

GRAPE (*Vitis* spp.) DESCRIPTORS

II ACCESSION MANAGEMENT, MULTIPLICATION/REGENERATION DESCRIPTORS

Descriptor code	Descriptor scale (score)	Reference values	Reference varieties	Remarks
II/1	Number of times accession regenerated			

II/2	Patent status			
	0 Non-patented cultivar			
	1 Patented cultivar			

II/3	Number of plants sampled			
				Approximate number of plants collected (sampled) in the field to produce this accession.

II/4	Nature of vegetative sample			
	0 Not vegetative (seed)			
	1 Cuttings - for grafting			
	2 Cuttings - for rooting			
	3 Rooted plants			
	4 Tissue culture			
	5 Other (specify in NOTES descriptor, II/11)			

II/5	Virus disease status (including mycoplasma)			
	1 Virus disease free**			** Record results of virus tests in the NOTES descriptor, II/11 (positive or negative).
	2 Virus disease tested (infected)**			
	3 Not tested			

II/6	End use			
	1 Scion cultivar – dessert			
	2 Scion cultivar – processing			

	3	Dual or multipurpose consumption			
	4	Clonal rootstock			
	5	Clonal interstock			
	6	Seedling rootstock			
	7	Ornamental/pollinator (pollinizer)			
	8	Botanical (wild) species			
	9	Other (specify in NOTES descriptor, II/11) for example 'valuable unnamed selections from a breeding programme'			

II/7	Other notes from collector			
				Collectors should record ecological/climatic information. For cultivated crops, cultivation practices should be recorded.

II/8	Rootstock			
				Name of rootstock on which accession is grafted, if any.

II/9	Condition of tree			
	1	Dead		
	2	Dying		
	3	Old – declining		
	4	Mature – diseased		
	5	Mature - non-vigorous		
	6	Mature – vigorous		
	7	Young - not yet bearing		
	8	Other (specify in NOTES descriptor, II/11)		

II/10	Propagation method			
	1	Grafting (including budding)		
	2	Hardwood cuttings		

	3	Softwood cuttings			
	4	Stool beds			
	5	Layering			
	6	Micropropagation			
	7	Seed			
	8	Other (specify in NOTES descriptor, II/11)			
II/11	Notes				

III CHARACTERIZATION AND EVALUTION DESCRIPTORS

Descriptor code	Descriptor scale (score)	Reference values	Reference varieties	Remarks
III/1	Young shoot: form of tip			
	1 Closed		<i>Vitis riparia</i>	Fig. 1
	2 Slightly open			
	3 Half-open		Kober 5BB	
	4 Wide open			
	5 Fully open		<i>Vitis vinifera</i> , <i>Vitis berlandieri</i>	

III/2	Young shoot: anthocyanin colouration of tip			
	0 Absent			
	1 Very weak		Meunier – N	
	3 Weak		Riesling – B	
	5 Medium		Müller-Thurgau – B	
	7 Strong		Bacchus, Cabernet Sauvignon – N	
	9 Very strong		<i>Vitis aestivalis</i>	

III/3	Young shoot: density of prostrate hairs on tip			
	0 Absent		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	

III/4	Young shoot: density of erect hairs on tip			
	0 Absent		Rupestris du Lot	Only varieties not for fruit production
	1 Very sparse			
	3 Sparse		3309 Couderc	
	5 Medium		3306 Couderc	
	7 Dense		<i>Vitis riparia</i>	
	9 Very dense		<i>Vitis cinerea</i>	

III/5	Before tying.			
	1 Erect		Mourvèdre – N	Fig. 2
	3 Semi-erect		Muskat Ottonel – B, Sauvignon – B	

	5	Horizontal		Pinot noir – N	
	7	Semi-drooping		Aramon – N	
	9	Drooping		3309 Couderc	

III/6	Shoot: colour of dorsal side of internode				
	1	Completely green		Sauvignon – B	Fig. 3
	2	Green and red striped		Carignan – N	
	3	Completely red		Riesling – B	

III/7	Shoot: colour of ventral side of internode				
	1	Completely green		Sauvignon – B	Fig. 3
	2	Green and red striped		Carignan – N	
	3	Completely red		Mourvèdre – N	

III/8	Shoot: colour of dorsal side of node				
	1	Completely green		Sauvignon – B	Fig. 3
	2	Green and red striped		Barbera – N	
	3	Completely red		Riesling – B	

III/9	Shoot: colour of ventral side of node				
	1	Completely green		Sauvignon – B	Fig. 3
	2	Green and red striped		Palomino – B	
	3	Completely red		Madeleine angevine – B, 420 A	

III/10	Shoot: density of erect hairs on node				
	0	Absent		<i>Vitis vinifera</i>	
	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	

III/11	Shoot: erect hairs on internode				
	0	Absent		<i>Vitis vinifera</i>	
	1	Present		Kober 5BB, 125 AA, Fercal	

III/12	Shoot: density of prostrate hairs on node				
	0	Absent		<i>Vitis rupestris</i>	
	1	Very sparse		Pinot noir – N	
	5	Medium		Clairette – B	
	9	Very dense		<i>Vitis candicans</i>	

III/13	Shoot: density of prostrate hairs on internode				
	0	Absent		<i>Vitis rupestris</i>	

	1	Very sparse		Pinot noir – N	
	5	Medium		Clairette – B	
	9	Very dense		<i>Vitis candicans</i>	

III/14	Shoot: number of consecutive tendrils				
	1	Up to two		<i>Vitis vinifera</i>	
	2	Three or more		<i>Vitis labrusca</i> , <i>Vitis coignetiae</i>	

III/15	Shoot: length of tendril [U-17]				
	1	Very short	<11 cm	Rupestis 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	

III/16	Young leaf: colour of upper surface				
	1	Green		Sylvaner – B	Recorded on the first 4 distal unfolded leaves Fig. 4
	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)			

III/17	Young leaf: density of prostrate hairs between veins				
	0	Absent		Rupestis du Lot	Recorded on the lower surface of the 4th distal unfolded leaf.
	1	Very sparse		Chasselas – B	
	3	Sparse		Cinsaut – N	
	5	Medium		Carignan – N	
	7	Dense		Clairette – B	
	9	Very dense		<i>Vitis labrusca</i>	

III/18	Young leaf: density of erect hairs between veins				
	0	Absent		Rupestis du Lot	Recorded on the lower surface of the 4th distal unfolded leaf.
	1	Very sparse		140 Ruggeri	
	3	Sparse		Chasselas blanc – B	
	5	Medium		3306 Couderc	
	7	Dense		Riparia Scribner	
	9	Very dense		<i>Vitis cinerea</i>	

III/19	Young leaf: density of prostrate hairs on main veins			
	0 Absent		Rupestis du Lot	Recorded on the lower surface of the 4th distal leaf.
	1 Very sparse		140 Ruggeri	
	3 Sparse		Carignan – N	
	5 Medium		Cabernet Sauvignon – N, Sauvignon – B	
	7 Dense		Meunier – N	
	9 Very dense			

III/20	Young leaf: density of erect hairs on main veins			
	0 Absent		Rupestis du Lot	Recorded on the lower surface of the 4th distal leaf.
	1 Very sparse		140 Ruggeri	
	3 Sparse		3309 Couderc	
	5 Medium		Cinsaut – N, Riesling – B	
	7 Dense		Riparia Scribner	
	9 Very dense		<i>Vitis cinerea</i>	

III/21	Mature leaf: size of blade			
	1 Very small		<i>Vitis rupestris</i>	Recorded on mature leaves above the cluster within the medium third of shoot
	3 Small		Gamay – N, Traminer – Rs	
	5 Medium		Cabernet Sauvignon – N	
	7 Large		Carignan – N	
	9 Very large		<i>Vitis coignetiae</i>	

III/22	Mature leaf: shape of blade			
	1 Cordate		<i>Vitis cordifolia</i>	Fig. 5
	2 Wedge-shaped		<i>Vitis riparia</i> ‘Gloire de Montpellier’	
	3 Pentagonal		Chasselas blanc – B	
	4 Circular		Clairette – B	
	5 Reniform		Rupestis du Lot	
	99 Other (specify in descriptor 6.3 Notes)			

III/23	Mature leaf: number of lobes			
	1 Entire leaf (none)		Chardonnay – B	A lobe is that part of the leaf which lies between two leaf
	2 Three		Chenin – B	
	3 Five		Chasselas blanc – B	
	4 Seven		Cabernet Sauvignon – N	

	5	More than seven Hebron – B			sinuses. A leaf sinus results from a clear interruption of teeth on the leaf margin. Fig. 6
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III/24	Mature leaf: anthocyanin colouration of main veins on upper side of blade				
	0	Absent		Grenache noir – N	Recorded on leaves above the cluster at the medium third of shoot
	1	Very weak		Semillon – B	
	3	Weak		Muscat d’Alexandrie – B	
	5	Medium		Primitivo – N	
	7	Strong		Chenin – B	
	9	Very strong			

III/25	Mature leaf: profile				
	1	Flat		Cabernet Sauvignon – N	Cross-section at the middle of the leaf blade. Fig. 7
	2	V-shaped		Rupestris du Lot	
	3	Involute		Ugni blanc – B	
	4	Revolute		Alicante-Bouschet – N	
	5	Undulate		Grenache – N	

III/26	Mature leaf: blistering of blade upper surface				
	0	Absent		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		<i>Vitis amurensis</i>	

III/27	Mature leaf: shape of teeth				
	1	Both sides concave		<i>Vitis aestivalis</i> ‘Jaeger’	Recorded on the lateral lobe Fig. 8
	2	Both sides straight (rectilinear)		Muscat à petits grains – B	
	3	Both sides convex		Chenin blanc – B	
	4	One side concave, one side convex		Aspiran – N, Cinsaut – N	
	5	Mixture of both sides straight and both sides convex		Cabernet franc – N	

III/28	Mature leaf: length of teeth				
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	1	Very short		Cot – N	
	3	Short		Pinot noir – N	
	5	Medium		Merlot – N	
	7	Long		Carignan – N	
	9	Very long			

III/29	Mature leaf: ratio length/width of teeth				
	1	Very small		<i>Vitis aestivalis</i>	
	3	Small		Marsanne – B	
	5	Medium		Riesling – B	
	7	Large		Muscat d’Alexandrie – B	
	9	Very large		<i>Vitis riparia</i>	

III/30	Mature leaf: general shape of petiole sinus				
	1	Very wide open		Rupestris du Lot	Fig.9
	2	Wide open		<i>Vitis riparia</i> ‘Gloire de Montpellier’	
	3	Half open		Aramon noir – N	
	4	Slightly open		Sauvignon – B	
	5	Closed		Chasselas blanc – B	
	6	Lobes slightly overlapping		Aubun – N	
	7	Lobes half overlapping		Riesling – B	
	8	Lobes strongly overlapping		Clairette – B	

III/31	Mature leaf: tooth at petiole sinus				
	0	Absent		Chasselas blanc – B	Fig. 10

III/32	Mature leaf: petiole sinus limited by veins				
	0	Absent		Chasselas blanc – B	Fig. 11
	1	Present		Chardonnay – B	

III/33	Mature leaf: shape of upper lateral sinus				
	1	Open		Auxerrois – B	Degree of the opening of the upper lateral sinus). A
	2	Closed		Chasselas blanc – B	
	3	Lobes slightly overlapping		Cabernet Sauvignon – N	

	4 Lobes strongly overlapping		Clairette – B	sinus 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. Fig. 12.
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III/34	Mature leaf: depth of upper lateral sinus			
	1 Very shallow		Melon – B	
	3 Shallow		Gamay – N	
	5 Medium		Merlot – N	
	7 Deep		Chasan – B	
	9 Very deep		Chasselas Cioutat – B	

III/35	Mature leaf: density of prostrate hairs between veins			
	0 Absent		Rupestis du Lot	Recorded on the lower side of blade.
	1 Very sparse		Grenache – N	
	3 Sparse		Carignan – N, Müller-Thurgau – B	
	5 Medium		Mourvèdre – N	
	7 Dense		Clairette – B	
	9 Very dense		<i>Vitis labrusca</i>	

III/36	Mature leaf: density of erect hairs between veins			
	0 Absent		Rupestis du Lot	Recorded on the lower side of blade.
	1 Very sparse		Grenache – N	
	3 Sparse		Perle de Csaba – B	
	5 Medium		306 Couderc	
	7 Dense		Aris – B	
	9 Very dense		<i>Vitis cinerea</i>	

III/37	Mature leaf: density of prostrate hairs on main veins			
	0 Absent		Rupestis du Lot	Recorded on the lower side of blade.
	1 Very sparse		Grenache – N	
	3 Sparse		Carignan – N	
	5 Medium		Mourvèdre – N	
	7 Dense		Meunier – N	
	9 Very dense			

III/38	Mature leaf: density of erect hairs on main veins [U-36)				
	0	Absent		Rupestris du Lot	Recorded on the lower side of blade.
	1	Very sparse		Grenache – N	
	3	Sparse		Perle de Csaba – B	
	5	Medium		Muscat Ottonel – B	
	7	Dense		Kober 125 AA	
	9	Very dense		<i>Vitis cinerea</i>	

III/39	Mature leaf: density of prostrate hairs on main veins				
	0	Absent		Grenache – N	Recorded on the lower side of blade.
	1	Present		Meunier – N	

III/40	Mature leaf: length of petiole compared to middle vein			
	1	Much shorter		
	2	Slightly shorter		<i>Vitis riparia</i> ‘Gloire de Montpellier’
	3	Equal		Grenache noir – N
	4	Slightly longer		Cardinal – Rg
	5	Much longer		

III/41	Woody shoot: surface				
	1	Smooth		<i>Vitis riparia</i> ‘Gloire de Montpellier’	Fig. 13
	2	Edged (angular)		<i>Vitis rubra</i>	
	3	Striate		Chasselas blanc – B	
	4	Ribbed		<i>Vitis berlandieri</i>	

III/42	Woody shoot: main colour			
	1	Yellow		Grenache noir – N
	2	Yellowish brown		Müller-Thurgau Thurgau – B
	3	Dark brown		Chasselas blanc – B
	4	Reddish brown		3309 Couderc
	5	Violet		<i>Vitis aestivalis</i> ‘Jaeger’

Inflorescence and fruit

III/43	Inflorescence: sex of flower				
	1	Only male		Rupestris du Lot	Fig. 14
	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	
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III/44	Bunch: size				
	1	Very small		Kober 5BB	Fig. 15
	3	Small		Pinot noir – N	
	5	Medium		Chasselas blanc – B	
	7	Large		Müller-Thurgau	
	9	Very large		Ugni blanc – B, Nehelescol – B	

III/45	Bunch: density				
	1	Very loose (berries in grouped formation, many visible pedicels)		<i>Vitis amurensis</i>	
	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	

III/46	Bunch: length of peduncle				
	1	Very short		Mourvèdre – N	Measured in centimeters from insertion to first ramification. Fig. 16
	3	Short		Chasselas blanc – B	
	5	Medium		Marsanne – B	
	7	Long		Alphonse Lavallée – N	
	9	Very long		<i>Vitis cinerea</i>	

III/47	Berry: size				
	1	Very small		Corinthe noir – N	
	3	Small		Riesling – B	
	5	Medium		Portuguesier – N	
	7	Large		Muscat d’Alexandrie – B	
	9	Very large		Alphonse Lavallée – N	

III/48	Berry shape				
	1	Oblong		Kalili – B	Fig. 17
	2	Narrow elliptic		Olivette noir – N	
	3	Elliptic		Müller Thurgau – B	
	4	Round		Chasselas blanc – B	
	5	Oblate			

	6	Ovate		Bicane – B	
	7	Obtuse-ovate		Ahmeur bou Ahmeur – Rg	
	8	Obovate		Muscat d’Alexandrie – B	
	9	Arched		Santa Paula – B	

III/49	Berry: presence of seeds				
	1	Seedless (absent)		Corinthe noir – N	
	2	Rudimentary		Sultana – B	
	3	Well developed		Riesling – B	

III/50	Berry: skin colour (without bloom)				
	1	Green-yellow		Chasselas blanc – B	Light-dependent, recorded on berries which are exposed directly to sun.
	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)		Pinot noir – N	

III/51	Berry: anthocyanin colouration of flesh				
	1	Very slightly coloured		Pinot noir – N	
	3	Slightly coloured			
	5	Coloured			
	7	Strongly coloured		Alicante Bouschet – N	
	9	Very strongly coloured			

III/52	Berry: juiciness of flesh				
	1	Very slightly juicy		Isabelle – N	
	2	Slightly juicy			
	3	Very juicy		Aramon noir – N	

III/53	Berry: firmness of flesh				
	1	Soft		Perle de Csaba – B	Weight necessary for cracking the berries.
	2	Medium		Razaki, Sauvignon – B	
	3	Firm		Flame Seedless, Olivette noire – N, Müller-Thurgau – B	

III/54	Berry: particular flavour				
	0	None		Auxerrois – B	

	1	Muscat		Muscat d’Alexandrie – B	
	2	Foxy		Isabelle – N	
	99	Other special flavour			

III/55	Berry: ease of detachment from pedicel				
	1	Difficult		Carignan – N	Tensile strength necessary for separating berry from pedicel.
	2	Slightly easy			
	3	Very easy		Isabelle – N	

III/56	Berry: seed length				
	3	Short		Mourvèdre – N, Grenache – N	
	5	Medium		Pinot noir – N	
	7	Long		Cinsaut – N, Alphonse Lavallée – N	

III/57	Seed: 100-seed weight				
	1	Very low	≤10 mg		
	3	Low	21-29 mg		
	5	Medium	36-44 mg		
	7	High	51-59 mg		
	9	Very high	>65 mg		

III/58	Seed: transversal ridges on side				
	0	Absent		<i>Vitis vinifera</i>	Fig. 18
	1	Present		<i>Vitis rotundifolia</i>	

Plant descriptors

III/59	Time of bud burst				
	1	Very early		Perle de Csaba – B	Only varieties for fruit production.
	3	Early		Chasselas blanc – B	
	5	Medium		Grenache noir – N	
	7	Late		Cinsaut – N	
	9	Very late		Mourvèdre – N	

III/60	Time of bud burst				
	1	Very early			Only varieties not for fruit production
	3	Early			
	5	Medium			
	7	Late			
	9	Very late			

III/61	Inflorescence: number of inflorescences per shoot			
	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

III/62	Time of berry ripening (véraison)			
	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
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.				

III/63	Bunch length			
	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
Without peduncle				

III/64	Berry: thickness of skin			
	3	Thin	about 100 µm	Chasselas blanc – B
	5	Medium	about 175 µm	Carignan – N
	7	Thick	about 250 µm	Servant – B
Thickness of epidermis plus hypodermis, Fig. 19				

III/65	Berry: pedicel length			
	3	Short		Grenache noir – N
	5	Intermediate		Cinsaut – N
	7	Long		Dattier de Beyrouth

III/66	Berry: visibility of hilum			
	1	Unclear		Chasselas blanc – B
	2	Slightly clear		
	3	Very clear		Ugni blanc – B

III/67	Berry: must yield			
	1	Very little	<50 ml juice/100 g berries	Without pedicels, crushed and centrifuged at 3000 rpm
	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	

III/68	Physiological stage of full maturity of the berry				
	1	Very early		Perle de Csaba – B	Maximum sugar content of the berry
	3	Early		Chasselas blanc – B	
	5	Medium		Syrah – N	
	7	Late		Carignan noir – N	
	9	Very late		Olivette noire – N	

III/69	Growth of axillary shoots				
	1	Very weak			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.
	3	Weak			
	5	Medium		Riesling – B	
	7	Strong			
	9	Very strong			

III/70	Shoot: length of internodes			
	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	<i>Vitis riparia</i>

III/71	Percentage of berry set			
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	1	Very low	<10%		The percentage of berries/bunch relative to number of flowers/ inflorescence.
	3	Low	20-30%		
	5	Medium	40-50%		
	7	High	60-70%		
	9	Very high	>80%		

III/72	Single bunch weight				
	1	Very low	<100 g		Mean value of all bunches/shoot of 10 shoots.
	3	Low	150-250 g		
	5	Medium	350-450 g		
	7	High	650-950 g		
	9	Very high	>1200 g		

III/73	Single berry weight				
	1	Very low	<1 g		Mean value of each 100 berries taken from the central part of bunch of 10 bunches
	3	Low	1.7-2.3 g		
	5	Medium	3-5 g		
	7	High	7-9 g		
	9	Very high	>12 g		

III/74	Bunch weight [kg/ha]				
	3	Low			Yield (kg/ha). The conversion factor of 1.3 converts hl/ha into kg/ha.
	5	Medium			
	7	High			

III/75	Sugar content of must [%]				
	3	Low	~ 15% sugar		
	5	Medium	~ 18% sugar		
	7	High	~ 21% sugar		

III/76	Total acid content of must				
	1	Very low			In milliequivalents: tartaric acid or
	3	Low			
	5	Medium			
	7	High			

	9	Very high			sulphuric acid. Average of healthy fully turgescient berries of all bunches of 10 shoots.
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III/77	Rootstock: yield of canes/ha				
	1	Very low		Rupestris du Lot	
	3	Low			
	5	Medium		3309 Couderc	
	7	High			
	9	Very high		Kober 5BB	

III/78	Rootstock: formation of callus (upper end)				
	1	Very low			Carried out at a temperature of 25-30°C. Observed on woody cuttings.
	3	Low		41B	
	5	Medium		Kober 5BB	
	7	High		<i>Vitis riparia</i> 'Gloire de Montpellier'	
	9	Very high			

III/79	Rootstock: adventitious root formation				
	1	Very low		<i>Vitis berlandieri</i>	
	3	Low			
	5	Medium		Kober 5BB	
	7	High			
	9	Very high		<i>Vitis riparia</i> 'Gloire de Montpellier'	

III/80	Abiotic stress susceptibility				
	1	Very low or no visible sign of susceptibility			
	3	Low			
	5	Medium			
	7	High			
	9	Very high			

III/81	Drought				
	1	Very low (leaves green)		140 Ruggeri, 1103 Paulsen	Test rootstocks after grafting with a <i>Vitis vinifera</i> variety.
	3	Low		41B, 99 Richter	
	5	Medium (leaves yellow)		MG 420 A, Rupestris du Lot	
	7	High			

	9	Very high (leaves necrotic or leaf drop)		<i>Vitis riparia</i>	
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III/82	Iron chlorosis				
	1	Very low (leaves dark green)		Grenache noir – N (rootstocks: Fercal)	Assess on soils with high lime content and/or during spring on permanent wet soils. Specify in descriptor whether the accession being described is grafted, growing on its own roots, or is being used as a rootstock.
	3	Low (leaves pale green with net of fine green veins)		Sangiovese – N, Dattier de Beyrouth – B (rootstocks: 140 Ruggeri)	
	5	Medium (leaves yellow with green main veins)		Ugni blanc – B (rootstocks: Kober 5BB)	
	7	High (leaves yellow, <10% necrosis)		Dolcetto – N, Canaiolo – N (rootstocks: 3309 Couderc)	
	9	Very high (leaves yellow, >10% necrosis, shoots stunted)		(rootstocks: Riparia Gloire Pinot blanc – B de Montpellier)	

III/83	Biotic stress susceptibility				
	1	Very low or no visible sign of susceptibility			In each case, it is important to state the origin of the infestation or infection, i.e. natural, field inoculation, laboratory.
	3	Low			
	5	Intermediate			
	7	High			
	9	Very high			

Pests

III/84	<i>Daktulosphaira vitifoliae</i> on leaves				
	1	Very low (localized necrosis, punctures, no leaf galls)		<i>Vitis vinifera</i> , <i>Vitis cinerea</i>	Observe gall formation on mature leaves.
	3	Low (incomplete sterile leaf galls)			
	5	Medium (small fertile leaf galls)			
	7	High (large fertile leaf galls)			
	9	Very high (very large fertile leaf galls)		3309 Couderc	

III/85	<i>Daktulosphaira vitifoliae</i> on roots				
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	1	Very low (localized necrosis, punctures)		<i>Vitis rotundifolia</i>	
	3	Low (necrosis isolated within bark)		Kober 5BB	
	5	Medium (necrosis penetrates central cylinder, isolated)			
	7	High (necrosis penetrates central cylinder, isolation incomplete)			
	9	Very high (necrosis penetrates centre of central cylinder)		<i>Vitis vinifera</i>	

FUNGI

III/86	<i>Botrytis cinerea</i> Pers. Ex Fr. on leaves				
	3	Low (only a few very little, Kober 5BB limited necrotic areas)			Assess all leaves of six or more vines (at least six replications) before flowering for necrotic areas
	5	Medium (one or more limited necrotic patches about 1 cm in diameter)			
	7	High (one or more large necrotic patches on a big part of the leaf blade)			

III/87	<i>Botrytis cinerea</i> Pers. ex Fr. on fruit				
	3	Low (only a few wilted or rotten Isabelle – N berries, only a few clusters slightly attacked, no drop off of clusters)			Assess all fruit clusters on six or more vines (six replications). Assess before véraison for stem rot and before harvest for actual grey rot.
	5	Medium (up to 20% wilted or rotten berries, most clusters attacked moderately, drop off of clusters slight or none)			
	7	High (very many wilted or rotten berries, all clusters attacked, drop off of clusters)			

III/88	<i>Plasmopara viticola</i> on leaves				
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	1	Very low Kober 5BB (tiny necrotic spots or no symptoms, neither sporulation nor mycelium)			Assess extent of mildew patches on all leaves of 4-6 vines, if possible 3 weeks after flowering begins.
	3	Low (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 (vast patches, strong sporulation and abundant mycelium, leaf drop later than below)			
	9	Very high (vast patches or totally attacked leaf blades, strong sporulation and dense mycelium, very early leaf drop)			

III/89 Plasmopara viticola on fruit					
	1	Very low (very slight or no attack)			Assess all fruit clusters on 4-6 vines 3 weeks after flowering begins and before véraison.
	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 (most or all clusters strongly attacked or killed, high yield reduction)			

III/90 Uncinula necator (Schw.) Burr. on leaves					
	1	Very low (tiny spots or no symptoms, neither visible sporulation nor mycelium)			Assess all leaves of 4-6 vines. Assess young leaves 3 weeks after flowering begins and mature leaves after harvest or before frost.
	3	Low (limited patches <2 cm in diameter, limited sporulation and mycelium; the presence of <i>Uncinula</i> 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 (vast patches, some limited, strong sporulation and abundant mycelium)			
	9	Very high Carignan – N (very vast unlimited patches or totally attacked leaf blades, strong sporulation and abundant mycelium)			

III/91	<i>Uncinula necator</i> (Schw.) Burr. on fruit				
	3	Low (only a few berries attacked, only a few clusters slightly attacked, no cracked berries)		Kober 5BB	Assess all fruit clusters on 4-6 vines before véraison begins and before harvest.
	5	Medium (up to 30% of berries attacked, most clusters moderately attacked, some severely, none or only a few cracked berries)			
	7	High N (many berries attacked, all clusters attacked, most severely, some moderately, repeatedly cracked berries)		Carignan	

III/92	<i>Elsinoe ampelina</i> (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)			

III/93	<i>Eutypa lata</i> (Eutypa dieback)			
	3	Low		Semillon, Merlot
	5	Intermediate		Sauvignon – B
	7	High		Cabernet Sauvignon, Ugni blanc
III/94	Notes			
III/95	Cytological characterisation, identified genes			
III/96	Molecular markers			
III/97	Pictures			

Appendix

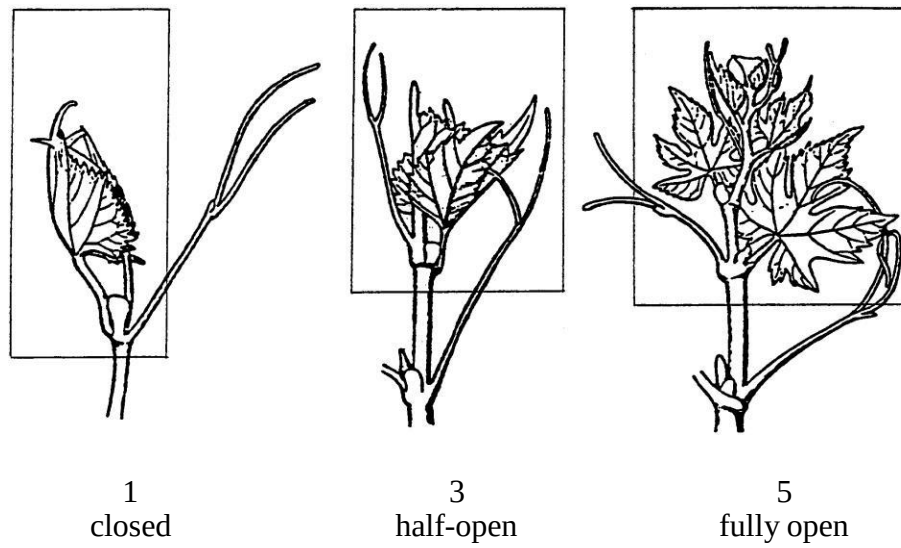
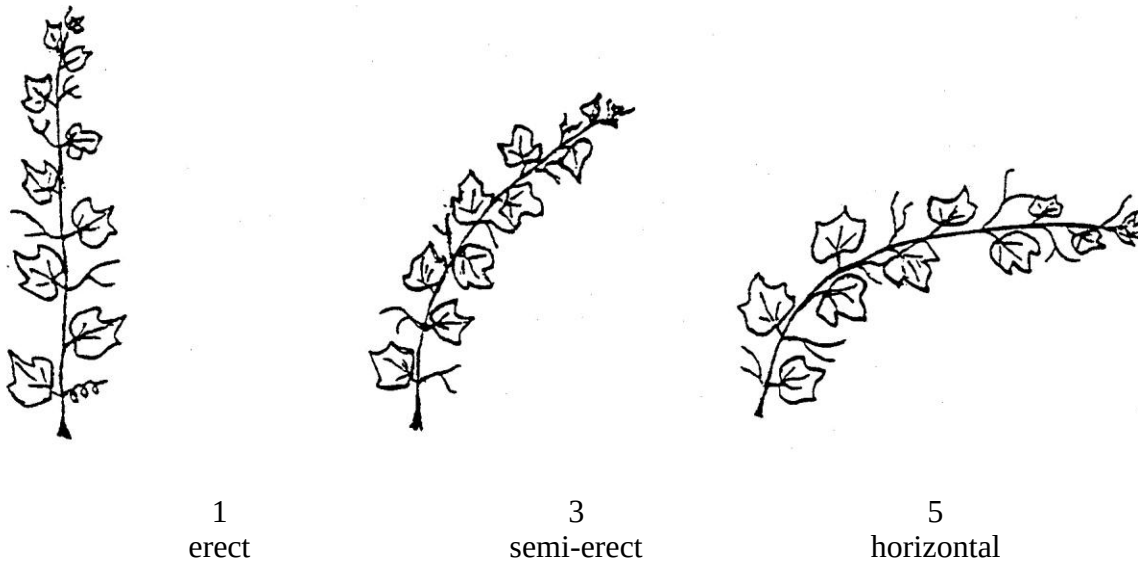
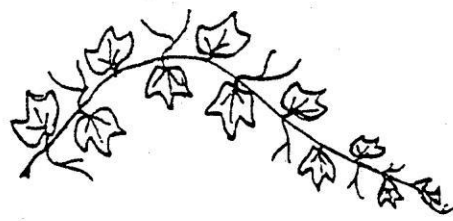


Fig. 1 Young shoot: form of tip





7
semi-drooping

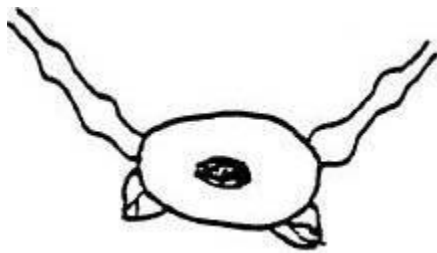


9
drooping

Fig. 2. Shoot attitude

Shoot cross-cut

dorsal side



dormant bud

ventral side

Fig. 3. Characters 11-14: Shoot: dorsal/ventral

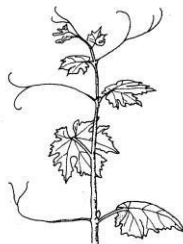


Fig. 4. Young leaf: 4 distal leaves

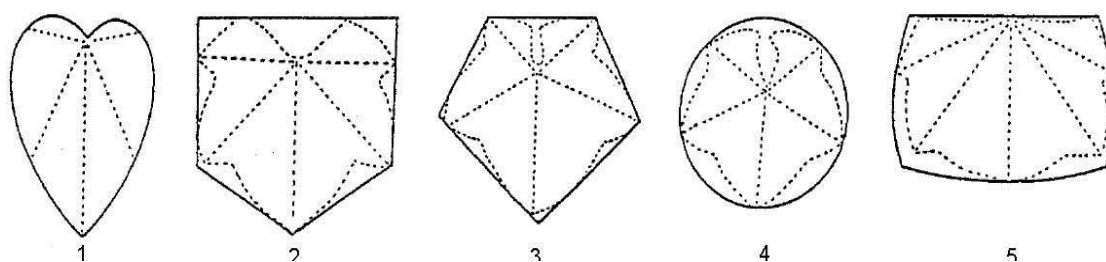


Fig. 5. Mature leaf: shape of blade

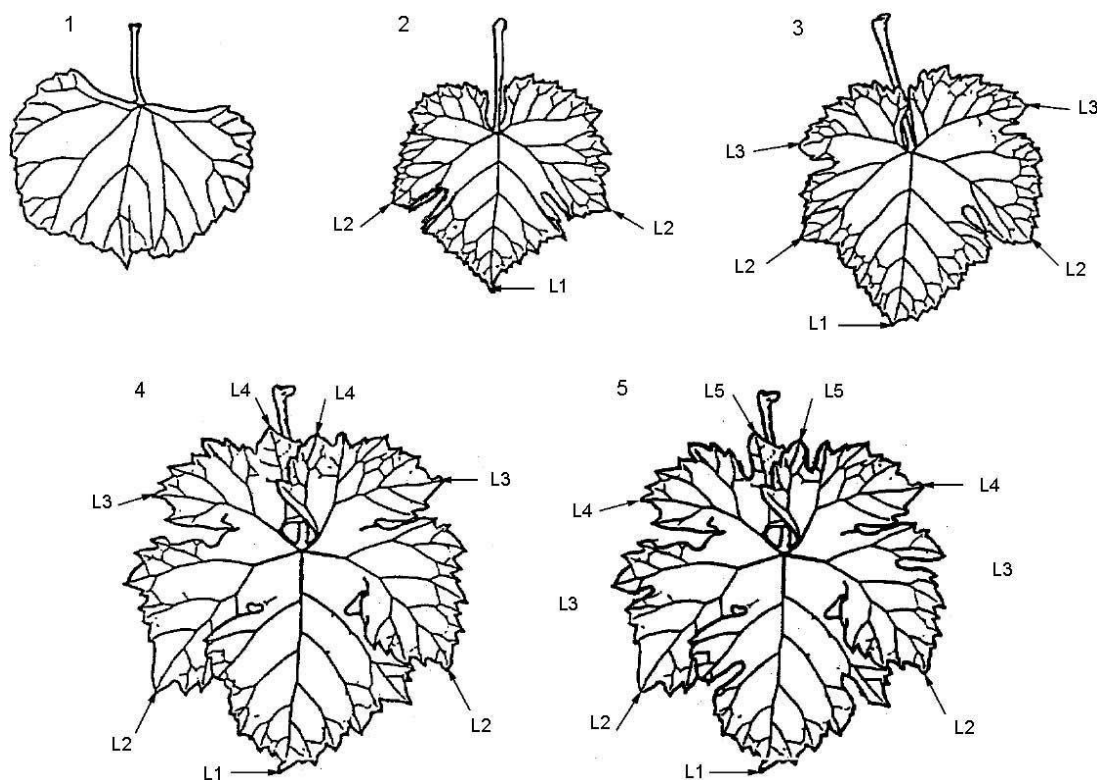
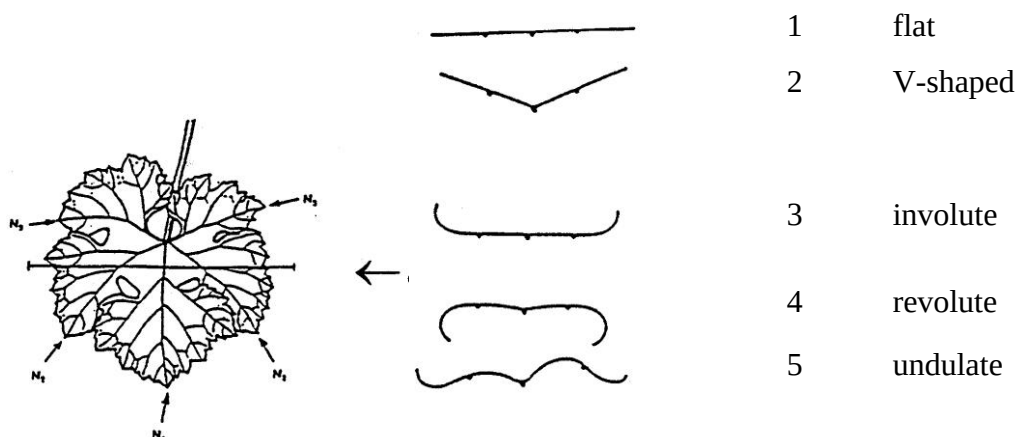


Fig. 6. Mature leaf: number of lobes (L)

Fig. 7. Mature leaf: profile



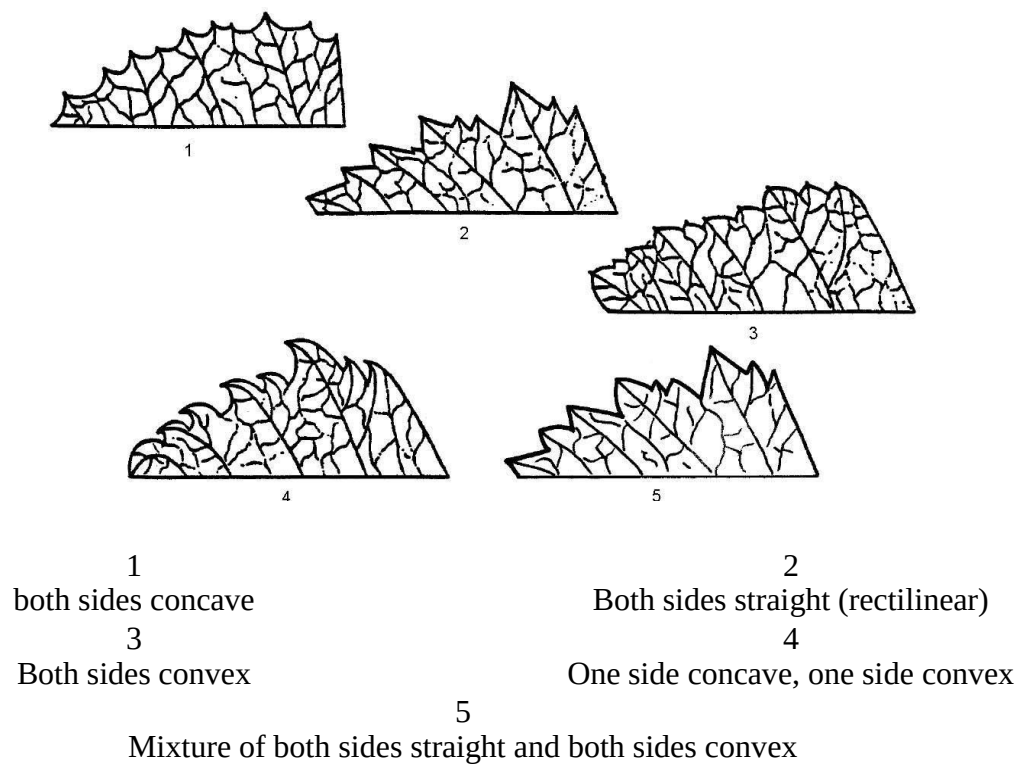


Fig. 8. Mature leaf: shape of teeth

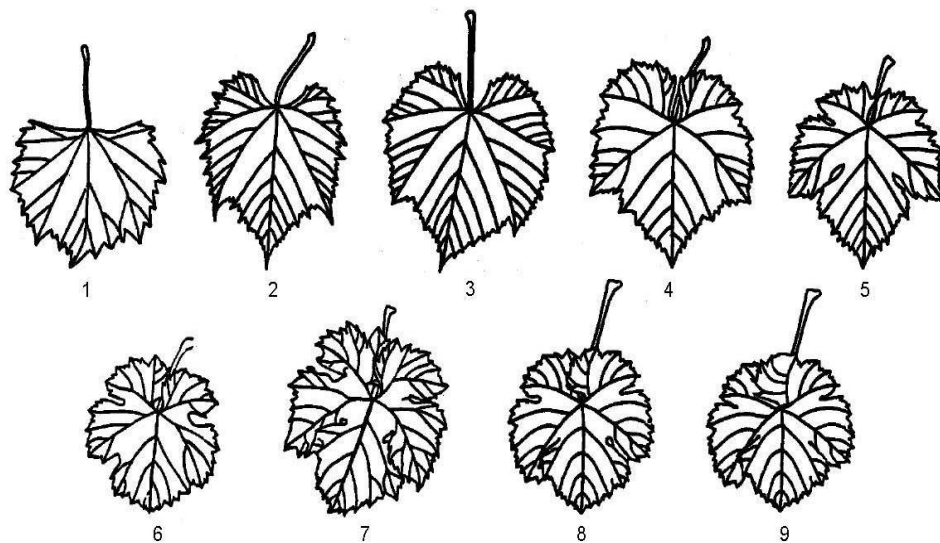


Fig. 9. Mature leaf: general shape of petiole sinus

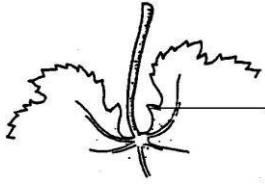


Fig. 10. Mature leaf: tooth at petiole sinus

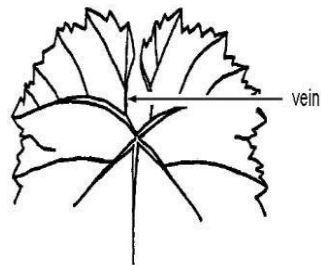


Fig. 11. Mature leaf: petiole sinus limited by veins

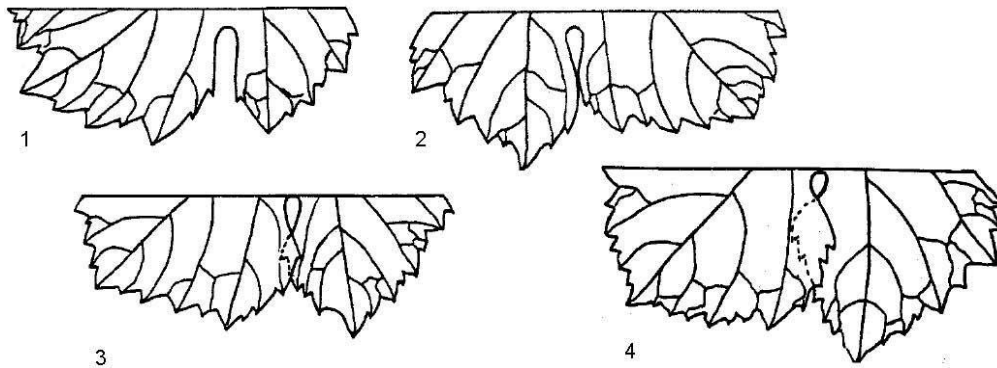


Fig. 12. Mature leaf: petiole sinus limited by veins

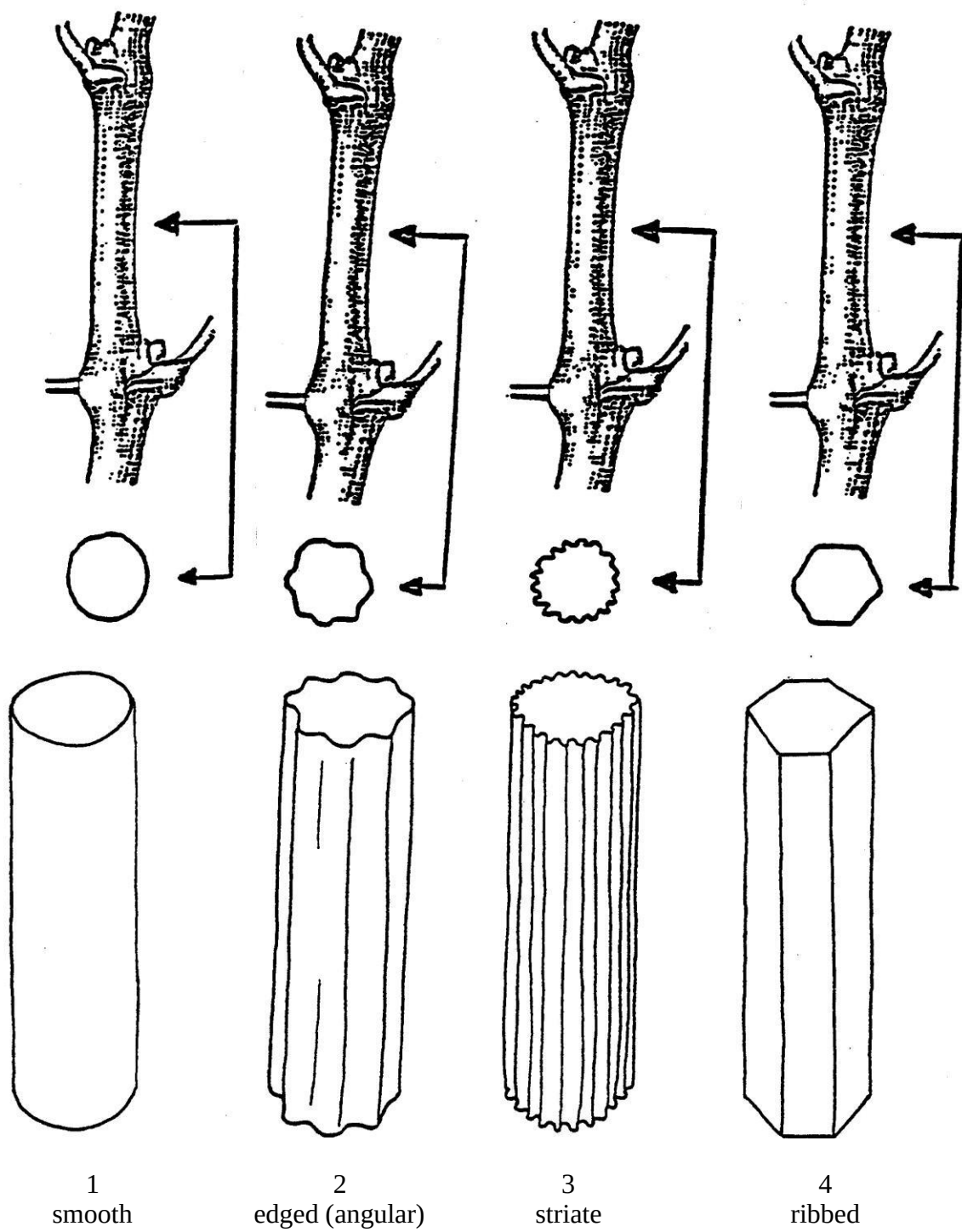


Fig. 13. Inflorescence: sex of flower

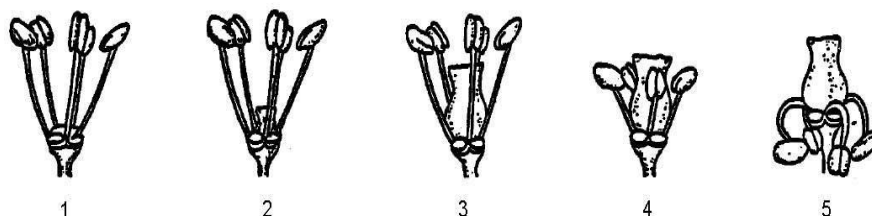


Fig. 14. Inflorescence: sex of flower

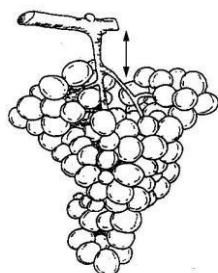
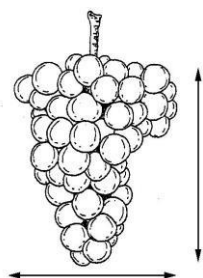


Fig. 15. Bunch: length of peduncle

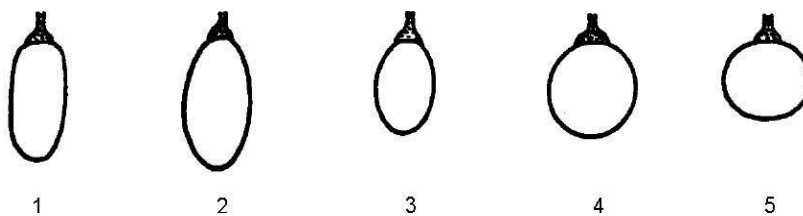


Fig. 16. Berry: shape

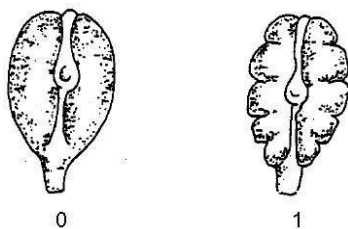


Fig. 17. Seed: transversal ridges on side

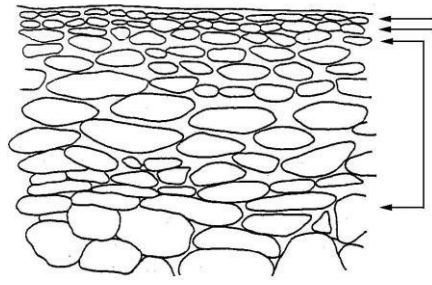


Fig. 18. Berry: thickness of skin