Rg	
Folle blanche	B	

Example Varieties	Skin color of berry *	Synonyms
Freisa	N	
Furmint	B	
Gamay	N	
Gamay de Bouze	N	
Gamay de Chaudenay	N	
Garnacha tinta	N	Grenache noir
Gewürztraminer	Rs	Roter Traminer, Traminer aromatico, Tramin cervený
Hebron	B	
Isabella	N	
Italia	B	
Kahlili belyi	B	
King Husainy	B	Jade seedless
Lipovina	B	Harslevelu
Malvar	B	
Marsanne	B	
Melon	B	
Merlot	N	
Meunier	N	Müllerrebe, Pinot meunier
Molinera gorda	Rg	
Moscatel de grano menudo rojo	Rs	
Mourvedre	N	
Müller Thurgau	B	Rivaner
Muscat à petits grains blancs	B	Gelber Muskateller, Moscatel de grano menudo, Moschato aspro, Muscat blanc
Muscat of Alexandria	B	Hanepoot, Zibibbo, Moscatel de Alejandría, Moscatel de Málaga, Moscatel romano
Muscat Ottonel	B	
Nehelescol	B	
Nero	N	
Ohanes	B	
Olivette noir	N	
Palatina	B	
Perle de Csaba	B	Csaba gyöngye
Petit Verdot	N	
Pinot gris	G	Grauburgunder, Pinot grigio, Ruländer
Pinot noir	N	Blauer Spätburgunder, Pinot nero, Rulandské sedé

Example Varieties	Skin color of berry *	Synonyms
Riesling	B	Riesling renano, Rheinriesling, Weisser Riesling, Ryzlink rýnský
Sangiovese	N	
Santa Paula	B	
Sauvignon	B	
Semillon	B	
Servant	B	
Silvaner	B	
Sugraone	B	Superior Seedless
Sultanina	B	Thompson Seedless, Sultanine B
Tompa	B	
Trebiano Toscano	B	
Uva rara	N	
Vermentino	B	

* The colour of the berry is indicated to the standardized code used within the European Union for the classification of vine varieties:

B = white
G = grey
N = black
Rg = red
Rs = rose

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ANNEX II

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/050/2