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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

EUCALYPTUS L'Hér. *

UPOV Code: EUCAL

(Sub-genus *Symphyomyrtus)*
(Sections *Transversaria*, *Maidenaria*, *Exsertaria*)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Brazil and China

to be considered by the

Technical Committee at its forty-seventh session,
to be held in Geneva from April 4 to 6, 2011

Alternative Names:*

Botanical Name	*English*	*French*	*German*	*Spanish*
Eucalyptus L'Hér. (Sub-genus *Symphyomyrtus*) (Sections *Transversaria*, *Maidenaria*, *Exsertaria*)	Eucalyptus	Eucalyptus	Eukalyptus	Eucalipto

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of the species of the sections *Transversaria, Maidenaria* and *Exsertaria* of the sub-genus *Symphyomyrtus* of the genus *Eucalyptus* L'Hér..

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of young plants, 4 to 6 months old.

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

7 plants.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

3.1.1 The minimum duration of tests should normally be a single growing cycle.

3.1.2 The growing cycle is considered to be the period ranging from the beginning of active vegetative growth, continuing through active vegetative growth and concluding with fruiting. The growing cycle would be at least 68 months.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

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

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 7 plants.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 5 plants or parts taken from each of 5 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of

Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness."

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 7 plants, one off-type is allowed.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

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

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Leaf: petiole (characteristic 1)
(b) Leaf: waxiness of upper side (characteristic 10)
(c) Primary branch: type of insertion in main stem (characteristic 22)
(d) Flower type (characteristic 42)
(e) Only varieties with flowering type: umbel: number of buds (characteristic 43)
(f) Fruit: shape (characteristic 50)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

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

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

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

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a)-(d) See Explanations on the Table of Characteristics in Chapter 8.1
(+) See Explanations on the Table of Characteristics in Chapter 8.2

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*) (+)	**VG**	**Leaf: petiole**	**Feuille : pétiole**	**Blatt: Blattstiel**	**Hoja: peciolo**		
		To be checked					
QL	**(a)**	absent	absent	fehlend	ausente	To be provided	1
		present	présent	vorhanden	presente	To be provided	9
2. (*) (+)	**VG**	**Only varieties without petiole: Leaf: attachment**	**Uniquement les variétés sans pétiole : Feuille : attache**	**Nur Sorten ohne Blattstiel:Blatt: Ansatzstelle**	**Sólo en variedades sin peciolo: Hoja: base**		
PQ	**(a)**	connate	connée	verwachsen	connada		1
		amplexicaul	amplexicaule	stengelumfassend	amplexical		2
		decurrent	décursive	herablaufend	decurrente		3
3. (*) (+)	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(a)**	short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
		long	long	lang	largo		7
4. (*)	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(a)**	narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
		broad	large	breit	ancho		7
5. (*)	**VG/ MS**	**Leaf blade: ratio length/width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación entre la longitud y la anchura**		
QN	**(a)**	slightly elongated	légèrement allongé	leicht langgezogen	ligeramente alargada		3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada		5
		very elongated	très allongé	stark langgezogen	muy alargada		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	**VG**	**Leaf blade: position of broadest part**	**Limbe : position de la partie la plus large**	**Blattspreite: Position der breitesten Stelle**	**Limbo: posición de la parte más ancha**		
PQ	**(a)**	towards base	vers la base	zur Basis hin	hacia la base		1
		at middle	au milieu	in der Mitte	central		2
		towards top	vers le sommet	zur Spitze hin	hacia la parte superior		3
7. (*) (+)	**VG**	**Leaf blade: shape of base**	**Limbe : forme de la base**	**Blattspreite: Form der Basis**	**Limbo: forma de la base**		
PQ	**(a)**	sagittate	sagittée	pfeilspitzenförmig	sagitada		1
		hastate	hastée	spiessförmig	hastada		2
		auriculate	auriculée	geöhrt	auriculada		3
		cordate	cordiforme	herzförmig	cordada		4
		obtuse	obtuse	stumpf	obtusa		5
		cuneate	cunéiforme	keilförmig	cuneada		6
		attenuate	effilée	verjüngt	atenuada		7
		oblique	oblique	schräg abstehend	oblicua		8
8. (*) (+)	**VG**	**Leaf blade: shape of apex excluding tip**	**Limbe : forme du sommet (pointe exclue)**	**Blattspreite: Form des Scheitels ohne Spitze**	**Limbo: forma del ápice excluido el extremo**		
PQ		acute	aigu	spitz	agudo		1
		obtuse	obtus	stumpf	obtuso		2
		rounded	arrondi	abgerundet	redondeado		3
		obcordate	obcordiforme	verkehrt herzförmig	obcordado		4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
9. (*) (+)	**VG**	**Leaf blade: differentiated tip**	**Limbe : extrémité différenciée**	**Blattspreite: differenzierte Spitze**	**Limbo: extremo diferenciado**		
PQ	**(a)**	none	aucune	keine	ninguno		1
		apiculate	apiculée	fein zugespitzt	apiculado		2
		acuminate	acuminée	zugespitzt	acuminado		3
		cirrhous	en forme de vrille	rankenförmig	cirriforme		4
		mucronate	mucronée	mit kurzer aufgesetzter Spitze	mucronado		5
		aristate	aristée	begrannt	aristado		6
10. (*)	**VG**	**Leaf: waxiness of upper side**	**Feuille : pruine de la face supérieure**	**Blatt: Wachsschicht der Oberseite**	**Hoja: pruína del haz**		
QN	**(a)**	absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		medium	moyenne	mittel	media		2
		strong	forte	stark	fuerte		3
11. (*)	**VG**	**Leaf: anthocyanin coloration**	**Feuille : pigmentation anthocyanique**	**Blatt: Anthocyanfärbung**	**Hoja: pigmentación antociánica**		
QN	**(a)**	absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	SEAGR46, SEAGR47, SUZBA9318	1
		weak	faible	gering	débil	AEC 1528	3
		medium	moyenne	mittel	media	IPB2, VT01	5
		strong	forte	stark	fuerte		7
		very strong	très forte	sehr stark	muy fuerte		9
12. (*) (+)	**VG**	**Leaf: petiole**	**Feuille : pétiole**	**Blatt: Blattstiel**	**Hoja: peciolo**		
QN	**(b)**	absent or short	absent ou court	fehlend oder sehr kurz	ausente o corto		1
		medium	moyen	mittel	medio		2
		long	long	lang	largo		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
13.	**VG**	**Leaf blade: attitude**	**Limbe : port**	**Blattspreite: Stellung**	**Limbo: porte**		
(+)							
PQ	**(b)**	upwards	dressé	aufwärts gerichtet	ascendente		1
		horizontal	horizontal	waagerecht	horizontal		2
		downwards	retombant	abwärts gerichtet	descendente		3
14. **(*)** **(+)**	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(b)**	short	court	kurz	corto		3
		medium	moyen	mittel	medio		5
		long	long	lang	largo		7
15. **(*)**	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(b)**	narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
		broad	large	breit	ancho		7
16. **(*)**	**VG/ MS**	**Leaf blade: ratio length/width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación entre la longitud y la anchura**		
QN	**(b)**	slightly elongated	légèrement allongé	leicht langgezogen	ligeramente alargada		3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada		5
		very elongated	très allongé	stark langgezogen	muy alargada		7
17. **(*)**	**VG**	**Leaf blade: position of broadest part**	**Limbe : position de la partie la plus large**	**Blattspreite: Position der breitesten Stelle**	**Limbo: posición de la parte más ancha**		
PQ	**(b)**	towards base	vers la base	zur Basis hin	hacia la base		1
		at middle	au milieu	in der Mitte	central		2
		towards top	vers le sommet	zur Spitze hin	hacia la parte superior		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18. (*) (+)	**VG**	**Leaf blade: shape of base**	**Limbe : forme de la base**	**Blattspreite: Form der Basis**	**Limbo: forma de la base**		
PQ	**(b)**	sagittate	sagittée	pfeilspitzenförmig	sagitada		1
		hastate	hastée	spiessförmig	hastada		2
		auriculate	auriculée	geöhrt	auriculada		3
		cordate	cordiforme	herzförmig	cordada		4
		obtuse	obtuse	stumpf	obtusa		5
		cuneate	cunéiforme	keilförmig	cuneada		6
		attenuate	effilée	verjüngt	atenuada		7
		oblique	oblique	schräg abstehend	oblicua		8
19. (*) (+)	**VG**	**Leaf blade: shape of apex excluding tip**	**Limbe : forme du sommet (pointe exclue)**	**Blattspreite: Form des Scheitels ohne Spitze**	**Limbo: forma del ápice excluido el extremo**		
PQ	**(b)**	acute	aiguë	spitz	agudo		1
		obtuse	obtuse	stumpf	obtuso		2
		rounded	arrondie	abgerundet	redondeado		3
		obcordate	obcordiforme	verkehrt herzförmig	obcordado		4
20. (*) (+)	**VG**	**Leaf blade: differentiated tip**	**Limbe : extrémité différenciée**	**Blattspreite: differenzierte Spitze**	**Limbo: extremo diferenciado**		
PQ	**(b)**	none	aucune	keine	ninguno		1
		apiculate	apiculée	fein zugespitzt	apiculado		2
		acuminate	acuminée	zugespitzt	acuminado		3
		cirrhous	en forme de vrille	rankenförmig	cirriforme		4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21. (*)	**VG**	**Leaf: waxiness of upper side**	**Feuille : pruine de la face supérieure**	**Blatt: Wachsschicht der Oberseite**	**Hoja: pruína del haz**		
QN	**(b)**	absent or weak	absente ou faible	fehlend oder gering	ausente o débil	IPB5, SEAGR47, SUZSP0628, SUZBA9318	1
		medium	moyenne	mittel	media	ARA6011, ARA6061, ARA11097	2
		strong	forte	stark	fuerte	ARA1967, VT01	3
22. (*) (+)	**VG**	**Primary branch: type of insertion in main stem** To check whether to be deleted	**Rameau primaire : type d'insertion dans la tige principale**	**Primärast: Typ des Ansatzes im Hauptstamm**	**Rama primaria: tipo de inserción en el tallo principal**		
QL	**(b)**	inverted "V"	inversée en "V"	verkehrtes „V"	en "V" invertida		1
		spherical	sphérique	kugelförmig	esférica		2
23. (+)	**VG**	**Branch: attitude**	**Rameau : port**	**Zweig: Stellung**	**Rama: porte**		
QN	**(a)**	upward	dressé	aufwärts gerichtet	ascendente		1
		semi-upward	demi-dressé	halbaufwärts gerichtet	semiascendente		2
		horizontal	horizontal	waagerecht	horizontal		3
24. (*) (+)	**VG**	**Trunk: rhytidome**	**Tronc : rhytidome**	**Stamm: Rhytidom**	**Tronco: ritidoma**		
QL	**(c)**	absent	absent	fehlend	ausente		1
		present	présent	vorhanden	presente		9
25. (+)	**VG**	**Trunk: main color of rhytidome** To check whether more states needed	**Tronc : couleur principale du rhytidome**	**Stamm: Hauptfarbe des Rhytidoms**	**Tronco: color principal del ritidoma**		
PQ	**(d)**	green	vert	grün	verde		1
		grey	gris	grau	gris		2
		brown	brun	braun	marrón		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26. (+)	**VG**	**Trunk: main color excluding rhytidome**	**Tronc : couleur principale (rhytidome exclu)**	**Stamm: Hauptfarbe ohne Rhytidom**	**Tronco: color principal excluido el ritidoma**		
PQ	**(d)**	brownish white	blanc brunâtre	bräunlichweiß	blanco parduzco		1
		green	vert	grün	verde		2
		bluish green	vert bleuâtre	bläulichgrün	verde azulado		3
		grey	gris	grau	gris		4
		brown	brun	braun	marrón		5
27.	**VG**	**Trunk: waxiness (excluding rhytidome)**	**Tronc : pruine (rhytidome exclu)**	**Stamm: Wachsschicht (ohne Rhytidom)**	**Tronco: pruína (excluido el ritidoma)**		
QL	**(b)**	absent	absente	fehlend	ausente		1
		present	présente	vorhanden	presente		9
28. (*) (+)	**VG**	**Leaf: petiole**	**Feuille : pétiole**	**Blatt: Blattstiel**	**Hoja: peciolo**		
QL	**(c)**	absent	absent	fehlend	ausente		1
		present	présent	vorhanden	presente		9
29.	**VG**	**Leaf: attitude**	**Feuille : port**	**Blatt: Stellung**	**Hoja: porte**		
(+)							
PQ	**(c)**	upwards	vers le haut	aufwärts gerichtet	ascendente		1
		horizontal	horizontal	waagerecht	horizontal		2
		downwards	vers le bas	abwärts gerichtet	descendente		3
30. (*) (+)	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(c)**	short	court	kurz	corto		3
		medium	moyen	mittel	media		5
		long	long	lang	larga		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31. (*) (+)	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(c)**	narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
		broad	large	breit	ancho		7
32. (*)	**VG/ MS**	**Leaf blade: ratio length/width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación entre la longitud y la anchura**		
QN	**(c)**	slightly elongated	légèrement allongé	leicht langgezogen	ligeramente alargada		3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada		5
		very elongated	très allongé	stark langgezogen	muy alargada		7
33.	**VG**	**Leaf blade: position of broadest part**	**Limbe : position de la partie la plus large**	**Blattspreite: Position der breitesten Stelle**	**Limbo: posición de la parte más ancha**		
QN	**(c)**	towards base	vers la base	zur Basis hin	hacia la base		1
		at middle	au milieu	in der Mitte	central		2
		towards top	vers le sommet	zur Spitze hin	hacia la parte superior		3
34. (*) (+)	**VG**	**Leaf blade: shape of base**	**Limbe : forme de la base**	**Blattspreite: Form der Basis**	**Limbo: forma de la base**		
PQ	**(c)**	sagittate	sagittée	pfeilspitzenförmig	sagitada		1
		hastate	hastée	spiessförmig	hastada		2
		auriculate	auriculée	geöhrt	auriculada		3
		cordate	cordiforme	herzförmig	cordada		4
		obtuse	obtuse	stumpf	obtusa		5
		cuneate	cunéiforme	keilförmig	cuneada		6
		attenuate	effilée	verjüngt	atenuada		7
		oblique	oblique	schräg abstehend	oblicua		8

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
35. (*) (+)	**VG**	**Leaf blade: shape of apex excluding tip**	**Limbe : forme du sommet (pointe exclue)**	**Blattspreite: Form des Scheitels ohne Spitze**	**Limbo: forma del ápice excluido el extremo**		
PQ	**(c)**	acute	aiguë	spitz	agudo		1
		obtuse	obtuse	stumpf	obtuso		2
		rounded	arrondie	abgerundet	redondeado		3
		obcordate	obcordiforme	verkehrt herzförmig	obcordado		4
36. (*) (+)	**VG**	**Leaf blade: differentiated tip**	**Limbe : extrémité différenciée**	**Blattspreite: differenzierte Spitze**	**Limbo: extremo diferenciado**		
PQ	**(c)**	none	aucune	keine	ninguno		1
		apiculate	apiculée	fein zugespitzt	apiculado		2
		acuminate	acuminée	zugespitzt	acuminado		3
		cirrhous	en forme de vrille	rankenförmig	cirriforme		4
		mucronate	mucronée	mit kurzer aufgesetzter Spitze	mucronado		5
		aristate	aristée	begrannt	aristado		6
37.	**VG**	**Leaf: intensity of color of upper side in relation to lower side**	**Feuille :intensité de la couleur de la face supérieure par rapport à la face inférieure**	**Blatt: Intensität der Farbe der Oberseite im Vergleich zur Unterseite**	**Hoja: intensidad del color del haz en relación con el envés**		
QN	**(c)**	same or slightly darker	même couleur ou légèrement plus foncée	gleich oder leicht dunkler	del mismo color o ligeramente más oscuro		1
		moderately darker	modérément plus foncée	mäßig dunkler	moderadamente más oscuro		2
		much darker	beaucoup plus foncée	viel dunkler	más oscuro		3
38. (*)	**VG**	**Leaf: waxiness of upper side**	**Feuille : pruine de la face supérieure**	**Blatt: Wachsschicht der Oberseite**	**Hoja: pruína del haz**		
QN	**(c)**	absent or weak	absente ou faible	fehlend oder gering	ausente o débil		1
		medium	moyenne	mittel	medio		2
		strong	forte	stark	fuerte		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
39. (*) (+)	**VG**	**Leaf: petiole**	**Feuille pétiole**	**Blatt: Blattstiel**	**Hoja: peciolo**		
QN	**(d)**	absent or short	absent ou court	fehlend oder sehr kurz	ausente o corto		1
		medium	moyen	mittel	medio		2
		long	long	lang	largo		3
40. (*) (+)	**VG**	**Primary branch: type of insertion in main stem on lower third crow** To be checked whether to be deleted	**Rameau primaire : type d'insertion dans la tige principale au tiers inférieur de la couronne**	**Primärast: Typ des Ansatzes im Hauptstamm im unteren Drittel**	**Rama primaria: tipo de inserción en el tallo principal en el tercio inferior**		
QL	**(d)**	inverted "V"	inversée en "V"	verkehrtes „V"	en "V" invertida		1
		spherical	sphérique	kugelförmig	esférica		2
41. (*)	**MG**	**Tree: time of first flowering**	**Arbre : époque de la première floraison**	**Baum: Zeitpunkt der ersten Blüte**	**Árbol: época de la primera floración**		
QN		early	précoce	früh	temprana	IPB1, IPB2, IPB5, SEAGR46, SUZSP0530, VT01	1
		medium	moyenne	mittel	media	ARA6011, ARA6061	2
		late	tardive	spät	tardía	VT04	3
42. (+)	**VG**	**Flower type**	**Type de fleurs**	**Blütentyp**	**Tipo de flor**		
QL		solitary	isolées	einzeln	aislada		1
		umbel	ombelle	Dolde	umbela		2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
43.	**MG**	**Only varieties with flowering type: umbel: number of buds**	**Uniquement les variétés à type de fleurs : ombelle : nombre de bourgeons**	**Nur Sorten mit Blütentyp: Dolde: Anzahl der Knospen**	**Sólo las variedades con floración: umbela: número de yemas**		
QL		three	trois	drei	tres		1
		seven	sept	seven	siete		2
		nine	neuf	neun	nueve		3
		eleven	onze	elf	once		4
		> eleven	> onze	> elf	> once		5
44. (*)	**VG/ MS**	**Only varieties with flowering type: umbel: Peduncle: length**	**Uniquement les variétés à type de fleurs : ombelle : pédoncule : longueur**	**Nur Sorten mit Blütentyp: Dolde: Blütenstiel: Länge**	**Sólo las variedades con floración: umbela: Pedúnculo: longitud**		
QN		short	court	kurz	corto		3
		medium	moyen	mittel	medio	AEC 1528, ARA6061	5
		long	long	lang	largo	IPB5, SEAGR47, SUZBA9318	7
45. (*) (+)	**VG**	**Umbel: shape of peduncle in cross section** To check whether QL	**Ombelle : forme du pédoncule en section transversale**	**Dolde: Form des Blütenstiels im Querschnitt**	**Umbela: forma del pedúnculo en la sección transversal**		
QL		rounded	arrondi	abgerundet	redondeada		1
		flattened	aplati	abgeflacht	aplanada		2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
46. (*) (+)	**VG**	**Flower bud: shape of operculum**	**Bouton floral : forme de l'opercule**	**Blütenknospe: Form des Operculums**	**Botón floral: forma del opérculo**		
PQ		rostrate	rostré	hakenförmig	rostrado		1
		hemispherical	hémisphérique	halbkugelförmig	hemisférico		2
		hemispherical apiculate	hémisphérique apiculé	halbkugelförmig fein zugespitzt	apiculado hemisférico		3
		flattened with a prominent pointed tip	aplati avec une extrémité pointue proéminente	abgeflacht mit vorstehender spitzer Spitze	aplanado con extremo puntiagudo prominente		4
		horn-shaped	en corne	hornförmig	en forma de cuerno		5
		elongated	allongé	langgezogen	alargado		6
		conical	conique	konisch	cónico		7
47. (*) (+)	**VG**	**Fruit: peduncle/pedicel** To check	**Fruit : pédoncule/pédicelle**	**Frucht: Blütenstiel/Blattstiel**	**Fruto: pedúnculo/pedicelo**		
QL		absent	absent	fehlend	ausente		1
		present	présent	vorhanden	presente		9
48. (*) (+)	**VG**	**Fruit pedicel: length relative to calyx**	**Pédicelle du fruit : longueur par rapport au calice**	**Fruchtstiel: Länge im Vergleich zum Kelch**	**Pedicelo del fruto: longitud en relación con el cáliz**		
QN		shorter	plus court	kürzer	más corto		1
		similar	similaire	gleich	similar		2
		longer	plus long	länger	más largo		3
49. (*)	**MG**	**Fruit: width**	**Fruit : largeur**	**Frucht: Breite**	**Fruto: anchura**		
QN		narrow	étroit	schmal	estrecho		3
		medium	moyen	mittel	medio		5
		broad	large	breit	ancho		7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
50. (*) (+)	**VG**	**Fruit: shape**	**Fruit : forme**	**Frucht: Form**	**Fruto: forma**		
PQ		conical	conique	konisch	cónico		1
		cylindrical	cylindrique	zylindrisch	cilíndrico		2
		ovoid	ovoïde	eiförmig	ovoide		3
		urceolate	urcéolé	urnenförmig	urceolado		4
		globose	globuleux	kugelförmig	globoso		5
		pyriform	pyriforme	birnenförmig	piriforme		6
		campanulate	campanulé	glockenförmig	acampanado		7
		hemispherical	hémisphérique	halbkugelförmig	hemisférico		8
51. (*) (+)	**VG**	**Fruit: texture of surface**	**Fruit : texture de la surface**	**Frucht: Beschaffenheit der Oberfläche**	**Fruto: textura de la superficie**		
QL		smooth	lisse	glatt	lisa		1
		rough	rugueux	rauh	rugosa		2
52. (*) (+)	**VG**	**Fruit: disc**	**Fruit : disque**	**Frucht: Scheibe**	**Fruto: disco**		
		To check whether QN					
QN		descending	retombant	herablaufend	descendente		1
		same level	au même niveau	auf gleicher Höhe	al mismo nivel		2
		ascending	redressé	nach oben abstehend	orientado hacia arriba		3
53. (*) (+)	**VG**	**Fruit: position of valve**	**Fruit : position de la valve**	**Frucht: Position des Ventils**	**Fruto: posición de la valva**		
		To check whether QN					
QN		sunken	creuse	eingesunken	hundida		1
		rim level	au niveau du bord	auf Randhöhe	nivel del borde		2
		exserted	saillante	hervorstehend	exerta		3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
54. **(+)**	**VG**	**Only for varieties with rhytidome: Trunk: texture of basal rhytidome**	**Uniquement les variétés à rhytidome : Tronc : texture du rhytidome basal**	**Nur Sorten mit Rhytidom: Stamm: Beschaffenheit des unteren Rhytidom**	**Sólo para las variedades con ritidoma: Tronco: textura del ritidoma basal**		
PQ	**(d)**	rough/compact	rugueux/compact	rau/kompakt	rugoso/compacto		1
		rough/fibrous	rugueux/fibreux	rau/fibrös	rugoso/fibroso		2
55. **(*)** **(+)**	**VG**	**Only for varieties with rhytidome: Trunk: extension of rhytidome**	**Uniquement les variétés à rhytidome : Tronc : extension du rhytidome**	**Nur Sorten mit Rhytidom: Stamm: Ausdehnung des Rhytidom**	**Sólo para las variedades con ritidoma: Tronco: extensión del ritidoma**		
QN		up to lower third	jusqu'au tiers inférieur	bis zum unteren Drittel	hasta el tercio inferior		1
		up to mid-third	jusqu'au tiers moyen	bis zum mittleren Drittel	hasta el tercio medio		2
		up to upper third	jusqu'au tiers supérieur	bis zum oberen Drittel	hasta el tercio superior		3
56. **(+)**	**MS**	**Trunk: density of wood**	**Tronc : densité du bois**	**Stamm: Dichte des Holzes**	**Tronco: densidad de la madera**		
QN	**(d)**	low	basse	gering	baja		3
		medium	moyenne	mittel	media		5
		high	élevée	hoch	alta		7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

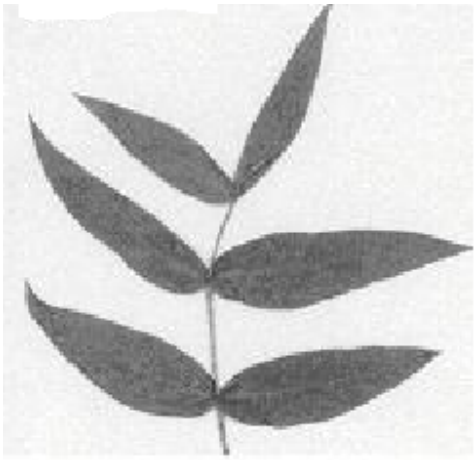
Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) All observations should be made on 10 to 12 month old trees.
(b) All observations should be made on 20 to 22 month old trees.
(c) All observations should be made on 42 to 44 month old trees.
(d) All observations should be made on 64 to 66 month old trees.

Observations on the leaf should be made on leaves located on terminal shoots in active growth.

8.2 Explanations for individual characteristics

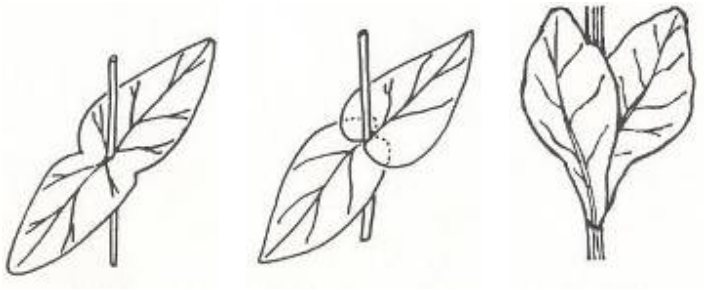
Ad. 1: Leaf: petiole



1
absent

9
present

Ad. 2: Only varieties without petiole: Leaf: attachment

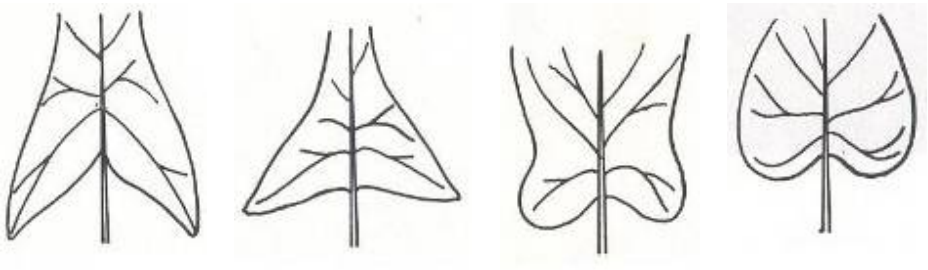


1 connate | 2 amplexicaul | 3 decurrent

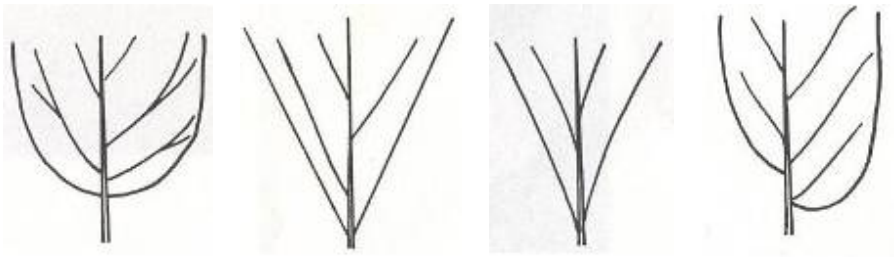
Ad. 3, 14, 30: Leaf blade: length

The length should be evaluated on the biggest leaf of a branch located in the beginning of the upper third of the crown in 3 year old plants.

Ad. 7, 18, 34: Leaf blade: shape of base



1 sagittate | 2 hastate | 3 auriculate | 4 cordate



5 obtuse | 6 cuneate | 7 attenuate | 8 oblique

Ad. 8, 19, 35: Leaf blade: shape of apex excluding tip

1
acute

2
obtuse

To be provided

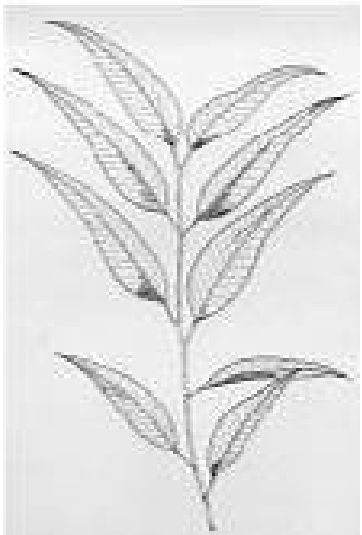
3
rounded

4
obcordate

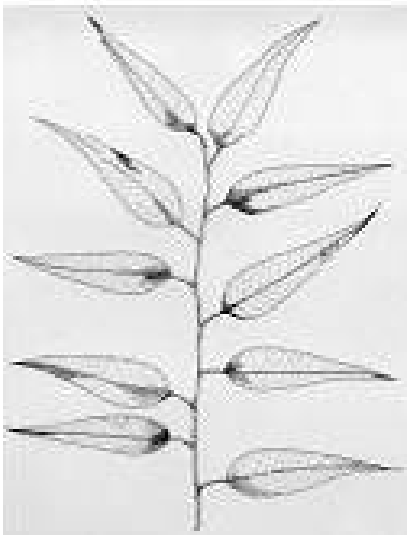
Ad. 9, 20, 36: Leaf blade: differentiated tip
Amended illustration to be provided

Ad. 13, 29: Leaf blade: attitude

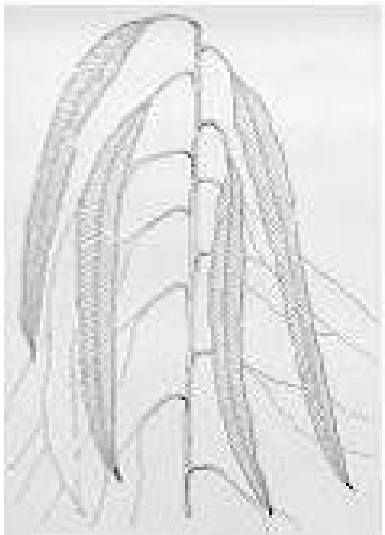
This characteristic should be observed with the branch positioned vertically.



1
upwards



2
horizontal



3
downwards

Ad. 22: Primary branch: type of insertion in main stem
Ad. 40: Primary branch: type of insertion in main stem on lower third crow

1
inverted “V”

2
spherical

Ad. 23: Branch: attitude

1
upward

2
semi-upward

3
horizontal

Ad. 24: Trunk: rhytidome
Illustration to be provided

Ad. 25: Trunk: main color of rhytidome
Illustration to be provided

Ad. 26: Trunk: main color excluding rhytidome
Illustration to be provided

As a tree grows in diameter, the bark tissues are stretched and eventually crack. A new phellogen is then originated in the phloem, and the tissues outside this new layer die and dry out, thus forming part of the outer rough bark of the tree. This bark is known as the rhytidome. In the strictest sense, the rhytidome is the true bark of the tree, as the inner soft tissue of the bark is actually the phloem.

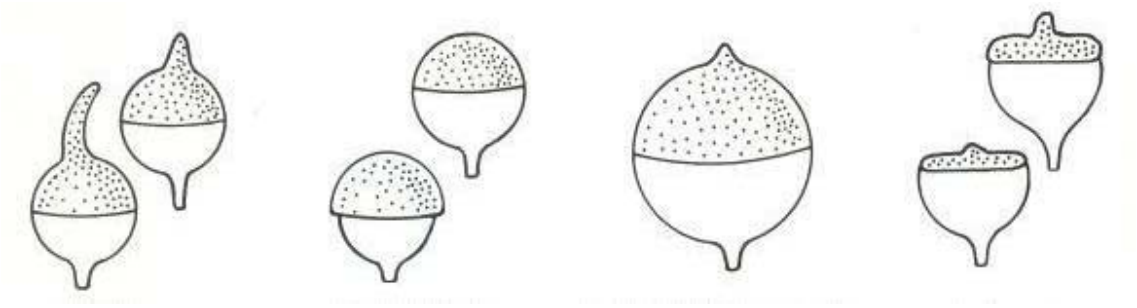
Ad. 31: Leaf blade: width

This evaluation should be performed on the same leaf selected for characteristic 28. The observation should be made in the widest part of the blade.

Ad. 42: Flower type
Illustration to be provided

Ad. 45: Umbel: shape of peduncle in cross section
Illustration to be provided

Ad. 46: Flower bud: shape of operculum

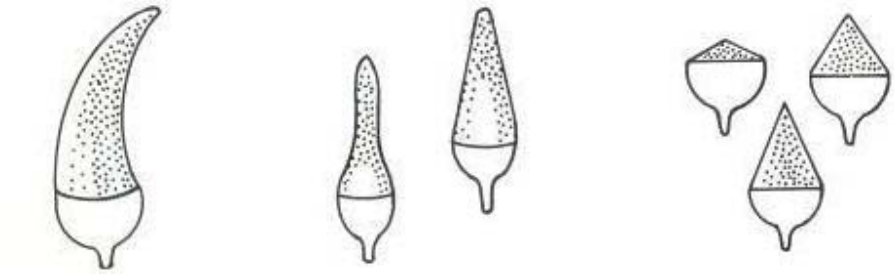


1
rostrate

2
hemispherical

3
hemispherical
apiculate

4
flattened with a prominent
pointed tip



5
horn-shaped

6
elongated

7
conical

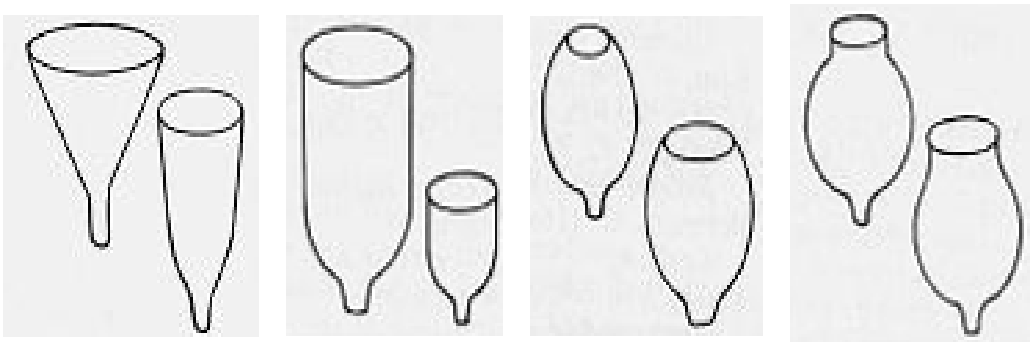
Ad. 47: Fruit: peduncle/pedicel

1
present

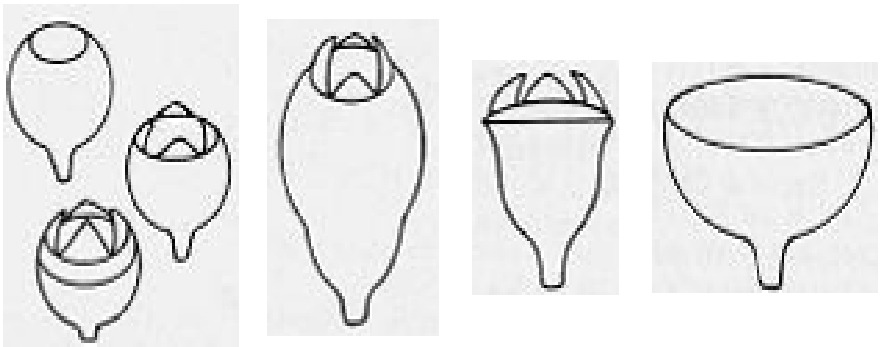
9
absent

Ad. 48: Fruit pedicel: length relative to calyx
Illustration to be provided

Ad. 50: Fruit: shape



1 conical | 2 cylindrical | 3 ovoid | 4 urceolate

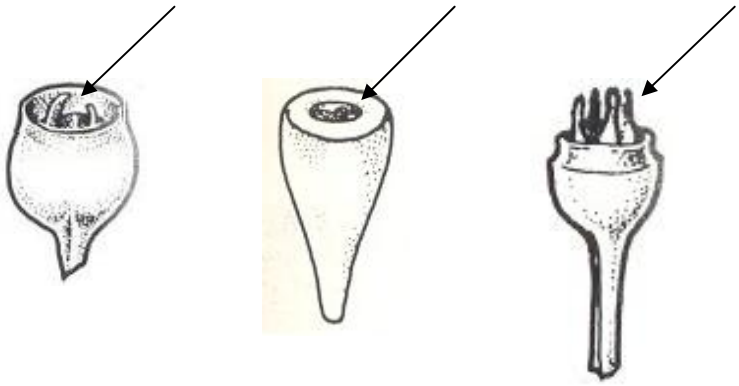


5 globose | 6 pyriform | 7 campanulate | 8 hemispherical

Ad. 51: Fruit: texture of surface

The texture of the fruit should be observed during current year fruitage.

Ad. 52: Fruit: disc



1 descending | 2 same level | 3 ascending

Ad. 53: Fruit: position of valve

1	2	3
sunken	rim level	exserted

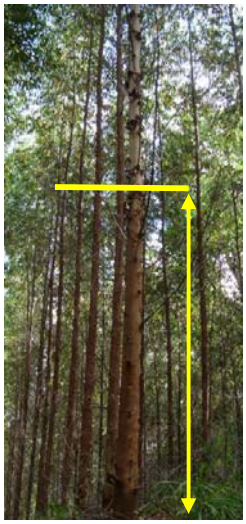
Ad. 54: Only for varieties with rhytidome: Trunk: texture of basal rhytidome

To explain where to observe

1	2
rough/compact	rough/fibrous

Ad. 55: Only varieties with rhytidome: Trunk: extension of rhytidome

1
up to lower third



2
up to medium third

3
up to upper third

Ad. 56: Trunk: density of wood

The density must be evaluated based on the wood volume at the highest level of humidity, through the hydrostatic balance methodology, according to TAPPI Norm #T258 om-94 (Technical Association of Pulp and Paper Industry).

9. Literature

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Goes, E., 1985: Os Eucaliptos. Lisboa, PT, 372 p.

Penfold, A.R. & Willis, J.L., 1961: The Eucalypts. New York, US, 551p.

Drawings by: Anna Júlia Passold, Israel Gomes Vieira and Joel F. Penteado Jr.

10. Technical Questionnaire

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

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 Genus	*Eucalyptus* L'Hér.
1.2 Sub-genus	*Symphyomyrtus*
1.3 Section	Transversaria – Exsertaria - Maidenaria
1.4 Species (please complete)	

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	

Breeder (if different from applicant)

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…) x (……..……..…)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…) x (……..……..…)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]”
(please provide details)

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]
(b) *in vitro* propagation [ ]
(c) other (state method) [ ]

4.2.2 Other [ ]
(please provide details)

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Leaf: petiole**		
	absent	To be provided	1 [ ]
	present	To be provided	9 [ ]
5.2 (22)	**Primary branch: type of insertion in main stem**		
	inverted “V”		1 [ ]
	spherical		2 [ ]
5.3 (43)	**Only varieties with flowering type: umbel: number of buds**		
	three		1 [ ]
	seven		2 [ ]
	nine		3 [ ]
	eleven		4 [ ]
	> eleven		5 [ ]
5.4 (50)	**Fruit: shape**		
	conical		1 [ ]
	cylindrical		2 [ ]
	ovoid		3 [ ]
	urceolate		4 [ ]
	globose		5 [ ]
	pyriform		6 [ ]
	campanulate		7 [ ]
	hemispherical		8 [ ]

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	Characteristics	Example Varieties	Note
5.5 (54)	**<u>Only for varieties with rhytidome</u>: Trunk: texture of basal rythidome**		
	rough/compact		1 [ ]
	rough/fibrous		2 [ ]

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6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*[insert example]*	*[insert example]*	*[insert example]*

Comments:

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

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

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

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]