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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

APPLE

UPOV Code(s):

MALUS_DOM

Malus domestica Borkh.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Germany
to be considered by the
Technical Working Party for Fruit Crops
at its forty-ninth session, to be held in Santiago de Chile, Chile,
from 2018-11-19 to 2018-11-23

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Malus domestica Borkh., *Malus pumila* Mill var. *domestica*, *Pyrus malus* L.	Apple	Pommier, Pommier commun	Apfel, Kultur-Apfel	Manzano

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.

Other associated UPOV documents: TG/163/4 Apple Rootstocks
TG/192/1 Ornamental Apple

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Malus domestica* Borkh., except for varieties used only as rootstock varieties (see TG/163/3) or only as ornamental varieties (see TG/192/1).

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; 5 budsticks; or 5 dormant shoots for grafting;
(b) varieties resulting from mutation:
10 trees; 10 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

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

3.1.2 The two independent growing cycles may be observed from a single planting, examined in two separate growing cycles.

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

3.1.4 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.

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 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. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 In the case of varieties resulting from crossing, each test should be designed to result in a total of at least 5 trees.

3.4.2 In the case of 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 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.1.4 Number of Plants or Parts of Plants to be Examined

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

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 2.

In the case of varieties resulting from mutation, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observation made on all plants in the test, disregarding any off-type plants.

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 1.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

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

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

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

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

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

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

4.1.6 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.

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.

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 These Test Guidelines have been developed for the examination of vegetatively propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.4 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.

4.2.4 For the assessment of uniformity in a sample of 5 plants, 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, 0 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 further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Tree: type (characteristic 2)
(b) Only varieties with ramified tree type: Tree: habit (characteristic 3)
(c) Fruit: general shape (characteristic 36)
(d) Fruit: relative area of over color (characteristic 45)
(e) Fruit: hue of over color – with bloom removed (characteristic 46)
(f) Fruit: pattern of over color (characteristic 48)
(g) Time of beginning of flowering (characteristic 71)
(h) Time of eating maturity (characteristic 73)

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

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

State	*Note*
small	3
medium	5
large	7

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

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

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

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d’expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

6 (a)-(f) See Explanations on the Table of Characteristics in Chapter 8.1

7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8

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

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.		**QN**	**VG**	**(+)**	**(a)**	**00**			
		Tree: vigor							
		very weak						Nield's Drooper	1
		weak						Akane	3
		medium						Golden Delicious	5
		strong						Bramley's Seedling	7
2.	**(*)**	**QL**	**VG**		**(a)**	**00**			
		Tree: type							
		columnar						MacExcel, Wijcik	1
		ramified						Elstar, Golden Delicious	2
3.	**(*)**	**PQ**	**VG**	**(+)**	**(a)**	**00**			
		Only varieties with ramified tree type: Tree: habit							
		upright						Benoni, Gloster	1
		spreading						Bramley's Seedling , Jonagold	2
		drooping						Jonathan	3
		weeping						Nield's Drooper, Rome Beauty	4
4.		**QN**	**VG**		**(b)**	**74**			
		Tree: type of bearing							
		on spurs only (should read: on spurs of previous years' shoots only - change ex. var. accord.)						Starkrimson Delicious	1
		on spurs and long shoots (should read: on spurs of previous years						Jonagold	2
		on long shoots only (then: superfluous)						Cortland, Rome Beauty	3
5.		**QN**	**MG/VG**	**(+)**	**(c)**	**00**			
		One-year-old shoot: thickness							
		thin						Laxton's Fortune, Remo	3
		medium						Jonagold	5
		thick						Bramley's Seedling	7
		very thick						Charlotte, Wijcik	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	**(*)**	**QN MG/VG**	**(+) (c)**	**00**			
		One-year-old shoot: length of internode					
		very short				MacExcel, Wijcik	1
		short				Alkmene , Florina	3
		medium				Jonagold, Redaphough	5
		long				Auralia	7
7.		**PQ VG**	**(c)**	**00**			
		One-year-old shoot: color on sunny side					
		greenish brown				Granny Smith	1
		reddish brown				Vicking	2
		light brown				Arkcharm	3
		medium brown				Golden Delicious	4
		dark brown				Ingrid Marie	5
8.		**QN MG/VG**	**(c)**	**00**			
		One-year-old shoot: pubescence (on distal half of shoot)					
		absent or very weak				Laxton’s Fortune, Rewena	1
		weak				Golden Delicious	2
		medium				Cox’s Orange Pippin	3
		strong				Bramley’s Seedling	4
		very strong				Rambour d’Hiver	5
9.		**QN VG**	**(c)**	**00**			
		(New) One-year-old shoot: pubescence on bud scales					
		absent or very few					1
		few					2
		medium					3
		many					4
		very many					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10.	**(*)**	**QN** **MG/VG**	**(c)**	**75/77**			
		One-year-old shoot: number of lenticels					
		very few					1
		few				Alkmene, Bramley's Seedling	2
		medium				Cox's Orange Pippin	3
		many				Mutsu	4
		very many					5
11.	**(*)**	**QN** **VG**	**(+)** **(d)**	**75/77**			
		Leaf blade: attitude in relation to shoot					
		upwards				Katja, Redsleeves	1
		upwards to outwards					2
		outwards				Bramley's Seedling	3
		outwards to downwards					4
		downwards				Granny Smith	5
12.	**(*)**	**QN** **MG/VG**	**(d)**	**75/77**			
		Leaf blade: length					
		very short				Reanda	1
		short				Court Pendu Plat	3
		medium				Florina	5
		long				Bramley's Seedling	7
13.	**(*)**	**QN** **MG/VG**	**(d)**	**75/77**			
		Leaf blade: width					
		narrow				Cox's Orange Pippin	3
		medium				Jonagold	5
		broad				Bramley's Seedling	7
14.	**(*)**	**QN** **MG/VG**	**(d)**	**75/77**			
		Leaf blade: ratio length/width					
		small				Bramley's Seedling	3
		medium				Jonagold	5
		large				Granny Smith	7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15.	**QN VG**	**(d)**	**75/77**			
	Leaf blade: intensity of green color					
	light				Golden Delicious, Sansa	3
	medium				James Grieve	5
	dark				Mutsu	7
16.	**QN VG**	**(d)**	**75/77**			
	(New) Leaf blade: glossiness					
	very low					1
	low				Solaris	2
	medium					3
	high					4
	very high				Nova Easygrow	5
17.	**PQ VG**	**(+)** **(d)**	**75/77**			
	Leaf blade: incisions of margin (upper half)					
	crenate				Summerred	1
	bicrenate				Alkmene , Jim Brian	2
	serrate type 1				Elstar, Gala	3
	serrate type 2				Sirprize	4
	biserrate				Freedom, Mutsu, Schone van Boskoop	5
18.	**QN VG**					
	(New) Leaf blade: undulation of margin					
	absent or weak					1
	medium					3
	strong					5
19.	**QN VG**	**(d)**	**75/77**			
	Leaf blade: pubescence on lower side					
	absent or very weak				Golden Delicious	1
	weak					2
	medium				Cox’s Orange Pippin, Elstar	3
	strong				James Grieve, Jonathan	4
	very strong					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20.		**QN VG**	**(+) (d)**	**59**			
		(New) Leaf blade: shape in longitudinal section					
		even					1
		slightly curved					2
		strongly curved					3
21.		**PQ VG**	**(d)**	**65**			
		(New) Leaf blade: shape in cross section					
		v-shaped					1
		strongly concave				Clivia	2
		concave				Collina	3
		flat with raised margins				Bittenfelder Sämling	4
		flat				Hildesheimer Herbstrenette	5
		convex					6
22.	**(*)**	**QN MG/VG**	**(d)**	**65**			
		Petiole: length					
		short				Jonagold	3
		medium				Granny Smith	4
		long				Falstaff	5
23.		**QN MG/VG**	**(d)**	**65**			
		(New) Petiole: thickness					
		very thin					1
		thin					2
		medium					3
		thick					4
		very thick					5
24.		**QN VG**	**(d)**	**74**			
		Petiole: extent of anthocyanin coloration from base					
		small				Golden Delicious, Jonagold	3
		medium				Cox's Orange Pippin, Gala	5
		large				Discovery, Richared Delicious	7

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25.		**QN**	**MG/VG**		**(d)**	**87**			
		(New) Stipule: size							
		very small							1
		small							2
		medium							3
		large							4
		very large							5
26.	**(*)**	**PQ**	**VG**	**(+)**	**(e)**	**87**			
		Flower: predominant color at balloon stage							
		white						Norhey	1
		yellowish pink						Schöner aus Herrenhut , Worcester Pearmain	2
		light pink						Gravensteiner, Jonathan	3
		dark pink						Elstar, Sylvia	4
		medium red						Kidd's Orange Red	5
		dark red						Weirouge	6
		purple						Rafzubin	7
27.	**(*)**	**QN**	**MG/VG**		**(e)**	**87**			
		Flower: diameter with petals pressed into horizontal position							
		very small						Freedom, Spätblühender Taffetapfel	1
		small						Jonafree	3
		medium						Cox's Orange Pippin	5
		large						Schone van Boskoop	7
28.		**QN**	**VG**	**(+)**	**(e)**	**87**			
		Flower: position of stigmas relative to anthers							
		below						Alkmene	1
		below to same level							2
		same level						Cox's Orange Pippin	3
		same level to above							4
		above						Golden Delicious	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29.		**QN VG**	**(+) (e)**	**87**			
		(New) Flower: anthocyanin coloration at base of filament					
		absent or very weak					1
		weak					2
		medium					3
		strong					4
		very strong					5
30.	**(*)**	**QN VG**	**(+) (e)**	**87**			
		Flower: arrangement of petals					
		free				Worcester Pearmain	1
		intermediate				Golden Delicious, Jonagold, Topaz	2
		overlapping				Schone van Boskoop	3
		irregular					4
31.		**QN VG**	**(b)**	**87**			
		Young fruit: extent of anthocyanin overcolor					
		absent or very small				Grenadier, Norhey	1
		small				Fuji	3
		medium				Idared	5
		large				Elise	7
		very large				Weirouge	9
32.	**(*)**	**QN MG/VG**	**(f)**	**87**			
		Fruit: size					
		very small				Api Noir	1
		very small to small				Golden Harvey	2
		small				Akane, Miller's Seedling	3
		small to medium				Alkmene	4
		medium				Cox's Orange Pippin	5
		large				Gravensteiner	6
		medium to large				Mutsu	7
		large to very large				Bramley's Seedling	8
		very large				Howgate Wonder	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
33. **(*)**	**QN** **MG/VG**	**(+)** **(f)**	**87**			
	Fruit: height					
	short				Auralia	3
	medium				James Grieve	5
	tall				Čadel , Iduna	7
34. **(*)**	**QN** **MG/VG**	**(+)** **(f)**	**87**			
	Fruit: diameter					
	small				Orei	3
	medium				Golden Delicious	5
	large				Melrose	7
35. **(*)**	**QN** **MG/VG**	**(+)** **(f)**	**87**			
	Fruit: ratio height/diameter					
	very small				Court Pendu Plat, Ingol	1
	small				Idared , Ontario	3
	medium				Jonagold	5
	large				Golden Delicious	7
	very large				Iduna, Priam	9
36. **(*)**	**PQ** **VG**	**(+)** **(f)**	**87**			
	Fruit: general shape					
	conical waisted				Starkrimson	1
	medium conical				Jonagold	2
	broad conical					3
	ovate				Summerred	4
	oblong				Gravensteiner, Mutsu	5
	elliptic				Spencer	6
	circular				Golden Noble, Resi	7
	oblate				Bramley’s Seedling , Idared	8
	obconical				Empire	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
37.	**PQ VG**	**(+)**	**87**			
	(New:) Fruit: shape in cross section					
	circular					1
	oblate					2
	triangual					3
	pentagonal					4
38.	**QN VG**	**(f)**	**87**			
	Fruit: ribbing					
	absent or very weak				Charles Ross, Discovery	1
	weak					2
	moderate				Golden Delicious	3
	strong					4
	very strong				Red Delicious, Reinette Russet	5
39.	**QN VG**	**(f)**	**87**			
	Fruit: crowning at calyx end					
	absent or very weak				Charles Ross, Discovery, Granny Smith	1
	weak					2
	moderate				Cox’s Orange Pippin, Jonagold	3
	strong					4
	very strong				Red Delicious	5
40.	**QN MG/VG**	**(f)**	**87**			
	Fruit: size of eye					
	small				McIntosh	1
	medium				Cox’s Orange Pippin	3
	large				Ingol, Monarch	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41.		**QN MG/VG**	**(f)**	**87**			
		Fruit: length of sepal					
		short				McIntosh	1
		short to medium					2
		medium				Alkmene	3
		medium to long					4
		long				Gala	5
42.	**(*)**	**QN VG**	**(f)**	**87**			
		Fruit: bloom of skin					
		absent or weak				Golden Delicious	1
		moderate				James Grieve, Jonathan	2
		strong				Vicking, Vista Bella	3
43.		**QN VG**	**(f)**	**87**			
		Fruit: greasiness of skin					
		absent or weak				Schone van Boskoop	1
		moderate				James Grieve	2
		strong				Arlet, Jonagold	3
44.	**(*)**	**PQ VG**	**(f)**	**87**			
		Fruit: ground color					
		not visible				Red Jonaprince	1
		whitish yellow				Silken	2
		yellow				Delorgue, Gala , Transparent de Croncels	3
		whitish green				Angold, Lena, Lodi, White Transparent	4
		yellow green				Cox’s Orange Pippin	5
		green				Granny Smith	6
45.	**(*)**	**QN VG**	**(f)**	**87**			
		Fruit: relative area of over color					
		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

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
46.	**(*)**	**PQ**	**VG**		**(f)**	**87**			
		Fruit: hue of over color – with bloom removed							
		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
47.	**(*)**	**QN**	**VG**	**(+)**	**(f)**	**87**			
		Fruit: intensity of over color							
		light						see Chapter 8.2/ voir chapitre 8.2/ siehe Kapitel 8.2/ véase capítulo 8.2	3
		medium							5
		dark							7
48.	**(*)**	**PQ**	**VG**		**(f)**	**87**			
		Fruit: pattern of over color							
		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 strongly defined stripes						Gravensteiner	4
		only stripes (no flush)						Helios	5
		flushed and mottled						Elstar	6
		flushed, striped and mottled						Jonagold	7
		marbled						Karneval	8
49.	**(*)**	**QN**	**MG/VG**	**(+)**	**(f)**	**87**			
		Fruit: width of stripes							
		narrow						Eden, Pinova, Pirella	1
		medium						Rubinola, Tenroy	3
		broad						Baigent, Caudle	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
50.	**(*)**	**QN** **VG**	**(f)**	**87**			
		Fruit: area of russet around stalk attachment					
		absent or very small				Elstar, Granny Smith , Piros	1
		small					2
		medium				Alkmene	3
		large					4
		very large				Egremont Russet, Kaiser Wilhelm	5
51.		**QN** **VG**	**(f)**	**87**			
		Fruit: area of russet on cheeks					
		absent or very small				Golden Noble	1
		small					2
		medium				Karmijn de Sonnaville	3
		large					4
		very large				Egremont Russet, Zabergäu Reinette	5
52.	**(*)**	**QN** **VG**	**(f)**	**87**			
		Fruit: area of russet around eye basin					
		absent or very small				Golden Noble	1
		small					2
		medium				Cox’s Orange Pippin	3
		large					4
		very large				Arlet	5
53.		**QN** **MG/VG**	**(+)** **(f)**	**87**			
		Fruit: number of lenticels					
		few				James Grieve	1
		medium				Golden Delicious	3
		many				Granny Smith	5
54.		**QN** **VG**	**(+)** **(f)**	**87**			
		Fruit: size of lenticels					
		small				Idared, Jonathan	1
		medium				Elstar	3
		large				Florina, Reine de Reinettes	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
55. (*)	**QN MG/VG**	**(f)**	**87**			
	Fruit: length of stalk					
	very short				Egremont Russet	1
	short				Cox's Orange Pippin	2
	medium				Worcester Pearmain	3
	long				Richared Delicious	4
	very long				Pinova, Rewena, Sirprize	5
56. (*)	**QN MG/VG**	**(f)**	**87**			
	Fruit: thickness of stalk					
	thin				Golden Delicious	1
	medium				Cox's Orange Pippin	3
	thick				Schone van Boskoop	5
57. (*)	**QN MG/VG**	**(+) (f)**	**87**			
	Fruit: depth of stalk cavity					
	shallow				Edward VII	1
	medium				Golden Delicious	3
	deep				Jonagold, Schone van Boskoop	5
58. (*)	**QN MG/VG**	**(+) (f)**	**87**			
	Fruit: width of stalk cavity					
	narrow				Beauty of Bath, Gala	1
	medium				Golden Delicious	3
	broad				Jonagold	5
59. (*)	**QN MG/VG**	**(+) (f)**	**87**			
	Fruit: depth of eye basin					
	shallow				Worcester Pearmain	1
	medium				Golden Delicious	3
	deep				Bramley's Seedling , Delcorf	5
60. (*)	**QN MG/VG**	**(+) (f)**	**87**			
	Fruit: width of eye basin					
	narrow				Pinova, Worcester Pearmain	1
	medium				Golden Delicious	3
	broad				Bramley's Seedling	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
61.		**QN VG**					
		(New) Fruit: opening of calyx eye					
		closed					1
		partly open					3
		fully open					5
62.		**PQ VG**	**(+)** **(f)**	**87**			
		(New:) Fruit: shape of calyx tube					
		narrow cylindric					1
		broad cylindric					2
		tapered					3
		waisted					4
63.		**QN VG**					
		(New) Fruit: width of core (in cross section)					
		narrow					1
		medium					3
		broad					5
64.	**(*)**	**QN MG/VG**	**(+)** **(f)**	**89**			
		Fruit: firmness of flesh					
		very soft				Astrachan	1
		soft				Jonagold	3
		medium				Cox's Orange Pippin	5
		firm				Kent	7
		very firm				Pilot, Scifresh	9
65.		**QN MG/VG**					
		(New) Fruit: sweetness of flesh					
		low					1
		medium					3
		high					5
66.		**QN MG/VG**					
		(New) Fruit: acidity of flesh					
		low					1
		medium					3
		high					5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
67.	**(*)**	**PQ VG**	**(f)**	**89**			
		Fruit: color of flesh					
		white				Akane, Spartan	1
		cream				Jonagold	2
		yellowish				Delorina, Topaz	3
		greenish				Gloster, Granny Smith	4
		pinkish				Pomfit	5
		reddish				Weirouge	6
68.		**QN VG**					
		(New) Fruit: amount of anthocyanin coloration of flesh					
		low					1
		medium					3
		high					5
69.		**QN VG**					
		(New) Fruit: oxydation of flesh					
		absent or weak					1
		medium					3
		strong					5
70.	**(*)**	**QN VG**	**(+)** **(f)**	**89**			
		Fruit: aperture of locules (in transverse section)					
		closed or slightly open				Idared, Worcester Pearmain	1
		slightly to moderately open					2
		moderately open				Reine de Reinettes, Šampion	3
		moderately to fully open					4
		fully open				McIntosh	5

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
71.	**(*)**	**QN MG**	**(+)**	**61**			
		Time of beginning of flowering					
		very early				Anna, Ein-Shemer	1
		early				Idared	3
		medium				Cox's Orange Pippin, Jonagold	5
		late				Court Pendu Plat	7
		very late				Feuillemorte, Spätblühender Taffetapfel	9
72.		**QN MG**	**(+)**	**87**			
		Time for harvest					
		very early				Vista Bella	1
		early				Discovery, Jerseymac, Sunrise	3
		medium				Cox's Orange Pippin, Elstar, Gala	5
		late				Golden Delicious, Jonagold	7
		very late				Cripps Pink, Granny Smith	9
73.	**(*)**	**QN MG**	**(+)**	**(f)** **89**			
		Time of eating maturity					
		very early				Vista Bella	1
		very early to early				White Transparent	2
		early				Discovery, Jerseymac, Mountain Cove, Sunrise	3
		early to medium				Akane, James Grieve, Summerred	4
		medium				Elstar, Gala , Honeycrisp	5
		medium to late				Ambrosia, Šampion, Spartan	6
		late				Golden Delicious	7
		late to very late				Fuji	8
		very late				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 Table of Characteristics should be examined as indicated below:

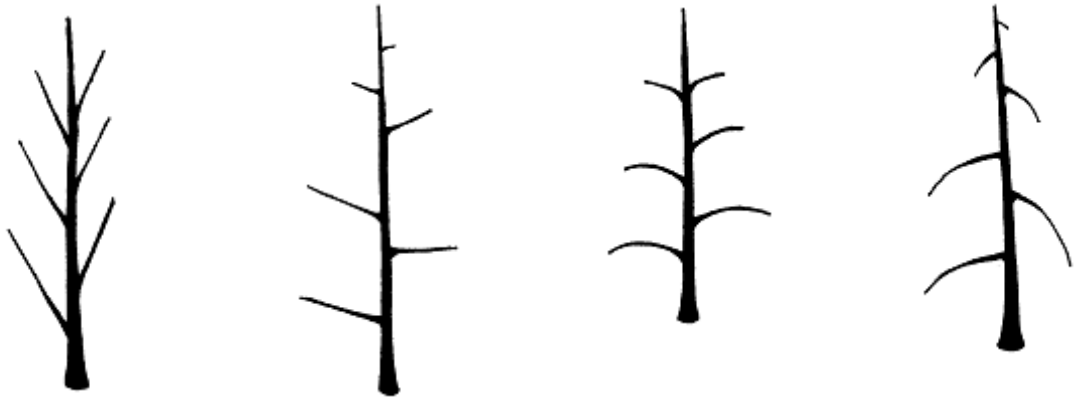
(a) Observations should be made in summer when the tree is in peak vegetative growth.
(b) Observations should be made on bare trees in winter.
(c) Observations should be made 40 days after flowering.
(d) Observations on one-year-old shoots should be made on lateral dormant shoots in winter, on trees that have completed at least one growing season.
(e) Observations should be made on fully developed leaves from the middle third of vigorous vegetative current season shoot.
(f) Observations should be made on the second or subsequent flowers, at the start of anther dehiscence.

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



1 upright | 2 spreading | 3 drooping | 4 weeping

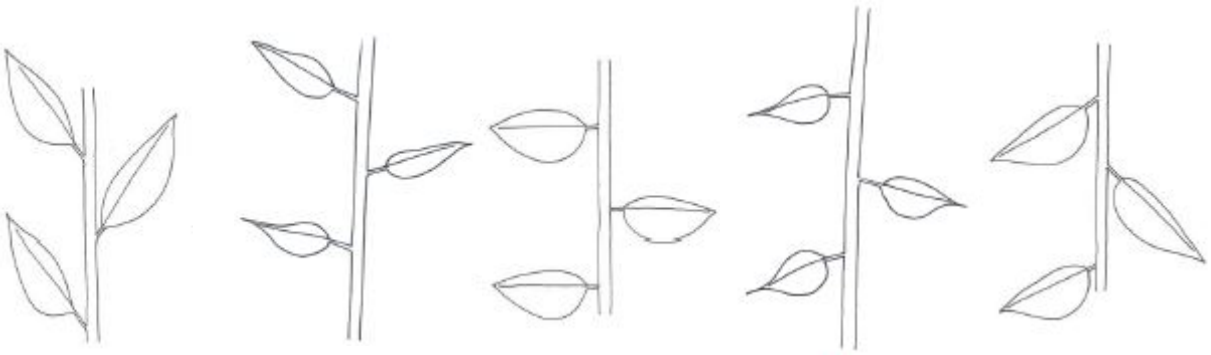
Ad. 5: One-year-old shoot: thickness

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

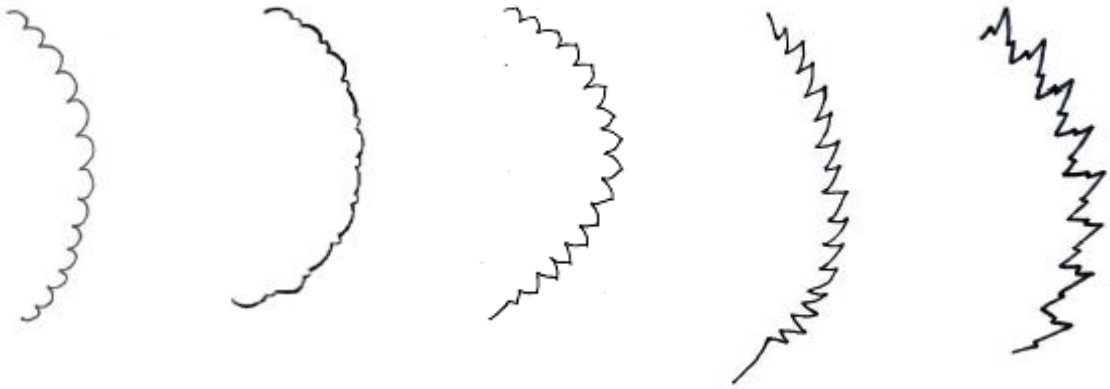
The length of the internode should be observed in the middle third of the shoot. Measurements can be made using a vernier caliper gauge.

Ad. 11: Leaf blade: attitude in relation to shoot



1	2	3	4	5
upwards	upwards to outwards	outwards	outwards to downwards	downwards

Ad. 17: Leaf blade: incisions of margin (upper half)



1	2	3	4	5
crenate	bicrenate	serrate type 1	serrate type 2	biserrate

The predominant type of incision should be observed.

Ad. 20: (New) Leaf blade: shape in longitudinal section

To be assessed as curvature along central vein (or midrib).

Ad. 26: 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.

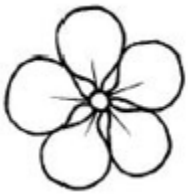
Ad. 28: Flower: position of stigmas relative to anthers

1	2	3	4	5
below	below to same level	same level	same level to above	above

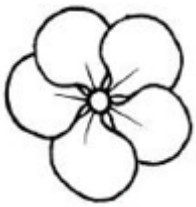
Ad. 29: (New) Flower: anthocyanin coloration at base of filament

Ad. 30: Flower: arrangement of petals

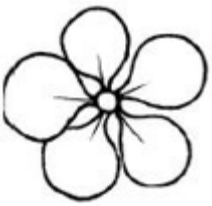
1
free



2
intermediate



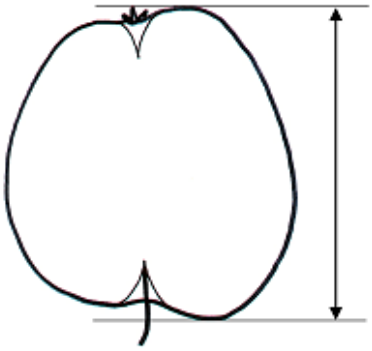
3
overlapping



4
irregular

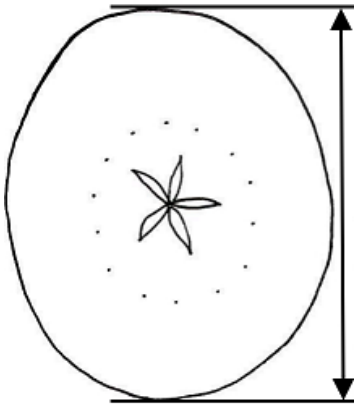
Ad. 33: Fruit: height

The maximum height should be observed.



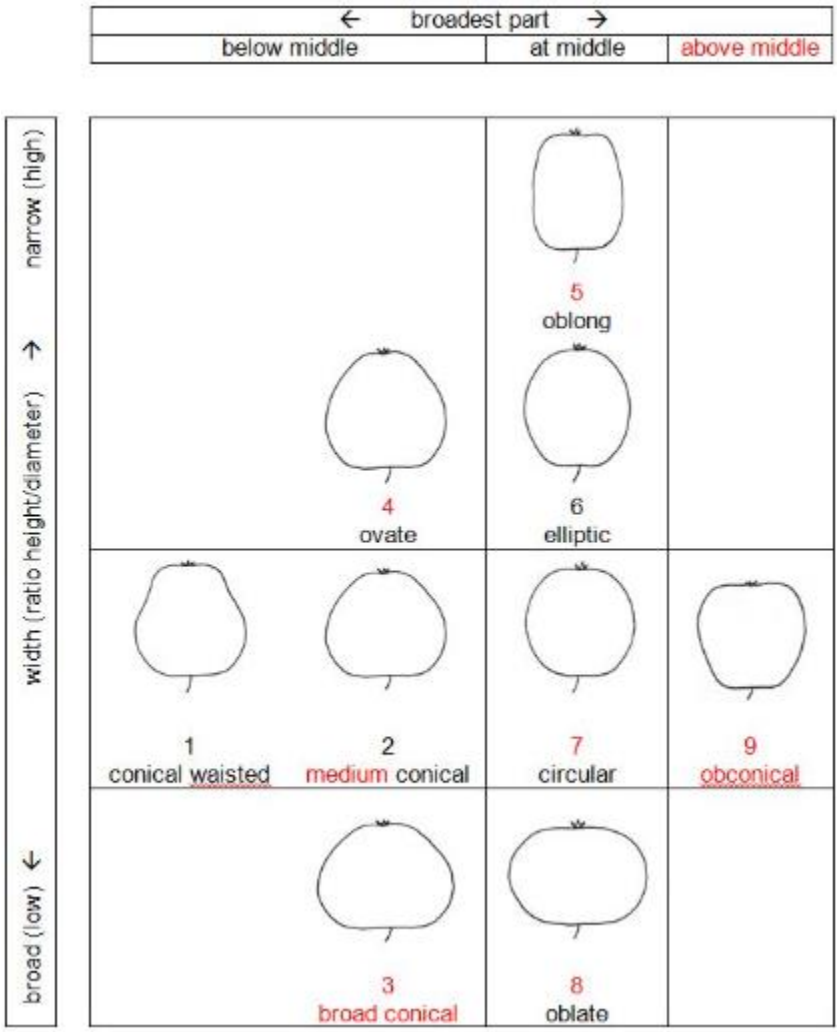
Ad. 34: Fruit: diameter

The maximum diameter should be observed.



Ad. 35: Fruit: ratio height/diameter

(propose to add information:) A ratio resulting in a value of 1,0 would result in a state medium (5); notes smaller than 1 in notes 1-4; and notes larger than 1 in notes 6-9.



Ad. 36: Fruit: general shape

See Ad. 35

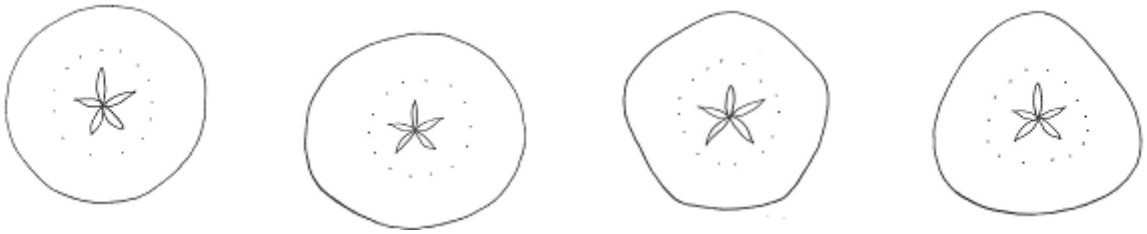
Additional example varieties with medium conic shape (state 2):

	← Fruit: ratio height/diameter (char. 34) →				
	very small	small	medium	large	very large
Fruit: height (char. 32)					
low	Regia	Cox's Orange Pippin			
medium		Melodie	Kidd's Orange Red	Pinova	
high			Jonagold		Kent, Adam's Pearmain, Saturn

Additional example varieties with oblate shape (state 8):

	← Fruit: ratio height/diameter (char. 34) →	
	very small	small
very low	Court Pendu Plat	
low	Discovery	
medium		Idared
high		Bramley's Seedling

Ad. 37: (New:) Fruit: shape in cross section



1
circular

2
oblate

3
triangual

4
pentagonal

Ad. 47: Fruit: intensity of over color

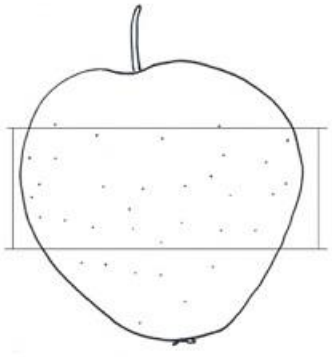
	← Ad. 45: Fruit: intensity of over color →		
	light	medium	dark
Fruit: hue of overcolor - with bloom removed (char. 44)			
orange red	Egremont Russet, Scigold, Sirprize	Cox's Orange Pippin, Reine des Reinettes	
pink red	Lady Williams	Cripps Pink	Delorgue
red	Winter Banana	Gala	Akane, Galaxy, Red Elstar, Regal Prince
purple red			Red Jonaprince, Spartan
brown red	Sturmer Pippin	Fiesta	Lord Burgley, Joburn

Ad. 49: Fruit: width of stripes

Chimeras should not be considered as stripes.

Ad. 53: Fruit: number of lenticels

Should be assessed at midlength of fruit.

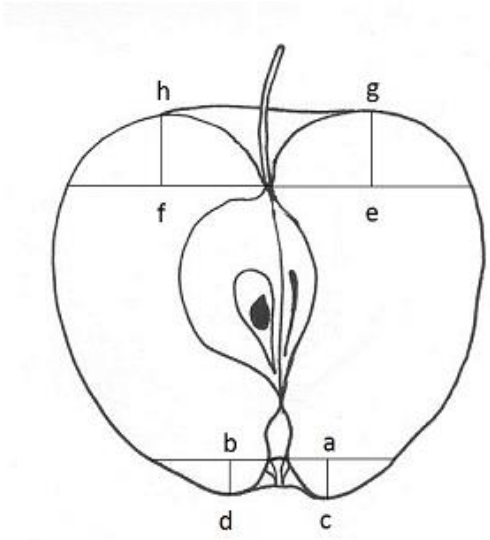


Ad. 54: Fruit: size of lenticels

See Ad. 53

Ad. 57: Fruit: depth of stalk cavity

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.



f-h = depth of stalk cavity (characteristic 55)
e-f = width of stalk cavity (characteristic 56)
a-c = depth of eye basin (characteristic 57)
a-b = width of eye basin (characteristic 58)

Ad. 58: Fruit: width of stalk cavity

See Ad. 57

Ad. 59: Fruit: depth of eye basin

See Ad. 57

Ad. 60: Fruit: width of eye basin

See Ad. 57

Ad. 62: (New:) Fruit: shape of calyx tube

1	2	3	4
narrow cylindric	broad cylindric	tapered	waisted

Ad. 64: Fruit: firmness of flesh

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

Ad. 70: Fruit: aperture of locules (in transverse section)

1	2	3	4	5
closed or slightly open	slightly to moderately open	moderately open	moderately to fully open	fully open

Ad. 71: Time of beginning of flowering

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

Ad. 72: Time for harvest

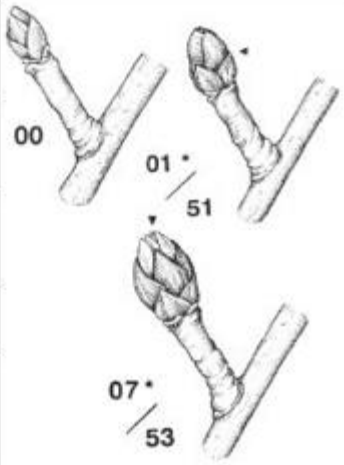
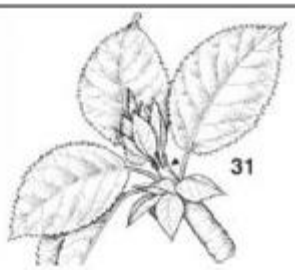
Time for harvest is the optimum time of picking to achieve fruit in peak condition for eating (see Ad. 64).

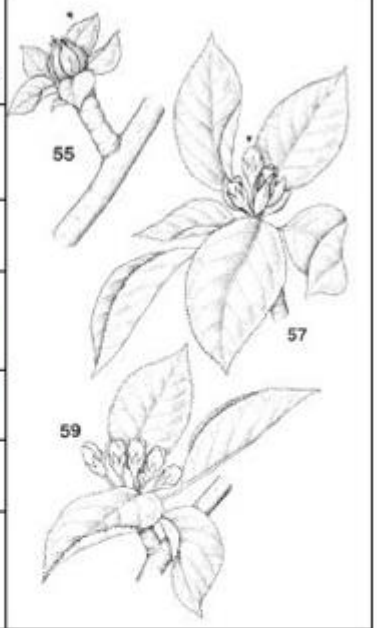
Ad. 73: Time of eating maturity

Time of eating maturity is the period when a fruit has reached optimum color, firmness, texture, aroma and flavor for consumption. Depending on the type of fruit, this period can occur directly after removal from the tree (e.g. early varieties) or after a period of storage or conditioning (e.g. later varieties).

8.3

BBCH-Scale for the description of the phenological growth stages of pome fruit

Stage	Explanation	
Principal growth stage 0: Bud development		
00	Dormancy: leaf buds and the thicker inflorescence buds closed and covered by dark brown scales	
01	Beginning of bud swelling (leaf buds); buds visibly swollen, bud scales elongated, with light colored patches	
03	End of leaf bud swelling: bud scales light colored with some parts densely covered by hairs	
07	Beginning of bud break: first green leaf tips just visible	
09	Green leaf tips about 5 mm above bud scales	
Principal growth stage 1: Leaf development		
10	Green leaf tips 10 mm above the bud scales; first leaves separating (mouse-ear stage)	
11	First leaves unfolded (others still unfolding)	
15	More leaves unfolded, not yet at full size	
19	First leaves fully expanded	
Principal growth stage 2: (not applicable)		
Principal growth stage 3: Shoot development[4)] [4)] From terminal buds		
31	Beginning of shoot growth: axes of developing shoots visible	
32	Shoots about 20 % of final length	
39	Shoots about 90 % of final length	

Principal growth stage 4: Development of stolons and young plants (not applicable)		
Principal growth stage 5: Inflorescence emergence		
51	Inflorescence buds swelling: Inflorescence buds swelling: bud scales elongated, with light buds closed, light brown scales colored patches visible	
52	End of bud swelling: light colored bud scales visible with parts densely covered by hairs	
53	Bud burst: green leaf tips enclosing flowers visible	
54	Mouse-ear stage: green leaf tips 10 mm above bud scales; first leaves separating Flower buds visible (still closed)	
56	Green bud stage: single flowers separating (still closed)	
57	Red bud stage: flower petals elongating; sepals slightly open; petals just visible	
59	Most flowers with petals forming a hollow ball	
Principal growth stage 6: Flowering		
60	First flowers open	
61	Beginning of flowering: about 10 % of flowers open	
65	Full flowering: at least 50 % of flowers open, first petals falling	
67	Flowers fading: majority of Flowers fading: majority of petals fallen	
69	End of flowering: all petals fallen	

Principal growth stage 7: Development of fruit		
71	Fruit size up to 10 mm; fruit fall after flowering	 75
72	Fruit size up to 20 mm	
73	Second fruit fall	
74	Fruit diameter up to 40 mm; fruit erect (T-stage: underside of fruit and stalk forming a T)	
75	Fruit about half final size	
77	Fruit about 70 % of final size	
Principal growth stage 8: Maturity of fruit and seed		
81	Beginning of ripening: lightening of cultivar-specific fruit color	(no drawing)
85	Advanced ripening: increase in intensity of cultivar-specific color	
87	Fruit ripe for picking	
89	Fruit ripe for consumption: fruit have typical taste and firmness	
Principal growth stage 9: Senescence, beginning of dormancy		
91	Shoot growth completed; terminal bud developed; foliage still fully green	(no drawing)
92	Leaves begin to discolor	
93	Beginning of leaf fall	
97	All leaves fallen	
99	Harvested product	

8.4 Example varieties

Example varieties	Synonyms
Auralia	Tumanga
Cox's Orange Pippin	Cox Orangenrenette
Gloster	Gloster 69
Golden Delicious	Gelber Köstlicher
Golden Noble	Gelber Edelapfel
Gravensteiner	Graasten
Nouvelle Europe	New Europe
Red Jonaprince	Jonaprince; Red Prince
Regal Prince	Prince Gala
Reine de Reinettes	Goldparmäne; Plassart; Wintergoldparmäne
Šampion	Shampion
Schone van Boskoop	Belle de Boskoop; Schöner aus Boskoop
White Transparent	Papirovka; Transparente Jaune; Weißer Klarapfel

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)

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

1. Subject of the Technical Questionnaire

1.1 Botanical name	Malus domestica Borkh.
1.2 Common name	Apple

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding scheme

Variety resulting from:

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:

4.2 Method of propagating the variety

4.2.1 Other [ ]

(Please provide details)

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

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

	Characteristics	Example Varieties	Note
5.1 (2)	**Tree: type**		
	columnar	MacExcel, Wijcik	1 [ ]
	ramified	Elstar, Golden Delicious	2 [ ]
5.2 (3)	**Only varieties with ramified tree type: Tree: habit**		
	upright	Benoni, Gloster	1 [ ]
	spreading	Bramley's Seedling , Jonagold	2 [ ]
	drooping	Jonathan	3 [ ]
	weeping	Nield's Drooper, Rome Beauty	4 [ ]
5.3 (36)	**Fruit: general shape**		
	conical waisted	Starkrimson	1 [ ]
	medium conical	Jonagold	2 [ ]
	broad conical		3 [ ]
	ovate	Summerred	4 [ ]
	oblong	Gravensteiner, Mutsu	5 [ ]
	elliptic	Spencer	6 [ ]
	circular	Golden Noble, Resi	7 [ ]
	oblate	Bramley's Seedling , Idared	8 [ ]
	obconical	Empire	9 [ ]
5.4 (45)	**Fruit: relative area of over color**		
	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 [ ]
5.5 (46)	**Fruit: hue of over color – with bloom removed**		
	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 [ ]

	Characteristics	Example Varieties	Note
5.6 (48)	**Fruit: pattern of over color**		
	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 strongly defined stripes	Gravensteiner	4 [ ]
	only stripes (no flush)	Helios	5 [ ]
	flushed and mottled	Elstar	6 [ ]
	flushed, striped and mottled	Jonagold	7 [ ]
	marbled	Karneval	8 [ ]
5.7 (49)	**Fruit: width of stripes**		
	narrow	Eden, Pinova, Pirella	1 [ ]
	medium	Rubinola, Tenroy	3 [ ]
	broad	Baigent, Caudle	5 [ ]
5.8 (71)	**Time of beginning of flowering**		
	very early	Anna, Ein-Shemer	1 [ ]
	early	Idared	3 [ ]
	medium	Cox's Orange Pippin, Jonagold	5 [ ]
	late	Court Pendu Plat	7 [ ]
	very late	Feuillemorte, Spätblühender Taffetapfel	9 [ ]
5.9 (73)	**Time of eating maturity**		
	very early	Vista Bella	1 [ ]
	very early to early	White Transparent	2 [ ]
	early	Discovery, Jerseymac, Mountain Cove, Sunrise	3 [ ]
	early to medium	Akane, James Grieve, Summerred	4 [ ]
	medium	Elstar, Gala , Honeycrisp	5 [ ]
	medium to late	Ambrosia, Spartan, Šampion	6 [ ]
	late	Golden Delicious	7 [ ]
	late to very late	Fuji	8 [ ]
	very late	Cripps Pink, Granny Smith	9 [ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example			
Comments:			

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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

[End of document]