Descriptors for

Grapevine

(*Vitis* spp.)

OIV

UPOV

International Plant Genetic Resources Institute

IPGRI

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CONTENTS

PREFACE

Descriptors for Grapevine (*Vitis* spp.) is a revision of the original IBPGR publication **Descriptors for Grape** (1983). This new list has been developed in collaboration with the Office International de la Vigne et du Vin (OIV) and the International Union for the Protection of New Varieties of Plants (UPOV). The list follows the recommendations of the UPOV Subgroup of the Technical Working Party on grape held at Conegliano, Italy in 1996 on the Characterization and Evaluation categories. An updated and slightly modified list was prepared in the internationally accepted IPGRI format for descriptor lists and subsequently sent to a number of experts for their comments. A full list of the names and addresses of those involved is given in 'Contributors'. In the present list the 1983 descriptor numbers are given in parentheses beside the present descriptors, for cross-referencing purposes.

IPGRI encourages the collection of data for descriptors on the first four categories of this list – *Passport*, *Management*, *Environment and Site*, *Characterization* – and endorses data in these categories as those that should be available for any accession. However, the number of each of the site and environment descriptor types used will depend on the crop and their importance to the crop's description. Descriptors listed under *Evaluation* allow for a more detailed description of the accession's characters, but generally require replicated site and time trials.

Although the suggested coding should not be regarded as the definitive scheme, this format represents an important tool for a standardized characterization system and it is promoted by IPGRI throughout the world.

This descriptor list is intended to be comprehensive for the descriptors that it contains. This approach assists with the standardization of descriptor definitions. IPGRI does not, however, assume that each curator will document accessions of their collection utilizing all descriptors given. Descriptors should be used when they are useful to the curator for the management and maintenance of the collection and/or to the users of the plant genetic resources. Minimum, highly discriminating descriptors are marked with stars (★).

This descriptor list provides an international format and thereby produces a universally understood `language' for plant genetic resources data. The adoption of this scheme for data encoding, or at least the production of a transformation method to convert other schemes into the IPGRI format, will produce a rapid, reliable and efficient means for information storage, retrieval and exchange, and will assist with the utilization of germplasm. It is recommended, therefore, that information should be produced by closely following the descriptor list with regard to: ordering and numbering descriptors, using the descriptors specified, and using the descriptor states recommended.

A new feature of the present publication is the inclusion of a separate list of **Encoding and description of the phenological stages of grapevine according to the extended BBCH scale**.

Annex I contains multicrop passport descriptors developed jointly by IPGRI and FAO, to provide consistent coding schemes for common passport descriptors across crops. These aim to be compatible with both future IPGRI crop descriptors lists and the FAO World Information and Early Warning System (WIEWS) on plant genetic resources.

Any suggestions on the Descriptors for Grapevine will be highly appreciated by IPGRI, UPOV and OIV.

DEFINITIONS AND USE OF THE DESCRIPTORS

IPGRI now uses the following definitions in genetic resources documentation:

Passport descriptors: These provide the basic information used for the general management of the accession (including the registration at the genebank and other identification information) and describe parameters that should be observed when the accession is originally collected.

Management descriptors: These provide the basis for the management of accessions in the genebank and assist with their multiplication and regeneration.

Environment and site descriptors: These describe the environmental and site-specific parameters that are important when characterization and evaluation trials are held. They can be important for the interpretation of the results of those trials. Site descriptors for germplasm collecting are also included here.

Characterization descriptors: These enable an easy and quick discrimination between phenotypes. They are generally highly heritable, can be easily seen by the eye and are equally expressed in all environments. In addition, these may include a limited number of additional traits thought desirable by a consensus of users of the particular crop.

Evaluation descriptors: Many of the descriptors in this category are susceptible to environmental differences but are generally useful in crop improvement and others may involve complex biochemical or molecular characterization. They include yield, agronomic performance, stress susceptibilities and biochemical and cytological traits.

Characterization will normally be the responsibility of genebank curators, while evaluation will typically be carried out elsewhere (possibly by a multidisciplinary team of scientists). The evaluation data should be fed back to the genebank which will maintain a data file.

Highly discriminating descriptors in this descriptor list are marked with stars (★).

The following internationally accepted norms for the scoring, coding and recording of descriptor states should be followed:

(a) the Système International d'Unités (SI units) is used;

(b) the units to be applied are given in square brackets following the descriptor name;

(c) standard colour charts, e.g. Royal Horticultural Society Colour Chart, Methuen Handbook of Colour, or Munsell Color Chart for Plant Tissues, are strongly recommended for all ungraded colour characters (the precise chart used should be specified in the section where it is used);

(d) many quantitative characters which are continuously variable are recorded on a 1-9 scale, where:

1	Very low	6	Intermediate to high
2	Very low to low	7	High
3	Low	8	High to very high
4	Low to intermediate	9	Very high
5	Intermediate		

is the expression of a character. The authors of this list have sometimes described only a selection of the states, e.g. 3, 5 and 7 for such descriptors. Where this has occurred, the full range of codes is available for use by extension of the codes given or by interpolation between them, e.g. in Section 9 (Biotic stress susceptibility) 1 = very low susceptibility and 9 = very high susceptibility;

(e) when a descriptor is scored using a 1-9 scale, such as in (d), '0' would be scored when (i) the character is not expressed; (ii) a descriptor is not applicable. In the following example, '0' will be recorded if an accession does not have a central leaf lobe:

Shape of central leaf lobe

3	Toothed
5	Elliptic
7	Linear

(f) absence / presence of characters is scored as in the following example:

Absence/presence of terminal leaflet

0	Absent
1 (or +)	Present

(g) blanks are used for information not yet available;

(h) for accessions which are not generally uniform for a descriptor (e.g. mixed collection, genetic segregation), the mean and standard deviation could be reported where the descriptor is continuous. Where the descriptor is discontinuous, several codes in the order of frequency could be recorded; or other publicized methods can be utilized, such as Rana *et al.* (1991) or van Hintum (1993), which clearly state a method for scoring heterogeneous accessions;

(i) dates should be expressed numerically in the format YYYYMMDD, where

YYYY - 4 digits to represent the year
MM - 2 digits to represent the month
DD - 2 digits to represent the day.

PASSPORT

1. Accession descriptors

★ **1.1 Accession number** (1.1)

This number serves as a unique identifier for accessions and is assigned when an accession is entered into the collection. Once assigned this number should never be reassigned to another accession in the collection. Even if an accession is lost, its assigned number should never be re-used. Letters should be used before the number to identify the genebank or national system (e.g. IDG indicates an accession that comes from the genebank at Bari, Italy; CGN indicates an accession from the genebank at Wageningen, The Netherlands; PI indicates an accession within the USAsystem).

1.2 Donor name (1.2)

Name of institution or individual responsible for donating the germplasm

1.3 Donor number (1.3)

Number assigned to an accession by the donor

1.4 Other number(s) associated with the accession (1.4)

Any other identification number known to exist in other collections for this accession, e.g. USDAPlant Inventory number (not Collecting number, see descriptor **2.3**). Other numbers can be added as 1.4.3, etc.

1.4.1 Other number 1

1.4.2 Other number 2

★ **1.5 Scientific name** (1.5)

1.5.1 Genus (1.5.1)

1.5.2 Species (1.5.2)

1.5.3 Subspecies (1.5.3)

1.5.4 Botanical variety (1.5.4)

1.6 Pedigree (1.6)

Parentage or nomenclature, and designations assigned to breeders' material

1.7 Accession

1.7.1 Accession name

Either a registered or other formal designation given to the accession

1.7.2 Translation/Transliteration

Provide translation of the local cultivar name into English

1.7.3 Synonyms

Include here any previous identification other than the current name. Collecting number or newly assigned station name are frequently used as identifiers.

1.8 Acquisition date [YYYYMMDD] (1.7)

Date on which the accession entered the collection

1.9 Accession size (1.9)

Approximate number of seeds or plants of an accession in the genebank

1.10 Type of material received

1 Zygotic embryo
2 Seed
3 Plant (including seedling)
4 Fruit / berry
5 Shoot / bud
6 Pollen
7 *In vitro* propagates
99 Other (specify in descriptor **1.11 Notes**)

1.11 Notes

Any additional information may be specified here

2. Collecting descriptors

2.1 Collecting institute(s) (2.2)

Institute(s) and people collecting / sponsoring the sample collection

2.2 Site number

Number assigned to the physical site by the collector

2.3 Collecting number (2.1)

Original number assigned by the collector(s) of the sample, normally composed of the name or initials of the collector(s) followed by a number. This item is essential for identifying duplicates held in different collections. It should be unique and always accompany subsamples wherever they are sent.

2.4 Collecting date of original sample [YYYYMMDD] (2.3)

2.5 Country of collecting (2.4)
Name of the country in which the sample was collected. Use the three-letter abbreviations from the *International Standard (ISO) Codes for the representation of names of countries,* No.3166, 4th Edition. Copies of these are available from DIN: Deutsche Institut für Normung e.V., D-10772 Berlin, Germany; Tel. 30-2601-2860; Fax 30-2601-1231, Tlx. 184 273-din-d.

2.6 Province/State (2.5)
Name of the primary administrative subdivision of the country in which the sample was collected

2.7 Department/County
Name of the secondary administrative subdivision (within a Province / State) of the country in which the sample was collected

2.8 Location of collecting site (2.6)
Distance in kilometers and direction from the nearest town, village or map grid reference point (e.g. CURITIBA7S means 7 km south of Curitiba)

2.9 Latitude of collecting site (2.7)
Degrees and minutes followed by N (North) or S (South) (e.g. 1030S). Missing data (minutes) should be indicated with hyphen (e.g. 10—S).

2.10 Longitude of collecting site (2.8)
Degrees and minutes followed by E (East) or W (West) (e.g. 07625W). Missing data (minutes) should be indicated with hyphen (e.g. 076—W).

★ **2.11 Elevation of collecting site** [m asl] (2.9)

2.12 Collecting source (2.10)

0 Unknown
1 Wild habitat
- 1.1 Forest / woodland
- 1.2 Shrubland
- 1.3 Grasslands
- 1.4 Desert / tundra

2 Farm
- 2.1 Field
- 2.2 Orchard
- 2.3 Garden
- 2.4 Fallow
- 2.5 Pasture
- 2.6 Store

3 Market
- 3.1 Town
- 3.2 Village
- 3.3 Urban area (around city)
- 3.4 Other exchange system

4 Institute / Research organization

99 Other (specify in descriptor **2.26 Collector's notes**)

2.13 Status of sample (2.11)

0 Unknown
1 Wild
2 Weedy
3 Traditional cultivar / Landrace
4 Breeder's line
5 Advanced cultivar
99 Other (specify in descriptor **2.26 Collector's notes**)

2.14 Local/vernacular name (2.12)

Name given by farmer to crop and cultivar / landrace / weed. State language and dialect if the ethnic group is not provided

2.15 Ethnic group

Name of the ethnic group of the farmer donating the sample or of the people living in the area of collecting

2.16 Number of plants sampled (2.13)

2.17 Plant population density

Visual assessment of plants per hectare

2.18 Cropping system

1 Monoculture
2 Intercropped (specify crop in descriptor **2.26 Collector's notes**)

2.19 Cultural practices

2.19.1 Cuttage date [YYYYMMDD]
2.19.2 Grafting date [YYYYMMDD]
2.19.3 Planting date [YYYYMMDD]
2.19.4 Harvest date [YYYYMMDD]
2.19.5 Irrigation

Specify amount, frequency and method of application

2.20 Associated flora

Other dominant crop / plant species, found in and around the collecting site

2.21 Uses of the accession

1 Fresh consumption
2 Industrial
3 Medicinal (vitamin)
99 Other (specify in descriptor **2.26 Collector's notes**)

2.22 Collecting source environment

Use descriptors **5.1.1** to **5.1.21** in section 5

2.23 Photograph (2.14)

Was a photograph(s) taken of the accession or habitat at the time of collecting? If so, provide an identification number(s) in descriptor **2.26 Collector's notes.**

0 No
1 Yes

2.24 Herbarium specimen (2.16)

Was a herbarium specimen collected? If so, provide an identification number and indicate in which place (herbarium) the grapevine specimen was deposited, in descriptor **2.26 Collector's notes**.

0 No
1 Yes

2.25 Prevailing stresses

Information on associated biotic and abiotic stresses and the accession's reaction. Indicate stresses in descriptor **2.26 Collector's notes.**

2.26 Collector's notes

Additional information recorded by the collector or any specific information on any state in any of the above descriptors

GENEBANK MANAGEMENT

3. Plant management descriptors

3.1 Accession number (Passport 1.1)

3.2 Field conservation

3.2.1 Field location

3.2.2 Planting date [YYYYMMDD]

3.2.3 Field duplicates

For each duplicate indicate field location, planting date and root system

3.2.3.1 Field location

3.2.3.2 Planting date [YYYYMMDD]

3.3 *In vitro* conservation

3.3.1 Type of explant

1 Apical or axillary bud
2 Nodal cutting
3 Zygotic embryo
4 Seed
5 Leaf
99 Other (specify in descriptor **3.5 Notes**)

3.3.2 Introduction date [YYYYMMDD]

3.3.3 Type of subcultured material

1 Apical or axillary shoot
2 Callus
3 Cell suspension
99 Other (specify in descriptor **3.5 Notes**)

3.3.4 Regeneration process

1 Organogenesis
2 Somatic embryogenesis
99 Other (specify in descriptor **3.5 Notes**)

3.3.5 Number of plants at the establishment

(Number of replicates)

3.3.6 Last subculture date [YYYYMMDD]

3.3.7 Medium used at the last subculture

3.3.8 Number of plants at the last subculture

3.3.9 Location after the last subculture

3.4 Cryopreservation

3.4.1 Type of material for cryopreservation

1 Seed
2 Zygotic embryo
3 Apex or axillary bud
4 Somatic embryo
5 Callus
6 Cell suspension
99 Other (specify in descriptor **3.5 Notes**)

3.4.2 Introduction date in liquid nitrogen [YYYYMMDD]

3.4.3 Number of samples introduced in liquid nitrogen

3.4.4 End of storage period [YYYYMMDD]

3.4.5 Number of samples taken from liquid nitrogen

3.4.6 Type of subcultured material for recovery

(After liquid nitrogen)

1 Seed
2 Zygotic embryo
3 Apex or axillary bud
4 Somatic embryo
5 Callus
6 Cell suspension
99 Other (specify in descriptor **3.5 Notes**)

3.4.7 Regeneration process

1 Organogenesis
2 Somatic embryogenesis
99 Other (specify in descriptor **3.5 Notes**)

3.4.8 Number of recovered samples

3.4.9 Location after the last subculture

3.5 Notes

Any additional information may be specified here

ENVIRONMENT AND SITE

4. Characterization and/or evaluation site descriptors

4.1 Country of characterization and/or evaluation (3.1, 5.1)
(See instructions in descriptor **2.5 Country of collecting**)

4.2 Site (research institute) (3.2, 5.2)

4.2.1 Latitude
Degrees and minutes followed by N (North) or S (South) (e.g. 1030S). Missing data (minutes) should be indicated with hyphen (e.g. 10—S).

4.2.2 Longitude
Degrees and minutes followed by E (East) or W (West) (e.g. 07625 W). Missing data (minutes) should be indicated with hyphen (e.g. 076—W).

4.2.3 Elevation [m asl]

4.2.4 Name of farm or institute

4.3 Evaluator's name and address (3.3, 5.3)

4.4 Sowing date [YYYYMMDD]

4.5 Planting date [YYYYMMDD]

4.6 Modality of sowing

1 Greenhouse
2 Open air
3 Heated bed
4 Field
99 Other (specify in descriptor **4.17 Notes**)

4.7 Transplanting date [YYYYMMDD]

4.8 Harvest date [YYYYMMDD]

4.9 Evaluation environment

Environment in which characterization / evaluation was carried out

1 Field
2 Screenhouse
3 Glasshouse
4 Laboratory
99 Other (specify in descriptor **4.17 Notes**)

4.10 Seed germination [%]
Percentage of seeds germinated

4.10.1 Days to germination [d]
Specify number of days from sowing after which germination is measured

4.11 Field establishment [%]
Percentage of plants established

4.11.1 Days to establishment [d]
Specify number of days from sowing / planting after which establishment is measured

4.12 Sowing/transplanting site in the field
Give block, strip and / or row / plot numbers as applicable, plants per plot, replication

4.13 Field spacing
4.13.1 Distance between plants in a row [m]
4.13.2 Distance between rows [m]

4.14 Environmental characteristics of site
Use descriptors **5.1.1 to 5.1.21** in section 5

4.15 Fertilizer
Specify types, doses, frequency of each and method of application

4.16 Plant protection
Specify pesticides used, doses, frequency of each and method of application

4.17 Notes
Any other site-specific information

5. Collecting and/or characterization/evaluation site environment descriptors

5.1 Site environment

★ **5.1.1 Topography**

This refers to the profile in elevation of the land surface on a broad scale.
The reference is FAO (1990)

1	Flat	0 - 0.5%
2	Almost flat	0.6 - 2.9%
3	Gently undulating	3 - 5.9%
4	Undulating	6 - 10.9%
5	Rolling	11 - 15.9%
6	Hilly	16 - 30%
7	Steeply dissected	>30%, moderate elevation range
8	Mountainous	>30%, great elevation range (>300 m)
99	Other	(specify in appropriate section's Notes)

★ **5.1.2 Higher level landform (general physiographic features)**

The landform refers to the shape of the land surface in the area in which the site is located (adapted from FAO 1990)

1	Plain	5	Upland
2	Basin	6	Hill
3	Valley	7	Mountain
4	Plateau		

5.1.3 Land element and position

Description of the geomorphology of the immediate surroundings of the site (adapted from FAO 1990). (See Fig. 1)

1	Plain level	17	Interdunal depression
2	Escarpment	18	Mangrove
3	Interfluve	19	Upper slope
4	Valley	20	Midslope
5	Valley floor	21	Lower slope
6	Channel	22	Ridge
7	Levee	23	Beach
8	Terrace	24	Beachridge
9	Floodplain	25	Rounded summit
10	Lagoon	26	Summit
11	Pan	27	Coral atoll
12	Caldera	28	Drainage line (bottom position in flat or almost-flat terrain)
13	Open depression		
14	Closed depression	29	Coral reef
15	Dune	99	Other (specify in appropriate section's Notes)
16	Longitudinal dune		

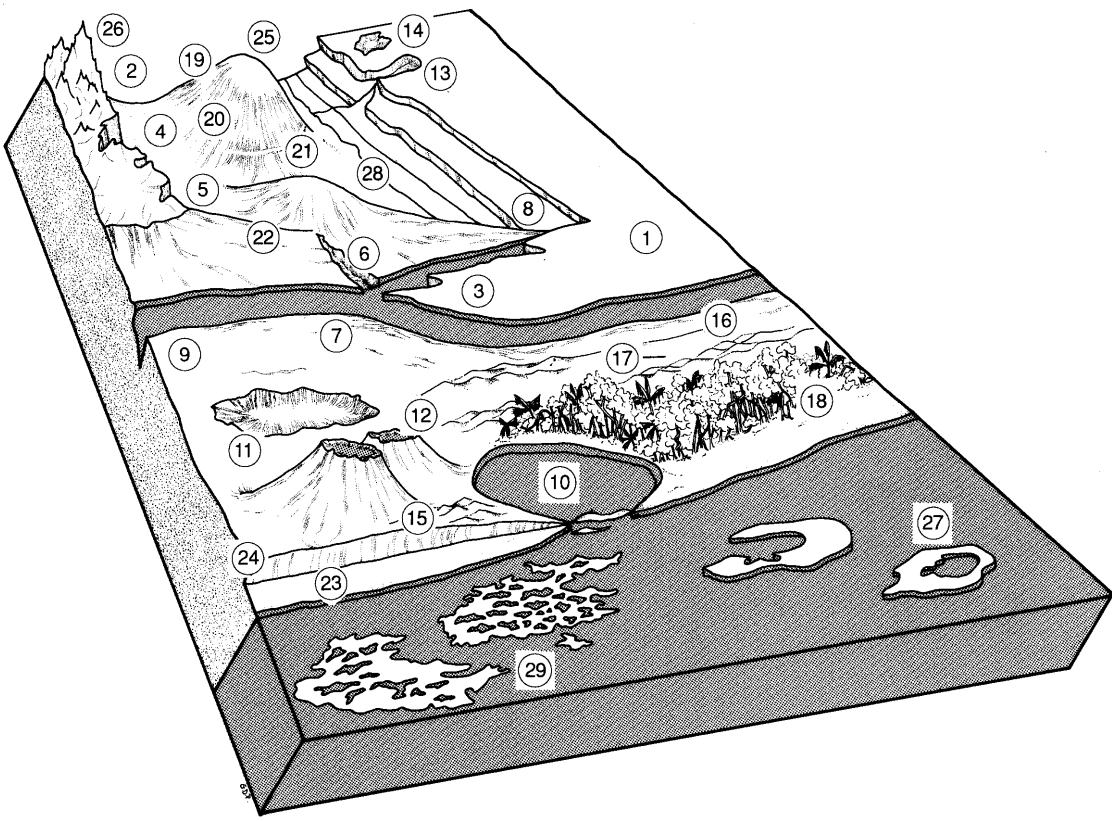

Fig. 1. Land element and position

★ **5.1.4 Slope** [°]
Estimated slope of the site

5.1.5 Slope aspect
The direction that the slope on which the accession was collected faces. Describe the direction with symbols N, S, E, W (e.g. a slope that faces a southwestern direction has an aspect of SW)

5.1.6 Crop agriculture
(From FAO 1990)

1 Annual field cropping
2 Perennial field cropping

5.1.7 Overall vegetation surrounding and at the site

(Adapted from FAO 1990)

1	Grassland	(Grasses, subordinate forbs, no woody species)
2	Forbland	(Herbaceous plants predominant)
3	Forest	(Continuous tree layer, crowns overlapping, large number of tree and shrub species in distinct layers)
4	Woodland	(Continuous tree layer, crowns usually not touching, understorey may be present)
5	Shrubland	(Continuous layer of shrubs, crowns touching)
6	Savanna	(Grasses with a discontinuous layer of trees or shrubs)
99	Other	(specify in appropriate section's Notes)

5.1.8 Soil parent material

(Adapted from FAO 1990)

Two lists of examples of parent material and rock are given below. The reliability of the geological information and the knowledge of the local lithology will determine whether a general or a specific definition of the parent material can be given. Saprolite is used if the *in situ* weathered material is thoroughly decomposed, clay-rich but still showing rock structure. Alluvial deposits and colluvium derived from a single rock type may be further specified by that rock type.

5.1.8.1 Unconsolidated material

1	Aeolian deposits (unspecified)	10	Volcanic ash
2	Aeolian sand	11	Loess
3	Littoral deposits	12	Pyroclastic deposits
4	Lagoonal deposits	13	Glacial deposits
5	Marine deposits	14	Organic deposits
6	Lacustrine deposits	15	Colluvial deposits
7	Fluvial deposits	16	*In situ* weathered
8	Alluvial deposits	17	Saprolite
9	Unconsolidated (unspecified)	99	Other (specify in appropriate section's Notes)

5.1.8.2 Rock type

(Adapted from FAO 1990)

1 Acid igneous / metamorphic rock
2 Granite
3 Gneiss
4 Granite / gneiss
5 Quartzite
6 Schist
7 Andesite
8 Diorite
9 Basic igneous / metamorphic rock
10 Ultra basic rock
11 Gabbro
12 Basalt
13 Dolerite
14 Volcanic rock
15 Sedimentary rock
16 Limestone
17 Dolomite
18 Sandstone
19 Quartzitic sandstone
20 Shale
21 Marl
22 Travertine
23 Conglomerate
24 Siltstone
25 Tuff
26 Pyroclastic rock
27 Evaporite
28 Gypsum rock
99 Other (specify in appropriate section's Notes)
0 Not known

5.1.9 Stoniness/rockiness/hardpan/cementation

1 Tillage unaffected
2 Tillage affected
3 Tillage difficult
4 Tillage impossible
5 Essentially paved

★ ### 5.1.10 Soil drainage

(Adapted from FAO 1990)

3 Poorly drained
5 Moderately drained
7 Well drained

★ ### 5.1.11 Soil salinity

1 <160 ppm dissolved salts
2 160 - 240 ppm
3 241 - 480 ppm
4 >480 ppm

5.1.12 Soil depth to groundwater table

(Adapted from FAO 1990)

The depth to the groundwater table, if present, as well as an estimate of the approximate annual fluctuation, should be given. The maximum rise of the groundwater table can be inferred approximately from changes in profile colour in many, but not all, soils.

1 0 - 25 cm
2 25.1 - 50 cm
3 50.1 - 100 cm
4 100.1 - 150 cm
5 >150 cm

5.1.13 Soil matrix colour

(Adapted from FAO 1990)

The colour of the soil matrix material in the root zone around the accession is recorded in the moist condition (or both dry and moist condition, if possible) using the notation for hue, value and chroma as given in the Munsell Soil Color Charts (Munsell 1975). If there is no dominant soil matrix colour, the horizon is described as mottled and two or more colours are given and should be registered under uniform conditions. Early morning and late evening readings are not accurate. Provide depth of measurement (cm). If colour chart is not available, the following states may be used:

1 White
2 Red
3 Reddish
4 Yellowish red
5 Brown
6 Brownish
7 Reddish brown
8 Yellowish brown
9 Yellow
10 Reddish yellow
11 Greenish, green
12 Grey
13 Greyish
14 Blue
15 Bluish-black
16 Black

★ **5.1.14 Soil pH**

Actual value of the soil within the following root depths around the accession

5.1.14.1 pH at 10-15 cm
5.1.14.2 pH at 16-30 cm
5.1.14.3 pH at 31-60 cm
5.1.14.4 pH at 61-90 cm

★ **5.1.15 Soil erosion**

3 Low
5 Intermediate
7 High

5.1.16 Rock fragments

(Adapted from FAO 1990)

Large rock and mineral fragments (>2 mm) are described according to abundance

1 0 - 2%
2 2.1 - 5%
3 5.1 - 15%
4 15.1 - 40%
5 40.1 - 80%
6 >80%

★ **5.1.17 Soil texture classes**

(Adapted from FAO 1990)

For convenience in determining the texture classes of the following list, particle size classes are given for each of the fine earth fractions below. (See Fig. 2)

1	Clay	12	Coarse sandy loam
2	Loam	13	Loamy sand
3	Clay loam	14	Loamy very fine sand
4	Silt	15	Loamy fine sand
5	Silty clay	16	Loamy coarse sand
6	Silty clay loam	17	Very fine sand
7	Silt loam	18	Fine sand
8	Sandy clay	19	Medium sand
9	Sandy clay loam	20	Coarse sand
10	Sandy loam	21	Sand, unsorted
11	Fine sandy loam	22	Sand, unspecified

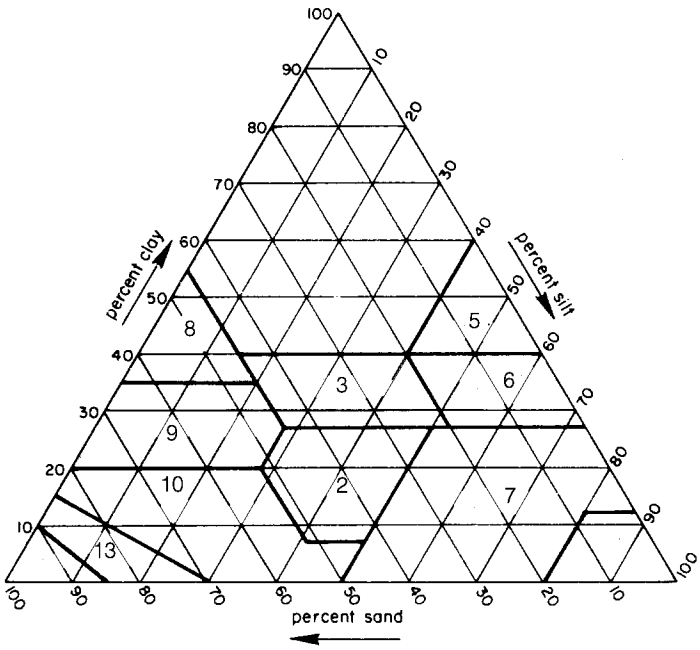

Fig. 2. Soil texture classes

5.1.17.1 Soil particle size classes

(Adapted from FAO 1990)

1	Clay	< 2 µm
2	Fine silt	2 - 20 µm
3	Coarse silt	21 - 63 µm
4	Very fine sand	64 - 125 µm
5	Fine sand	126 - 200 µm
6	Medium sand	201 - 630 µm
7	Coarse sand	631 - 1250 µm
8	Very coarse sand	1251 - 2000 µm

★ **5.1.18 Soil taxonomic classification**

As detailed a classification as possible should be given. This may be taken from a soil survey map. State class (e.g. Alfisols, Spodosols, Vertisols, etc.).

★ **5.1.19 Water availability**

1 Rain-fed
2 Irrigated
3 Flooded
4 River banks
5 Sea coast
99 Other (specify in appropriate section's Notes)

5.1.20 Soil fertility

General assessment of the soil fertility based on existing vegetation

3 Low
5 Moderate
7 High

5.1.21 Climate of the site

Should be assessed as close to the site as possible

★ **5.1.21.1 Temperature** [°C]

Provide either the monthly (mean, maximum, minimum) or the seasonal (mean, maximum, minimum)

★ **5.1.21.2 Rainfall** [mm]

Annual average (state number of recorded years)

5.1.21.3 Wind [km/s]

Annual average (state number of years recorded)

5.1.21.3.1 Frequency of typhoons or hurricane force winds

3 Low
5 Intermediate
7 High

5.1.21.3.2 Date of most recent typhoons or hurricane force winds [YYYYMMDD]

5.1.21.3.3 Annual maximum wind velocity [km/s]

5.1.21.4 Frost

5.1.21.4.1 Date of most recent frost [YYYYMMDD]

5.1.21.4.2 Minimum temperature [°C]

Specify seasonal average and minimum survival temperature

5.1.21.4.3 Duration of temperature below 0°C [d]

5.1.21.5 Relative humidity

5.1.21.5.1 Relative humidity diurnal range [%]

5.1.21.5.2 Relative humidity seasonal range [%]

5.1.21.6 Light

3 Shady

7 Sunny

5.1.21.7 Daylength [h]

Provide either the monthly (mean, maximum, minimum) or the seasonal (mean, maximum, minimum)

CHARACTERIZATION

6. Plant descriptors

The code numbers of OIV [O-] and UPOV [U-] of the corresponding characteristic are indicated beside the descriptor name between brackets [ ]. These codes belong to the following lists: *Proposition définitive de modification de la fiche O.I.V.* (Paris, le 14 avril 1997) and *UPOV Revised Test Guidelines for Grapevine* TG / 50 / 6 (proj.), respectively.

For each descriptor, the optimum development stage for the assessment of trait, according to the BBCH extended scale, is indicated between brackets and in **boldface** below the IPGRI descriptor number. The OIV [O:] and UPOV [U:] descriptor states are indicated between brackets beside each descriptor state when different from IPGRI.

All observations should be made on 10 plants or parts of plants. Observations on the shoot should be made in the middle third of the shoot. Observations on mature leaves should be made on leaves on the middle third of the shoot just above the raceme.

For the example varieties – other than rootstocks – after the name of the variety, the colour of the berry is indicated, following the standardized code used by the European Union for the European classification of vine varieties: B = white; G = grey; N = black; Rg = red; Rs = rose.

				Example varieties	
	6.1	**Vegetative**			
★		**6.1.1**	**Young shoot: form of tip** [O-001, U-3]		(4.1.1)
		[53-69]	See Fig. 3		
			1 Closed [O:3]	*Vitis riparia*	
			2 Slightly open		
			3 Half-open [O:5]	Kober 5BB	
			4 Wide open		
			5 Fully open [O:7]	*Vitis vinifera, Vitis berlandieri*	

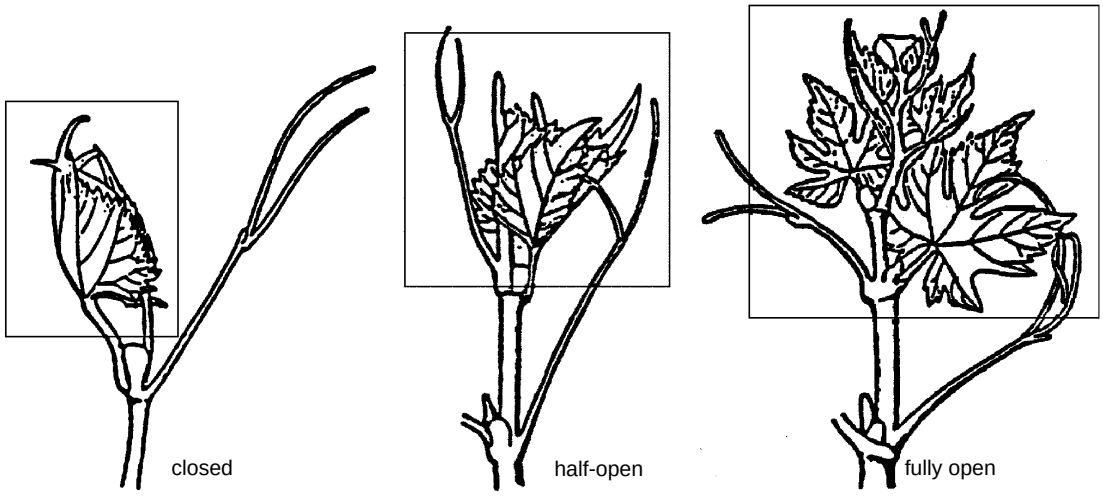

Fig. 3. Young shoot: form of tip

★ **6.1.2** **Young shoot: anthocyanin colouration of tip** [O-003, U-4] (4.1.2)
[53-69]

0	Absent [O:1 / U:1]	
1	Very weak	Meunier – N
3	Weak	Riesling – B
5	Medium	Müller-Thurgau – B
7	Strong	Bacchus, Cabernet Sauvignon – N
9	Very strong	*Vitis aestivalis*

★ **6.1.3** **Young shoot: density of prostrate hairs on tip** [O-004, U-5] (4.1.3)
[53-69]

0	Absent [O:1 / U:1]	3309 Couderc
1	Very sparse	Dattier de Beyrouth – B
3	Sparse	Chasselas blanc – B
5	Medium	Pinot noir – N
7	Dense	Gewürztraminer – Rs
9	Very dense	Meunier – N

6.1.4 **Young shoot: density of erect hairs on tip** [O-005, U-6] (6.1.2)
[53-69] Only varieties not for fruit production

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	
3	Sparse	3309 Couderc
5	Medium	3306 Couderc
7	Dense	*Vitis riparia*
9	Very dense	*Vitis cinerea*

6.1.5 **Shoot: attitude (habit)** [O-006, U-10] (6.1.3)
[60-69] Before tying. See Fig. 4

1	Erect	Mourvèdre – N
3	Semi-erect	Muskat Ottonel – B, Sauvignon – B
5	Horizontal	Pinot noir – N
7	Semi-drooping	Aramon – N
9	Drooping	3309 Couderc

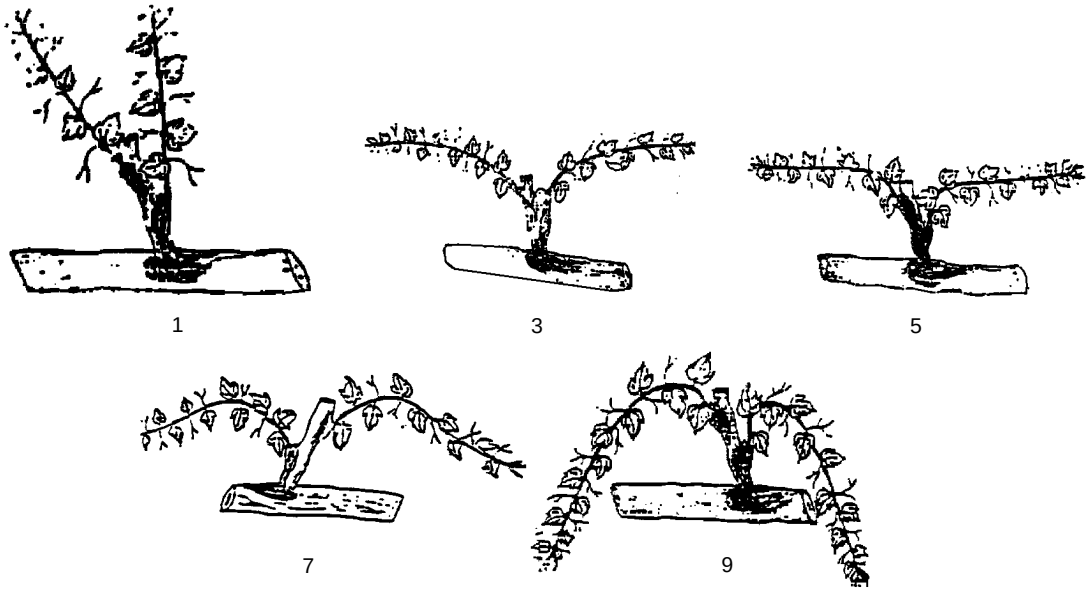

Fig. 4. Shoot attitude

6.1.6 **Shoot: colour of dorsal side of internode** [O-007, U-11] (6.1.4)
[60-69] (Well illuminated). See Fig. 5

1	Completely green	Sauvignon – B
2	Green and red striped	Carignan – N
3	Completely red	Riesling – B

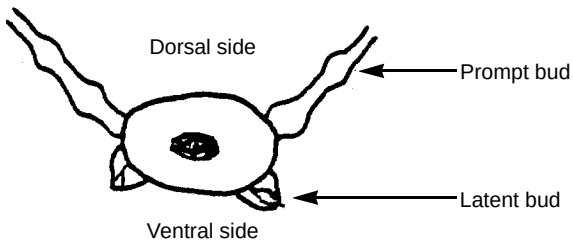

Fig. 5. Shoot: dorsal/ventral side

★ **6.1.7** **Shoot: colour of ventral side of internode** [O-008, U-12] (6.1.5)
[60-69] (Without direct sunlight). See Fig. 5

1	Completely green	Sauvignon – B
2	Green and red striped	Carignan – N
3	Completely red	Mourvèdre – N

6.1.8 **Shoot: colour of dorsal side of node** [O-009, U-13] (6.1.6)
[60-69] (Well illuminated)

1	Completely green	Sauvignon – B
2	Green and red striped	Barbera – N
3	Completely red	Riesling – B

6.1.9 **Shoot: colour of ventral side of node** [O-010, U-14] (6.1.7)
[60-69] (Without direct sunlight)

1	Completely green	Sauvignon – B
2	Green and red striped	Palomino – B
3	Completely red	Madeleine angevine – B, 420 A

6.1.10 **Shoot: density of erect hairs on node** [O-011, U-15] (4.1.4)
[60-69]

0	Absent [O:1 / U:1]	*Vitis vinifera*
1	Very sparse	3309 Couderc
3	Sparse	161-49 Couderc
5	Medium	3306 Couderc
7	Dense	Riparia Scribner
9	Very dense	Kober 5BB, 125 AA

6.1.11 **Shoot: erect hairs on internode** [O-012] (6.1.8)
[60-69]

0	Absent [O:1]	*Vitis vinifera*
1	Present [O:9]	Kober 5BB, 125 AA, Fercal

6.1.12 **Shoot: density of prostrate hairs on node** [O-13] (6.1.9)
[60-69]

0	Absent [O:1]	*Vitis rupestris*
1	Very sparse	Pinot noir – N
5	Medium	Clairette – B
9	Very dense	*Vitis candicans*

6.1.13 **Shoot: density of prostrate hairs on internode** [O-014] (6.1.10)
[60-69]

0	Absent [O:1]	*Vitis rupestris*
1	Very sparse	Pinot noir – N
5	Medium	Clairette – B
9	Very dense	*Vitis candicans*

6.1.14 **Shoot: number of consecutive tendrils** [O-016, U-16] (4.1.5)
[60-73]

1	Up to two	*Vitis vinifera*
2	Three or more	*Vitis labrusca, Vitis coignetiae*

6.1.15 **Shoot: length of tendril** [O-017, U-17] (6.1.12)
[60-73]

1	Very short (<11 cm)	Rupestris du Lot
3	Short (14-16 cm)	Aramon noir – N
5	Medium (19-21 cm)	Pinot noir – N
7	Long (24-26 cm)	Chasselas blanc – B
9	Very long (>30 cm)	Emperor

★ **6.1.16** **Young leaf: colour of upper surface** [O-051, U-7] (6.1.13)
[53-69] Recorded on the first 4 distal unfolded leaves. See Fig. 6

1	Green	Sylvaner – B
2	Green with bronze spots	Aramon noir – N
3	Yellow	Furmint – B, Carignan – N
4	Yellow with bronze spots	Palomino – B
5	Copper yellow	101-14 Millardet de Grasset
6	Copper	3309 Couderc, Muscat à petits grains – B
7	Reddish	Chasselas blanc – B
99	Other (specify in descriptor **6.3 Notes**)	

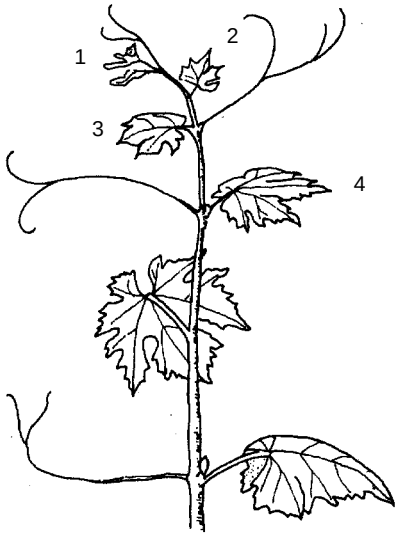

Fig. 6. Young leaf: 4 distal leaves

6.1.17 **Young leaf: density of prostrate hairs between veins** [O-053, U-8] (6.1.15)
[53-69] Recorded on the lower surface of the 4th distal unfolded leaf

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	Chasselas – B
3	Sparse	Cinsaut – N
5	Medium	Carignan – N
7	Dense	Clairette – B
9	Very dense	*Vitis labrusca*

6.1.18 **Young leaf: density of erect hairs between veins** [O-054, U-9] (6.1.16)
[53-69] Recorded on the lower surface of the 4th distal unfolded leaf

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	140 Ruggeri
3	Sparse	Chasselas blanc – B
5	Medium	3306 Couderc
7	Dense	Riparia Scribner
9	Very dense	*Vitis cinerea*

6.1.19 **Young leaf: density of prostrate hairs on main veins** [O-055] (6.1.17)
[53-69] Recorded on the lower surface of the 4th distal leaf

0	Absent [O:1]	Rupestris du Lot
1	Very sparse	140 Ruggeri
3	Sparse	Carignan – N
5	Medium	Cabernet Sauvignon – N, Sauvignon – B
7	Dense	Meunier – N
9	Very dense	

6.1.20 **Young leaf: density of erect hairs on main veins** [O-056] (6.1.18)
[53-69] Recorded on the lower surface of the 4th distal leaf

0	Absent [O:1]	Rupestris du Lot
1	Very sparse	140 Ruggeri
3	Sparse	3309 Couderc
5	Medium	Cinsaut – N, Riesling – B
7	Dense	Riparia Scribner
9	Very dense	*Vitis cinerea*

★ **6.1.21** **Mature leaf: size of blade** [O-065, U-19] (4.1.6)
[75-81] Recorded on mature leaves above the cluster within the medium third of shoot

1	Very small	*Vitis rupestris*
3	Small	Gamay – N, Traminer – Rs
5	Medium	Cabernet Sauvignon – N
7	Large	Carignan – N
9	Very large	*Vitis coignetiae*

★ **6.1.22** **Mature leaf: shape of blade** [O-067, U-20] (6.1.20)
[75-81] See Fig. 7

1	Cordate	*Vitis cordifolia*
2	Wedge-shaped	*Vitis riparia* 'Gloire de Montpellier'
3	Pentagonal	Chasselas blanc – B
4	Circular	Clairette – B
5	Reniform	Rupestris du Lot
99	Other (specify in descriptor **6.3 Notes**)	

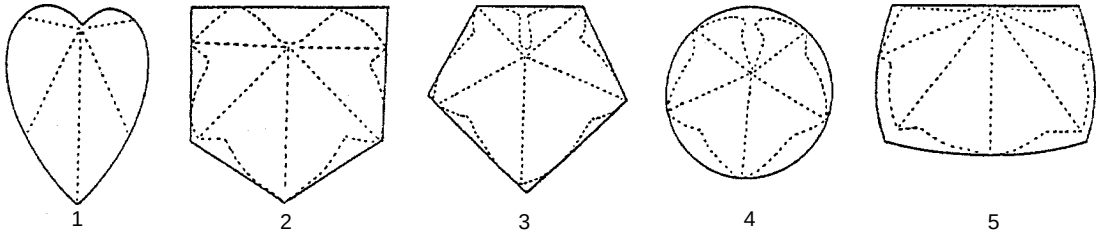

Fig. 7. Mature leaf: shape of blade

★ **6.1.23** **Mature leaf: number of lobes** [O-068, U-21] (4.1.7)
[75-81] 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. See Fig. 8

1	Entire leaf (none)	Chardonnay – B
2	Three	Chenin – B
3	Five	Chasselas blanc – B
4	Seven	Cabernet Sauvignon – N
5	More than seven	Hebron – B

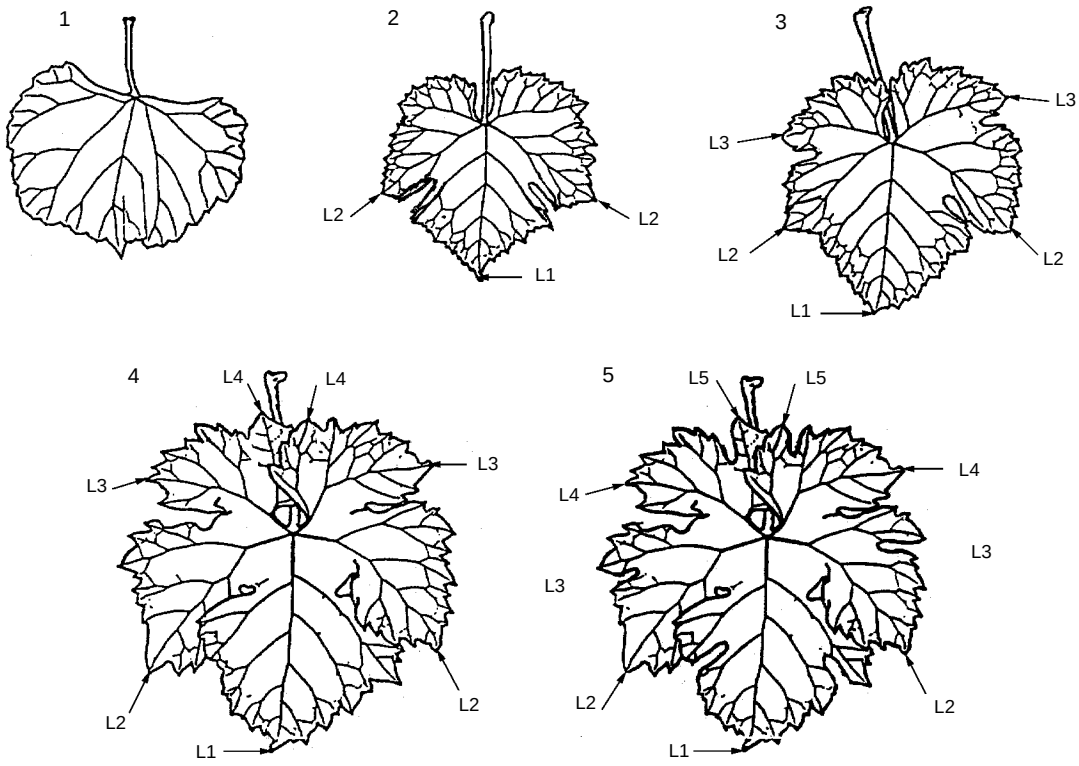

Fig. 8. Mature leaf: number of lobes (L)

★ **6.1.24** **Mature leaf: anthocyanin colouration of main veins on upper side of blade** [O-070, U-32] (6.1.22)

[75-81] Recorded on leaves above the cluster at the medium third of shoot

0	Absent [O:1 / U:1]	Grenache noir – N
1	Very weak	Semillon – B
3	Weak	Muscat d'Alexandrie – B
5	Medium	Primitivo – N
7	Strong	Chenin – B
9	Very strong	

6.1.25 **Mature leaf: profile** [O-074, U-22] (6.1.26)

[75-81] Cross-section at the middle of the leaf blade. See Fig. 9

1	Flat	Cabernet Sauvignon – N
2	V-shaped	Rupestris du Lot
3	Involute	Ugni blanc – B
4	Revolute	Alicante-Bouschet – N
5	Undulate	Grenache – N

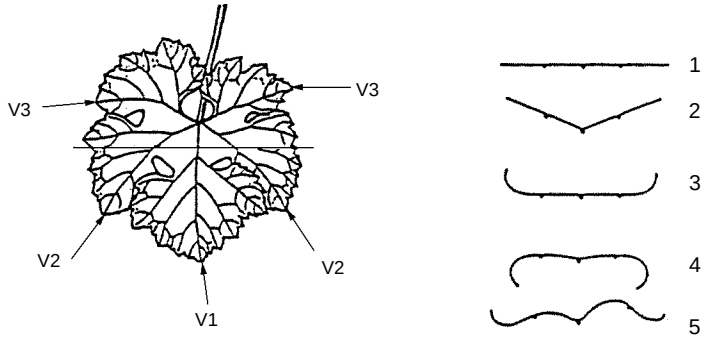

Fig. 9. Mature leaf: profile (V_1 = main vein, V_2 and V_3 = lateral veins)

6.1.26 **Mature leaf: blistering of blade upper surface** [O-075, U-23] (6.1.27)

[75-81]

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very weak	Grenache – N
3	Weak	Chasselas blanc – B
5	Medium	Semillon – B
7	Strong	Ugni blanc – B
9	Very strong	*Vitis amurensis*

★ **6.1.27** **Mature leaf: shape of teeth** [O-076, U-26] (4.1.8)
[75-81] Recorded on the lateral lobe. See Fig. 10

1	Both sides concave	*Vitis aestivalis* 'Jaeger'
2	Both sides straight (rectilinear)	Muscat à petits grains – B
3	Both sides convex [O:4]	Chenin blanc – B
4	One side concave, one side convex [O:5]	Aspiran – N, Cinsaut – N
5	Mixture of both sides straight and both sides convex [O:3]	Cabernet franc – N

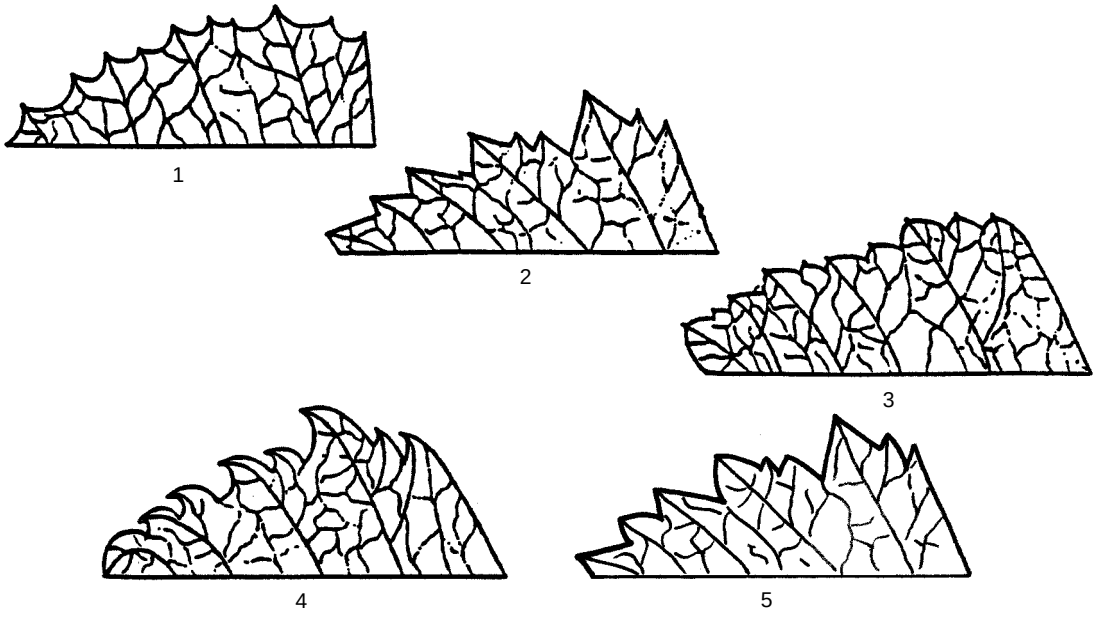

Fig. 10. Mature leaf: shape of teeth

★ **6.1.28** **Mature leaf: length of teeth** [O-077, U-24] (6.1.28)
[75-81]

1	Very short	Cot – N
3	Short	Pinot noir – N
5	Medium	Merlot – N
7	Long	Carignan – N
9	Very long	

★ **6.1.29** **Mature leaf: ratio length/width of teeth** [O-078, U-25] (6.1.29)
[75-81]

1	Very small	*Vitis aestivalis*
3	Small	Marsanne – B
5	Medium	Riesling – B
7	Large	Muscat d'Alexandrie – B
9	Very large	*Vitis riparia*

★ **6.1.30** **Mature leaf: general shape of petiole sinus** [O-079, U-27] (4.1.9)
[75-81] (Degree of the opening of the petiole sinus). See Fig. 11

1	Very wide open	Rupestris du Lot
2	Wide open	*Vitis riparia* 'Gloire de Montpellier'
3	Half open [O:2]	Aramon noir – N
4	Slightly open [O:3]	Sauvignon – B
5	Closed [O:4]	Chasselas blanc – B
6	Lobes slightly overlapping [O:4]	Aubun – N
7	Lobes half overlapping [O:5]	Riesling – B
8	Lobes strongly overlapping [O:6]	Clairette – B
9	Lobes very strongly overlapping	

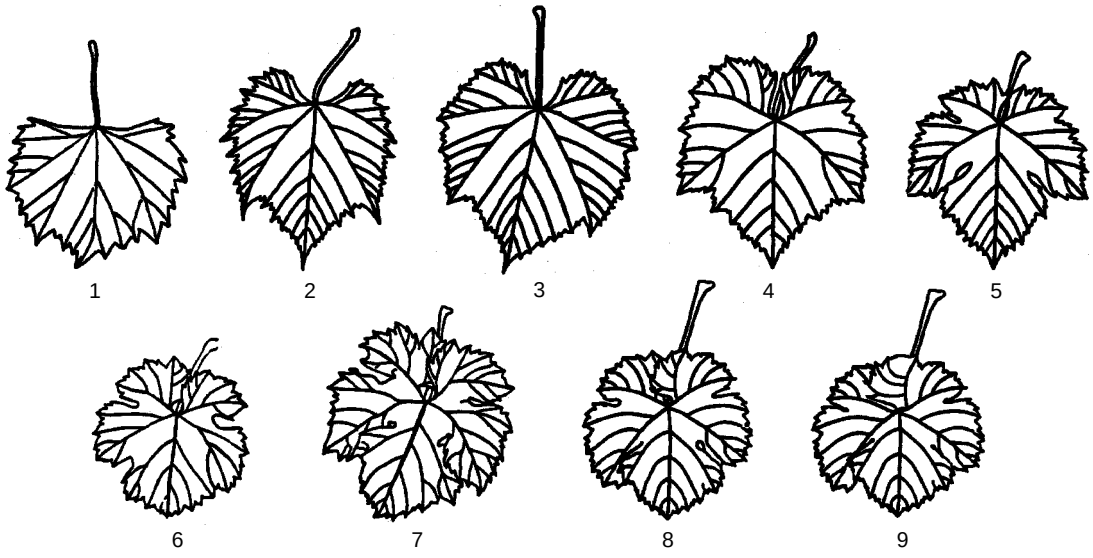

Fig. 11. Mature leaf: general shape of petiole sinus

6.1.31 **Mature leaf: tooth at petiole sinus** [O-081.1] (6.1.31)
[75-81] See Fig. 12

0	Absent [O:1]	Chasselas blanc – B
1	Present [O:2]	Bombino – B

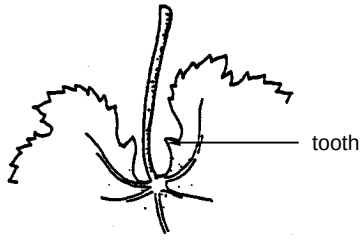

Fig. 12. Mature leaf: tooth at petiole sinus

6.1.32 **Mature leaf: petiole sinus limited by veins** [O-081.2, U-29] (6.1.31)
[75-81] See Fig. 13

0	Absent [O:1/U:1]	Chasselas blanc – B
1	Present [O:3/U:9]	Chardonnay – B

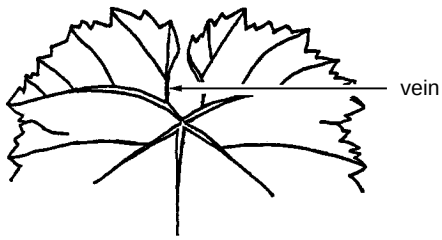

Fig. 13. Mature leaf: petiole sinus limited by veins

6.1.33 **Mature leaf: shape of upper lateral sinus** [O-082, U-31] (6.1.32)
[75-81] (Degree of the opening of the upper lateral sinus). Asinus results from a clear interruption of teeth on the leaf margin. The upper lateral sinus is situated between the middle vein and next lateral main vein. See Fig. 14

1	Open [O:2]	Auxerrois – B
2	Closed [O:3]	Chasselas blanc – B
3	Lobes slightly overlapping [O:4]	Cabernet Sauvignon – N
4	Lobes strongly overlapping	Clairette – B

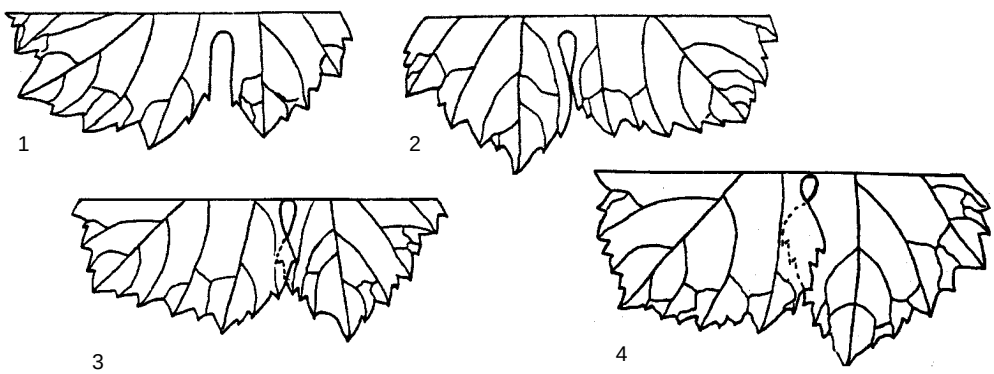

Fig. 14. Mature leaf: shape of upper lateral sinus

6.1.34 **Mature leaf: depth of upper lateral sinus** [O-605, U-30]
[75-81]

1	Very shallow	Melon – B
3	Shallow	Gamay – N
5	Medium	Merlot – N
7	Deep	Chasan – B
9	Very deep	Chasselas Cioutat – B

★ **6.1.35** **Mature leaf: density of prostrate hairs between veins** [O-084, U-33] (4.1.10)

[75-81] Recorded on the lower side of blade

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	Grenache – N
3	Sparse	Carignan – N, Müller-Thurgau – B
5	Medium	Mourvèdre – N
7	Dense	Clairette – B
9	Very dense	*Vitis labrusca*

★ **6.1.36** **Mature leaf: density of erect hairs between veins** [O-085, U-34] (4.1.11)

[75-81] Recorded on the lower side of blade

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	Grenache – N
3	Sparse	Perle de Csaba – B
5	Medium	306 Couderc
7	Dense	Aris – B
9	Very dense	*Vitis cinerea*

★ **6.1.37** **Mature leaf: density of prostrate hairs on main veins** [O-086, U-35] (6.1.34)

[75-81] Recorded on the lower side of blade

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	Grenache – N
3	Sparse	Carignan – N
5	Medium	Mourvèdre – N
7	Dense	Meunier – N
9	Very dense	

★ **6.1.38** **Mature leaf: density of erect hairs on main veins** [O-087, U-36) (6.1.35)

[75-81] Recorded on the lower side of blade

0	Absent [O:1 / U:1]	Rupestris du Lot
1	Very sparse	Grenache – N
3	Sparse	Perle de Csaba – B
5	Medium	Muscat Ottonel – B
7	Dense	Kober 125 AA
9	Very dense	*Vitis cinerea*

6.1.39 **Mature leaf: density of prostrate hairs on main veins** [O-088] (6.1.36)

[60-79] Recorded on the upper surface of the blade

0	Absent [O:1]	Grenache – N
1	Present [O:9]	Meunier – N

6.1.40 **Mature leaf: length of petiole compared to middle vein** [O-093, U-37] (6.1.41)

[75-81]

1	Much shorter	
2	Slightly shorter	*Vitis riparia* 'Gloire de Montpellier'
3	Equal	Grenache noir – N
4	Slightly longer	Cardinal – Rg
5	Much longer	

6.1.41 **Woody shoot: surface** [O-102, U-54] (6.1.43)

[91-99] See Fig. 15

1	Smooth	*Vitis riparia* 'Gloire de Montpellier'
2	Edged (angular)	*Vitis rubra*
3	Striate [O:3]	Chasselas blanc – B
4	Ribbed [O:2]	*Vitis berlandieri*

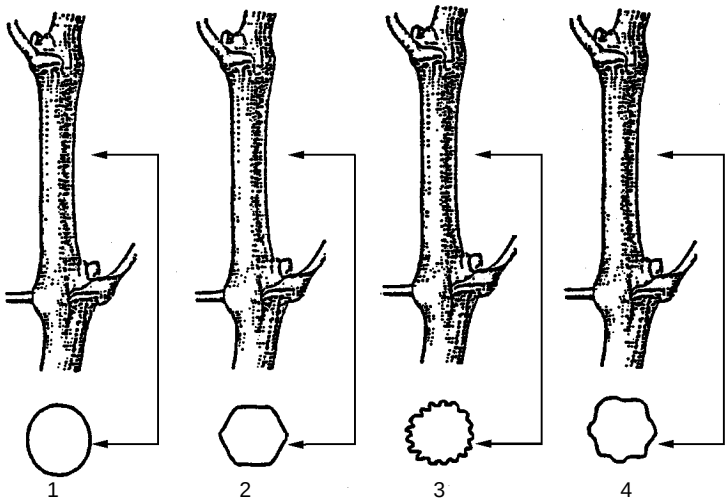

Fig. 15. Woody shoot: surface

6.1.42 **Woody shoot: main colour** [O-103, U-52] (6.1.44)

[91-00]

1	Yellow	Grenache noir – N
2	Yellowish brown	Müller-Thurgau – B
3	Dark brown	Chasselas blanc – B
4	Reddish brown	3309 Couderc
5	Violet	*Vitis aestivalis* 'Jaeger'

6.2 Inflorescence and fruit

★ **6.2.1** **Inflorescence: sex of flower** [O-151, U-18] (4.2.1)
[61-68] See Fig. 16

1	Only male	Rupestris du Lot
2	Predominantly male	3309 Couderc
3	Male and female fully developed	Chasselas blanc – B
4	Female with straight stamens	Sori
5	Female with reflexed stamens	Bicane – B

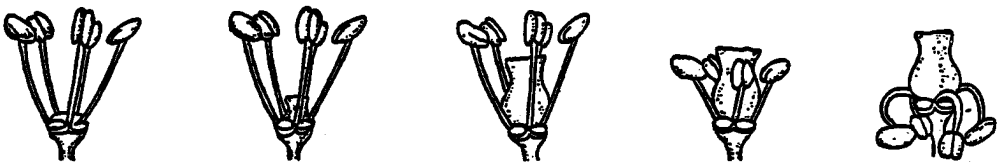

Fig. 16. Inflorescence: sex of flower

★ **6.2.2** **Bunch: size** [U-39] (6.2.5)
[89] (Without peduncle). See Fig. 17

1	Very small	Kober 5BB
3	Small	Pinot noir – N
5	Medium	Chasselas blanc – B
7	Large	Müller-Thurgau
9	Very large	Ugni blanc – B, Nehelescol – B

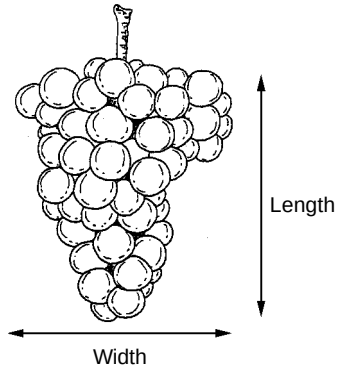

Fig. 17. Bunch: size

★ **6.2.3** **Bunch: density** [O-204, U-40] (6.2.6)
[89]

1	Very loose (berries in grouped formation, many visible pedicels)	*Vitis amurensis*
3	Loose (single berries with some visible pedicels)	Cardinal – Rg
5	Medium (densely distributed berries, pedicels not visible)	Chasselas blanc – B
7	Dense (berries not readily movable)	Pinot noir – N
9	Very dense (berries pressed out of shape)	Sylvaner – B

★ **6.2.4** **Bunch: length of peduncle** [O-206, U-41] (4.2.3)
[89]
Measured in centimeters from insertion to first ramification. See Fig. 18

1	Very short	Mourvèdre – N
3	Short	Chasselas blanc – B
5	Medium	Marsanne – B
7	Long	Alphonse Lavallée – N
9	Very long	*Vitis cinerea*

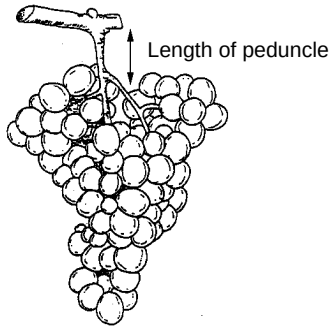

Fig. 18. Bunch: length of peduncle

★ **6.2.5** **Berry: size** [O-221, U-42] (4.2.4)
[89]

1	Very small	Corinthe noir – N
3	Small	Riesling – B
5	Medium	Portuguieser – N
7	Large	Muscat d'Alexandrie – B
9	Very large	Alphonse Lavallée – N

★ **6.2.6** **Berry shape** [O-223, U-43] (4.2.5)
[89] See Fig. 19

1	Oblong [O:7]	Kalili – B
2	Narrow elliptic [O:3]	Olivette noir – N
3	Elliptic [O:3]	Müller Thurgau – B
4	Round [O:2]	Chasselas blanc – B
5	Oblate [O:1]	
6	Ovate [O:4]	Bicane – B
7	Obtuse-ovate [O:5]	Ahmeur bou Ahmeur – Rg
8	Obovate [O:6]	Muscat d'Alexandrie – B
9	Arched	Santa Paula – B

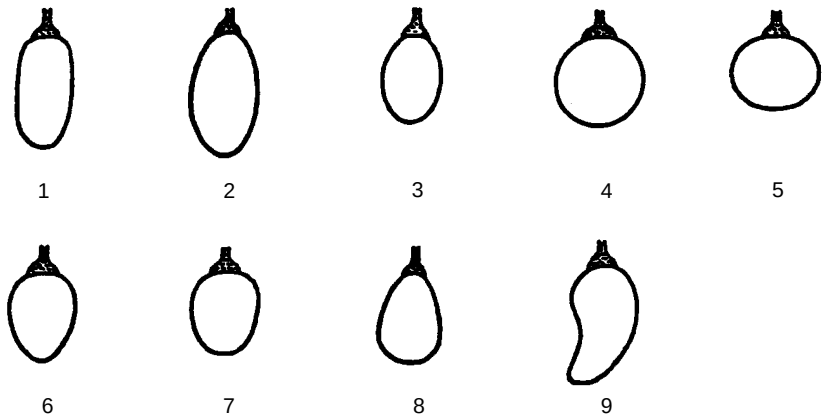

Fig. 19. Berry: shape

★ **6.2.7** **Berry: presence of seeds** [O-241, U-53] (4.3.1)
[89]

1	Seedless (absent)	Corinthe noir – N
2	Rudimentary	Sultana – B
3	Well developed	Riesling – B

★ **6.2.8** **Berry: skin colour (without bloom)** [O-225, U-44] (4.2.6)
[89] Light-dependent, recorded on berries which are exposed directly to sun

1	Green-yellow	Chasselas blanc – B
2	Rose	Chasselas rosé – Rs
3	Red	Molinera gorda – Rg
4	Red-grey	Pinot gris – G
5	Dark red-violet	Cardinal – Rg
6	Blue-black	Pinot noir – N
99	Other (specify in descriptor **6.3 Notes**)	

★ **6.2.9** **Berry: anthocyanin colouration of flesh** [O-231, U-47] (4.2.7)
[89]

1	Very slightly coloured	Pinot noir – N
3	Slightly coloured	
5	Coloured	
7	Strongly coloured	Alicante Bouschet – N
9	Very strongly coloured	

6.2.10 **Berry: juiciness of flesh** [O-232, U-49] (6.2.15)
[89]

1	Very slightly juicy	Isabelle – N
2	Slightly juicy	
3	Very juicy	Aramon noir – N

6.2.11 **Berry: firmness of flesh** [O-235, U-48] (6.2.17)
[89] Weight necessary for cracking the berries

1	Soft [O:3]	Perle de Csaba – B
2	Medium [O:5]	Razaki, Sauvignon – B
3	Firm [O:7]	Flame Seedless, Olivette noire – N, Müller-Thurgau – B

★ **6.2.12** **Berry: particular flavour** [O-236, U-50] (4.2.8)
[89]

0	None [O:1 / U:1]	Auxerrois – B
1	Muscat [O:2 / U:2]	Muscat d'Alexandrie – B
2	Foxy [O:3 / U:3]	Isabelle – N
99	Other special flavour [O:5 / U:4]	

6.2.13 **Berry: ease of detachment from pedicel** [O-240, U-51] (6.2.20)
[89] Tensile strength necessary for separating berry from pedicel

1	Difficult [O:7]	Carignan – N
2	Slightly easy	
3	Very easy [O:1]	Isabelle – N

6.2.14 **Berry: seed length** [O-242] (6.3.2)
[89]

3	Short	Mourvèdre – N, Grenache – N
5	Medium	Pinot noir – N
7	Long	Cinsaut – N, Alphonse Lavallée – N

6.2.15 **Seed: 100-seed weight** [O-243] (6.3.3)

1	Very low	(≤10 mg / seed)
3	Low	(21-29 mg / seed)
5	Medium	(36-44 mg / seed)
7	High	(51-59 mg / seed)
9	Very high	(>65 mg / seed)

6.2.16 **Seed: transversal ridges on side** [O-244] (4.3.2)
[89] See Fig. 20

0	Absent [O:1]	*Vitis vinifera*
1(or +)	Present [O:2]	*Vitis rotundifolia*

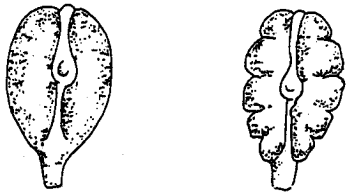

Fig. 20. Seed: transversal ridges on side

6.3 Notes

Specify here any additional information

EVALUATION

7. Plant descriptors

				Example varieties	
★	**7.1.1**	**Time of bud burst** [O-301, U-1]			(6.1.48)
	[5-9]	Only varieties for fruit production			
		1	Very early	Perle de Csaba – B	
		3	Early	Chasselas blanc – B	
		5	Medium	Grenache noir – N	
		7	Late	Cinsaut – N	
		9	Very late	Mourvèdre – N	
★	**7.1.2**	**Time of bud burst** [U-2]			
	[5-9]	Only varieties not for fruit production			
		1	Very early		
		3	Early		
		5	Medium		
		7	Late		
		9	Very late		
	7.1.3	**Inflorescence: number of inflorescences per shoot** [O-153]			(6.2.2)
	[61-68]				
		1	Up to 1	Sultanine – B	
		2	1.1 to 2	Chasselas blanc – B	
		3	2.1 to 3	Riesling – B	
		4	More than 3	Aris – B	
★	**7.1.4**	**Time of berry ripening (véraison)** [O-303, U-38]			(6.2.21)
	[81]	Véraison of berries corresponds with dry matter content of berries of about 3-4% and with passing over the acid maximum. About 50% of berries start getting soft and changing colour, if any			
		1	Very early	Perle de Csaba – B	
		3	Early	Chasselas blanc – B	
		5	Medium	Riesling – B	
		7	Late	Carignan noir – N	
		9	Very late	Olivette noire – N	
	7.1.5	**Bunch length** [O-202]			(6.2.5)
	[89]	(Without peduncle)			
		1	Very short	Pinot noir – N	
		3	Short	Cabernet Sauvignon – N	
		5	Intermediate	Müller-Thurgau – B	
		7	Long	Ugni blanc – B	
		9	Very long	Nehelescol – B	

7.1.6 **Berry: thickness of skin** [O-228, U-45] (6.2.14)
[89] Thickness of epidermis plus hypodermis. See Fig. 21

3	Thin (about 100 µm)	Chasselas blanc – B
5	Medium (about 175 µm)	Carignan – N
7	Thick (about 250 µm)	Servant – B

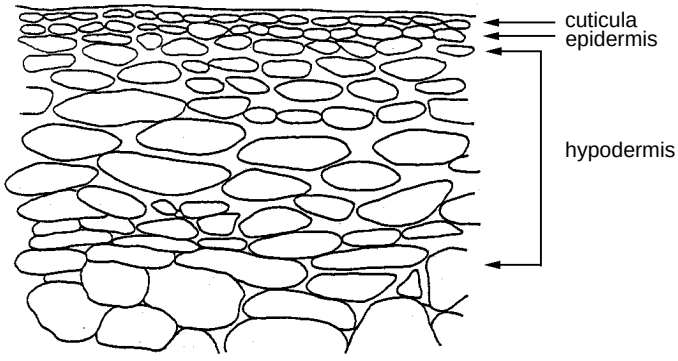

Fig. 21. Berry: thickness of skin

7.1.7 **Berry: pedicel length** [O-238] (6.2.19)
[89]

3	Short	Grenache noir – N
5	Intermediate	Cinsaut – N
7	Long	Dattier de Beyrouth

7.1.8 **Berry: visibility of hilum** [O-229, U-46] (6.3.1)
[89]

1	Unclear	Chasselas blanc – B
2	Slightly clear	
3	Very clear	Ugni blanc – B

7.1.9 **Berry: must yield** [O-233] (6.2.16)
[89] (Without pedicels, crushed and centrifuged at 3000 rpm)

1	Very little	(<50 ml juice / 100 g berries)
2	Little	(50-65 ml juice / 100 g berries)
3	Medium	(66-75 ml juice / 100 g berries)
4	High	(76-90 ml juice / 100 g berries)
5	Very high	(>90 ml juice / 100 g berries)

★ **7.1.10** **Physiological stage of full maturity of the berry** [O-304] (6.2.23)
[89] (Maximum sugar content of the berry)

1	Very early	Perle de Csaba – B
3	Early	Chasselas blanc – B
5	Medium	Syrah – N
7	Late	Carignan noir – N
9	Very late	Olivette noire – N

7.1.11 **Growth of axillary shoots** [O-352] (6.1.52)
[89] Based on number and length of axillary shoots more than 2 cm long. Average of axillary shoots within the middle third of shoots close to the trunk

1	Very weak	
3	Weak	
5	Medium	Riesling – B
7	Strong	
9	Very strong	

7.1.12 **Shoot: length of internodes** [O-353] (6.1.53)
[89]

1	Very short (<60 mm)	Rupestris du Lot
3	Short (~ 90 mm)	140 Ruggeri
5	Medium (~ 120 mm)	Chasselas Blanc – B
7	Long (~ 150 mm)	Cardinal – Rg
9	Very long (>180 mm)	*Vitis riparia*

7.1.13 **Percentage of berry set** [O-501] (6.2.24)
[89] The percentage of berries / bunch relative to number of flowers / inflorescence

1	Very low (<10%)
3	Low (20-30%)
5	Medium (40-50%)
7	High (60-70%)
9	Very high (>80%)

★ **7.1.14** **Single bunch weight** [O-502] (6.2.25)
[89] Mean value of all bunches / shoot of 10 shoots

1	Very low (<100 g)
3	Low (150-250 g)
5	Medium (350-450 g)
7	High (650-950 g)
9	Very high (>1200 g)

★ **7.1.15** **Single berry weight** [O-503] (6.2.26)
[89] Mean value of each 100 berries taken from the central part of bunch of 10 bunches

1 Very low (<1 g)
3 Low (1.7-2.3 g)
5 Medium (3-5 g)
7 High (7-9 g)
9 Very high (>12 g)

7.1.16 **Bunch weight** [kg/ha] [O-504] (6.2.27)
[89] Yield (kg / ha). The conversion factor of 1.3 converts hl / ha into kg / ha

3 Low
5 Medium
7 High

7.1.17 **Sugar content of must** [%] [O-505] (6.2.28)
[89] Specify cluster yield and method used in descriptor **7.2 Notes**

3 Low (~ 15% sugar)
5 Medium (~ 18% sugar)
7 High (~ 21% sugar)

7.1.18 **Total acid content of must** [O-506] (6.2.29)
[89] In milliequivalents: tartaric acid or sulphuric acid. Average of healthy fully turgescent berries of all bunches of 10 shoots

		Milliequivalents	Tartaric acid [g/L]	Sulphuric acid [g/L]
1	Very low	41	≤3	≤2
3	Low	82	6	4
5	Medium	123	9	6
7	High	164	12	8
9	Very high	205	15	10

7.1.19 **Rootstock: yield of canes/ha** [O-551] (6.1.55)
[00]

1	Very low	Rupestris du Lot
3	Low	
5	Medium	3309 Couderc
7	High	
9	Very high	Kober 5BB

7.1.19.1 Number of vines per hectare
7.1.19.2 Total length of rootstocks [m/ha]

7.1.20 Rootstock: formation of callus (upper end) [O-552] (6.1.56)
Carried out at a temperature of 25-30°C. Observed on woody cuttings. Specify method in descriptor **7.2 Notes**

1	Very low	
3	Low	41B
5	Medium	Kober 5BB
7	High	*Vitis riparia* 'Gloire de Montpellier'
9	Very high	

7.1.21 Rootstock: adventitious root formation [O-553] (6.1.57)
Capability of rootstock to form adventitious roots under normal propagation conditions. Observed on woody cuttings. Specify method in descriptor **7.2 Notes**

1	Very low	*Vitis berlandieri*
3	Low	
5	Medium	Kober 5BB
7	High	
9	Very high	*Vitis riparia* 'Gloire de Montpellier'

7.2 Notes
Specify here any additional information

8. Abiotic stress susceptibility
Scored under artificial and / or natural conditions, which should be clearly specified. These are coded on a susceptibility scale from 1 to 9:

1	Very low or no visible sign of susceptibility
3	Low
5	Intermediate
7	High
9	Very high

8.1 Low temperature

8.2 High temperature

8.3 Drought [OIV-403]
Test rootstocks after grafting with a *Vitis vinifera* variety

		Reference rootstocks
1	Very low [O:9] (leaves green)	140 Ruggeri, 1103 Paulsen
3	Low [O:7]	41B, 99 Richter
5	Medium (leaves yellow)	MG 420 A, Rupestris du Lot
7	High [O:3]	
9	Very high [O:1] (leaves necrotic or leaf drop)	*Vitis riparia*

8.4 High soil moisture

8.5 Iron chlorosis [OIV-401] (7.5)

Assess on soils with high lime content and/or during spring on permanent wet soils. Specify in descriptor **8.7 Notes** whether the accession being described is grafted, growing on its own roots, or is being used as a rootstock

		Reference rootstocks	Reference scions
1	Very low [O:9] (leaves dark green)	Fercal	Grenache noir – N
3	Low [O:7] (leaves pale green with net of fine green veins)	140 Ruggeri	Sangiovese –N, Dattier de Beyrouth – B
5	Medium (leaves yellow with green main veins)	Kober 5BB	Ugni blanc – B
7	High [O:3] (leaves yellow, <10% necrosis)	3309 Couderc	Dolcetto – N, Canaiolo – N
9	Very high [O:1] (leaves yellow, >10% necrosis, shoots stunted)	Riparia Gloire de Montpellier	Pinot blanc – B

8.6 Salinity (chloride salts) [OIV-402] (7.6)

Specify in descriptor **8.7 Notes** whether the variety being described is grafted, growing on its own roots, or is being used as a rootstock

1	Very low [O:9] (leaves green)	*V. vinifera* (own rooted)	Sultanine – B
3	Low [O:7]	1103 Paulsen	Servant – B
5	Medium (ends of leaf veins necrotic)	1616 C	
7	High [O:3]	3309 Couderc	Clairette – B
9	Very high [O:1] (marginal necrosis with leaf drop)	Riparia Gloire de Montpellier	Cardinal – Rg

8.7 Notes

pecify here any additional information

9. Biotic stress susceptibility

In each case, it is important to state the origin of the infestation or infection, i.e. natural, field inoculation, laboratory. Record such information in descriptor **9.5 Notes**. These are coded on a susceptibility scale from 1 to 9, viz:

1 Very low or no visible sign of susceptibility
3 Low
5 Intermediate
7 High
9 Very high

9.1 Pests

9.1.1 *Daktulosphaira vitifoliae* on leaves [OIV-461] (8.1.1)

Observe gall formation on mature leaves

		Reference variety
1	Very low [O:9] (localized necrosis, punctures, no leaf galls)	*Vitis vinifera*, *Vitis cinerea*
3	Low [O:7] (incomplete sterile leaf galls)	
5	Medium (small fertile leaf galls)	
7	High [O:3] (large fertile leaf galls)	
9	Very high [O:1] (very large fertile leaf galls)	3309 Couderc

9.1.2 *Daktulosphaira vitifoliae* on roots [OIV-462] (8.1.2)

1	Very low [O:9] (localized necrosis, punctures)	*Vitis rotundifolia*
3	Low [O:7] (necrosis isolated within bark)	Kober 5BB
5	Medium (necrosis penetrates central cylinder, isolated)	
7	High [O:3] (necrosis penetrates central cylinder, isolation incomplete)	
9	Very high [O:1] (necrosis penetrates centre of central cylinder)	*Vitis vinifera*

9.2 Fungi

9.2.1 *Botrytis cinerea* Pers. Ex Fr. on leaves [OIV-458] (8.2.1)

Assess all leaves of six or more vines (at least six replications) before flowering for necrotic areas

3	Low [O:7-9] (only a few very little, limited necrotic areas)	Kober 5BB
5	Medium (one or more limited necrotic patches about 1 cm in diameter)	
7	High [O:1-3] (one or more large necrotic patches on a big part of the leaf blade)	

9.2.2 *Botrytis cinerea* Pers. ex Fr. on fruit [OIV-459] (8.2.2)

Assess all fruit clusters on six or more vines (six replications). Assess before véraison for stem rot and before harvest for actual grey rot

3	Low [O:7-9] (only a few wilted or rotten berries, only a few clusters slightly attacked, no drop-off of clusters)	Isabelle – N

5 Medium (up to 20% wilted or rotten berries, most clusters attacked moderately, drop-off of clusters slight or none)
7 High [O:1-3] (very many wilted or rotten berries, all clusters attacked, drop-off of clusters)

9.2.3 *Plasmopara viticola* on leaves [OIV-452] (8.2.3)

Assess extent of mildew patches on all leaves of 4-6 vines, if possible 3 weeks after flowering begins

1 Very low [O:9] Kober 5BB
(tiny necrotic spots or no symptoms, neither sporulation nor mycelium)
3 Low [O:7]
(small patches <1 cm in diameter, little sporulation or mycelium)
5 Medium (little patches 1-2 cm in diameter, more or less strong sporulation, irregular formation of mycelium)
7 High [O:3]
(vast patches, strong sporulation and abundant mycelium, leaf drop later than below)
9 Very high [O:1]
(vast patches or totally attacked leaf blades, strong sporulation and dense mycelium, very early leaf drop)

9.2.4 *Plasmopara viticola* on fruit [OIV-453] (8.2.4)

Assess all fruit clusters on 4-6 vines 3 weeks after flowering begins and before véraison

1 Very low [O:7-9]
(very slight or no attack)
3 Low
(a few clusters slightly attacked, no yield reduction)
5 Medium
(20-30% of clusters attacked, yield reduced)
7 High
(50-60% of clusters attacked, yield reduced)
9 Very high [O:1-3]
(most or all clusters strongly attacked or killed, high yield reduction)

9.2.5 ***Uncinula necator* (Schw.) Burr. on leaves** [OIV-455] (8.2.5)

Assess all leaves of 4-6 vines. Assess young leaves 3 weeks after flowering begins and mature leaves after harvest or before frost

1 Very low [O:9]
(tiny spots or no symptoms, neither visible sporulation nor mycelium)

3 Low [O:7]
(limited patches <2 cm in diameter, limited sporulation and mycelium; the presence of *Uncinula* is only indicated by a slight curling of the leaf blade)

5 Medium (patches usually limited with a diameter of 2-5 cm)

7 High [O:3]
(vast patches, some limited, strong sporulation and abundant mycelium)

9 Very high [O:1] Carignan – N
(very vast unlimited patches or totally attacked leaf blades, strong sporulation and abundant mycelium)

9.2.6 ***Uncinula necator* (Schw.) Burr. on fruit** [OIV-456] (8.2.6)

Assess all fruit clusters on 4-6 vines before véraison begins and before harvest

3 Low [O:7-9] Kober 5BB
(only a few berries attacked, only a few clusters slightly attacked, no cracked berries)

5 Medium (up to 30% of berries attacked, most clusters moderately attacked, some severely, none or only a few cracked berries)

7 High [O:1-3] Carignan – N
(many berries attacked, all clusters attacked, most severely, some moderately, repeatedly cracked berries)

9.2.7 ***Elsinoe ampelina* (Anthracnose)**

1 Very low

3 Low (small patches on the leaves >1 mm in diameter)

5 Medium (many leaves attacked, patches linked to each other, cancers on the young shoots)

7 High (strong symptoms on leaves, including on veins, petioles and tendrils, many cancers on the shoots, clusters attacked, partial production loss)
9 Very high (leaves, tendrils, shoots and clusters totally attacked causing shoot death and total production loss)

9.2.8 *Eutypa lata* (Eutypa dieback)

3	Low	Semillon, Merlot
5	Intermediate	Sauvignon – B
7	High	Cabernet Sauvignon, Ugni blanc

9.2.9 *Phomopsis viticola*

9.3 Bacteria
Indicate if known

9.4 Viruses and phytoplasmas
Indicate if known

9.5 Notes
Specify here any additional information

10. Biochemical markers
10.1 Enzyme
For each enzyme, indicate the tissue analyzed and the zymogram type. A particular enzyme can be recorded as 10.1.1; 10.1.2, etc.

10.2 Other biochemical markers
(e.g. Polyphenol profile)

11. Molecular markers
Describe any specific discriminating or useful trait for this accession. Report probe-enzyme combination analyzed. Below are listed some of the basic methods most commonly used

11.1 Restriction Fragment Length Polymorphism (RFLP)
Report probe / enzyme combination (approach can be used for nuclear, chloroplast or mitochondrial genomes)

11.2 Amplified Fragment Length Polymorphism (AFLP)
Report primer pair combinations and accurate molecular size of products (used for nuclear genomes)

11.3 DNA Amplification Fingerprinting (DAF); Random Amplified Polymorphic DNA (RAPD); AP-PCR

Accurately report experimental conditions and molecular size of products (used for nuclear genomes)

11.4 Sequence-tagged microsatellites (STMS)

Report primer sequences, and accurate product sizes (can be used for nuclear or chloroplast genomes)

11.5 PCR-sequencing

Report PCR primer sequences, and derived nucleotide sequence (can be used for single copy nuclear, chloroplast or mitochondrial genomes)

11.6 Other molecular markers

12. Cytological characters

12.1 Chromosome number

12.2 Ploidy level

(e.g. aneuploid or structural rearrangement)

12.3 Pollen viability

Specify the method, i.e. germination in a solution or grain staining

12.4 Meiosis chromosome associations

Mean of 50 microspore mother cells, observed during metaphase I

12.5 Other cytological characters

(e.g. stomata density and size)

13. Identified genes

Describe any known specific mutant present in the accession

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