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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

ORNAMENTAL APPLE

(*Malus* Mill.)

[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:[*]

Latin	*English*	*French*	*German*	*Spanish*
Malus Mill.	Ornamental Apple	Pommier ornemental	Zierapfel	Manzano ornamental

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as 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 Guidelines

These Test Guidelines apply to all varieties of ornamental apple, *Malus* Mill., of the family Rosaceae.

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 three-year-old trees grafted on a rootstock.

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

5 three-year-old trees grafted on a rootstock.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease. A rootstock should be named when the plant material is supplied. The competent authorities may prescribe the rootstock on which the variety should be grafted.

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 Duration of Tests

The minimum duration of tests should normally be two independent growing cycles. For the purposes of these Test Guidelines, a growing cycle refers to the fruiting cycle.

3.2 Testing Place

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be seen at that place, the variety may be tested at an additional place.

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. In particular, a satisfactory crop of fruit must be produced in at least two fruiting cycles.

3.3.2 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

3.4 Test Design

3.4.1 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.

3.4.2 Each test should be designed to result in a total of at least five trees.

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations should be made on 5 trees or plant parts taken from each of 5 trees. In the case of plant parts, the number to be taken from each of the trees should be 2.

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 minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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 a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants no off-types are 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 is 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) Flower: type (characteristic 6);
(b) Petal: color of marginal zone of inner side (characteristic 12);
(c) Expanding leaf: color of blade (characteristic 16);
(d) Fruit: size (characteristic 29);
(e) Fruit: predominant color (characteristic 35).

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 Section 6.1.2

(a)–(c) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 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.	**Tree: vigor**	**Arbre: vigueur**	**Baum: Wuchsstärke**	**Árbol: vigor**		
	weak	faible	schwach	débil	Dorothea	3
	medium	moyenne	mittel	medio	Dolgo	5
	strong	forte	stark	fuerte	*Malus baccata* Jackii	7
2. **(*)** **(+)**	**Tree: habit**	**Arbre: port**	**Baum: Wuchsform**	**Árbol: porte**		
	columnar	columnaire	säulenförmig	columnar	Maypole	1
	fastigiate	très dressé	sehr aufrecht	fastigiado	Laura	2
	upright	dressé	aufrecht	erecto	Van Eseltine	3
	spreading	divergent	breitwüchsig	rastrero	Red Glow	4
	drooping	retombant	überhängend	colgante	Elise Rathke	5
	weeping	pleureur	lang überhängend	llorón	Oekonomierat Echtermeyer	6
3. **(+)**	**Shoot: color**	**Rameau: couleur**	**Trieb: Farbe**	**Brote: color**		
	grey green	vert-gris	graugrün	verde grisáceo	Red Sentinel	1
	brown green	vert-brun	braungrün	verde pardo	Wintergold	2
	brown	brun	braun	marrón	Van Eseltine	3
	red brown	rouge-brun	rotbraun	marrón rojizo	Henry F. Dupont	4
	dark red	rouge foncé	dunkelrot	rojo oscuro	Evereste	5
4.	**Inflorescence: type**	**Inflorescence: type**	**Blütenstand: Typ**	**Inflorescencia: tipo**		
	umbellate	ombelle	doldenförmig	umbelado	Golden Hornet	1
	corymbiform	corymbe	traubenförmig	corimbiforme	*Malus coronaria* Charlottae	2

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5. **(*)** **(+)**		**Unopened flower: color (balloon stage)**	**Fleur non épanouie: couleur (stade ballon)**	**Ungeöffnete Blüte: Farbe (Ballonstadium)**	**Flor cerrada: color (capullo)**		
		white	blanc	weiß	blanco	*Malus toringoides*	1
		light pink	rose pâle	hellrosa	rosa claro	*Malus coronaria* Charlottae	2
		medium pink	rose moyen	mittelrosa	rosa medio	Cowichan	3
		dark pink	rose foncé	dunkelrosa	rosa oscuro	*Malus floribunda*	4
		red	rouge	rot	rojo	Red Glow	5
		purple	pourpre	purpur	púrpura		6
6. **(*)**	**(a)**	**Flower: type**	**Fleur: type**	**Blüte: Typ**	**Flor: tipo**		
		single	simple	einfach	sencillo	Profusion	1
		semi-double	demi- double	halbgefüllt	semidoble	*Malus* x *scheideckeri*	2
		double	double	gefüllt	doble	*Malus coronaria* Nieuwlandiana	3
7. **(*)**	**(a)**	**Flower: diameter with petals pressed into horizontal position**	**Fleur: diamètre avec les pétales étalés dans un plan horizontal**	**Blüte: Durchmesser bei in waagerechte Position gedrückten Blütenblättern**	**Flor: diámetro con pétalos apretados en posición horizontal**		
		small	petit	klein	pequeño	Wintergold	3
		medium	moyen	mittel	medio	Profusion	5
		large	grand	groß	grande	Montreal Beauty	7
8. **(*)**	**(a)**	**Flower: shape**	**Fleur: forme**	**Blüte: Form**	**Flor: forma**		
		flat	aplatie	flach	plana		1
		shallow cup	en coupe peu profonde	flach schüsselförmig	cáliz poco profundo	Courtarou	2
		deep cup	en coupe profonde	tief schüsselförmig	cáliz profundo	Van Eseltine	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9. (*)	**(a)**	**Petal: shape (excluding claw)**	**Pétale: forme (sans l'onglet)**	**Blütenblatt: Form (ohne Blattöhrchen)**	**Pétalo: forma (excluyendo la uña)**		
		oblong	oblong	rechteckig	oblonga	*Malus coronaria* Charlottae	1
		narrow elliptic	elliptique étroite	schmal elliptisch	elíptica estrecha		2
		elliptic	elliptique	elliptisch	elíptica	Makamik	3
		broad elliptic	elliptique large	breit elliptisch	elíptica ancha	Wynema	4
		circular	arrondi	kreisförmig	circular	*Malus yunnanensis* Veitchii	5
		narrow ovate	ovale étroit	schmal eiförmig	oval estrecha	Katherine	6
		ovate	ovale	eiförmig	oval	Profusion	7
10. (*)	**(a)**	**Petals: relative position of margins**	**Pétales: position relative des bords**	**Blütenblätter: Relative Stellung der Ränder**	**Pétalos: posición relativa de los bordes**		
		free	disjoints	freistehend	separada	Makamik	1
		touching	tangents	sich berührend	en contacto	John Downie	2
		overlapping	chevauchants	überlappend	solapada	Butterball	3
11.	**(a)**	**Petal: veins**	**Pétale: nervures**	**Blütenblatt: Adern**	**Pétalo: nervaduras**		
		not prominent	non proéminentes	nicht ausgeprägt	no prominentes	John Downie	1
		prominent	proéminentes	ausgeprägt	prominentes	Almey	2
12. (*)	**(a)**	**Petal: color of marginal zone of inner side**	**Pétale: couleur de la zone marginale de la face interne**	**Blütenblatt: Farbe der Randzone der Innenseite**	**Pétalo: color del borde de la cara interna**		
		RHS-Colour Chart (indicate reference number)	Code RHS des couleurs- (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
13. (*)	**(a)**	**Petal: color of middle zone of inner side (if different)**	**Pétale: couleur de la zone centrale de la face interne (si différente)**	**Blütenblatt: Farbe der mittleren Zone der Innenseite (wenn verschieden)**	**Pétalo: color de la zona media de la cara interna (si es distinto)**		
		RHS-Colour Chart (indicate reference number)	Code RHS des couleurs- (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. (*)	**(a)**	**Petal: color of basal zone of inner side (if different)**	**Pétale: couleur de la base de la face interne (si différente)**	**Blütenblatt: Farbe der basalen Zone der Innenseite (wenn verschieden)**	**Pétalo: color de la zona basal de la cara interna (si es distinto)**		
		RHS-Colour Chart (indicate reference number)	Code RHS des couleurs- (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
15. (*)	**(a)**	**Petal: color of outer side**	**Pétale: couleur de la face externe**	**Blütenblatt: Farbe der Außenseite**	**Pétalo: color de la cara externa**		
		RHS-Colour Chart (indicate reference number)	Code RHS des couleurs- (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
16. (*)	**(b)**	**Expanding leaf: color of blade**	**Feuille en cours de croissance: couleur du limbe**	**Sich entfaltendes Blatt: Farbe der Blattspreite**	**Hoja en crecimiento: color del limbo**		
		green	vert	grün	verde	John Downie	1
		reddish green	vert rougeâtre	rötlichgrün	verde rojizo	Winter Gold	2
		red	rouge	rot	rojo		3
		reddish brown	brun rougeâtre	rötlichbraun	marrón rojizo	Laura	4
		bronze	bronze	bronze	bronce	Indian Magic	5
		purple	violet	purpur	púrpura	Royalty	6
17. (*)	**(b)**	**Leaf blade: length**	**Limbe: longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
		short	court	kurz	corta	*Malus floribunda*	3
		medium	moyen	mittel	media	*Malus* x *purpurea* Lemoinei	5
		long	long	lang	larga	Simcoe	7
18. (*)	**(b)**	**Leaf blade: width**	**Limbe: largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
		narrow	étroit	schmal	estrecha	Hopa	3
		medium	moyen	mittel	media	John Downie	5
		broad	large	breit	ancha	Montreal Beauty	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19.	**(b)**	**Leaf blade: ratio length/width (from fourth to sixth fully expanded leaf)**	**Limbe: rapport longueur/largeur (de la quatrième à la sixième feuille complètement développée)**	**Blattspreite: Verhältnis Länge/Breite (vom vierten bis sechsten voll entfalteten Blatt)**	**Limbo: relación longitud/anchura (de cuatro a seis hojas completamente extendidas)**		
		small	faible	klein	pequeño		3
		medium	moyen	mittel	medio		5
		large	élevé	groß	grande		7
20. (*)	**(b)**	**Petiole: length**	**Pétiole: longueur**	**Blattstiel: Länge**	**Peciolo: longitud**		
		short	court	kurz	corta		3
		medium	moyen	mittel	media		5
		long	long	lang	larga		7
21. (*)	**(b)**	**Leaf blade: lobes**	**Limbe: lobes**	**Blattspreite: Lappung**	**Limbo: lóbulos**		
		absent	absents	fehlend	ausentes	Dolgo	1
		sometimes present	parfois présents	manchmal vorhanden	presentes a veces	Wynema	2
		always present	toujours présents	immer vorhanden	siempre presentes	*Malus coronaria* Nieuwlandiana	3
22. (*)	**(b)**	**Leaf blade: incisions of margin**	**Limbe: incisions du bord**	**Blattspreite: Randeinschnitte**	**Limbo: incisiones del borde**		
		crenate	crénelé	gekerbt	crenadas	Courtabri	1
		serrate	dentelé	gesägt	serradas	Scarlett	2
23. (*)	**(b)**	**Leaf blade: glossiness of upper side**	**Limbe: brillance de la face supérieure**	**Blattspreite: Glanz der Oberseite**	**Limbo: brillo del haz**		
		weak	faible	gering	ligero	Laura	3
		medium	moyenne	mittel	medio		5
		strong	forte	stark	fuerte	Scarlett	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
24. (*)	**(b)**	**Leaf blade: green color of upper side**	**Limbe: couleur verte de la face supérieure**	**Blattspreite: Grünfärbung der Oberseite**	**Limbo: color verde del haz**		
		light	claire	hell	claro	Red Jade	3
		medium	moyenne	mittel	medio		5
		dark	foncée	dunkel	oscuro	Red Jewel	7
25. (*)	**(b)**	**Leaf blade: anthocyanin coloration of upper side**	**Limbe: pigmentation anthocyanique de la face supérieure**	**Blattspreite: Anthocyanfärbung der Oberseite**	**Limbo: pigmentación antociánica del haz**		
		absent	absente	fehlend	ausente	Courtabri	1
		present	présente	vorhanden	presente	Royalty	9
26. (*)	**(b)**	**Leaf blade: intensity of anthocyanin coloration of upper side**	**Limbe: intensité de la pigmentation anthocyanique de la face supérieure**	**Blattspreite: Intensität der Anthocyanfärbung der Oberseite**	**Limbo: intensidad de la pigmentación antociánica del haz**		
		weak	faible	schwach	baja	Cowichan	3
		medium	moyenne	mittel	media	Baskatong	5
		strong	forte	stark	fuerte	Royalty	7
27.	**(b)**	**Leaf blade: main color just before leaf fall**	**Limbe: couleur principale juste avant la chute des feuilles**	**Blattspreite: Hauptfarbe unmittelbar vor Blattfall**	**Limbo: color principal antes de la caída de la hoja**		
		yellow	jaune	gelb	amarillo	*Malus sargentii*	1
		orange	orange	orange	anaranjado	Scarlett	2
		red	rouge	rot	rojo	Rosseau	3
		brown	brun	braun	marrón	Royalty	4
		bronze	bronze	bronze	bronce		5
		purple	violet	purpur	púrpura		6

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28.	**Tree: fruit setting**	**Arbre: quantité de fruits**	**Baum: Fruchtansatz**	**Árbol: frutos que da**		
	none or very few	nulle ou très faible	keine oder sehr wenige	ninguno o muy pocos	*Malus* x *atrosanguinea*	1
	few	faible	wenige	pocos	*Malus* x *magdeburgensis*	3
	medium	moyenne	mittel	algunos	Makamik	5
	many	abondante	viele	muchos	John Downie	7
	very many	très abondante	sehr viele	muchísimos	Golden Hornet	9
29. (*)	**(c) Fruit: size**	**Fruit: taille**	**Frucht: Größe**	**Fruto: tamaño**		
	very small	très petit	sehr klein	muy pequeño	*Malus sargentii*	1
	small	petit	klein	pequeño	Profusion	3
	medium	moyen	mittel	medio	John Downie	5
	large	gros	groß	grande	Wynema	7
	very large	très gros	sehr groß	muy grande	Niedzwetzkyana	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
30. (*) (+)	**(c)**	**Fruit: shape**	**Fruit: forme**	**Frucht: Form**	**Fruto: forma**		
		globose	globuleuse	kugelförmig	globulosa	Winter Gold	1
		globose conical	conique globuleuse	kugel-kegelförmig	cónica globulosa	Scarlett	2
		broad globose conical	conique globuleuse large	breit kugel-kegelfömig	cónica globulosa ancha		3
		flat obloid	obloïde aplatie	flach obloid	obloide plana	*Malus* x *schiedeckeri*	4
		obloid	obloïde	obloid	obloide	Profusion	5
		conical	conique	kegelförmig	cónica	Eleyi	6
		narrow conical	conique étroite	schmal kegelförmig	cónica estrecha	John Downie	7
		truncate conical	conique tronquée	stumpf kegelförmig	cónica truncada	*Malus* x *arnoldiana*	8
		ellipsoid	ellipsoïde	ellipsoid	elipsoide	*Malus baccata* var. *mandshurica*	9
		ellipsoid conical (ovoid)	conique ellipsoïde (ovale)	ellipsoid kegelförmig (eiförmig)	elipsoide cónica	Dolgo	10
		oblong	oblongue	rechteckig	oblonga	*Malus yunnanensis* Veitchii	11
		oblong conical	conique oblongue	rechteckig kegelförmig	oblonga cónica		12
		pyriform	piriforme	birnenförmig	piriforme	*Malus toringoides*	13
31. (*)	**(c)**	**Fruit: calyx**	**Fruit: calice**	**Frucht: Kelch**	**Fruto: cáliz**		
		absent	absent	fehlend	ausente	Scarlett	1
		sometimes present	parfois présent	manchmal vorhanden	presente a veces	Golden Hornet	2
		always present	toujours présent	immer vorhanden	siempre presente	John Downie	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32.	**(c)**	**Fruit: length of stalk**	**Fruit: longueur du pédoncule**	**Frucht: Länge des Stiels**	**Fruto: longitud del pedúnculo**		
		very short	très court	sehr kurz	muy corta	Redflesh	1
		short	court	kurz	corta	Strathmore	3
		medium	moyen	mittel	media	John Downie	5
		long	long	lang	larga	Evereste	7
		very long	très long	sehr lang	muy larga	*Malus* x *purpurea* Aldenhamensis	9
33.	**(c)**	**Fruit: bloom of skin**	**Fruit: pruine de l'épiderme**	**Frucht: Bereifung der Schale**	**Fruto: pelusa de la piel**		
		absent	absente	fehlend	ausente	Courtabri	1
		weakly expressed	faible	schwach ausgeprägt	muy poca		2
		strongly expressed	forte	stark ausgeprägt	mucha	Dartmouth	3
34.	**(c)**	**Fruit: glossiness of skin**	**Fruit: brillance de la peau**	**Frucht: Glanz der Schale**	**Fruto: brillo de la piel**		
		absent	absente	fehlend	ausente		1
		weakly expressed	faible	schwach ausgeprägt	muy poco		2
		strongly expressed	forte	stark ausgeprägt	mucho	Selkirk	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
35. (*)	**(c)**	**Fruit: predominant color**	**Fruit: couleur dominante**	**Frucht: Vorherrschende Farbe**	**Fruto: color predominante**		
		yellow	jaune	gelb	amarillo	Golden Hornet	1
		whitish yellow	jaune blanchâtre	weißlichgelb	amarillo blanquecino		2
		green yellow	jaune vert	grüngelb	amarillo verdoso	White Cascade	3
		whitish green	vert blanchâtre	weißlichgrün	verde blanquecino		4
		medium green	vert moyen	mittelgrün	verde medio	*Malus trilobata*	5
		orange	orange	orange	anaranjado	Evereste	6
		light red	rouge clair	hellrot	rojo claro		7
		medium red	rouge moyen	mittelrot	rojo medio	Red Jade	8
		dark red	rouge foncé	dunkelrot	rojo oscuro	Profusion	9
		purple	violet	purpur	púrpura	Purple Prince	10
		brownish	brunâtre	bräunlich	parduzco		11
36.	**(c)**	**Fruit: color of flesh**	**Fruit: couleur de la chair**	**Frucht: Farbe des Fleisches**	**Fruto: color de la carne**		
		white	blanche	weiß	blanco		1
		yellowish white	blanche jaunâtre	gelblichweiß	blanco amarillento	Elise Rathke	2
		greenish	verdâtre	grünlich	verdoso	*Malus coronaria* Charlottae	3
		yellowish	jaunâtre	gelblich	amarillento	Dolgo	4
		pink	rose	rosa	rosa		5
		red	rouge	rot	rojo	Laura	6
37. (*)	**(c)**	**Fruit: persistence**	**Fruit: persistance**	**Frucht: Haltbarkeit**	**Fruto: persistencia**		
		very short	très courte	sehr kurz	muy corta	John Downie	1
		short	courte	kurz	corta	Dolgo	3
		medium	moyenne	mittel	media	Dorothea	5
		long	longue	lang	larga	Makamik	7
		very long	très longue	sehr lang	muy larga	Evereste	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
38.	**Time of beginning of flowering (10% open flowers)**	**Époque de début de floraison (10% des fleurs épanouies)**	**Zeitpunkt des Blühbeginns (10% offene Blüten)**	**Inicio de la floración (10% de flores abiertas)**		
	early	précoce	früh	precoz	Hopa	3
	medium	moyenne	mittel	media	*Malus* x *purpurea* Lemoinei	5
	late	tardive	spät	tardía	Wynema	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:

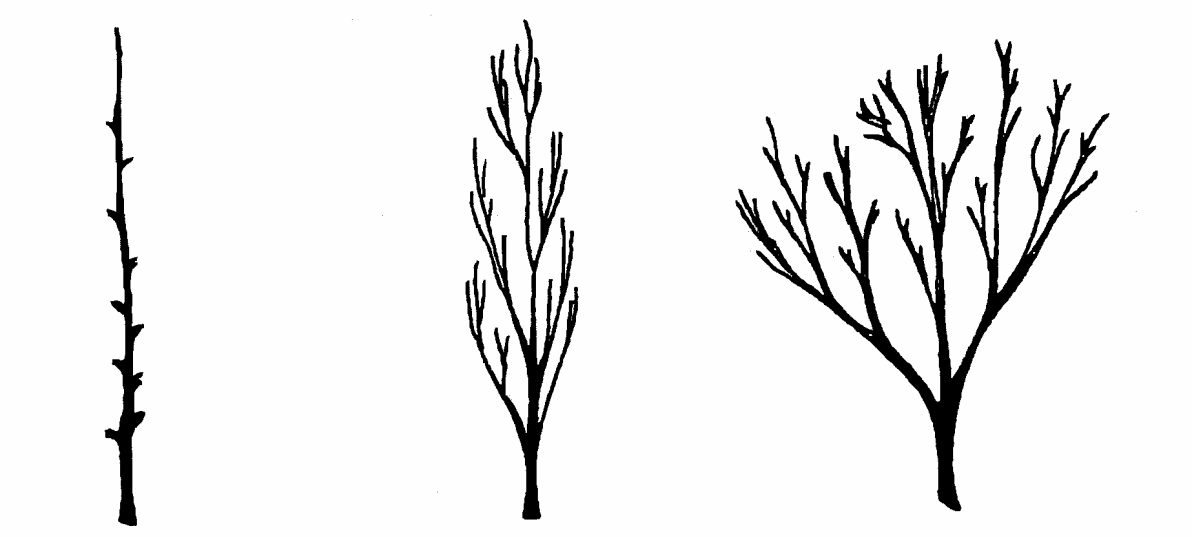
(a) All observations on the flower should be made at the start of anther dehiscence on second or third flowers with intact pedicel.

(b) Unless otherwise indicated all observations on the leaf should be made on mature leaves taken in summer from the middle third of a vigorous shoot of the current season on the outside of the tree.

(c) Unless otherwise indicated, for the observations on the fruit, 10 typical fruits should be selected. The terminal fruits should be excluded. The fruits should be examined before they are affected by any damage due to weather, birds etc.

8.2 Explanations for individual characteristics

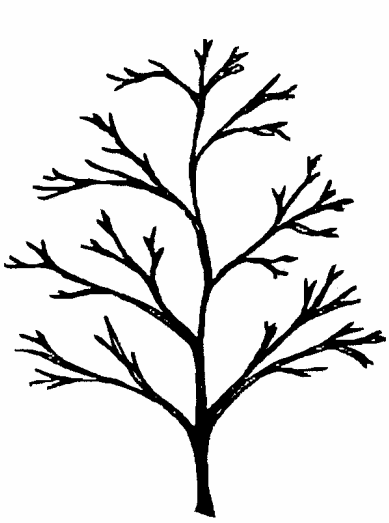
Ad. 2: Tree: habit



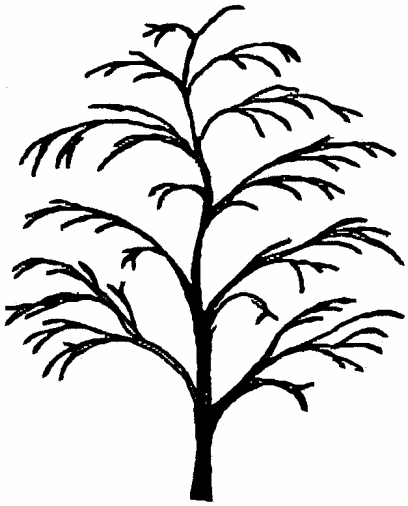
1
columnar

2
fastigiate

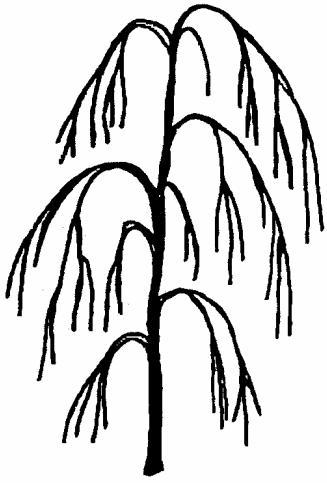
3
upright



4
spreading



5
drooping



6
weeping

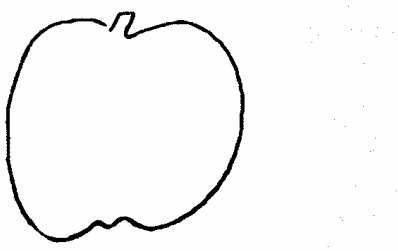
Ad. 3: Shoot: color

All observations on the current season's shoot should be made on shoots from the outside of the tree in summer while the tree is still in active growth.

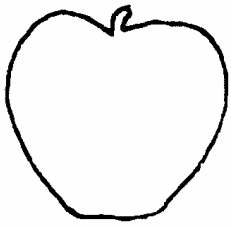
Ad. 5: Unopened flower: color (balloon stage)

All observations on the unopened flower should be made on the second or third flower bud when the terminal flower is opening.

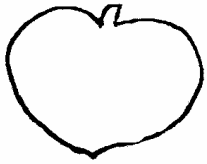
Ad. 30: Fruit: shape



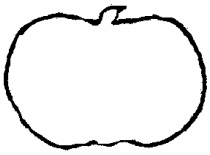
1
globose



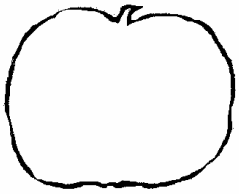
2
globose conical



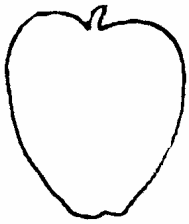
3
broad globose conical



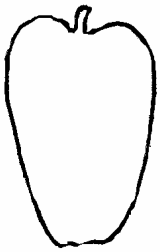
4
flat obloid



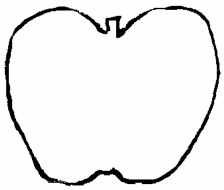
5
obloid



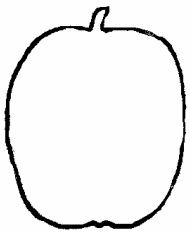
6
conical



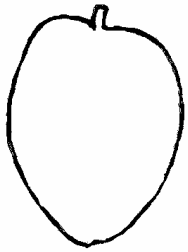
7
narrow conical



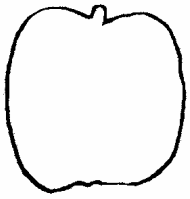
8
truncate conical



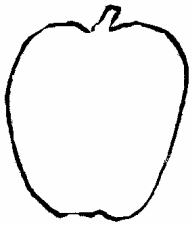
9
ellipsoid



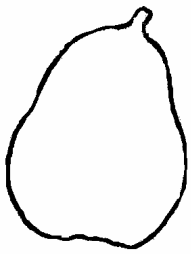
10
ellipsoid conical (ovoid)



11
oblong



12
oblong conical



13
pyriform

9. Literature

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Royal Horticultural Society, London: “The New Royal Horticultural Society Dictionary of Gardening”, 1992, Macmillan Press Ltd, London, 4 vols.

Wyman, Donald E.: 1965 “Trees for American Gardens”, MacMillan, New York, USA (pp 293-319, 483-486).

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 *Latin Name*	*Malus* Mill.
1.1.2 Common Name	Ornamental apple

1.2 Species (please complete)

1.2.1 *Latin Name*	
1.2.2 Common Name	

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 unknown cross [ ]
(please state known parent variety(ies))
(c) totally unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)

4.2 Method of Propagating the Variety

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

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 (6)	**Flower: type**		
	single	Profusion	1[ ]
	semi-double	*Malus* x *scheideckeri*	2[ ]
	double	*Malus coronaria* Nieuwlandiana	3[ ]
5.2i (12)	**Petal: color of marginal zone of inner side**		
	RHS-Colour Chart (indicate reference number)		
5.2ii (12)	**Petal: color of marginal zone of inner side**		
	white		1[ ]
	light pink		2[ ]
	dark pink		3[ ]
	red		4[ ]
	purple		5[ ]
5.3 (16)	**Expanding leaf: color of blade**		
	green	John Downie	1[ ]
	reddish green	Winter Gold	2[ ]
	red		3[ ]
	reddish brown	Laura	4[ ]
	bronze	Indian Magic	5[ ]
	purple	Royalty	6[ ]

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

	Characteristics	Example Varieties	Note
5.4 (29)	**Fruit: size**		
	very small	*Malus sargentii*	1[ ]
	small	Profusion	3[ ]
	medium	John Downie	5[ ]
	large	Wynema	7[ ]
	very large	Niedzwetzkyana	9[ ]
5.5 (35)	**Fruit: predominant color**		
	yellow	Golden Hornet	1[ ]
	whitish yellow		2[ ]
	green yellow	White Cascade	3[ ]
	whitish green		4[ ]
	medium green	*Malus trilobata*	5[ ]
	orange	Evereste	6[ ]
	light red		7[ ]
	medium red	Red Jade	8[ ]
	dark red	Profusion	9[ ]
	purple	Purple Prince	10[ ]
	brownish		11[ ]

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

6. Similar varieties and differences from these varieties

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)	*Fruit: predominant color*	*light red*	*medium red*

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 Special conditions for the examination of the variety

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

Yes [ ] No [ ]

7.2.2 If yes, please give 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.

9. 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]