


UPOV
TG/254/1**ORIGINAL:** English**DATE:** 2009-04-01

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS
GENEVA

RUBBER

UPOV Code: HEVEA

Hevea Aubl.

*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Hevea</i> Aubl.	Rubber	Hevea	Parakautschukbaum	Árbol del caucho, Hule

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 *Hevea* Aubl.

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 a brown dormant bud grafted on a rootstock to be specified by the authority.

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

10 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 seed maturity. The growing cycle will be at least 5 years.

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*

3.3.1 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.

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a letter in the second column of the Table of Characteristics. The stages of development denoted by each letter are described in Chapter 8.1.

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

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 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, 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. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 3.

3.6 *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.

4.2 *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 of vegetatively propagated varieties, a population standard of 95% and an acceptance probability of at least 1% should be applied. In the case of a sample size of 7 plants, 1 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 tested, either by growing a further generation, or by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the previous 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) Trunk: curvature of axis (characteristic 15)
- (b) Trunk: diameter (characteristic 16)
- (c) Tree: beginning of winter leaf shed (characteristic 23)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

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*

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.

6.3 *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 3.3.3.

(a)-(c) 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 cluster: shape of top	Touffe de feuilles : forme du sommet	Blattbüschel: Form der Spitze	Racimo de hojas: forma de la parte superior		
PQ	(a)	acute	aiguë	spitz	aguda	RRIC 102, RRIM 600, PB 235	1
		obtuse	obtuse	stumpf	obtusa	IAN 717, TP 749	2
		round	ronde	rund	redondeada	RRIC 100	3
		flattened	étalée	abgeflacht	achatada	GT1	4
2. (*)	VG	Leaf: central leaflet shape compared to laterals	Feuille : forme de la foliole médiane par rapport aux folioles latérales	Blatt: Form des mittleren Fiederblatts im Vergleich zu den Seitenfiedern	Hoja: forma del foliolo central comparado con los laterales		
QN	(a)	same or slightly different	identique ou légèrement différente	gleich oder etwas verschieden	similar o ligeramente diferente	GT1	1
		moderately different	peu différente	mäßig verschieden	moderadamente diferente	PB 260	2
		very different	très différente	sehr verschieden	muy diferente	F 4512, FDR 5953	3
3. (*)	VG	Leaf: intensity of green color of upper side	Feuille : intensité de la couleur verte de la face supérieure	Blatt: Intensität der Grünfärbung der Oberseite	Hoja: intensidad del color verde del haz		
QN	(a)	light	claire	hell	claro	BPM 1, PB 235, RRIM 600	3
		medium	moyenne	mittel	medio	BPM 24	5
		dark	foncée	dunkel	oscuro	GT1	7
4. (*)	VG	Leaf: glossiness of upper side	Feuille : brillance de la face supérieure	Blatt: Glanz der Oberseite	Hoja: brillo del haz		
QN	(a)	absent or weak	absente ou faible	fehlend oder gering	ausente o débil	BPM 24	1
		medium	moyenne	mittel	medio	GT1, RRIM 600	2
		strong	forte	stark	fuerte	PA 31	3

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	VG	Leaf: surface texture of upper side	Feuille : texture de la surface de la face supérieure	Blatt: Textur der Oberfläche der Oberseite	Hoja: textura del superficie del haz		
QN	(a)	smooth or slightly rough	lisse ou légèrement rugueuse	glatt oder leicht rau	lisa o ligeramente rugosa	PB 235, PB 260	1
		moderately rough	peu rugueuse	mäßig rau	moderadamente rugosa	GT1, RRIM 600	2
		very rough	très rugueuse	sehr rau	muy rugosa	RRIC 101	3
6.	VG	Leaf: pubescence on veins on lower side	Feuille : pubescence sur les nervures de la face inférieure	Blatt: Behaarung an den Adern an der Unterseite	Hoja: pubescencia en las venas del envés		
QL	(a)	absent	absente	fehlend	ausente	PB 235, RRIM 600	1
		present	présente	vorhanden	presente	F 4542, RRIC 101	9
7.	VG	Leaflet blade: attitude in relation to petiole	Limbe de la foliole : port par rapport au pétiole	Fiederblattspreite: Haltung im Verhältnis zum Blattstiel	Limbo del foliolo: actitud en relación con el pecíolo		
QN	(a)	semi-erect	demi-dressé	halbaufrecht	semierecto	FDR 5788	1
	(b)	horizontal	horizontal	waagrecht	horizontal	RRIC 100	2
		semi-drooping	demi-retombant	halbhängend	semicolgante	IRCA 41, PA31	3
8.	VG	Leaflet blade: length	Limbe de la foliole : longueur	Fiederblattspreite: Länge	Limbo del foliolo: longitud		
QN	(a)	short	courte	kurz	corto	FDR 4151	3
	(b)	medium	moyenne	mittel	medio	GT1, PB 217, PB 235, RRIM 600	5
		long	longue	lang	largo	RRIC 100	7
9.	VG	Leaflet blade: position of broadest part	Limbe de la foliole : position de la partie la plus large	Fiederblattspreite: Position des breitesten Teils	Limbo del foliolo: posición de la parte más ancha		
QN	(a)	towards base	vers la base	zur Basis hin	hacia la base		1
	(b)	at middle	au milieu	in der Mitte	en el medio	PB 217, RRIM 703	2
		towards apex	vers le sommet	zur Spitze hin	hacia el ápice	RRIM 600	3

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10.	VG	Leaflet blade: axis in longitudinal section	Limbe de la foliole : axe en section longitudinale	Fiederblattspreite: Achse im Längsschnitt	Limbo del foliolo: eje en la sección longitudinal		
PQ	(a)	straight	droit	gerade	recto	BPM1	1
	(b)	convex	convexe	konvex	convexo	GT1	2
		sigmoid	sigmoïde	S-förmig	sigmoideo	PB 260	3
11.	VG	Leaflet blade: undulation of margin	Limbe de la foliole : ondulation du bord	Fiederblattspreite: Randwellung	Limbo del foliolo: ondulación del borde		
QN	(a)	absent or weak	absente ou faible	fehlend oder gering	ausente o débil	BPM 24, PB 235, RRIM 600	1
	(b)	medium	moyenne	mittel	media	GT1, PB 260, RRIC 100	2
		strong	forte	stark	fuerte	RRII5, RRII118, RRIM701	3
12.	VG	Leaflet blade: shape of base	Limbe de la foliole : forme de la base	Fiederblattspreite: Form der Basis	Limbo del foliolo: forma de la base		
PQ	(a)	attenuate	effilée	verjüngt	afilada		1
	(b)	cuneate	cunéiforme	keilförmig	cuneiforme		2
		obtuse	obtuse	stumpf	obtusa		3
13.	VG	Leaflet blade: shape of apex excluding tip	Limbe de la foliole : forme du sommet (pointe exclue)	Fiederblattspreite: Form der Spitze ohne aufgesetzte Spitze	Limbo del foliolo: forma del ápice, excluida la punta		
PQ	(a)	acute	aiguë	spitz	aguda	FDR 5332, F 4512, PB 235, RRII105	1
	(b)	obtuse	obtuse	stumpf	obtusa	FDR 5203, PB 260, RRIM 600	2
		rounded	arrondie	abgerundet	redondeada	FDR 5731	3

	English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. (*)(+)	VG	Petiole: attitude	Pétiole : port	Blattstiel: Haltung	Pecíolo: porte	
QN	semi-erect	demi-dressé	halbaufrecht	semierecto	CDC 25, GT1, RRIC 100, RRIM 600, RRIM 703	1
	horizontal	horizontal	waagrecht	horizontal	CDC 343, PB 235, PB 260	2
	semi-drooping	demi-retombant	halbhängend	semicolgante	MDX 571	3
15. (*)(+)	VG	Trunk: curvature of axis	Tronc : courbure de l'axe	Stamm: Biegung der Achse	Tronco: curvatura del eje	
QN	straight or slightly curved	droit ou légèrement courbé	gerade oder leicht gebogen	recto o ligeramente curvado	CDC 312, FDR 5788, GT1, RRIM 600	1
	moderately curved	peu courbé	mäßig gebogen	moderadamente curvado	RRII5	2
	strongly curved	très courbé	stark gebogen	fuertemente curvado	TP 875	3
16. (*)(+)	MS	Trunk: diameter	Tronc : diamètre	Stamm: Durchmesser	Tronco: diámetro	
QN	(c) small	petit	klein	pequeño	PR 107	3
	medium	moyen	mittel	medio	GT1, RRIM 600	5
	large	grand	groß	grande	CDC 312, PB 235, PB 260	7
17. (+)	VG	Trunk: main color of bark	Tronc : couleur principale de l'écorce	Stamm: Hauptfarbe der Rinde	Tronco: color principal de la corteza	
PQ	(c) reddish brown	brun rougeâtre	rötlichbraun	marrón rojizo	PB 314	1
	brown	brune	braun	marrón	PB 217, PB 312, RRIM 600	2
	grey	grise	grau	gris	PB 235	3

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18.	VG	Trunk: texture of bark	Tronc : texture de l'écorce	Stamm: Textur der Rinde	Tronco: textura de la corteza		
QN	(c)	smooth or slightly rough	lisse ou légèrement rugueuse	glatt oder leicht rauh	lisa o ligeramente rugosa	FDR 5788, PB 235	1
		moderately rough	peu rugueuse	mäßig rauh	moderadamente rugosa	GT1	2
		very rough	très rugueuse	sehr rauh	muy rugosa	CDC 308	3
19.	VG	Tree: shape	Arbre : forme	Baum: Form	Árbol: forma		
	(+)						
PQ	(c)	triangular	triangulaire	dreieckig	triangular	PB 217, PB 235, PB 260	1
		ovate	ovale	eiförmig	ovada		2
		circular	circulaire	kreisförmig	circular	PB 314	3
		oblate	aplatie	breitrund	achatada	RRIM 600	4
20.	VG	Tree: density of foliage	Arbre : densité du feuillage	Baum: Dichte des Laubes	Árbol: densidad del follaje		
	(*)						
QN	(c)	sparse	faible	locker	ralo	FDR 5788, PR 261	3
		medium	moyenne	mittel	medio	PB 260	5
		dense	forte	dicht	denso	PA 31, PB 217, PB 314	7
21.	VG	Coagulum: color of surface	Coagulum : couleur de la surface	Coagulum: Farbe der Oberfläche	Coágulo: color de la superficie		
	(*)						
	(+)						
PQ	(c)	white	blanc	weiß	blanco	GT1, PB 217, RRIM 600	1
		light yellow	jaune clair	hellgelb	amarillo claro	PB260	2
		medium yellow	jaune moyen	mittelgelb	amarillo medio		3
		dark grey	gris foncé	dunkelgrau	gris oscuro	IAN 3156, RRII 203	4
22.	VG	Tree: winter leaf shed	Arbre : défoliation hivernale	Baum: Laubfall im Winter	Árbol: defoliación invernal		
	(*)						
	(+)						
QN		absent	absent	fehlend	ausente	PA 31	1
		partial	partiel	partiell	parcial	F 4512, GT1	2
		full	total	vollständig	total	PB 260, RRIM 600	3

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23.	MG	Tree: beginning of winter leaf shed	Arbre : début de la défoliation hivernale	Baum: Beginn des Laubfalls im Winter	Árbol: comienzo de la defoliación invernal		
QN	(c)	early	précoce	früh	temprana	BPM 1, PB 260	3
		medium	moyen	mittel	media	PB 235	5
		late	tardif	spät	tardía	GT1, RRIM 600	7
24.	MS	Seed: length	Graine : longueur	Samen: Länge	Semilla: longitud		
(*)							
(+)							
QN	(c)	short	courte	kurz	corta	GT1	3
		medium	moyenne	mittel	media	RRIM 600	5
		long	longue	lang	larga	CDC 312, RRIC 100	7
25.	MS	Seed: width	Graine : largeur	Samen: Breite	Semilla: anchura		
(*)							
(+)							
QN	(c)	narrow	étroite	schmal	estrecha	GT1	1
		medium	moyenne	mittel	media	RRIM 600	2
		broad	large	breit	ancha	RRIC 100	3
26.	MS	Seed: thickness	Graine : épaisseur	Samen: Dicke	Semilla: grosor		
(*)							
(+)							
QN	(c)	thin	mince	dünn	delgada	PB 260, RRIM 600	1
		medium	moyenne	mittel	media	IRCA 317, PB 235, PB 280	2
		thick	épaisse	dick	gruesa	CDC 312, RRIC 100	3
27.	VG	Seed: shape in dorsal view	Graine : forme en vue dorsale	Samen: Form in Rückenansicht	Semilla: forma en vista dorsal		
(*)							
(+)							
PQ	(c)	elliptic	elliptique	elliptisch	elíptica	FDR 233, PB 235	1
		circular	circulaire	rund	circular	IRCA 339, RRIM 600	2
		oblong	oblongue	länglich	oblonga	FDR 18, RRII 105	3
		obovate	obovale	verkehrt eiförmig	obovada	IRCA 621, RRIM 623	4

8. Explanations on the Table of Characteristics

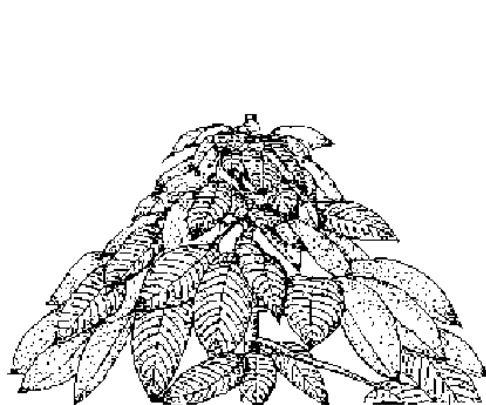
8.1 *Explanations covering several characteristics*

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

- (a) observations should be made on young plants, approximately 18 months old (last flush of mature leaves)
- (b) observation should be made on the central leaflet
- (c) observations should be made on mature trees with a fully developed trunk, at least 5 years old

8.2 *Explanations for individual characteristics*

Ad. 1: Leaf cluster: shape of top



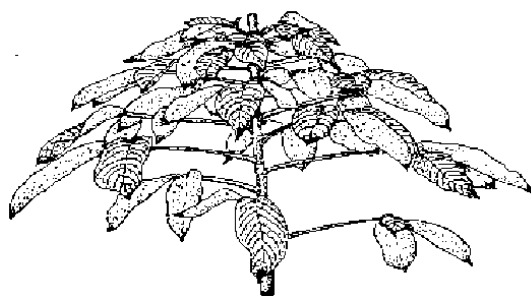
1
acute



2
obtuse

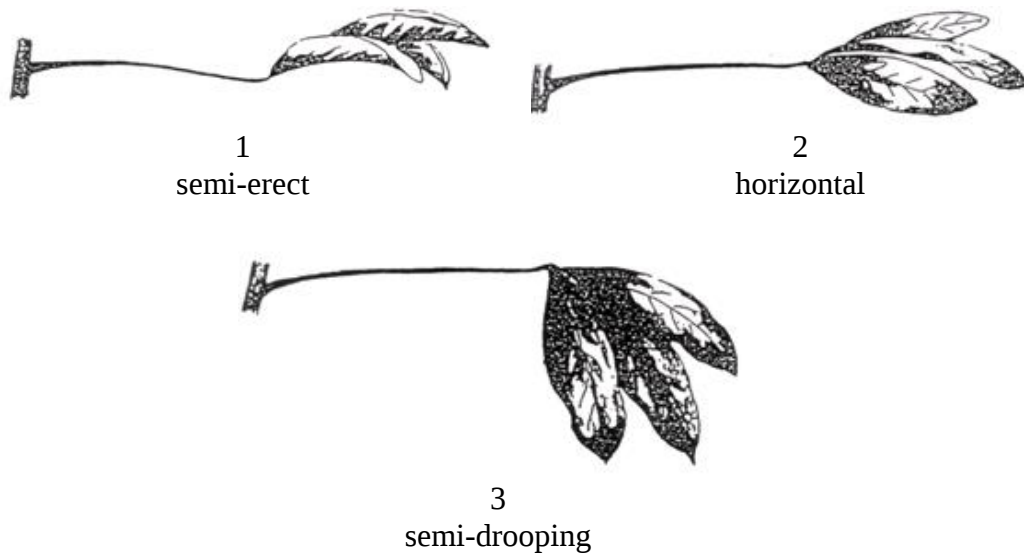


3
round

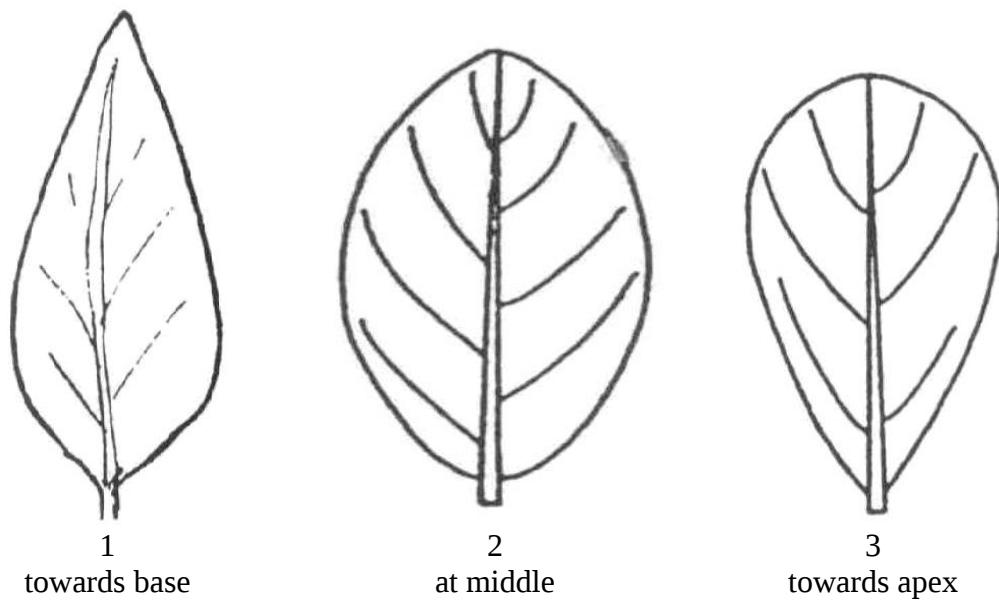


4
flattened

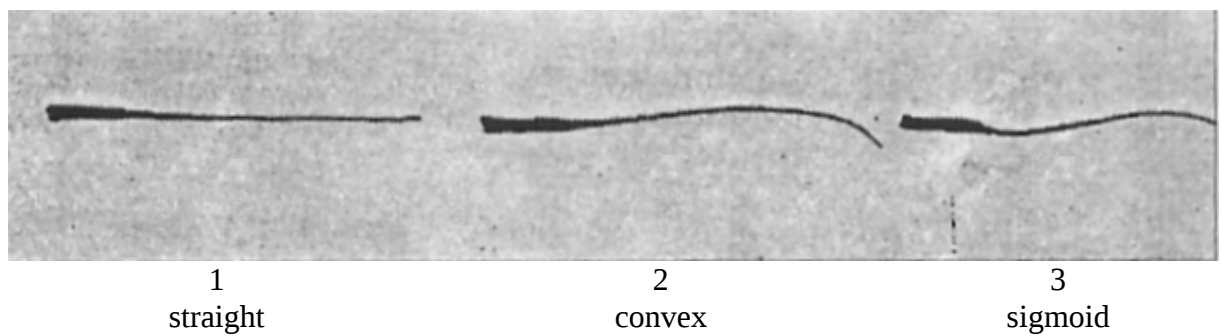
Ad. 7: Leaflet blade: attitude in relation to petiole



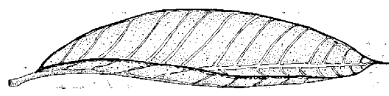
Ad. 9: Leaflet blade: position of broadest part



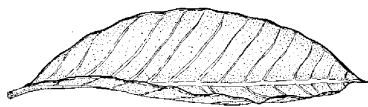
Ad. 10: Leaflet blade: axis in longitudinal section



Ad. 11: Leaflet blade: undulation of margin



1
absent or weak

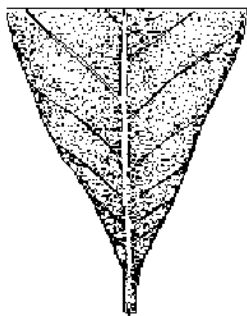


2
medium

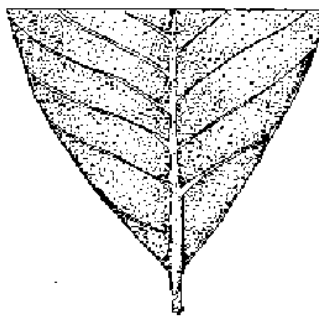


3
strong

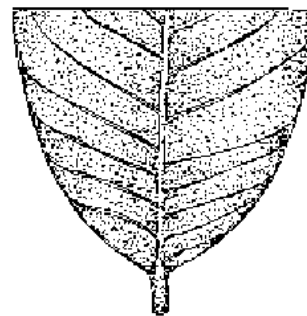
Ad. 12: Leaflet blade: shape of base



1
attenuate

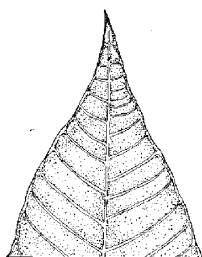


2
cuneate



3
obtuse

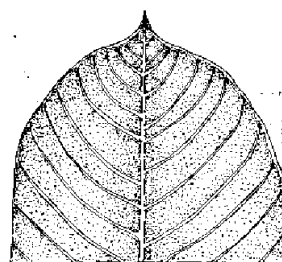
Ad. 13: Leaflet blade: shape of apex excluding tip



1
acute

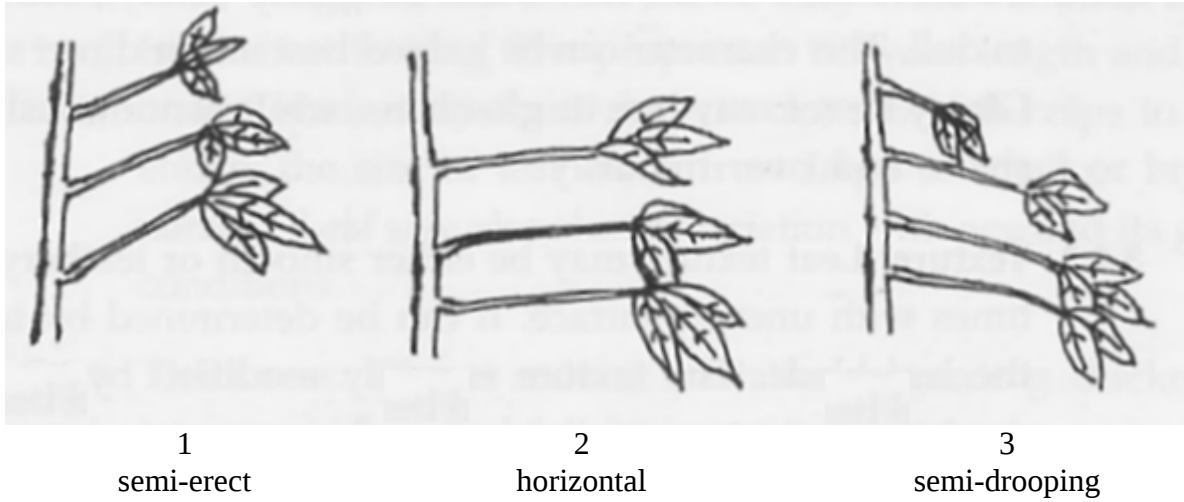


2
obtuse

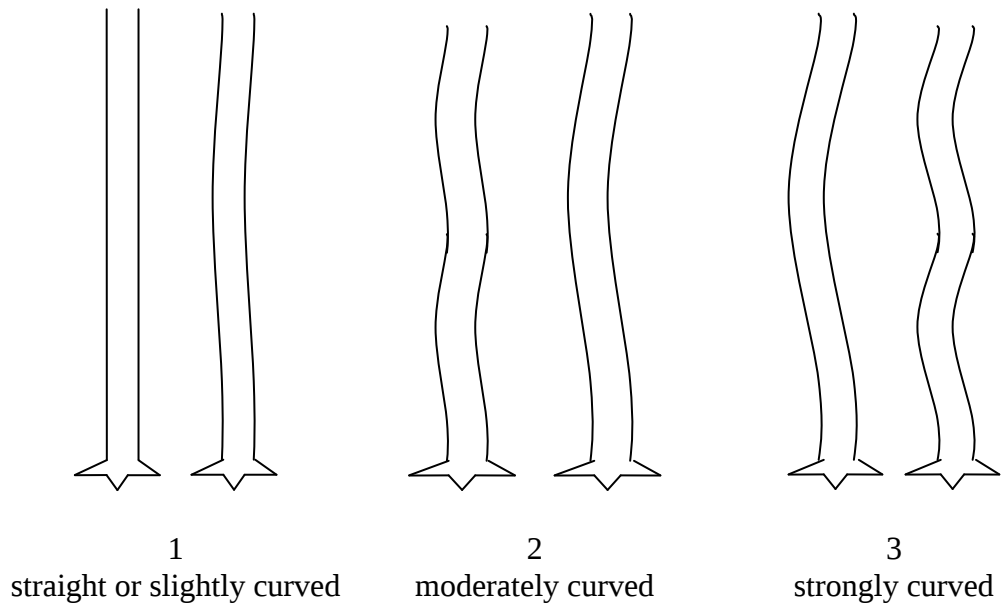


3
rounded

Ad. 14: Petiole: attitude



Ad. 15: Trunk: curvature of axis



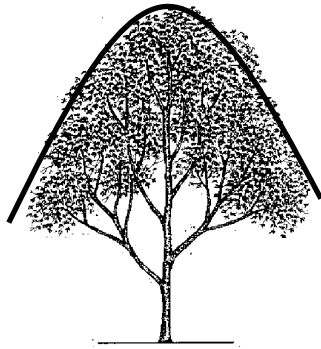
Ad. 16: Trunk: diameter

The diameter of the trunk should be observed at 1 meter above the ground.

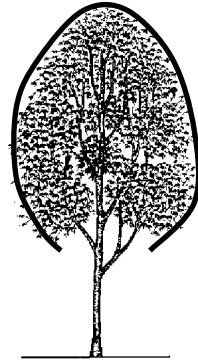
Ad. 17: Trunk: main color of bark

The main color is the color with the largest surface area.

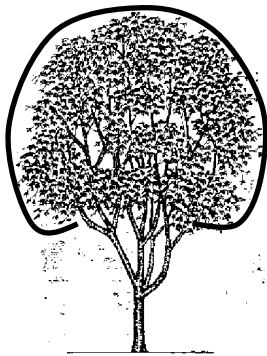
Ad. 19: Tree: shape



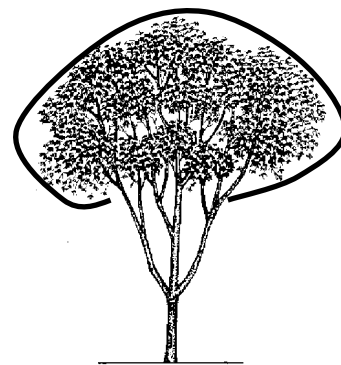
1
triangular



2
ovate



3
circular



4
oblate

Ad. 21: Coagulum: color of surface

Observation of color is made on 5 ml of latex collected in a plastic cup from a tree tapped in half-spirale from at least one month. The coagulum color is evaluated on the surface exposed to the air, 48 hours after tapping.

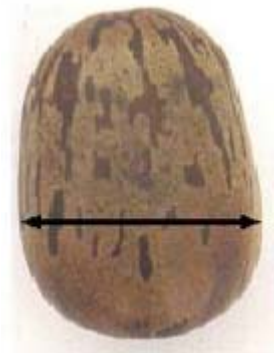
Ad. 22: Tree: winter leaf shed

Absent: no leaves fall
Partial: some leaves fall
Full: all leaves fall from the tree

Ad. 24: Seed: length



Ad. 25: Seed: width



Ad. 26: Seed: thickness



Ad. 27: Seed: shape in dorsal view



1
elliptic



2
circular



3
oblong



4
obovate

(Point of attachment is at the base in these illustrations)

9. Literature

Bobilioff, W., 1931: Colour reactions of latex as a mark of identification of *Hevea* clones. Archives of Rubber Cultivation, 15: pp. 289-309.

Department of Agriculture, 2002: Plant Germoplasm Database: Para rubber. Department of Agriculture. Bangkok, TH, 114 pp.

Dijkman, M.J., 1939: Identificatiekenmerken van de voornaamste in de praktijk aageplante *Hevea* cloonen. Buitenzorg Central Proefstations Vereeniging Archipel Drukkerij. 263pp.

Dijkman, M.J., 1951: *Hevea*: Thirty years of research in the Far East. University of Miami Press, Florida, US, pp. 155-177.

Mercykutty, V.C., Marattukalam, J.G., Saraswathyamma, C.K., Meenakumari, T., 2002: Identification of *Hevea* clones. A manual. Rubber Research Institute of India. 103 pp.

Mercykutty, V.C., (1998) Clone identification I. Rubber, 386: 21-25.

Mercykutty V.C., (1998) Clone identification II. Rubber, 387: pp. 15-18.

Mercykutty, V.C., Varghese, Y., Licy, J., Panikkar, A.O.N., 1991: Juvenile characters and seed morphology of certain modern *Hevea* clones. Indian Journal of Natural Rubber Research, 4(1): pp. 16-25.

Thomas V., Mercykutty, V.C. and Saraswathyamma, C.K., 1996: Seed morphology of the rubber tree (*Hevea brasiliensis*, Muell. Arg. *Euphorbiaceae*): A review. Phytomorphology; 46(4): pp. 335-342.

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		
1.1.1 Botanical name	Hevea Aubl.	
1.1.2 Common name	Rubber	
1.2 Species (please complete)		
2. Applicant		
Name		
Address		
Telephone No.		
Fax No.		
E-mail address		
Breeder (if different from applicant)		

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) bud grafting []

(b) cuttings []

(c) *in vitro* propagation []

(d) other (state method) []

4.2.2 Other []
(please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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 Trunk: curvature of axis (15)		
straight or slightly curved	CDC 312, FDR 5788, GT1, RRIM 600	1[]
moderately curved	RRII5	2[]
strongly curved	TP 875	3[]
5.2 Trunk: diameter (16)		
small	PR 107	3[]
medium	GT1, RRIM 600	5[]
large	CDC 312, PB 235, PB 260	7[]
5.3 Tree: beginning of winter leaf shed (23)		
early	BPM 1, PB 260	3[]
medium	PB 235	5[]
late	GT1, RRIM 600	7[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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
<i>Example</i>	<i>Trunk: diameter</i>	<i>medium</i>	<i>large</i>

Comments:

#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

Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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

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.

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