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## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Malus Mill.* grown for fruit production.

## 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 trees, on a rootstock specified by the competent authority, or in the form of budsticks or graftwood.

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

(a) varieties resulting from crossing:

5 trees; 3 budsticks; or 5 dormant shoots for grafting;

(b) varieties resulting from mutation:

10 trees; 6 budsticks; or 10 dormant shoots for grafting.

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*

The minimum duration of tests should normally be two independent growing cycles.

### 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. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

3.3.2 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

VG: visual assessment by a single observation of a group of plants or parts of plants.

### 3.4 *Test Design*

3.4.1 Varieties resulting from crossing: Each test should be designed to result in a total of at least 5 trees.

3.4.2 Varieties resulting from mutation: Each test should be designed to result in a total of at least 10 trees.

3.4.3 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*

3.5.1 Varieties resulting from crossing: Unless otherwise indicated, all observations should be made on 5 trees or parts taken from each of 5 trees. In the case of parts of the tree, the number to be taken from each of the trees should be 2.

3.5.2 Varieties resulting from mutation: Unless otherwise indicated, all observations should be made on 10 trees or parts taken from each of 10 trees. In the case of parts of the tree, the number to be taken from each of the trees should be 1.

### 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, 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. In the case of a sample size of 10 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) Tree: type (characteristic 2)
- (b) Only varieties with ramified tree type: Tree: habit (characteristic 3)

- (c) Fruit: general shape of whole fruit (characteristic 29)
- (d) Fruit: relative area of over color of skin (characteristic 37)
- (e) Fruit: hue of over color - with any bloom removed (characteristic 38)
- (f) Fruit: pattern of over color of skin (characteristic 40)
- (g) Time of beginning of flowering (characteristic 56)
- (h) Time for harvest (characteristic 57)

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. The states of expression of the example varieties provided in these Test Guidelines are the states expressed when the example varieties are grown on M9 rootstock.

6.5 *Legend*

(\*) Asterisked characteristic – see Section 6.1.2

QL Qualitative characteristic – see Section 6.3

QN Quantitative characteristic – see Section 6.3

PQ Pseudo-qualitative characteristic – see Section 6.3

MG: single measurement of a group of plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

(a)–(f) 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

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>1.</b>	<b>VG Tree: vigor</b>	<b>Arbre: vigueur</b>	<b>Baum: Wuchsstärke</b>	<b>Árbol: vigor</b>		
(+)						
<b>QN</b>	(c) very weak	très faible	sehr gering	muy débil	Nield's Drooper	1
	weak	faible	gering	débil	Akane	3
	medium	moyenne	mittel	medio	Golden Delicious	5
	strong	forte	stark	fuerte	Bramley's Seedling	7
<b>2.</b>	<b>VG Tree: type</b>	<b>Arbre: type</b>	<b>Baum: Typ</b>	<b>Árbol: tipo</b>		
(*)						
(+)						
<b>QL</b>	(a) columnar	columnaire	säulenförmig	columnar	MacExcel, Wjcek	1
	ramified	ramifié	verzweigt	ramificado	Elstar	2
<b>3.</b>	<b>VG <u>Only varieties with ramified tree type:</u> Tree: habit</b>	<b><u>Seulement les variétés dont le type d'arbre est ramifié:</u> Arbre: port</b>	<b><u>Nur Sorten, deren Baumtyp verzweigt ist:</u> Baum: Wuchsform</b>	<b><u>Sólo variedades que tienen un tipo de árbol ramificado:</u> Árbol: porte</b>		
(*)						
(+)						
<b>PQ</b>	(a) fastigate	très dressé	sehr aufrecht	fastigiado	Benoni	1
	upright	dressé	aufrecht	erguido	Gloster	2
	spreading	divergent	auseinander fallend	abierto	Bramley's Seedling, Jonagold	3
	drooping	retombant	überhängend	colgante	Jonathan	4
	weeping	pleureur	lang überhängend	llorón	Nield's Drooper, Rome Beauty	5
<b>4.</b>	<b>VG Tree: type of bearing</b>		<b>Baum: Fruchtansatz</b>			
(+)						
<b>PQ</b>	on spurs	sur spurs	am Kurztrieb		Starkrimson Delicious	1
	on spurs and long shoots	sur spurs et rameaux longs	am Kurz und Langtrieb		Jonagold	2
	on long shoots	sur rameaux longs	am Langtrieb		Rome Beauty	3

MoE = Method of Examination



MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>5.</b>	<b>MG/ One-year-old shoot: VG thickness</b>	<b>Rameau d'un an: épaisseur</b>	<b>Einjähriger Trieb: Dicke</b>	<b>Rama de un año:</b>		
(+)						
<b>QN</b>	(b) thin	mince	dünn		Laxton's Fortune, Remo	3
	medium	moyenne	mittel		Jonagold	5
	thick	épaisse	dick		Bramley's Seedling	7
	very thick	très épaisse	sehr dick		Charlotte, Wijcik	9
<b>6.</b>	<b>MG/ One-year-old shoot: VG length of internode</b>	<b>Rameau d'un an: longueur des entre- nœuds</b>	<b>Einjähriger Trieb: Internodienlänge</b>	<b>Rama de un año: longitud del entrenudo</b>		
(*)						
(+)						
<b>QN</b>	(b) very short	très courts	sehr kurz	muy corta	MacExcel, Wijcik	1
	short	courts	kurz	corta	Alkmene, Florina	3
	medium	moyens	mittel	media	Jonagold, Redaphough	5
	long	longs	lang	larga	Auralia	7
<b>7.</b>	<b>VG One-year-old shoot: color on sunny side</b>					
<b>PQ</b>	(b) greenish brown	brun verdâtre	grünlichbraun		Granny Smith	1
	reddish brown	brun rougeâtre	rötlichbraun		Vicking	2
	light brown	brun clair			Arkcharm	3
	medium brown	brun moyen	mittel braun		Golden Delicious	4
	dark brown	brun foncé			Ingrid Marie	5
<b>8.</b>	<b>VG One-year-old shoot: pubescence (on distal half of shoot)</b>					
<b>QN</b>	(b) absent or very weak	absente ou très faible	fehlend oder sehr gering		Laxton's Fortune, Rewena	1
	weak	faible	gering		Golden Delicious	3
	medium	moyenne	mittel		Cox's Orange Pippin	5
	strong	forte	stark		Bramley's Seedling	7
	very strong	très forte	sehr stark		Rambour d'Hiver	9

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>9.</b>	<b>VG</b>	<b>One-year-old shoot: number of lenticels</b>	<b>Rameau d'un an: nombre de lenticelles</b>	<b>Einjähriger Trieb: Anzahl der Lentizellen</b>	<b>Rama de un año: número de lenticelas</b>		
<b>QN</b>	(b)	few	petit	wenig	escaso	Alkmene, Bramley's Seedling	3
		medium	moyen	mittel	medio	Cox's Orange Pippin	5
		many	grand	viele	muchos	Mutsu	7
<b>10.</b>	<b>VG</b>	<b>Leaf blade: attitude in relation to shoot</b>	<b>Limbe: port</b>	<b>Blattspreite: Haltung</b>	<b>Limbo: porte</b>		
<b>QN</b>	(c)	upwards	dressé	aufwärts gerichtet	ascendente	Katja, Redsleeves	1
		outwards	perpendiculaire	horizontal	horizontal	Bramley's Seedling	2
		downwards	retombant	abwärts gerichtet	descendente	Granny Smith, Schöne van Boskoop	3
<b>11.</b>	<b>MG</b>	<b>Leaf blade: length</b>	<b>Limbe: longueur</b>	<b>Blattspreite: Länge</b>	<b>Limbo: longitud</b>		
<b>QN</b>	(c)	very short				Reanda	1
		short	court	kurz	corta	Court Pendu Plat	3
		medium	moyen	mittel	media	Florina	5
		long	long	lang	larga	Bramley's Seedling	7
<b>12.</b>	<b>MG</b>	<b>Leaf blade: width</b>	<b>Limbe: largeur</b>	<b>Blattspreite: Breite</b>	<b>Limbo: anchura</b>		
<b>QN</b>	(c)	narrow	étroit	schmal	estrecha	Cox's Orange Pippin	3
		medium	moyen	mittel	media	Jonagold	5
		broad	large	breit	ancha	Bramley's Seedling	7
<b>13</b>	<b>MG</b>	<b>Leaf blade: ratio length/width</b>	<b>Limbe: rapport longueur/largeur</b>	<b>Blattspreite: Ver- hältnis Länge/Breite</b>	<b>Limbo: relación entre la longitud y la anchura</b>		
<b>QN</b>	(c)	small	faible	klein	pequeña	Bramley's Seedling	3
		medium	moyen	mittel	media	Jonagold	5
		large	élevé	groß	grande	Granny Smith	7

	MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>14.</b>	<b>VG</b>	<b>Leaf blade: intensity of green color</b>		<b>Blattspreite: Grünfärbung</b>	<b>Limbo: color verde</b>		
<b>QN</b>	(c)	light	claire	hell	claro	Golden Delicious, Sansa	3
		medium	moyenne	mittel	medio	James Grieve	5
		dark	foncée	dunkel	oscuro	Mutsu	7
<b>15.</b>	<b>VG</b>	<b>Leaf blade: incisions of margin (upper half)</b>	<b>Limbe: incisions du bord (moitié supérieure)</b>	<b>Blattspreite: Randeinschnitte (obere Hälfte)</b>	<b>Limbo: incisiones del borde (mitad superior)</b>		
<b>(+)</b>							
<b>PQ</b>	(c)	crenate	crénelées	gekerbt	crenadas	Summerred	1
		bicrenate		doppelt gekerbt		Alkmene, Jim Brian	2
		serrate type 1				Elstar, Gala	3
		serrate type 2				Sirprize	3
		biserrate		doppelt gesägt		Freedom, Mutsu, Schöne van Boskoop	4
<b>16.</b>	<b>VG</b>	<b>Leaf blade: pubescence on lower side</b>	<b>Limbe: pilosité de la face inférieure</b>	<b>Blattspreite: Behaarung der Unterseite</b>			
<b>QN</b>	(c)	absent or weak	absent ou fable	fehlend oder sehr gering		Golden Delicious	1
		medium	moyenne	mittel		Cox's Orange Pippin, Elstar	2
		strong	forte	stark		James Grieve, Jonathan	3
<b>17.</b>	<b>MG/ (*) VG</b>	<b>Petiole: length</b>	<b>Pétiole: longueur</b>	<b>Blattstiel: Länge</b>	<b>Peciolo: longitud</b>		
<b>QN</b>	(c)	short	courte	kurz	corta	Jonagold	3
		medium	moyenne	mittel	media	Granny Smith	5
		long	longue	lang	larga	Falstaff	7
<b>18.</b>	<b>VG</b>	<b>Petiole extent of anthocyanin coloration from base</b>	<b>Pétiole: extension de la coloration anthocyanique</b>	<b>Blattstielansatz: Anthozyanfärbung</b>			
<b>QN</b>	(c)	small	petite	gering		Golden Delicious, Jonagold	3
		medium	moyenne	mittel		Cox's Orange Pippin, Gala	5
		large	grande	hoch		Discovery, Richared Delicious	7

MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>19.</b>	<b>VG</b>	<b>Flower: predominant color at balloon stage</b>	<b>Fleur non épanouie: couleur (stade ballon)</b>	<b>Ungeöffnete Blüte: Farbe (Ballonstadium)</b>		
	<b>(*)</b>					
	<b>(+)</b>					
<b>PQ</b>	<b>(d)</b>	white	blanche	weiß	Norhey	1
		yellowish pink	jaunâtre rose	gelblich rosa	Schöner aus Herrenhut, Worcester Pearmain	2
		light pink	rose pâle	hellrosa	Gravensteiner, Jonathan	3
		dark pink	rose foncé	dunkelrosa	Elstar, Sylvia	4
		red	rouge	rot	Kidd's Orange Red	5
		dark red	rouge foncé	dunkelrot	Weirouge	6
		purple	pourpre	purpur	Rafzubin	7
<b>20.</b>	<b>MG/</b>	<b>Flower: diameter of flower with petals pressed into horizontal position</b>	<b>Fleur: diamètre de la fleur avec les pétales étalés dans un plan horizontal</b>	<b>Blüte: Durchmesser bei in waagrechte Position gedrückten Blütenblättern</b>		
	<b>(*)</b>					
	<b>(+)</b>					
<b>QN</b>	<b>(d)</b>	very small	très petite	sehr klein	Freedom, Spätblühender Taffettapfel	1
		small	petite	klein	Jonafree	3
		medium	moyenne	mittel	Cox's Orange Pippin	5
		large	grande	groß	Schöne van Boskoop	7
<b>21.</b>	<b>VG</b>	<b>Flower: arrangement of petals</b>	<b>Fleur: disposition des pétales</b>	<b>Blüte:</b>	<b>Flor:</b>	
	<b>(*)</b>					
	<b>(+)</b>					
<b>PQ</b>	<b>(d)</b>	free	indépendant		Worcester Pearmain	1
		intermediate	intermédiaire		Golden Delicious, Jonagold, Topaz	2
		overlapping	se recouvrant		Schöne van Boskoop	3
<b>22.</b>	<b>VG</b>	<b>Flower: position of stigmas relative to anthers</b>	<b>Fleur: position des stigmates par rapport aux anthères</b>	<b>Blüte: Stellung der Narbe im Verhältnis zu den Staubfäden</b>		
	<b>(+)</b>					
<b>QN</b>	<b>(d)</b>	below	au-dessous	unterhalb	Alkmene	1
		same level	au même niveau	auf gleicher Höhe	Cox's Orange Pippin	2
		above	au-dessous	oberhalb	Golden Delicious	3

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>23.</b>	<b>VG</b>	<b>Young fruit: extent of anthocyanin overcolor</b>	<b>Jeune fruit: extension de la coloration anthocyanique</b>			
(+)						
<b>QN</b>	absent or very small	absente ou très petite			Grenadier, Norhey	1
	small	petite			Fuji	3
	medium	moyenne			Idared	5
	large	grande			Elise	7
	very large	très grande			Weirouge	9
<b>24.</b>	<b>MG</b>	<b>Fruit: maximum length</b>	<b>Fruit: longueur</b>	<b>Frucht: Länge</b>	<b>Fruto: longitud</b>	
(*)						
<b>QN</b>	(e) short	courte	kurz	corto	Auralia	3
	medium	moyen	mittel	medio	James Grieve	5
	long	longue	lang	largo	Čadel, Iduna	7
<b>25.</b>	<b>MG</b>	<b>Fruit: maximum width</b>	<b>Fruit: largeur</b>	<b>Frucht: Breite</b>	<b>Fruto: anchura</b>	
(*)						
<b>QN</b>	(e) narrow	étroite	schmal		Orei	3
	medium	moyen	mittel	medio	Golden Delicious	5
	broad	large	breit		Melrose	7
<b>26.</b>	<b>MG</b>	<b>Fruit: ratio maximum length/ maximum width</b>	<b>Fruit: rapport longueur/largeur</b>	<b>Frucht: Verhältnis Länge/Breite</b>	<b>Fruto: relación longitud/anchura</b>	
(*)						
<b>QN</b>	(e) very small	très petit	sehr klein	muy pequeña	Court Pendu Plat, Ingol	1
	small	petit	klein	pequeña	Idared, Ontario	3
	medium	moyen	mittel	mediana	Jonagold	5
	large	grand	groß	grande	Golden Delicious	7
	very large	très grand	sehr groß	muy grande	Iduna, Priam	9
<b>27.</b>	<b>VG</b>	<b>Fruit: position of maximum width</b>	<b>Fruit: position de la largeur maximale</b>	<b>Frucht: Position des maximalen Breite</b>		
<b>PQ</b>	(e) in middle	au milieu	in der Mitte		Idared	1
	towards stalk	vers le pédoncule	zum Stiel hin		Jonagold	2

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>28.</b>	<b>VG Fruit: size</b>	<b>Fruit: Taille</b>	<b>Frucht: Größe</b>			
(*)						
<b>QN</b>	(e) very small	très petite	sehr klein		Api Noir	1
	very small to small	très petite à petite	sehr klein bis klein		Golden Harvey	2
	small	petite	klein		Akane, Miller's Seedling	3
	small to medium	petite à moyenne	klein bis mittel		Alkmene	4
	medium	moyenne	mittel		Cox's Orange Pippin	5
	medium to large	moyenne à grosse	mittel bis groß		Gravensteiner	6
	large	grosse	groß		Mutsu	7
	large to very large	grosse à très grosse	groß bis sehr groß		Bramley's Seedling	8
	very large	très grosse	sehr groß		Howgate Wonder	9
<b>29.</b>	<b>VG Fruit: general shape of whole fruit</b>		<b>Frucht:</b>			
(*)						
(+)						
<b>PQ</b>	(e) broad ellipsoid				Spencer	1
	globose				Golden Noble, Resi	2
	medium obloid				Bramley's Seedling, Idared	3
	broad obloid				Court Pendu Plat, Discovery	4
	broad ovoid				Summerred	5
	medium conic				Kent, Saturn	6
	broad conic				Adam's Pearmain, Pinova	7
	very broad conic				Jonagold	8
	shallow conic				Cox's Orange Pippin, Kidd's Orange Red, Melodie	9
	very shallow conic				Regia	10
	broad oblong				Gravensteiner, Mutsu	11
	oblong conic	conique oblongue	rechteckig kegelförmig		Catshead, Close	12
	oblong waisted		länglich tailliert		Gloster	13

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>30.</b>	<b>VG</b>	<b>Fruit: ribbing</b>	<b>Fruit: côtes</b>	<b>Frucht: Rippung</b>			
<b>QN</b>	(e)	absent or weak	absent ou faible	fehlend oder gering		Charles Ross, Discovery	1
		moderate	moyenne	mittel		Golden Delicious	2
		strong	forte	stark		Red Delicious, Reinette Russet	3
<b>31.</b>	<b>VG</b>	<b>Fruit: crowning at calyx end</b>	<b>Fruit: couronnement au sommet du calice</b>	<b>Frucht: Wülste oder Höcker am Kelchende</b>			
<b>QN</b>	(e)	absent or weak	absent ou faible	fehlend oder gering		Charles Ross, Discovery, Granny Smith	1
		moderate	moyen			Cox's Orange Pippin, Jonagold	2
		strong	forte	stark		Red Delicious	3
<b>32.</b>	<b>VG</b>	<b>Fruit: size of eye</b>	<b>Fruit: grandeur de l'œil</b>	<b>Frucht: Größe des Kelches</b>			
<b>QN</b>	(e)	small	petit	klein		McIntosh	3
		medium	moyen	mittel		Cox's Orange Pippin	5
		large	grand	groß		Ingol, Monarch	7
<b>33.</b>	<b>VG</b>	<b>Fruit: length of sepal</b>	<b>Fruit longueur du sépale</b>	<b>Frucht: Länge des Kelchblattes</b>			
<b>QN</b>	(e)	short	court	kurz		McIntosh	3
		medium	moyen	mittel		Alkmene	5
		long	long	lang		Gala	7
<b>34.</b>	<b>VG</b>	<b>Fruit: bloom of skin</b>	<b>Fruit: pruine de l'épiderme</b>	<b>Frucht: Bereifung der Schale</b>			
<b>QN</b>	(e)	absent or weak	absent ou faible	fehlend oder gering		Golden Delicious	1
		moderate	moyen	mittel		James Grieve, Jonathan	2
		strong	fort	stark		Vicking, Vista Bella	3

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>35.</b>	<b>VG</b>	<b>Fruit: greasiness of skin</b>	<b>Fruit: état cireux de l'épiderme</b>	<b>Frucht: Fettigkeit der Schale</b>			
<b>QN</b>	(e)	absent or weak	absent ou faible	fehlend oder gering		Schöne van Boskoop	1
		moderate	moyen	mittel		James Grieve	2
		strong	fort	stark		Arlet, Jonagold	3
<b>36.</b>	<b>VG</b>	<b>Fruit: ground color of skin</b>	<b>Fruit: couleur du fond de l'épiderme</b>	<b>Frucht: Grundfarbe der Schale</b>	<b>Fruto: color de fondo de la epidermis</b>		
<b>PQ</b>	(e)	not visible	non visible	nicht sichtbar	no visible	Red Jonaprince	1
		whitish yellow	jaune blanchâtre	weißlichgelb		Silken	2
		yellow	jaune	gelb	amarillo	Delorgue, Gala Transparent de Croncels	3
		whitish green	vert blanchâtre	weißlichgrün		Angold, Lodi, Lena White Transparent	4
		yellow green	vert jaune	gelbgrün	verde amarillento	Cox's Orange Pippin	5
		green	vert	grün	verde	Granny Smith	6
<b>37.</b>	<b>VG</b>	<b>Fruit: relative area of over color of skin</b>	<b>Fruit: proportion de lavis de l'épiderme</b>	<b>Frucht: Deckfarbenanteil der Schale</b>	<b>Fruto: zona relativa de color superficial de la epidermis</b>		
<b>QN</b>	(e)	absent or very small	nulle ou très petite	fehlend oder sehr klein	ausente o muy pequeña	Granny Smith	1
		small	petite	klein	pequeña	Auralia, Cox's Orange Pippin	3
		medium	moyenne	mittel	media	Gala	5
		large	grande	groß	grande	Spartan	7
		very large	très grande	sehr groß	muy grande	Red Jonaprince	9



MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota	
<b>38.</b> (*) (+)	<b>VG</b>	<b>Fruit: hue of over color - with any bloom removed</b>	<b>Fruit: teinte du lavis</b>	<b>Frucht: Ton der Deckfarbe - Bereifung (soweit vorhanden) entfernt</b>	<b>Fruto: tono del color superficial</b>		
<b>PQ</b>	(e)	orange red	rouge orangé	orangerot	rojo anaranjado	Cox's Orange Pippin, Egremont Russet	1
		pink red	rouge rose	rosarot	rojo rosado	Cripps Pink, Delorgue	2
		red	rouge	rot	rojo	Akane, Galaxy, Red Elstar, Regal Prince	3
		purple red	rouge pourpre			Red Jonaprince, Spartan	4
		brown red	rouge brun			Fiesta, Joburn, Lord Burghley	5
<b>39.</b> (*) (+)	<b>VG</b>	<b>Fruit: intensity of over color</b>	<b>Fruit: intensité du lavis</b>	<b>Frucht: Intensität der Deckfarbe</b>			
<b>QN</b>	(e)	light	claire	hell		Lady Williams, Scigold, Sirprize, Sturmer Pippin, Winter Banana	3
		medium	moyen	mittel		Cox's Orange Pippin, Cripps Pink, Gala, Fiesta, Reine de Reinettes	5
		dark	foncée	dunkel		Akane, Delorgue, Joburn, Lord Burgley, Red Elstar, Red Jonaprince, Regal Prince, Spartan	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>40.</b>	<b>VG</b>	<b>Fruit: pattern of over color of skin</b>	<b>Fruit: distribution du lavis</b>				
<b>(*)</b>							
<b>PQ</b>	<b>(e)</b>	only solid flush	seulement en plages continues			Red Jonaprince, Richared Delicious	1
		solid flush with weakly defined stripes	plages continues et rayures faiblement délimitées			Galaxy	2
		solid flush with strongly defined stripes	plages continues et rayures fortement délimitées			Jonagored	3
		weakly defined flush with strong stripes				Gravensteiner	4
		only stripes (no flush)	rayures seulement			Helios	5
		flushed and mottled				Elstar	6
		flushed, striped and mottled				Jonagold	7
<b>41.</b>	<b>VG</b>	<b>Fruit: width of stripes</b>	<b>Fruit: largeur des rayures</b>				
<b>(*)</b>							
<b>QN</b>	<b>(e)</b>	narrow				Eden, Pinova, Pirella	3
		medium	moyenne			Royal Gala, Rubinola	5
		broad	large			Baigent, Caudle	7
<b>42.</b>	<b>VG</b>	<b>Fruit: relative area of russet around stalk attachment</b>	<b>Fruit: proportion de liège autour du pédoncule</b>	<b>Frucht: anteilige Fläche der Berostung im Bereich des Stielansatzes</b>	<b>Fruto: zona relativa de russeting en torno a la base peduncular</b>		
<b>(*)</b>							
<b>QN</b>	<b>(e)</b>	absent or small	nulle ou très petite	sehr klein	muy pequeña	Elstar, Granny Smith, Piros	1
		medium	moyenne	mittel	media	Alkmene	2
		large				Egremont Russet, Kaiser Wilhelm	3

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>43.</b>	<b>VG</b>	<b>Fruit: relative area of russet on cheeks</b>	<b>Fruit: proportion de liège sur les joues</b>	<b>Frucht: anteilige Fläche der Berostung auf den Wangen</b>	<b>Fruto: zona relativa de russeting en las caras</b>		
<b>QN</b>	(e)	absent or small	nulle ou petite	sehr klein	muy pequeña	Golden Noble	1
		medium	moyenne	mittel	media	Karmijn de Sonnaville	2
		large	grande	groß	grande	Egremont Russet, Zabergäu Reinette	3
<b>44.</b>	<b>VG</b>	<b>Fruit: relative area of russet around eye basin</b>	<b>Fruit: proportion de liège autour de la cuvette de l'œil</b>	<b>Frucht: anteilige Fläche der Berostung im Bereich der Kelchgrube</b>	<b>Fruto: zona relativa de russeting en la cavidad del ojo</b>		
<b>QN</b>	(e)	absent or small	nulle ou petite	sehr klein	muy pequeña	Golden Noble	1
		medium	moyenne	mittel	media	Cox's Orange Pippin	5
		large	grande	groß	grande	Arlet	7
<b>45.</b>	<b>VG</b>	<b>Fruit: number of lenticels</b>	<b>Fruit: nombre de lenticelles</b>	<b>Frucht: Größe der Lentizellen</b>			
<b>QN</b>	(e)	few	feu	wenig		James Grieve	3
		medium	moyen	mittel		Golden Delicious	5
		many	beaucoup	viele		Granny Smith	7
<b>46.</b>	<b>VG</b>	<b>Fruit: size of lenticels</b>	<b>Fruit: taille des lenticelles</b>	<b>Frucht: Größe der Lentizellen</b>			
<b>QN</b>	(e)	small	petites	klein		Idared, Jonathan	3
		medium	moyenne	mittel		Elstar	5
		large	grandes	groß		Florina, Reine de Reinettes	7
<b>47.</b>	<b>MG/ (*) VG</b>	<b>Fruit: length of stalk</b>	<b>Fruit: longueur du pédoncule</b>	<b>Frucht: Länge des Stiels</b>	<b>Fruto: longitud del pedúnculo</b>		
<b>QN</b>	(e)	very short	très court	sehr kurz	muy corta	Egremont Russet	1
		short	court	kurz	corta	Cox's Orange Pippin	3
		medium	moyen	mittel	media	Worcester Pearmain	5
		long	long	lang	larga	Richared Delicious	7
		very long	très long	sehr lang	muy larga	Pinova, Rewena, Sirprize	9

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>48. (*)</b>	<b>VG Fruit: thickness of stalk</b>	<b>Fruit: grosseur du pédoncule</b>	<b>Frucht: Dicke des Stiels</b>	<b>Fruto: grosor del pedúnculo</b>		
<b>QN (e)</b>	thin	fin	dünn	fino	Golden Delicious	3
	medium	moyen	mittel	medio	Cox's Orange Pippin	5
	thick	gros	dick	grueso	Schöne van Boskoop	7
<b>49. (*)(+)</b>	<b>MG/ VG Fruit: depth of stalk cavity</b>	<b>Fruit: profondeur de la cavité du pédoncule</b>	<b>Frucht: Tiefe der Stielgrube</b>	<b>Fruto: profundidad de la cavidad peduncular</b>		
<b>QN (e)</b>	shallow	peu profonde	flach	poco profunda	Edward VII	3
	medium	moyenne	mittel	media	Golden Delicious	5
	deep	profonde	tief	profunda	Jonagold, Schöne van Boskoop	7
<b>50. (*)(+)</b>	<b>MG/ VG Fruit: width of stalk cavity</b>	<b>Fruit: largeur de la cavité du pédoncule</b>	<b>Frucht: Breite der Stielgrube</b>			
<b>QN (e)</b>	narrow	étroite	schmal		Beauty of Bath, Gala	3
	medium	moyenne	mittel		Golden Delicious	5
	broad	large	breit		Jonagold	7
<b>51. (*)(+)</b>	<b>MG/ VG Fruit: depth of eye basin</b>	<b>Fruit: profondeur de la cuvette de l'œil</b>	<b>Frucht: Tiefe der Kelchgrube</b>	<b>Fruto: profundidad de la cavidad del ojo</b>		
<b>QN (e)</b>	shallow	peu profonde	flach	poco profunda	Worcester Pearmain	3
	medium	moyenne	mittel	media	Golden Delicious	5
	deep	profonde	tief	profunda	Bramley's Seedling, Delcorf	7
<b>52. (*)(+)</b>	<b>MG/ VG Fruit: width of eye basin</b>	<b>Fruit: largeur de la cuvette de l'œil</b>	<b>Frucht: Breite der Kelchgrube</b>	<b>Fruto: anchura de la cavidad del ojo</b>		
<b>QN (e)</b>	narrow	étroite	schmal	estrecho	Pinova, Worcester Pearmain	3
	medium	moyenne	mittel	medio	Golden Delicious	5
	broad	large	breit	ancho	Bramley's Seedling	7

MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>53.</b> (*) (+)	<b>MG/ VG</b> <b>Fruit: firmness of flesh</b>	<b>Fruit: fermeté de la chair</b>	<b>Frucht: Festigkeit des Fruchtfleisches</b>	<b>Fruto: firmeza de la pulpa</b>		
<b>QN</b>	(e) very soft	très molle	sehr weich	muy blanda	Astrachan	1
	soft	molle	weich	blanda	Jonagold	3
	medium	moyenne	mittel	media	Cox's Orange Pippin	5
	firm	ferme	fest	firme	Kent	7
	very firm	très ferme	sehr fest	muy firme	Pilot, Scifresh	9
<b>54.</b> (*)	<b>VG</b> <b>Fruit: color of flesh</b>	<b>Fruit: couleur de la chair</b>	<b>Frucht: Farbe des Fruchtfleisches</b>			
<b>PQ</b>	(e) white	blanche	weiß		Akane, Spartan	1
	cream	crème	cremefarben		Jonagold	2
	yellowish	jaunâtre	gelblich		Delorina, Topaz	3
	greenish	verdâtre	grünlich		Gloster, Granny Smith	4
	pinkish	rosâtre	rosa		Pomfit	5
	reddish	rougeâtre	rot		Weirouge	6
<b>55.</b> (*) (+)	<b>VG</b> <b>Fruit in transverse section: aperture of locules</b>	<b>Fruit en section transversale: ouverture des loges carpellaires</b>	<b>Frucht im Querschnitt: Öffnung der Kernkammern</b>			
<b>QN</b>	(e) closed	fermées	geschlossen		Idared, Worcester Pearmain	1
	partly open	partiellement ouvertes	teilweise offen		Reine de Reinettes, lampon	2
	fully open	complètement ouvertes	vollkommen offen		McIntosh	3

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>56.</b>	<b>VG</b>	<b>Time of beginning of flowering</b>	<b>Époque de début de floraison</b>	<b>Zeitpunkt des Blühbeginns</b>	<b>Época del inicio de la floración</b>		
(*) (+)							
<b>QN</b>	(e)	very early	très précoce	sehr früh	muy temprana	Anna, Ein-Shemer	1
		early	précoce	früh	temprana	Idared	3
		medium	moyenne	mittel	media	Cox's Orange Pippin, Jonagold	5
		late	tardive	spät	tardía	Court Pendu Plat	7
		very late	très tardive	sehr spät	muy tardía	Feuilmorte, Spätblühender Taffetapfel	9
<b>57.</b>	<b>VG</b>	<b>Time for harvest</b>		<b>Zeitpunkt der Pflückreife</b>			
(*) (+)							
<b>QN</b>	(e)	very early		sehr früh		Vista Bella	1
		very early to early		sehr früh bis früh		White Transparent	2
		early		früh		Discovery, Jersey mac, Sunrise	3
		early to medium		früh bis mittel		Akane, Gingergold, James Grieve, Summerred	4
		medium		mittel		Cox's Orange Pippin	5
		medium to late		mittel bis spät		Elstar, Gala	6
		late		spät		Golden Delicious, Jonagold, Spartan	7
		late to very late		spät bis sehr spät		Braeburn, Fuji	8
		very late		sehr spät		Granny Smith, Cripps Pink	9

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>58.</b>	<b>VG</b>	<b>Time of ripeness for eating</b>	<b>Époque de maturité pour la consommation</b>	<b>Zeitpunkt der Genussreife</b>	<b>Época de madurez para el consumo</b>		
<b>QN</b>	<b>(e)</b>	very early	très précoce	sehr früh	muy precoz	Vista Bella	1
		early	précoce	früh	precoz	Discovery, Gingergold, Jersey mac, Sunrise	3
		medium	moyenne	mittel	media	Elstar, Gala, Honeycrisp	5
		late	tardive	spät	tardía	Golden Delicious, Spartan	7
		very late	très tardive	sehr spät	muy tardía	Braeburn, Cripps Pink, Granny Smith	9

## 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) Tree: type and habit: All observations should be made on bare trees in winter.
- (b) One-year-old shoot: All observations on one-year-old shoots should be made on lateral dormant shoots in winter, on trees that have completed at least one growing season at the testing center.
- (c) Tree vigor, leaf blade, petiole: All observations on the tree vigor, leaf blade and petiole should be made in summer when the tree is in peak vegetative growth. All observations on the leaf blade and petiole should be made on mature leaves from the middle third of vigorous current season shoots from the outside of the tree.
- (d) Flower: All observations on the flower should be made on the second or subsequent flowers, at the start of anther dehiscence.
- (e) Fruit: All observations on the fruit should be made on 10 typical fruits taken from a minimum sample of 20 fruits, at the time of ripeness for eating. The terminal (king) fruit should be excluded from the sample.

### 8.2 *Explanations for individual characteristics*

#### Ad. 1: Tree vigor

The vigor of the tree should be considered as the overall abundance of vegetative growth.

#### Ad. 2: Tree: type

Columnar: a compact spur-type tree form with virtually no side branches. Closely spaced short fruiting spurs are produced along the main stem.

Ramified: form where trees have well developed branches.



Ad. 3: Only varieties with ramified tree type: Tree: habit



1  
fastigate



2  
upright



3  
spreading



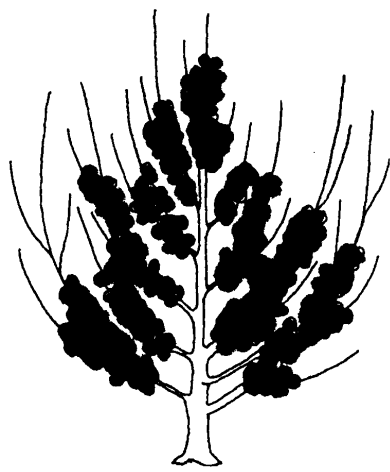
5  
drooping



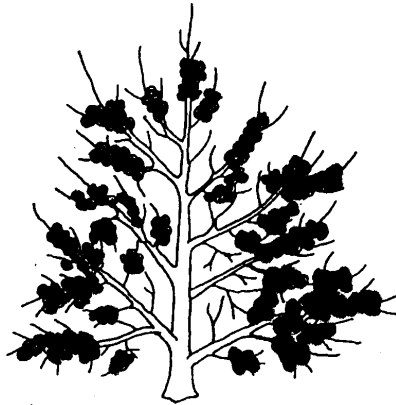
6  
weeping

Ad. 4: Tree: type of bearing

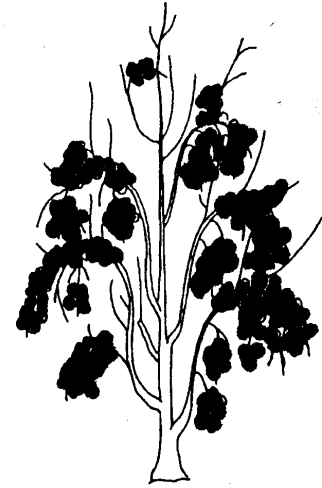
All observations on the type of bearing and on the young fruit should be made 40 days after flowering.



1  
on spurs



2  
on spurs and long shoots



3  
on long shoots

Ad. 5: One-year-old shoot: thickness

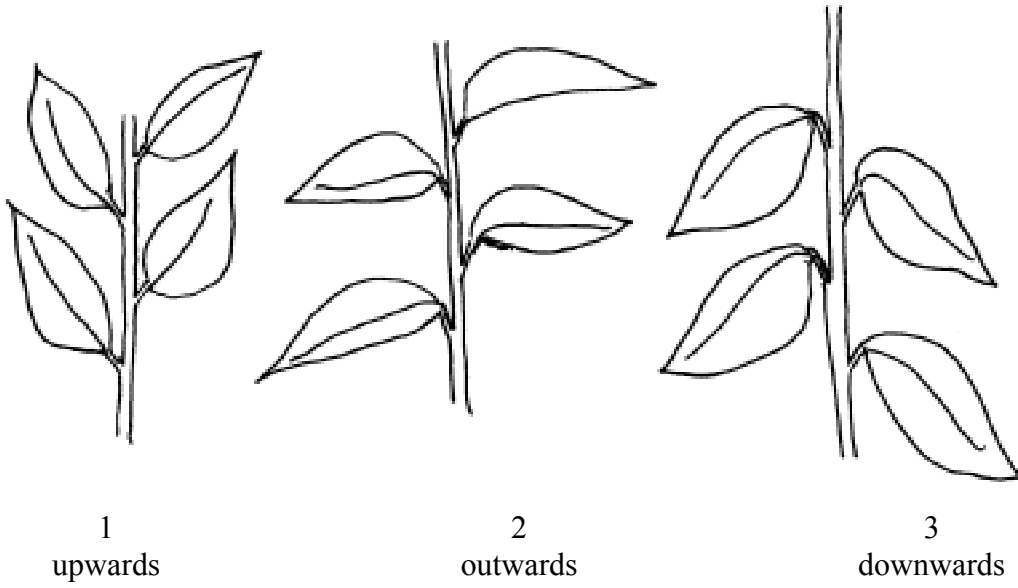
The thickness of the one-year-old shoot should be observed in the center of the middle internode. Measurements can be made using a vernier caliper gauge.

Ad. 6: One-year-old shoot: length of internode

The length of the internode should be observed in the middle third of the shoot. Measurements can be made using a vernier caliper gauge.

Ad. 10: Leaf blade: attitude in relation to shoot

The attitude of the leaf blade is observed on erect shoots.



Ad. 15: Leaf blade: incisions of margin (upper half)



1  
crenate



2  
bicrenate



3  
serrate type 1



3  
serrate type 2

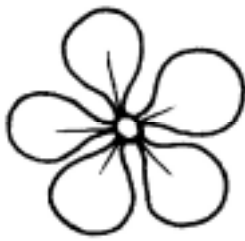


4  
biserrate

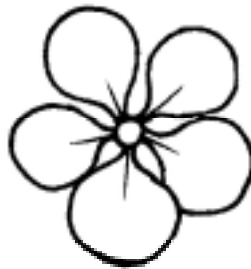
Ad. 19: Flower: predominant color at balloon stage

'Balloon stage' is the phenological stage in the course of flower development when the calyx is fully expanded and the petals are recognizable, having partially expanded and inflated but are closed, covering the internal flower organs. Balloon stage is usually 1-2 days before the petals unfold.

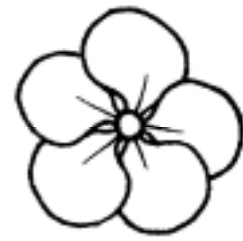
Ad. 21: Flower: arrangement of petals



1  
free

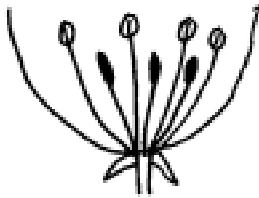


2  
intermediate

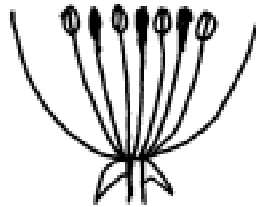


3  
overlapping

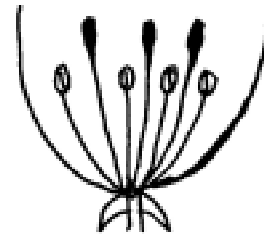
Ad. 22: Flower: position of stigmas relative to anthers



1  
below



2  
same level

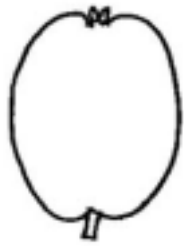


3  
above

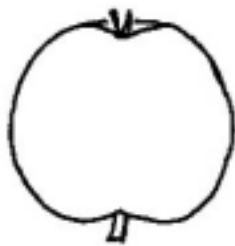
Ad. 23: Young fruit: extent of anthocyanin overcolor

All observations on the type of bearing and on the young fruit should be made 40 days after flowering.

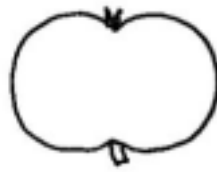
Ad. 29: Fruit: general shape of whole fruit



1  
broad ellipsoid



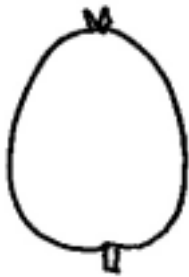
2  
globose



3  
medium obloid



4  
broad obloid



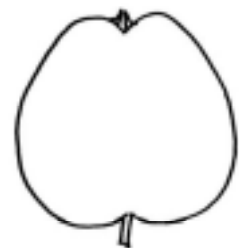
5  
broad ovoid



6  
medium conic



7  
broad conic



8  
very broad conic



9  
shallow conic



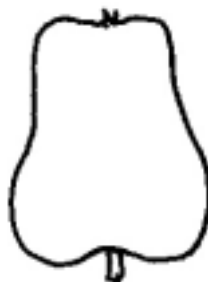
10  
very shallow conic



11  
broad oblong



12  
oblong conic



13  
oblong waisted

Ad. 38: Fruit: hue of overcolor - with any bloom removed

Ad. 39: Fruit: intensity of overcolor

	intensity light	intensity medium	intensity dark
orange red	Scigold, Sirprize	Cox's Orange Pippin, Reine de Reinettes	
pink red	Lady Williams	Cripps Pink	Delorgue
red	Winter Banana	Gala	Akane, Red Elstar, Regal Prince
purple red			Red Jonaprince, Spartan
brown red	Sturmer Pippin	Fiesta	Lord Burgley, Joburn

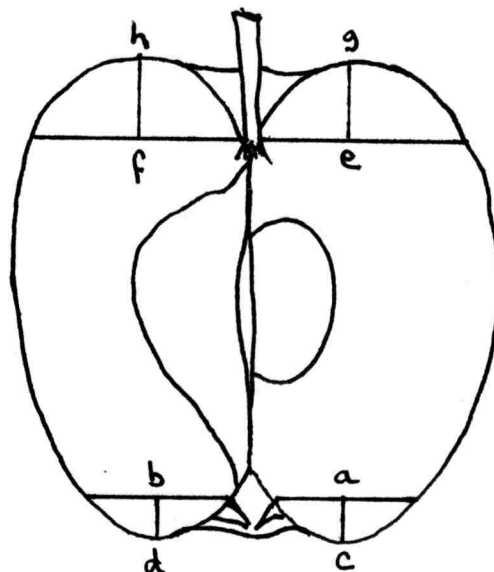
Ad. 49-50: Fruit: depth/width of stalk cavity

Ad. 51-52: Fruit: depth/width of eye basin

Fruits should be cut through the central axis as accurately as possible. Stalk cavity and eye basin depth and width should be measured from the sectioned fruits. The following diagram indicates the position of lines scored, using a knife or scalpel, on the fruit prior to measuring these characteristics.

- The lines a-b and e-f must be at right angles to the axis of the fruit. (A plastic protractor can be used to ensure accuracy.)
- The line a-b is marked at the base of the sepals.
- The line e-f is marked at the insertion of the stalk.
- The lines a-c and b-d indicate the eye basin depth. They are drawn at right angles to the line a-b to the point where the basin curve levels out.
- The lines e-g and f-h indicate the stalk cavity depth. They are drawn at right angles to the line e-f to the point where the stalk cavity curve levels out.
- In the case of asymmetric or irregular sections, the larger side should be considered.

fh = depth of stalk cavity  
(characteristic 49)



ef = width of stalk cavity  
(characteristic 50)

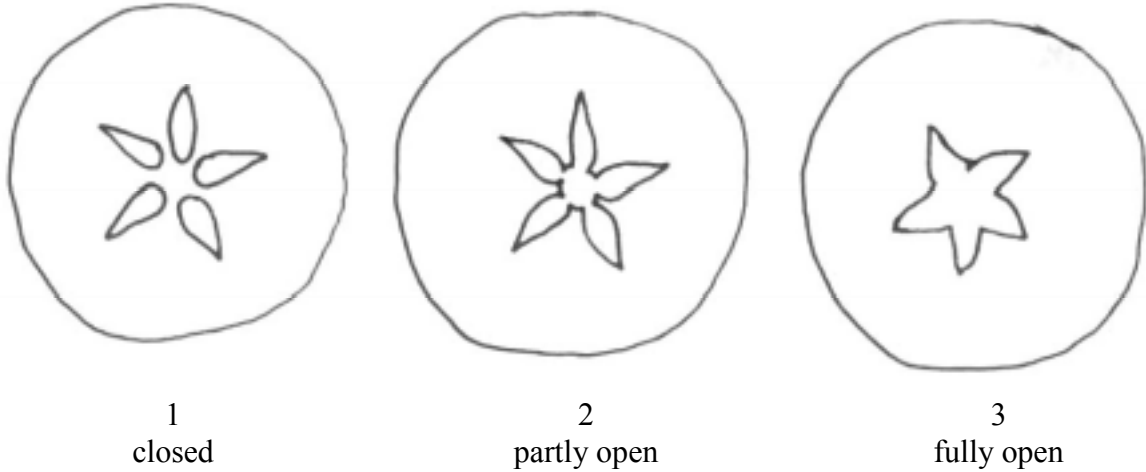
ab = width of eye basin  
(characteristic 52)

ac = depth of eye basin  
(characteristic 51)

Ad. 53: Fruit: firmness of flesh

Firmness of flesh should be assessed at time of ripeness for eating. It can be measured using a penetrometer.

Ad. 55: Fruit in transverse section: aperture of locules



Ad. 56: Time of beginning of flowering

Time of beginning of flowering is when 10% of the flowers are fully open.

Ad. 57: Time for harvest

Time for harvest is the optimum time of picking to achieve fruit in peak condition for eating.



8.3 *Other Names of the Example Varieties*

Example Varieties	Other Names
Akane	Primrouge
Alkmene	Early Windsor
Auralia	Tumanga
Cox's Orange Pippin	Cox Orangenrenette
Cripps Pink	Pink Lady
Delcorf	Delbarestivale
Delorina	Harmonie
Florina	Querina
Gloster	Gloster 69
Golden Delicious	Gelber Köstlicher
Golden Noble	Gelber Edelapfel
Gravensteiner	Graasten
Mutsu	Crispin
Nouvelle Europe	New Europe
Pinova	Corail
Rafzubin	RubINETTE
Red Jonaprince	Jonaprince, Wilton's
Regal Prince	Prince Gala, Gala Must
Reine de Reinettes	Goldparmänel, Wintergoldparmäne, Bonnin, Plassart
Šampion	Shampion
Schöne van Boskoop	Belle de Boskoop, Schöner aus Boskoop
White Transparent	Weisser Klarapfel, Transparente Jaune

## 9. Literature

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10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>		
1. Subject of the Technical Questionnaire		
1.1 Botanical name	<input type="text" value="Malus Mill."/>	
1.2 Common name	<input type="text" value="APPLE"/>	
2. Applicant		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	
3. Proposed denomination and breeder's reference		
Proposed denomination (if available)	<input type="text"/>	
Breeder's reference	<input type="text"/>	

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

- (a) grafting
- (b) other  
(state method)

4.2.2 Other  
(please state details)

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# 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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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
<b>5.1 Tree: type (2)</b>		
columnar	MacExel, Wijcik	1[ ]
ramified	Elstar	2[ ]
<b>5.2 <u>Only varieties with ramified tree type:</u> Tree: habit (3)</b>		
fastigate	Benoni	1[ ]
upright	Gloster	2[ ]
spreading	Bramley's Seedling, Jonagold	3[ ]
drooping	Jonathan	4[ ]
weeping	Nield's Drooper, Rome Beauty	5[ ]
<b>5.3 Fruit: general shape of whole fruit (29)</b>		
broad ellipsoid	Spencer	1[ ]
globose	Golden Noble, Resi	2[ ]
medium obloid	Bramley's Seedling, Idared	3[ ]
broad obloid	Court Pendu Plat, Discovery	4[ ]
broad ovoid	Summerred	5[ ]
medium conic	Kent, Saturn	6[ ]
broad conic	Adam's Pearmain, Pinova	7[ ]
very broad conic	Jonagold	8[ ]
shallow conic	Cox's Orange Pippin, Kidd's Orange Red, Melodie	9[ ]
very shallow conic	Regia	10[ ]
broad oblong	Gravensteiner, Mutsu	11[ ]
oblong conic	Catshead, Close	12[ ]
oblong waisted	Gloster	13[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.4 Fruit: relative area of over color of skin (37)</b>		
absent or very small	Granny Smith	1[ ]
small	Auralia, Cox's Orange Pippin	3[ ]
medium	Gala	5[ ]
large	Spartan	7[ ]
very large	Red Jonaprince	9[ ]
<b>5.5 Fruit: hue of over color – with any bloom removed (38)</b>		
orange red	Cox's Orange Pippin, Egremont Russet	1[ ]
pink red	Cripps Pink, Delorgue	2[ ]
red	Akane, Galaxy, Red Elstar, Regal Prince	3[ ]
purple red	Red Jonaprince, Spartan	4[ ]
brown red	Fiesta, Joburn, Lord Burghley	5[ ]
<b>5.6 Fruit: pattern of over color of skin (40)</b>		
only solid flush	Red Jonaprince, Richared Delicious	1[ ]
solid flush with weakly defined stripes	Galaxy	2[ ]
solid flush with strongly defined stripes	Jonagored	3[ ]
weakly defined flush with strong stripes	Gravensteiner	4[ ]
only striped (no flush)	Helios	5[ ]
flushed and mottled	Elstar	6[ ]
flushed, striped and mottled	Jonagold	7[ ]
<b>5.7 Fruit: width of stripes (41)</b>		
narrow	Eden, Pinova, Pirella	3[ ]
medium	Royal Gala, Rubinola	5[ ]
broad	Baigent, Caudle	7[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
<b>5.8 Time of beginning of flowering (56)</b>		
very early	Anna, Ein-Shemer	1[ ]
early	Idared	3[ ]
medium	Cox's Orange Pippin, Jonagold	5[ ]
late	Court Pendu Plat	7[ ]
very late	Feuilmorte, Spätblühender Taffetapfel	9[ ]
<b>5.9 Time for harvest (57)</b>		
very early	Vista Bella	1[ ]
very early to early	White Transparent	2[ ]
early	Discovery, Jersey mac, Sunrise	3[ ]
early to medium	Akane, Gingergold, James Grieve, Summerred	4[ ]
medium	Cox's Orange Pippin	5[ ]
medium to late	Elstar, Gala	6[ ]
late	Golden Delicious, Jonagold, Spartan	7[ ]
late to very late	Braeburn, Fuji	8[ ]
very late	Granny Smith, Cripps Pink	9[ ]



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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example: Jonagored</i>	<i>(40)Fruit: pattern of overcolour of skin</i>	<i>solid flush with strongly defined stripes</i>	<i>only solid flush</i>

<p>Comments:</p>

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

A representative color photograph of the variety should accompany the Technical Questionnaire.

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.

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# 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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9. Information on plant material to be examined.

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 or pesticide) | Yes [ ] | No [ ] |
| (c) Tissue culture  | Yes [ ] | No [ ] |
| (d) Other factors   | Yes [ ] | No [ ] |

Please provide details of 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]