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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

[*]

PEACH

UPOV Code: PRUNU_PER

Prunus persica (L.) Batsch

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from France

to be considered by the
Technical Working Party for Fruit Crops
at its fortieth session, to be held in Angers, France, from September 21 to 25, 2009

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Prunus persica (L.) Batsch, *Persica vulgaris* Mill., *Prunus* L. subg. *Persica*	Peach	Pêcher	Pfirsich	Melocotonero

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, its associated TGP documents and the Test Guidelines for Prunus Rootstocks, document TG/187/1

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

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Comments:

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of peach (including nectarine) of the species *Prunus persica* (L.) Batsch. These Guidelines may also be useful for the examination of interspecific hybrids involving *P. persica.*

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 grafted trees, on a peach rootstock to be selected by the competent authorities.

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

5 grafted trees.

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.

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

3.3.3 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within

the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 trees.

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

3.5 Number of Plants / Parts of Plants to be Examined

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

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The 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.

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: ***to be reviewed***

(a) [Tree: size (characteristic 1)]
(b) Flower: type (characteristic 8)
(c) Petiole: nectaries (characteristic 31)
(d) Fruit: pubescence (characteristic 52)
(e) Fruit: main color of flesh (characteristic xx)
(f) New Fruit: acidity (Acidity titrable) in meq 100/ml (characteristic 66)
(g) Stone: adherence to flesh (characteristic 72)
(h) [Time of beginning of flowering (characteristic 80)]
(i) Time of maturity for consumption (characteristic 82)

[could be deleted if necessary]

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

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

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

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

2008 comments and decisions 2009 comments and propositions

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
1. (*)		**Tree: size**	**Arbre: taille**	**Baum: Größe**			
QN	**(a)**	very small	très petit	sehr klein		Bonanza	1
		small	petit	klein		Richaven	3
		medium	moyen	mittel		Robin	5
		large	grand	groß		Redhaven	7
		very large	très grand	sehr groß		Champion	9
2.		**Tree: vigor**	**Arbre: vigueur**	**Baum: Wuchsstärke**			
(+)							
QN	**(b)**	weak	faible	gering		J. H. Hale	3
		medium	moyenne	mittel		Robin	5
		strong	forte	stark		Springtime	7
3. (*) (+)		**Tree: habit**	**Arbre: port**	**Baum: Wuchsform**			
QN	**(a)**	upright	dressé	aufrecht		Nectarose, Pillar	1
		upright to spreading				Fairhaven, Redwing	2
		spreading	étalé	breitwüchsig		Albertina, Elegant Lady, Mayred, O'Henry	3
		drooping	retombant	überhängend		Coconut Ice, Scarlet O'Hara	4
		weeping	très retombant	lang überhängend		Biancopendulo	5
4.		**Flowering shoot: thickness**	**Rameau mixte: grosseur**	**Blütentrieb: Dicke**			
(+)							
QN	**(a)**	thin	fin	dünn		Mayred	3
		medium	moyen	mittel		Redhaven	5
		thick	gros	dick		Flavorcrest, Lizzie	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
2007 - 4a to check if characteristic "tendency to produce on brindilles" (present in the guide line) is necessary. France: not necessary, can be added in the observations if needed. TWF 2007: Answer: to be deleted – France 2008 and 2009: keep it as it could be used for D (problem of 'additional' characteristic)							
5.		**Flowering shoot: length of internodes**	**Rameau mixte: longueur des entrenœuds**	**Blütentrieb: Länge der Internodien**			
QN	**(a)**	very short	très courts	sehr kurz		Bonanza	1
	(d)	short	courts	kurz		June Gold, Merrill Sundance	3
		medium	moyens	mittel		Redhaven	5
		long	longs	lang		Fairhaven	7
		very long	très longs	sehr lang		Flacara	9
6. (*) (+)		**Flowering shoot: intensity of anthocyanin coloration (shaded – Fr-Za *or sunny-Hr*-side ?)**	**Rameau mixte: intensité de la pigmentation anthocyanique ( )**	**Blütentrieb: Intensität der Anthocyanfärbung**			
QN	**(d)**	absent or very weak	absent ou très faible	fehlend oder sehr gering		De flor doble blanca	1
		weak	faible	gering		Springtime	3
		medium	moyenne	mittel		Fuzalode	5
		strong	forte	stark		Robin, Sanguine Chanas	7
***(Fr 08/09: would like to have* absent (1) De flor doble blanca, Mintao *and* very weak (3)…or two characteristics 1/9, then 3/5/7 - Fr 09 confirms on shaded side.**							

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
NZ 2008: Red haven to be(2), France checked in 2009: level 7							
7. **(+)**		**Flowering shoot: density of flower buds**	**Rameau mixte: densité des boutons floraux**	**Blütentrieb: Dichte der Blütenknospen**			
QN	**(a)**	very sparse	très peu dense	sehr locker		Monline	1
	(d)	sparse	peu dense	locker		Early Coronet, Merrill X, O'Henry, Zaitabo	3
		medium	moyenne	mittel		Craucail, Flacara, Michelini, Richlady	5
		dense	dense	dicht		Momee, Redhaven	7
		very dense	très dense	sehr dicht		Amrking, Harco	9
8. **(*)** **(+)**		**Flower: type**	**Fleur: type**	**Blüte: Typ**			
QL	**(d)**	campanulate	campanulée	glockenförmig		Dida, Springtime	1
	(e)	rosette	rosacée	rosettenförmig		Robin, Vesuvio	2
9. **(*)** **(+)**		**Calyx: color of inner side (opened flower, before falling of petals)**	**Calice: couleur de la face interne (fleur épanouie, avant la chute des pétales)**	**Kelch: Farbe der Innenseite (geöffnete Blüte, vor dem Abfallen der Blütenblätter)**		Japan proposal	
QL	**(d)**	greenish yellow or orange	jaune verdâtre	grünlichgelb		Robin	1
	(e)	dark orange	orangée	orange		Redhaven	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
10. (*) (+)		**Corolla: main color (inner side)**	**Corolle: couleur principale (face interne)**	**Blütenkrone: vorwiegende Farbe (Innenseite)**			
PQ	**(d)**	white	blanc	weiß		Biancopendulo, De flor doble blanca	1
	(e)	yellow pink	jaune rosé			Halford	2
		very light pink	rose très pale	sehr hellrosa		Cardinal	3
		light pink	rose pale	hellrosa		Michelini	4
		medium pink	rose moyen	mittelrosa		Alexia, Fuzalode	5
		dark pink	rose foncé	dunkelrosa		Flacara, Vivian	6
		violet pink	rose violacé	violettrosa		Candor	7
		red	rouge	rot		Red Flower Peach	8
		Photo for yellow pink level (Za ou NZ)					
11. (*) (+)		**Petal: shape**	**Pétale: forme**	**Blütenblatt: Form**			
PQ	**(d)**	ovate	ovale	eiförmig		Independence, Maillara, May Glo,	1
	(e)	narrow elliptic	elliptique étroit	breit elliptisch		Maillara	2
		broad elliptic	elliptique large	breit elliptisch		Earlibelle	3
		circular	rond	rund		Springtime	4
		Is 'ovate' different from 'narrow elliptic' ? France 2009 : it exists only 3 levels (see Ad.11)					
12. (*) (+)		**Only varieties with flower type: campanulate: Petal: width**	**Seulement pour les variétés à fleurs campanulées : Pétale: largeur**	**Nur Sorten mit glockenförmigem Blütentyp: Blütenblatt: Breite**		***= non showy***	
QN	**(d)**	very narrow	très étroit	sehr schmal			1
	(e)	narrow	étroit	schmal		Meydicte	3
		medium	moyen	mittel		Bradgust	5
		broad	large	breit		Monnail	7
		very broad	très large	sehr breit			9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
13. (*) (+)		**Only varieties with flower type: rosette: Petal: width**	**Seulement pour les variétés à fleurs en rosette : Pétale: largeur**	**Nur Sorten mit rosettenförmigem Blütentyp: Blütenblatt: Breite**			
QN	**(d)**	very narrow				Redhaven	1
	(e)	small				Shasta	3
		medium				Robin	5
		broad				Michelini	7
		very broad				Veteran	9
14. (*)		**Flower: number of petals**	**Pétales: nombre de pétales**	**Blütenblätter: Anzahl**			
QL	**(d)**	five	cinq	fünf		Redhaven	1
	(e)	more than five	plus de cinq	mehr als fünf		Red Flower Peach, Royal Glo	2

To be placed after characteristic 8, and to consider China proposal:

5-19

20-30

More than 30 ***Tonia, Romarin Pompon***

France 2009: levels' 5-19' and 'more than 30' do exist. They concern ornamental varieties, not fruit varieties. These genotypes have stamens transformed in petals, no pollen, no pistil, so not edible fruits.

15. (+)		**Stamen: position compared to petals**	**Étamines: position par rapport aux pétales**	**Staubgefäße: Stellung im Verhältnis zu den Blütenblättern**			
QN	**(d)**	below	au-dessous	unterhalb		Loring	1
	(e)	at same level	au même niveau	auf gleicher Höhe		Robin, Springtime	2
		above	au-dessus	oberhalb		Redhaven	3
16. (*) (+)		**Stigma: position compared to anthers**	**Stigmate: position par rapport aux anthères**	**Narbe: Stellung im Verhältnis zu den Antheren**			
QN	**(d)**	below	au-dessous	unterhalb		Vivian	1
	(e)	same level	au même niveau	auf gleicher Höhe		Crimson Gold	2
		above	au-dessus	oberhalb		Fuzalode	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
17. (*) (+)		**Anthers: pollen**	**Anthères: pollen**	**Antheren: Pollen**			
QL	**(d)**	absent	absent	fehlend		J. H. Hale	1
	(e)	present	présent	vorhanden		Redhaven	9

NZ, DE, Romania proposes to delete as directly correlated with Character 45

France: exact, but it's easy and evident to observe 45 and it takes few time for 19. TWF 2007: deleted - Fr 2008 and 2009: this early observation permits early identification …between peach/nectarines…and required by certification scheme offices using our descriptions at early stage)

~~**18. (*)**~~		~~**Ovary: pubescence**~~	~~**Ovaire: pubescence**~~	~~**Fruchtknoten: Behaarung**~~			
~~**QL**~~		~~absent~~	~~absente~~	~~fehlend~~		~~Fuzalode~~	1
		~~present~~	~~présente~~	~~vorhanden~~		~~redhaven~~	9
19. (+)		**Stipule: length (on fully expanded leaf on young shoot)**	**Stipule: longueur (feuille complètement développée sur jeune rameau)**	**Nebenblatt: Länge (am voll entwickelten Blatt am Jungtrieb)**			
QN	**(d)**	short	court	kurz		Redhaven	3
	(e)	medium	moyen	mittel		Robin	5
		long	long	lang		Dixired	7
20. (*) (+)		**Leaf blade: length**	**Limbe longueur**	**Blattspreite: Länge**			
QN	**(b)**	short	court	kurz		Jeronimo	3
		medium	moyen	mittel		Fairhaven	5
		long	long	lang		Southland	7
21. (*) (+)		**Leaf blade: width**	**Limbe: largeur**	**Blattspreite: Breite**			
QN	**(b)**	narrow	étroit	schmal		Redhaven	3
		medium	moyen	mittel		Robin	5
		broad	large	breit		Dixinel	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
22. (*) (+)		**Leaf blade: ratio length/width**	**Limbe: rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**			
QN	**(b)**	low	petit	klein		Mountaingold	3
		medium	moyen	mittel		Early Sungrand	5
		high	grand	groß		Springtime, Vivian	7
23. (+)		**Leaf blade: shape in cross section**	**Limbe: forme en section transversale**	**Blattspreite : Form im Querschnitt**			
QN	**(b)**	concave	concave	konkav		Merrill Gemfree	1
Za flat		(flat) or moderately concave	droite	eben		Mayred (France 09: Mayred is 'flat')	2
		(convex) or weakly concave (with Mayred)	convexe	konvex		*Fr 08 and 09 :'convex' to be deleted*	3
		Fr 2009: level 'convex' does not exist. Monet bibliography for level 'convex' to be checked (Roumania) Fr 2009: it does not insert level'convex'					
24. (+)		**Leaf blade: margin**	**Limbe: bord**				
~~QL~~ PQ	**(b)**	serrate				Crimson Glo	1
		crenate				Fiesta Red	2
		very crenate				Flor de Guaid	3
		New level for (3), deeper than crenate, to take account of T.Pascal proposal for eglandular varieties leaf margin.					
25. (+)		**Leaf blade: angle at base**	**Limbe: angle au sommet**	**Blattspreite: Winkel an der Basis**			
QN	**(b)**	acute	aigu	spitz		Springtime	1
		approximatively right angle	à angle droit	rechtwinklig		Redhaven	2
		obtuse	obtus	stumpf		Merrill Fransiscan	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
26. **(+)**		**Leaf blade: angle at apex**	**Limbe: angle au sommet**	**Blattspreite: Winkel an der Spitze**		**TWF 09, France to provide illustration**	
QN	**(b)**	small	petit	klein		Red June	3
		medium	moyen	mittel		Earlired	5
		large	grand	groß		Merrill Franciscan	7
27. **(+)** **New**		**Leaf blade: recurvature of apex**				As in the present guideline TG/53/6	
QL	**(b)**	**absent**				Merill Sundance	1
		present				Flavortop	9
28. **(+)**	**(b)**	**Leaf blade: color**	**Limbe: couleur**	**Blattspreite: Farbe**			
PQ		greenish yellow	jaune verdâtre	grünlichgelb		Redhaven	1
		light green	vert clair	hellgrün		Silver Fire	2
		medium green	vert moyen	mittelgrün		Robin	3
		dark green		dunkelgrün		Fiesta Red	4
		purplish red	rouge pourpre	purpurrot		Rubira	5
29. **(+)**	**(b)**	**Leaf blade: red mid-vein on the lower side**	**Nervure principale rouge face inférieure**	**Blattspreite: rote Hauptader auf der Unterseite**			
QL		absent	absente	fehlend		Redhaven	1
		present	présente	vorhanden		Sanguine Chanas	9
30. **(+)**		**Petiole: length**	**Pétiole: longueur**	**Blattstiel: Länge**			
QN		short	court	kurz		Redhaven	3
		medium	moyen	mittel		Genadix 7	5
		long	long	lang		Andross	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
31. (*) (+)		**Petiole: nectaries**	**Pétiole: nectaires**	**Blattstiel: Nektarien**			
QL	**(c)**	absent	absente	fehlend		Crimson Glo, Tejon	1
		present	présente	vorhanden		Redhaven	9
32. (*) (+)		**Petiole: shape of nectaries**	**Pétiole: forme des nectaires**	**Blattstiel: Form der Nektarien**			
QL	**(c)**	round	circulaires	rund		Springtime	1
		reniform	réniformes	nierenförmig		Redhaven	2

***DELETED in 2007** – **France 2008 and 2009** estimates the characteristic easy to assess and reliable, to be observed during a period of two weeks just before harvest (in july): two (1); 4 à 6 (2). To be keep: important for D and identification.*

~~**33. Fr08 (+)**~~		~~**Petiole: predominant number of nectaries**~~	~~**Pétiole: nombre prédominant de nectaires**~~	~~**Blattstiel: überwiegende Anzahl Nektarien**~~			
		~~two~~	~~deux~~	~~zwei~~		~~Genadix 7~~	1
		~~more than two~~	~~plus de deux~~	~~mehr als zwei~~		~~Everts~~	2
34. (*)		**Fruit: size**	**Fruit: taille**	**Frucht: Größe**			
QN	**(f)**	very small	très petit	sehr klein		Nectarine-Cerise	1
		small	petit	klein		Maycrest, Springtime	3
		medium	moyen	mittel		Jade, Springlady, Sunhaven	5
		large	grand	groß		Bigtop, Loring, Royalglory	7
		very large	très grand	sehr groß		Comanche, Maillarbig	9
35.		**Fruit: height**					
(+)							
QN	**(f)**	short					3
		medium					5
		long					7

Illustrations to be provided by ZA

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
		France: not to be introduced, ‘size’ and ‘shape’ are suffisant					
36.		**Fruit: width**					
(+)							
QN	**(f)**	narrow					3
		medium					5
		broad					7
		Illustrations to be provided by ZA					
		France: not to be introduced, ‘size’ and ‘shape’ are suffisant					
37.	**(f)**	**Fruit: thickness**					
(+)							
QN		thin					3
		medium					5
		thick					7
		Illustrations to be provided by ZA					
		France: not to be introduced, ‘size’ and ‘shape’ are suffisant					
38.	**(f)**	**Fruit: ratio height/width**					
(+)							
QN		small					3
		medium					5
		large					7
		Illustrations to be provided by ZA					
		France: not to be introduced, ‘size’ and ‘shape’ are suffisant					

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
39. (*) (+)	**(f)**	**Fruit: shape (in ventral view)**	**Fruit: forme (vue ventrale)**	**Frucht: Form (in Bauchansicht)**			
PQ		broad oblate	aplati large	breit abgeflacht		Alex, Bailou, UFO3	1
		medium oblate	moyennement aplati	mittel abgeflacht		Herastrau, Robin	2
		circular	rond	rund		Redwing	3
		broad elliptic	elliptique large	breit elliptisch		Cavalier	4
		elliptic	elliptique	elliptisch		Elberta	5
		Fr 08-09: combine 40 and 42- see the documentation - to delete					
40. (+)		**Fruit: shape of pistil end**	**Fruit: forme de l'extrémité pistillaire**	**Frucht: Form des Kelchendes**			
QN	**(f)**	pointed	pointu	zugespitzt		Jerseyland	1
		flat	plan	eben		Redhaven	3
		depressed	en cuvette	eingesunken		Bailou, Bailou, UFO3	5
41.		**Fruit: mucron tip at pistil end**					
QL	**(f)**	absent				Robin	1
		present				Jersey Land, Spring time	9
42.		**Fruit: shape of pistil end ~~(without mucron tip)~~**		Keep the TG 53/6 characteristic		See the documentation	
		prominently pointed				Jerseyland	1
		weakly pointed				Springtime	2
		flat				Redhaven	3
		weakly depressed				Robin	4
		strongly depressed				Bailou , UFO3	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
43. **(+)**		**Fruit: symmetry (viewed from pistil end)**	**Fruit: symétrie (vue de l'extrémité pistillaire)**	**Frucht: Symmetrie (vom Kelchende aus gesehen)**			
QN	**(f)**	symmetric	symétrique	symmetrisch		Redhaven	1
		moderately asymmetric	modérément asymétrique	etwas asymmetrisch	Za: Jim Dandy, Brittaney Lane	*Fr 08 and 09: this level is not necessary/example varieties ?*	2
		strongly asymmetric	fortement asymétrique	stark asymmetrisch		Precoccissima Moretini	3
44. **(+)**		**Fruit: prominence of suture**	**Fruit : proéminence de la suture**	**Frucht: Ausprägung der Naht**			
QN	**(f)**	weak	faible	gering		Redhaven	3
		medium	moyenne	mittel		Example variety by France	5
		strong	forte	stark		Precocissima Morettini	7
45. **(+)**		**Fruit: depth of stalk cavity**	**Fruit: profondeur de la cavité pédicellaire**	**Frucht: Tiefe der Stielhöhe**			
QN	**(f)**	shallow	peu profonde	flach		Robin	3
		medium	moyenne	mittel		Triumf	5
		deep	profonde	tief		Southland	7
46. **(+)**		**Fruit: width of stalk cavity**	**Fruit: largeur de la cavité pédicellaire**	**Frucht: Breite der Stielhöhe**			
QN	**(f)**	narrow	étroite	schmal		Redhaven	3
		medium	moyenne	mittel		Maygrand	5
		broad	large	breit		Robin	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
47. (*) (+)		**Fruit: ground color of skin**	**Fruit: couleur de fond de l'épiderme**	**Frucht: Grundfarbe**			
PQ	**(f)**	not visible	non visible			Fiesta Red	1
		green	verte	grün		Rubberima	2
		cream green	vert crème	cremegrün		Carman	3
		greenish white	blanc verdâtre	grünlichweiß		Morton	4
		cream white	blanc crème	cremeweiß		Antonia, Michelini	5
		cream	crème	cremefarben		Amsden	6
		pink white	blanc rosé	rosaweiß		Précoce de Hale	7
		greenish yellow	jaune verdâtre	grünlichgelb		Veteran	8
		cream yellow	jaune crème	cremegelb		Fuzalode	9
		yellow	jaune	gelb		Sudanell	10
		orange yellow	jaune orange	orangegelb		Redtop, Victoria	11
48. (+)		**Fruit: over color of skin**	**Fruit: couleur du lavis**	**Frucht: Deckfarbe**			
QL	**(f)**	absent	absente	fehlend		Sudanell	1
		present	présente	vorhanden		Amsden, Zaitabo	9
49. (+)		**Fruit: over color**	**Fruit: couleur du lavis**	**Frucht: Ton der Deckfarbe**			
PQ	**(f)**	orange red	rouge orangé	orangerot		Velvet	1
		pink	rosé	rosa		Genard	2
		pink red	rouge rosé	rosarot		Fuzalode	3
		light red	rouge clair	hellrot		Redtop	4
		medium red	rouge moyen	mittelrot		Red Diamond	5
		dark red	rouge foncé	dunkelrot		Redwing	6
		blackish red	rouge vineux	schwärzlichrot		Monec, Monid	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
50. **(+)**		**Fruit: pattern of over color**	**Fruit: répartition de la couleur du lavis**	**Frucht: Ausbreitungsform der Deckfarbe**			
PQ	**(f)**	solid flush	en plages continues	ganzflächig		Flavorcrest	1
		mottled	moucheté	punktiert		Merill Sundance	2
		striped	en stries	gestreift		Velvet	3
		marbled	marbré	marmoriert		Genadix	4
51. **(*)** **(+)**		**Fruit: relative area of over color**	**Fruit: extension relative de la couleur du lavis**	**Frucht: Anteil der Deckfarbe**			
QN	**(f)**	absent or very small	absente ou très petite	fehlend o sehr klein		Veteran	1
		small	petit	klein		Amsden	3
		medium	moyen	mittel		Redhaven	5
		large	grand	groß		Redtop,	7
		very large	très grand	sehr groß		Rich Lady, Zaitabo	9
52. **(*)**		**Fruit: pubescence**	**Fruit: pubescence**	**Frucht: Behaarung**			
QL	**(f)**	absent	absente	fehlend		Daisy, Fantasia, Monco, Zaitabo	1
		present	présente	vorhanden		Merspri, Moncav, Rich May	9
53. **(*)** **(+)**		**Fruit: density of pubescence**	**Fruit:**	**Frucht: Dichte der Behaarung**			
QN	**(f)**	very sparse	très faible	sehr gering		Merrill Gemfree	1
		sparse	faible	gering		Suncrest	3
		medium	moyenne	mittel		Dixired	5
		dense	forte	stark		Earlyvee, Veteran	7
		very dense	très forte	sehr stark		Arp Beauty, Triumph	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
54.		**Only varieties with fruit pubescence: absent: Fruit: glossiness**	**Variétés sans pubescence : Fruit : brillance**			Témoins France or ZA	
QN	**(f)**	absent or very weak	absente ou très faible				1
		medium	moyenne				2
		strong	forte				3
55. New (+)	**(f)**	**Only varieties with fruit pubescence: absent: Fruit: size of lenticels**				New proposal : 'density' is better than 'size' (see Ad 55)	
QN		small				Flavortop	1
		medium				Ruby Diamond	2
		large				Royal gem	3
56. (+)		**Fruit: thickness of skin**	**Fruit: épaisseur de l'épiderme**	**Frucht: Dicke der Haut**			
QN	**(f)**	thin	faible	dünn		Fuzalode	1
		medium	moyenne	mittel		Mme Girard	2
		thick	forte	dick		Carman	3
57.		**Fruit: adherence of skin to flesh**	**Fruit: adhérence de l'épiderme à la chair**	**Frucht: Haften der Haut am Fleisch**			
QN	**(f)**	very weak	très faible	fehlend oder sehr gering		Mme Girard	1
		weak	faible	gering		Redhaven	3
		medium	moyenne	mittel		Early Sungrand	5
		strong	forte	stark		Babygold 5	7
		very strong	très forte	sehr stark		Vivian	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
58. (*) (+)		**Fruit: firmness of flesh**	**Fruit: fermeté de la chair**	**Frucht: Festigkeit des Fleisches**			
QN	**(f)**	very soft	très molle	sehr weich		Amsden	1
		soft	molle	weich		Fairhaven	3
		medium	moyenne	mittel		Redhaven	5
		firm	ferme	fest		Redtop	7
		very firm	très ferme	sehr fest		Babygold 6, Vivian	9
59. (*) (+)		**Fruit: carotenoïds coloration of flesh**	**Fruit: couleur des caroténoïdes de la chair**	**Frucht: Karotinoidfärbung des Fleisches**		**JP: ground color**	
PQ	**(f)**	greenish white	blanc verdâtre	grünlichweiß		Charles Roux	1
		white	blanche	weiß		Caldesi 2000, Springtime	2
		cream white	blanc crème	cremeweiß		Michelini	3
		light yellow	jaune clair	hellgelb		Armking, Spring Gold	4
		yellow	jaune	gelb		Early Sungrand	5
		orange yellow	jaune orange	orangegelb		Lovel, Merril Franciscan	6
		orange	orange	orange		Sungold	7
60. (*) (+)		**Fruit: anthocyanin coloration of flesh next to skin**	**Fruit: pigmentation anthocyanique sous-épidermique**	**Frucht: Anthocyanfärbung direkt unter der Haut**			
QN	**(f)**	absent or very weak	absente ou très faible	fehlend oder sehr gering		Redhaven	1
		weak	faible	gering		Daisy, Dolores, Monco	2
		strong	forte	stark		Monalu, Monof, Richmay, Sanguine Chanas, Sanguine vineuse, Zairegem	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
61. (*) (+)		**Fruit: anthocyanin coloration of flesh in central part of flesh**	**Fruit: pigmentation anthocyanique de la partie centrale de la chair**	**Frucht: Anthocyanfärbung des Fleisches im Zentrum des Fruchtfleisches**			
QN	**(f)**	absent or very weak	absente ou très faible	fehlend oder sehr gering		Robin	1
		weak	faible	gering		Dolores, Monco	2
		strong	forte	stark		Monof, Zairegem	3
62. (*) (+)		**Fruit: anthocyanin coloration of the flesh around stone**	**Fruit: pigmentation anthocyanique de la chair autour du noyau**	**Frucht: Anthocyanfärbung im Bereich des Steines**			
QN	**(f)**	absent or weak	absente ou très faible	fehlend oder sehr gering		Springtime	1
		medium	moyenne	gering		Ryan Sun	2
		strong	forte	stark		Summer Lady, Zaipeo	3
63. (+)		**Fruit: flesh fiber**	**Fruit: chair fibreuse**	**Frucht: Fasern im Fleisch**		**Explanation, how to assess ? by France**	
QL	**(f)**	[absent]/ Faiblement exprimée	absente	fehlend		Redhaven	1
		[present]/Fortement exprimée	présente	vorhanden		Sunhigh	9
64. (+)		**Fruit: flesh type**				Explanation, how to define the types ? see Ad. 60	
QL	**(f)**	melting				Snow Queen	1
		non melting stony hard (=crisp)				Jim Dandy, Manami, Nishio gold, Odoraki, Yumyeong	2
		non melting (=clingstone, pavies)				Baby Gold 6, Kakanas	3

Fr 2009: Two levels are necessary (1) melting/ (2) non melting

Do not insert ‘clingstone’ category, not easy to assess for DUS identification

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
65.		**Fruit: sweetness**	**Fruit: goût sucré**	**Frucht: Süße**			
(+)							
QN	**(f)**	low	faible	gering		Alexandra, Armking, Merryl Gemfree	1
		medium	moyen	mittel		Dixired, Redhaven	2
		high	fort	stark		Maillardoux, Philp	3
66.		**Fruit: acidity (Acidity titrable) in meq 100/ml**	**Fruit: acidité**	**Frucht: Säure (titrierbare Säure in meq/100 ml)**			
(+)							
QN	**(f)**	very low	très faible	sehr gering		Ambre, Kevine, Nacre, Opale, Redwing, // Monam, Moncav, Zaiboni	1
		low	faible	gering		Big Boum, Bigtop, Emeraude, Felicia//Monprime, Zaifuro, Zairesu	2
		medium	moyenne	mittel		Maillarboom, O'Henry, Ryan Sun, Zaitabo	3
		high	forte	stark		Craucail, Hermione, Nectacross, Orion, Primerose, Richmay, Zainara	4
		very high	très forte	sehr stark		Armking, Bracid, Maycrest, Red Robin, Savana Red, Star Bright, Zaibri, Zaitop	5
67.		**Stone: size compared to fruit**	**Noyau: taille par rapport à celle du fruit**	**Stein: Größe im Verhältnis zur Frucht**			
(*)							
(+)							
QN	**(g)**	small	petit	klein		Alex, Robin	3
		medium	moyen	mittel		Redhaven	5
		large	gros	groß		Somervee	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
68. (*) (+)	**(g)**	**Stone: shape (in lateral view)**	**Noyau: forme (vue latérale)**	**Stein: Form (in Seitenansicht)**		**Japan and Fr 2009: combine levels 3 and 4 in one level (see Ad. 68)**	
PQ		oblate	aplati	abgeflacht		Alex, Bailou, Saturne, UFO 3	1
		circular	rond	rund		Robin	2
		elliptic	elliptique	elliptisch		Loring	3
		obovate	obovoide	verkehrt eiförmig		Rubidoux	4
69. (+)		**Stone: intensity of brown color**	**Noyau: intensité de la couleur brune**	**Stein: Intensität der Braunfärbung**			
QN	**(g)**	light	claire	hell		Robin	3
		medium	moyenne	mittel		Alexia, Amalia, Victoria	5
		dark	foncée	dunkel		Vivian	7
70. (+)		**Stone: relief of surface**	**Noyau : relief de la surface**	**Stein: Aussehen der Oberfläche**		**See Fr and japan 2009 proposals in ad 70**	
~~QL~~ PQ	**(g)**	small pits	petites cavités	kleine Vertiefungen		Ribet	1
		large pits	grandes cavités	große Vertiefungen		Dugelay	2
		grooves	sillons	Furchen		Charles Roux	3
		pits and grooves	cavités et sillons	Vertiefungen und Furchen		Madame Girard	4
71. (+)		**Stone: tendency of splitting (at peak harvest)**	**Noyau: tendance a la fente (en pleine récolte)**	**Stein: Tendenz zur Spaltung (zur Haupternte)**			
QN	**(g)**	absent or very low	nul ou très faible	fehlend oder sehr gering		Fairhaven	1
		low	faible	gering		Dixired	3
		medium	moyen	mittel		Springold	5
		high	élevé	groß		Cardinal	7
		very high	très élevé	sehr groß		Earlired	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
72. (*)		**Stone: adherence to flesh**	**Noyau : adhérence a la chair**	**Stein: Anhaften am Fleisch**			
QL	**(g)**	absent	absente	fehlend		Fairhaven, Fuzalode	1
		present	présente	vorhanden		Sweet Gold, Vivian	9
73.		**Stone: degree of adherence to flesh**	**Noyau: degré d'adhérence a la chair**	**Stein: Stärke des Anhaftens am Fleisch**			
QN	**(g)**	weak	faible	gering		Dixired	3
		medium	moyenne	mittel		Springcrest	5
		strong	forte	stark		Vivian	7
		70 to 74, Example varieties to be provided by ZA					
74.		**Stone: length**			FR : to delete		
QN	**(g)**	short				African Glo	3
		medium				Donnarine	5
		long				Armking	7
75.		**Stone: lateral width**			FR : to delete		
QN	**(g)**	narrow				Crimson Glo	3
		medium				Flavortop	5
		broad				Diamond Zee	7
76.		**Stone: ratio length/width**			FR : to delete		
QN	**(g)**	low				Early Glo	3
		medium				Diamond Ray	5
		high				Independence	7
77.		**Stone: broadest part**			FR : to delete		
QL	**(g)**	towards stalk end				Anita	1
		middle				Splendour	2
		towards pistil end				Sungrand	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
78.		**Stone: anthocyanin coloration on stone**			FR : to insert near car. 69		
QN	**(g)**	absent or very weak				Oom Sarel	1
		weak				Alpine	3
		medium				Jim Dandy	5
		strong				Margaret's Pride	7
		very strong				Arctic Red	9
79.		**Time of leaf bud burst**	**Époque de début de floraison**	**Zeitpunkt des Aufbrechens der vegetativen Knospe**			
QN		very early	très précoce	sehr früh		Sunred	1
		early	précoce	früh		Springtime	3
		medium	moyenne	mittel		Redhaven	5
		late	tardive	spät		Genadix 7	7
		very late	très tardive	sehr spät		Philp	9
80. (*)		**Time of beginning of flowering**	**Époque de début de floraison**	**Zeitpunkt des Blüh-beginns**			
QN		very early	très précoce	sehr früh		Zaibop, Zaitolio	1
		early	précoce	früh		Richlady, Springtime	3
		medium	moyenne	mittel		Monnude, Zaitabo	5
		late	tardive	spät		Maillarflat, Maillarlau	7
		very late	très tardive	sehr spät		Summerqueen	9
81. (*)		**Duration of flowering**	**Durée de floraison**	**Dauer der Blüte**			
QN		short	courte	kurz		Philp	3
		medium	moyenne	mittel		Redhaven	5
		long	longue	lang		Springtime	7

DE: Isn't this characteristic not too much dependent on outer circumstances? propose to delete.

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
82. (*)	**Time of maturity for consumption (or for eating NZ)**	**Époque de maturité pour la consommation**	**Zeitpunkt der Genussreife**			
QN	very early	très précoce	sehr früh		Springtime	1
	early	précoce	früh		Antonia, Robin	3
	medium	moyenne	mittel		Fairhaven	5
	late	tardive	spät		Veteran	7
	very late	très tardive	sehr spät		Firetime, Rubidoux	9
	France proposal, taking account that the period of fruit maturity is 4 months long now					
	very early				Ricmay, Zaibaro	1
					Zainoar, Zaitani	2
	early				Redwing, Rich Lady	3
					Craucail, Diamond Princess	4
	medium				Fantasia, Summer Bright, Zee Lady	5
					Maillarbig, Savana red, Zaimor	6
	late				Fairlane, Flacara, Western red, Zailati, Zairova	7
					Andgold, Tardibelle	8
	very late				Var.example France/Italie	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplos	Note/ Nota
83.	**Tendency to preharvest drop**	**Tendance a la chute avant la récolte**	**Neigung zum Fruchtfall vor der Ernte**			
QN	absent or very weak	nulle ou très faible	fehlend oder sehr gering		Redhaven	1
	weak	faible	gering		Shasta	3
	medium	moyenne	mittel		Vesuvio	5
	strong	forte	stark		Sudanell	7
	very strong	très forte	sehr stark		Jeronimo	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) Observation on size tree, habit tree, flowering shoot should be made during winter dormancy (Ad 1, 3, 4, 5), observations on vigor tree should be made during growing period (Ad 2).

(a) Unless otherwise stated, all observation on the tree or the shoot should be made during winter dormancy.

(b) Unless otherwise stated, all observations on the leaf should be made on fully developed leaves in the central third of a current season shoot.

(c) All observations on the nectaries (glands) should be made on leaves as soon as they are fully developed.

(d) All observations on the flowering shoot (‘rameau mixte’) and the flower should be made in the central third of the shoot.

(e) Unless otherwise indicated, all observations on the flower should be made on fully opened flowers at the beginning of anther dehiscence. The time of beginning of flowering is reached when 10% of the flowers on the tree are fully opened. The end of flowering is reached at 90% petal fall.

(f) All observations on the fruit should be made on fruits mature for eating.

(g) All observations on the stone should be made on the dry stone after removal of the flesh.

8.2 Explanations for individual characteristics

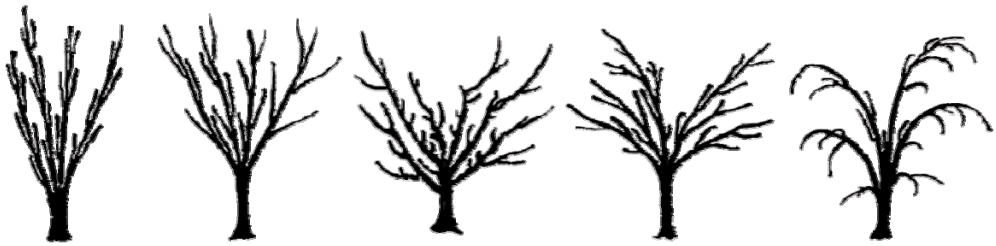
Ad. 2: Tree: vigor

To give an explanation with a + (chapter 8) by M.Harsanyi (Hungary) (if not France).

Fr 2009: not necessary to explain

Ad. 3: Tree habit

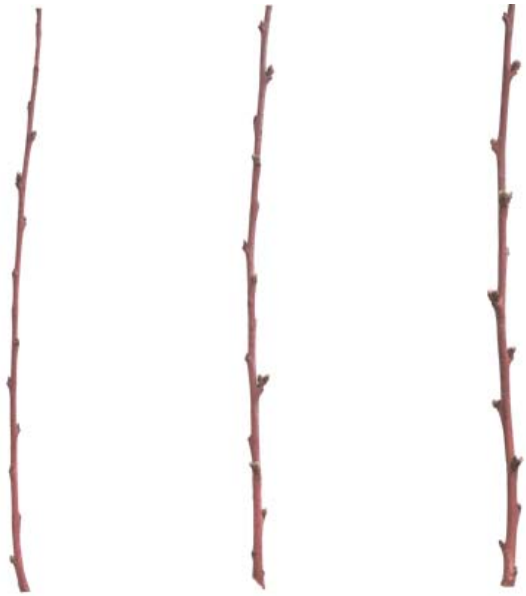
To be observed the year before the main pruning.



upright	upright to spreading	spreading	drooping	weeping
1	2	3	4	5

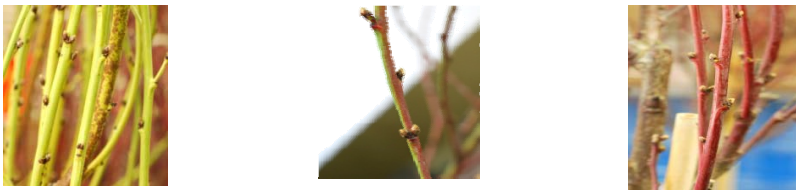
Ad. 4: Flowering shoot: thickness

To be observed excluding ‘brindilles’
Does ‘Rameau mixte’ means ‘flowering shoot’ ? TP



3	5	7
thin	medium	thick

Ad. 6: Flowering shoot: intensity of anthocyanin coloration



1	5	7
absent or very weak	medium	strong

Ad. 7: Flowering shoot: density of flower buds

To be observed along the shoot on one meter.

3
sparse

7
dense

Ad. 8: Flower: type

To observe “just before opening”
‘Campanulate’ means ‘non showy’, ‘rosette’ means ‘showy’.
Campanulate flowers have smaller petals, their stamens are upper than petals.

1
campanulate

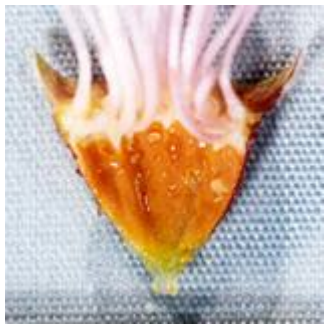
2
rosette

Ad. 9: Calyx: color of inner side (opened flower, before falling of petals)

Japan proposal:

greenish yellow (1), orange (2)
propose to read "greenish yellow **or orange**(1), **dark** orange (2)"

1



2

Explanation:
As for left photo, color of inner side is orange. The color of flesh of this variety is white.
It is known that in the case of varieties for which flesh is white, inner side of calyx is greenish orange or orange.
As for right photo, color of inner side is dark orange. The color of flesh of this variety is yellow. It is known that in the case of varieties for which flesh is yellow, inner side of calyx is dark orange.

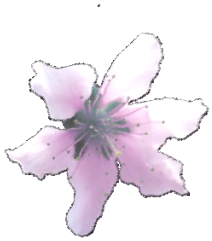
Ad. 10: Corolla: main color (inner side)

The main color is the color with the largest area.

white
1

photo for yellow pink level to be given by Za ou Nz

yellow pink
2



very light pink
3

light pink
4

medium pink
5

dark pink
6

violet pink
7

red
8

Ad. 11: Petal: shape

1
ovate

2
narrow elliptic

3
broad elliptic

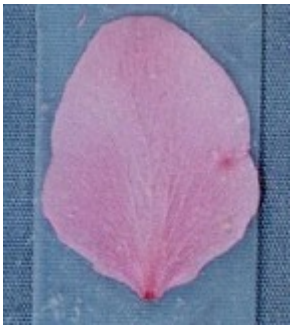
4
circular

JP proposal :

circular

~~**broad**~~ elliptic

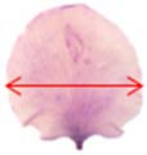
narrow elliptic



ovoid
'Nishio gold'

narrow ovoid
'Akatsuki'

Ad. 12: Only varieties with flower type: campanulate: Petal: width
Ad. 13: Only varieties with flower type: rosette: Petal: width



Petal : size	**Showy**		Note	**Non Showy**	
very small	Redhaven	< 14 mm	**1**		
small	Shasta	14 - 15,9 mm	**3**	< 9 mm	Meydicte
medium	Robin	16 - 18,9 mm	**5**	9 - 11 mm	Bradgust
large	Michelini	19 - 20,9 mm	**7**	> 11 mm	Monnail
very large	Veteran	> 20,9 mm	**9**		

Ad. 14: Flower: number of petals

5

Za : 5

5 - 19

20 - 30

more than 5

Ad. 15: Stamen: position compared to petals

1
below

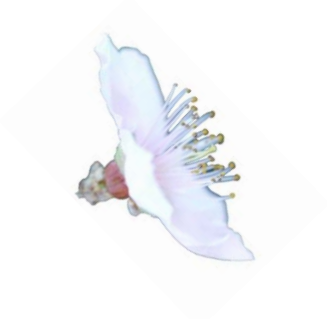
2
at same level

3
above

Ad. 16: Stigma: position compared to anthers

To be evaluated on 25 flowers DE: contradiction with 3.5 Fr 2009 : no because 'unless otherwise indicated….'

1
below



2
same level

3
above

Ad. 17: Anthers: pollen

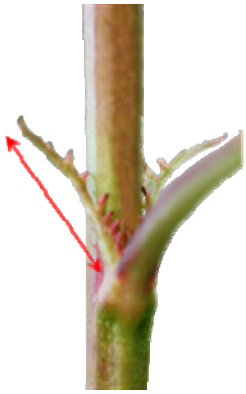
1
absent

9
present

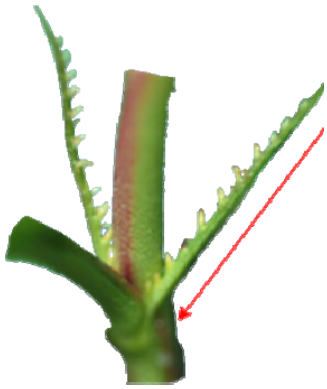
Ad. 19: Stipule: length (on fully expanded leaf on young shoot)

To be evaluated on 25 stipules.

contradiction with 3.5 Fr 2009 : no because ‘unless otherwise indicated….’

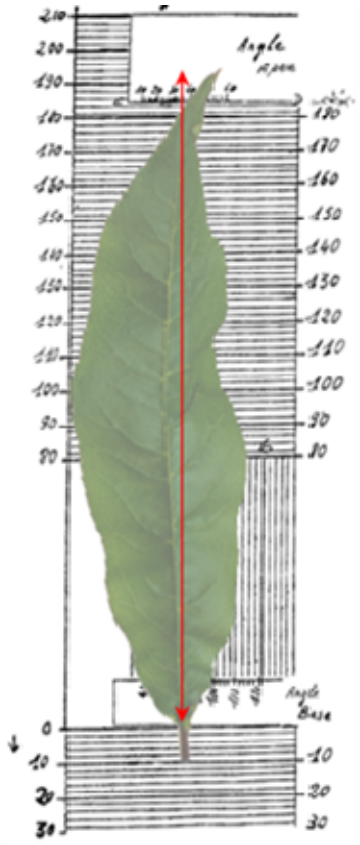


5
medium

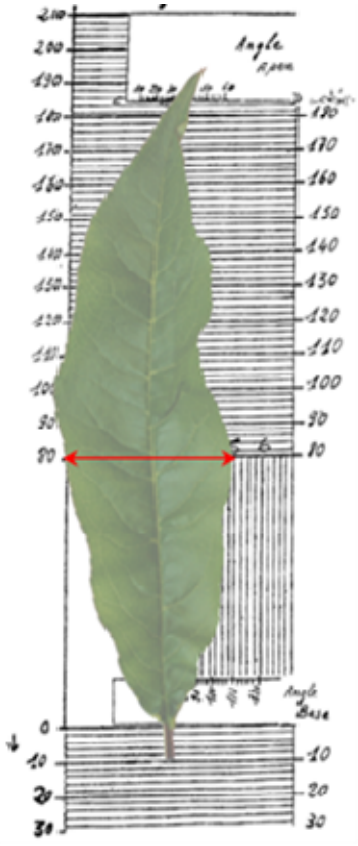


7
long

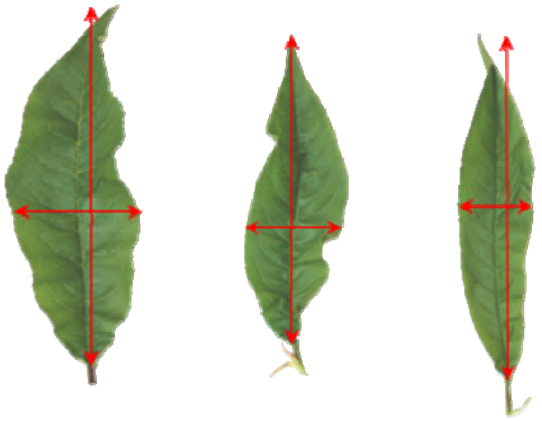
Ad. 20: Leaf blade: length



Ad. 21: Leaf blade: width



Ad. 22: Leaf blade: ratio length/width

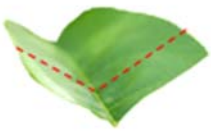


3
low

5
medium

7
high

Ad. 23: Leaf blade: shape in cross section



concave

flat

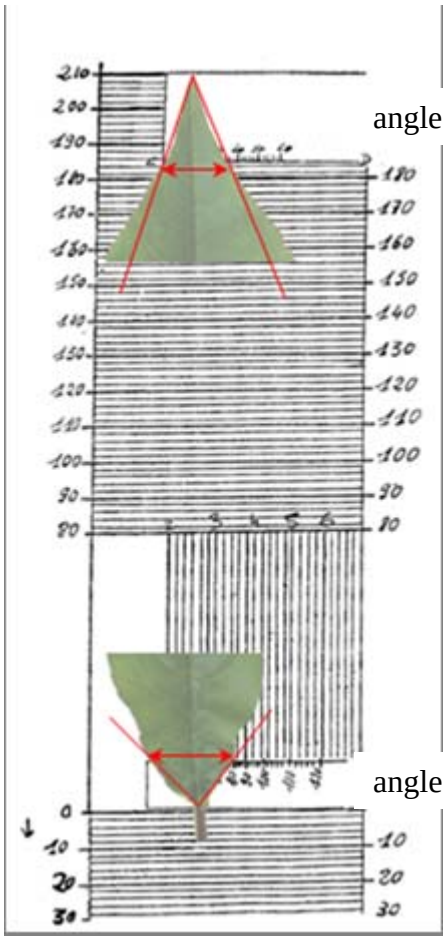
Ad. 24: Leaf blade: margin

1
crenate

2
serrate

3
very serrate

Ad. 25: Leaf blade: angle at base
Ad. 26: Leaf blade: angle at apex



angle at apex

angle at base

Ad. 27: Leaf blade: recurvature of apex

absent
1

present
9

Ad. 28: Leaf blade: color

1
greenish yellow

2
light green

3
medium green

4
dark green

5
purplish red

Ad. 29: Leaf blade: red mid-vein on the lower side

absent
1

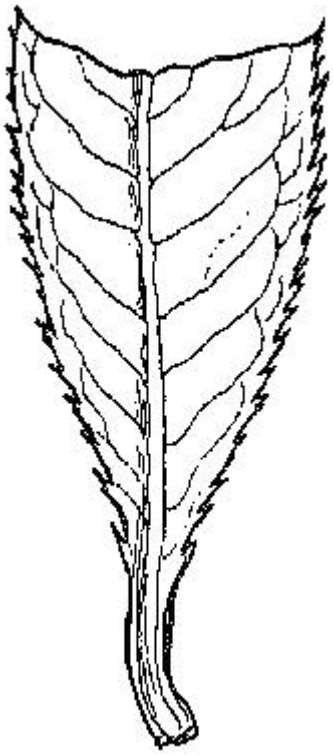
present
9

Ad. 30: Petiole: length

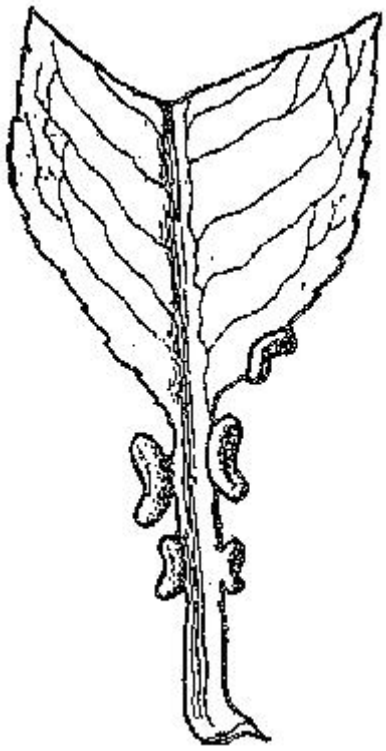
To be evaluated on 25 leaves.

Ad. 31: Petiole: nectaries

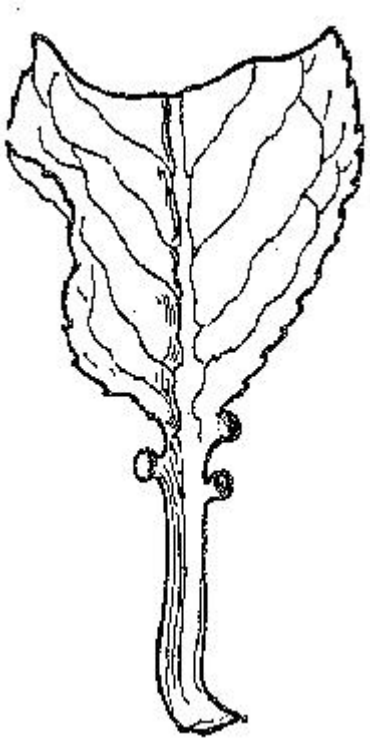
Nectaries are located on the base of the leaf (ref.: Handbook of peach and nectarine varieties – Performance in the Southeastern United States and index of names, W. R. Okie - United State Department of Agriculture - Agriculture Research Service - Agriculture Handbook Number 1714 – May 1998: page 12). This character, both on petiole and leaf, is fluctuant during the season; So, the most important is that the shape and the number of glands, as well as the area (petiole/leaf), must be determined on adult, full-sized leaves of mature trees (*on the young leaves in growth, they are more or less well constituted and on too old leaves, they dry out and fall*), if possible in before harvest, during a short period of one or two weeks for a set of varieties in experimentation / characterization.



1
absent

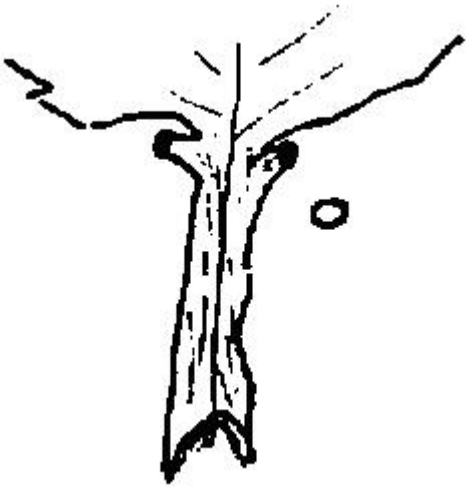


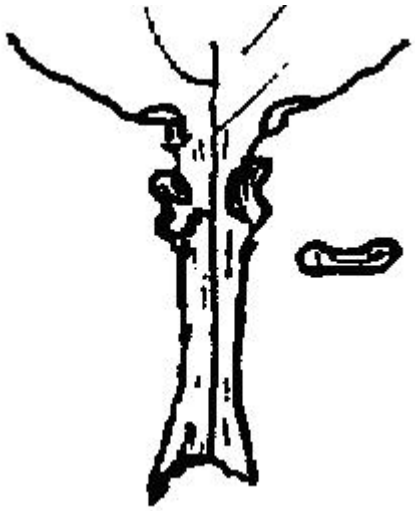
9
present
(nectaires réniformes)



(nectaires circulaires)

Ad. 32: Petiole: shape of nectaries

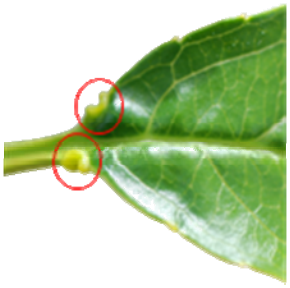


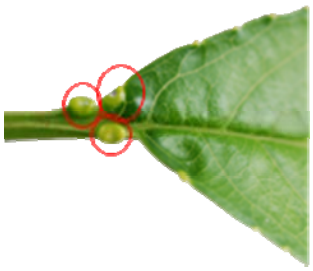


1
round

2
reniform

~~Ad. 33: Petiole: predominant number of nectaries~~





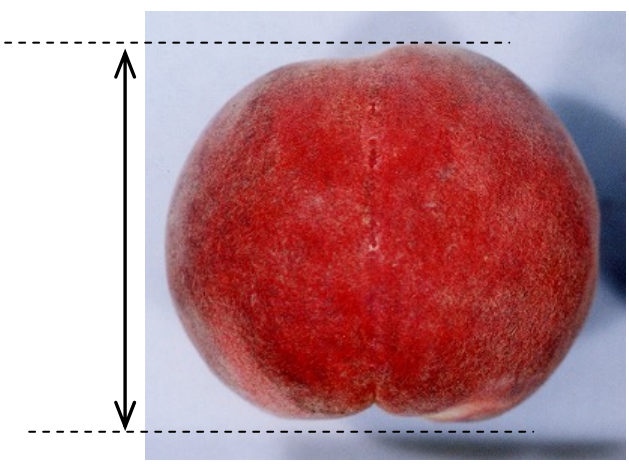
1
two

2
more than two

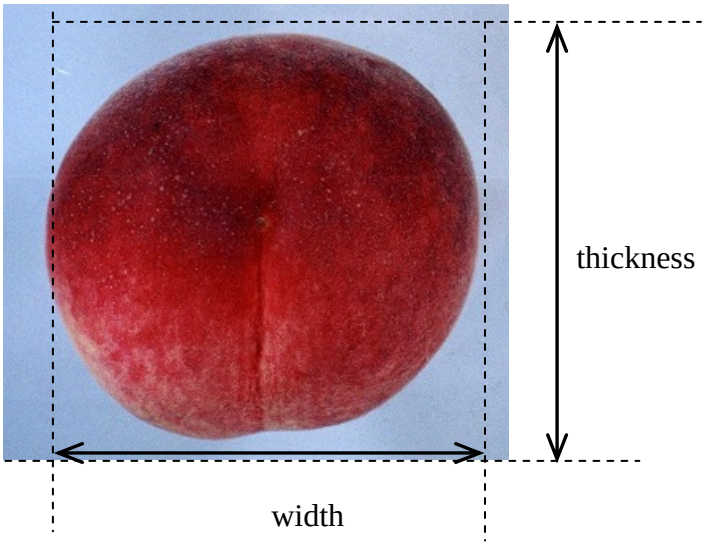
Ad. 35: Fruit: height
Ad. 36: Fruit: width
Ad. 37: Fruit: thickness
Ad. 38: Fruit: ratio height/width

Japan proposal:

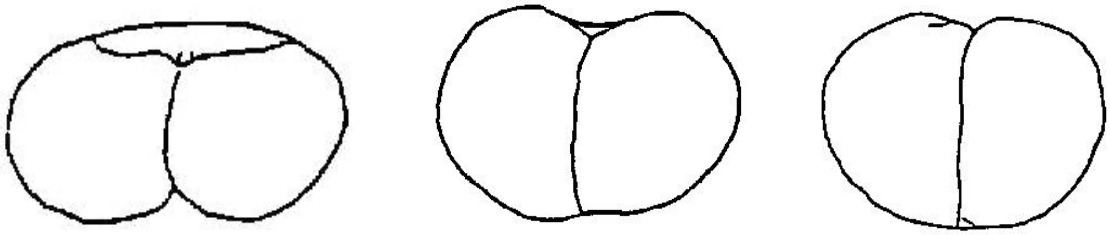
Perhaps “width” means ventral, “thickness” means lateral. ZA ok



height



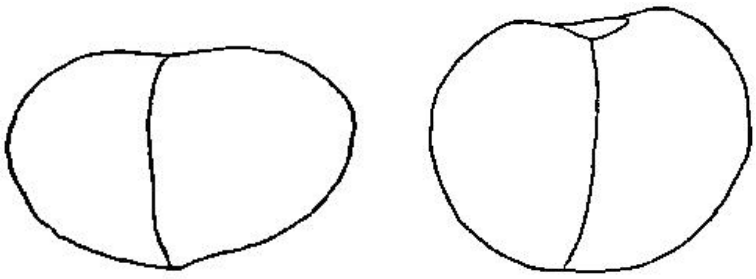
Ad. 39: Frucht: shape (in ventral view)



1
broad oblate

2
medium oblate

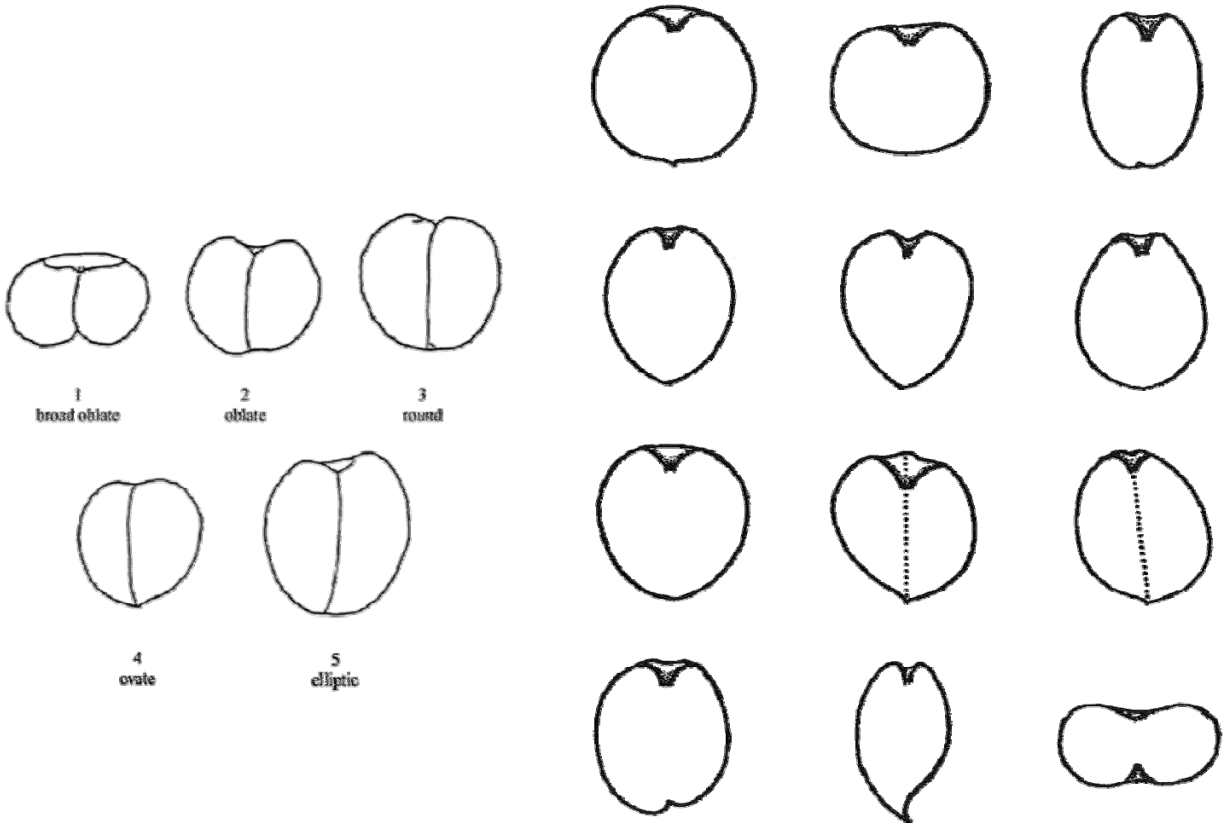
3
circular



4
broad elliptic

5
elliptic

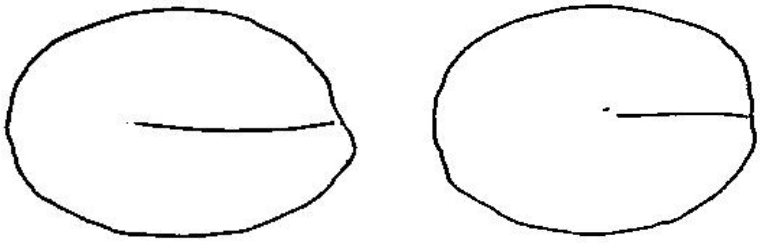
(1) broad oblate (2) medium oblate (3) circular (4) broad elliptic (5) elliptic



Ad. 40: Fruit: shape of pistil end
Ad. 41: Fruit: mucron tip at pistil end
Ad. 42: Fruit: shape of pistil end keep the characteristic of TG/53/6

prominently pointed 1 | weakly pointed 2 | flat 3 | weakly depressed 4 | strongly depressed 5

Ad. 43: Fruit: symmetry (viewed from pistil end)



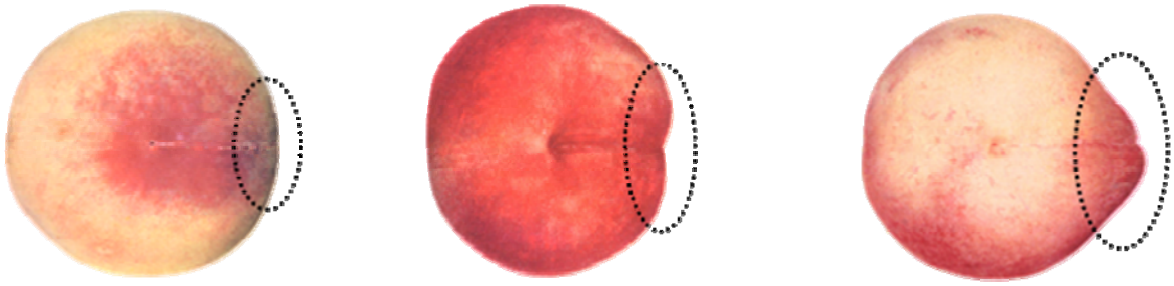
1
asymmetric

2
symmetric

FR : Only two levels

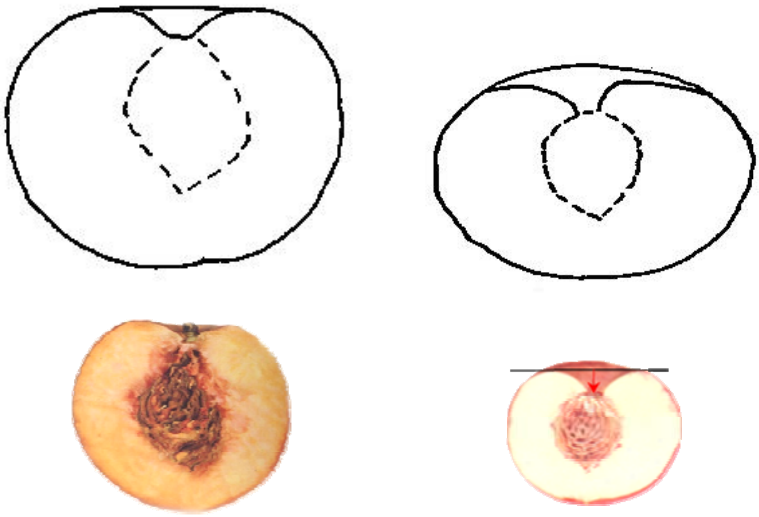
(1) asymmetric (2) symmetric

Ad. 44: Fruit: prominence of suture



(3) weak (5) medium (7) strong

Ad. 45: Fruit: depth of stalk cavity



3
shallow

7
deep

Ad. 46: Fruit: width of stalk cavity

(3) narrow

(7) broad

Ad. 47: Fruit: ground color of skin

not visible
1

green
2

cream green
3

greenish white
4

cream white
5

cream
6

pink white
7

greenish yellow
8

cream yellow
9

yellow
10

11
orange yellow

Ad. 48: Fruit: over color of skin

Care needs to be taken that varieties with state ‘absent’ are completely in all conditions.

(1) absent

(9) present

Ad. 49: Fruit: over color

orange red
1

pink
2

pink red
3

light red
4

medium red
5

dark red
6

blackish red
7

Ad. 50: Fruit: pattern of over color

(1) solid flush

(2) mottled

(3) striped

(4) marbled

Ad. 51: Fruit: relative area of over color

(3) small

(5) medium

(7) large

Ad. 53: Fruit: density of pubescence

(3) sparse

(7) dense

Ad. 55: Only varieties with fruit pubescence: Fruit: density [size] of lenticels

(3) weak

(5) medium

(7) strong

Ad. 56: Fruit: thickness of skin
excluding pubescence

Ad. 58: Fruit: firmness of flesh

To be observed at eating ripeness with a penetrometer as the ‘Durofel’.

Ad. 59: Fruit: carotenoïds coloration of flesh

(1) greenish white

(5) yellow

(6) orange yellow

Ad. 60: Fruit: anthocyanin coloration of flesh next to skin

(1) absent or very weak

(2) weak

(3) strong

Ad. 61: Fruit: anthocyanin coloration of flesh in central part of flesh

(1) absent or very weak

(2) weak

(3) strong

Ad. 62: Fruit: anthocyanin coloration of flesh around stone

(1) absent or very weak

(2) medium

(3) strong

Ad. 63: Fruit: flesh fiber

(9) present

Ad. 64: Fruit: flesh type

France proposal:
Melting means varieties having climacteric phase. The flesh is soft, the varieties are used for fresh eating consummation (‘chair fondante’).
Non melting means varieties not having climacteric phase. The flesh is harder and elastic, so the fruits are used for caning industries (do not split inside boxes) (chair non fondante). This group includes ‘stony hard/crisp’ and ‘cligstone/pavies’ sub groups [optional: defined as …..?]

Or
Japan proposal

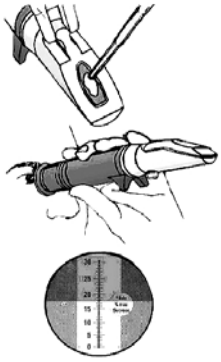
Definitions of types to be provided by interested experts to be included in next draft and states to be discussed in conjunction with those definitions.

Definition

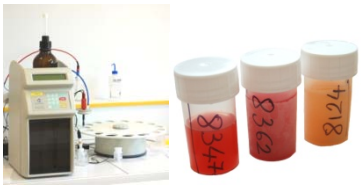
type	activity			explanation
	ethylene	polygalacturonase		
		end-type	exo-type	
melting	exist	exist	exist	Activity both ethylene and polygalacturonase exists in the flesh. Therefore flesh begins melting quickly after harvest.
non-melting	exist	exist	absent	Activity of exo-type polygalacturonase is absent in the flesh. Therefore melting speed of flesh is very slow.
stony hard	absent	absent	absent	Activity both ethylene and polygalacturonase are absent in the flesh. Therefore flesh dose not begin to melt. Ex. varieties: Odoroki, Yumyeong

Literature:
Takashi Haji, Hideaki Yaegaki, Masami Yamaguchi Department of Breeding, National Institute of Fruit Science: Changes in Ethylene Production and Flesh Firmness of Melting, Nonmelting and Stony hard in Peaches after Harvest: J. Japan. Soc. Hort. Sci 70(4): 458-459 2001
Takashi Haji, Hideaki Yaegaki, Masami Yamaguchi Department of Breeding, National Institute of Fruit Science: Inheritance and expression of fruit texture melting, non-melting and stony hard in peach. Scientia Horticulture 105 (2005) 241-248

Ad. 65: Fruit: sweetness



Ad. 66: Fruit: acidity (Acidity titrable) in meq 100/ml



Ad. 67: Stone: size compared to fruit

small	medium	large
3	5	7

Ad. 68: Stone: shape (in lateral view)

1
oblate

2
round= *AS/Fr 08*:circular

3
elliptic

4
obovate/obovoide /verkehrt eiformig

oblate
1

round
2

elliptic + obovate (one level)
3

or

Japan proposal:

As for current version, drawing of status 3 (elliptic) and status 4 (obovate) looks unclear.

oblate
1

round
2

elliptic
3

obovate
4

Ad. 69: Stone: intensity of brown color

To be observed on fresh stones.

3
light
'Chiyomaru'

5
medium
'Hakuho'

7
dark
'Yuzora'

Ad. 70: Stone: relief of surface

FR photos TP:

1	2	3	4
small pits	large pits	grooves	pits and grooves

or

Japan proposal:

Photographs as follows may be useful, if each level is right.

small pits	large pits	grooves	pits and grooves
1	2	3	4

Ad. 71: Stone: tendency of splitting (at peak harvest)

evaluated by the percentage of fruits having splitting stone

___

9. Literature

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Blaha, J., 1966: Broskovone, merunky, mandlone (peach, apricot, almond). Ceskoslovenska Akade²mie VED, Praha, Czechoslovakia, 438 pp.

Brozik, S., Termesztett gyumolcsfajtaink 2. Csonthejastermesuek. Oszibarack (Fruit varieties 2., stone fruits peach)," Mezogazdasagi Kiado, Budapest, HU, 64 pp.

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Leroy, A., 1867: Dictionnaire de pomologie. 2 Tomes

Loreti, F., Fiorino, P., 1972: Monografia delle principali cultivar di nettarine. C.N.R., Pisa, IT, 340 pp.

Monet to be completed by TP

Morettini, A., Baldini, E., Scaramuzzi, F., Bargioni, G., Pisani, P.L., 1972: Monografia delle principali cultivar di pesco. C.N.R., Firenze, IT, 636 pp.

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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

1.1.1 Botanical name	*Prunus persica* (L.) Batsch var. *persica*	
1.1.2 Common name	Peach	[…]
1.2.1 Botanical name	*Prunus persica* (L.) Batsch var. *nucipersica* (Suckow) C. K. Schneid.	
1.2.2 Common name	Nectarine	[…]

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

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

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Other [ ]
(please provide details)

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

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

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
	To be rewieved		
5.1 (1)	**Tree: size**		
	very small	Bonanza	1[ ]
	small	Richaven	3[ ]
	medium	Robin	5[ ]
	large	Redhaven	7[ ]
	very large	Champion	9[ ]
5.2 (6)	**Flowering shoot: intensity of anthocyanin coloration (shaded side)**		
	absent or very weak	De Flor doble blanca	1[ ]
	weak	Springtime	3[ ]
	medium	Fuzalode	5[ ]
	strong	Robin, Sanguine Chanas	7[ ]
5.3 (8)	**Flower: type**		
	campanulate	Dida, Springtime	1[ ]
	rosette	Robin, Vesuvio	2[ ]
5.4(i) (12)	**Only varieties with flower type: campanulate: Petal: width**		
	very narrow		1[ ]
	narrow	Meydicte	3[ ]
	medium	Bradgust	5[ ]
	broad	Monnail	7[ ]
	very broad		9[ ]

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

	Characteristics	Example Varieties	Note
5.4(ii) (13)	**Only varieties with flower type: rosette: Petal: width**		
	very narrow	Redhaven	1[ ]
	small	Shasta	3[ ]
	medium	Robin	5[ ]
	broad	Michelini	7[ ]
	very broad	Veteran	9[ ]
5.5 (31)	**Petiole: nectaries**		
	absent	Crimson Glo, Tejon	1[ ]
	present	Redhaven	9[ ]
5.6 (32)	**Petiole: shape of nectaries**		
	round	Springtime	1[ ]
	reniform	Redhaven	2[ ]
5.7 (xx)	**Fruit: main color of flesh**		
	greenish white	Charles Roux	1[ ]
	white	Springtime	2[ ]
	cream white	Michelini	3[ ]
	light yellow	Armking	4[ ]
	yellow	Early Sungrand	5[ ]
	orange yellow	Merril Franciscan	6[ ]
	orange	Sungold	7[ ]
5.8 (72)	**Stone: adherence to flesh**		
	absent	Fairhaven, Fuzalode	1[ ]
	present	Sweet Gold, Vivian	9[ ]

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

	Characteristics	Example Varieties	Note
5.9 (80)	**Time of beginning of flowering**		
	very early	Zaibop, Zaitolio	1[ ]
	early	Richlady, Springtime	3[ ]
	medium	Monnude, Zaitabo	5[ ]
	late	Maillarflat, Maillarlau	7[ ]
	very late	Summerqueen	9[ ]
5.10 (82)	**Time of maturity for consumption**		
	very early	Springtime	1[ ]
	early	Antonia, Robin	3[ ]
	medium	Fairhaven	5[ ]
	late	Veteran	7[ ]
	very late	Firetime, Rubidoux	9[ ]
	To be introduced. Fruit: anthocyanin coloration of the flesh next to the skin		

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	*Flower color*	*orange*	*orange red*

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

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

7.3.2 *In vitro* propagation

The plant material has been obtained by *in vitro* propagation/ yes [ ]
[ ]

7.3.3 Pollinator

Good pollinators are the following varieties

.....

7.3.4 Virus status

The variety is

(i) virus free [ ]
(indicate viruses)

.....

(ii) virus tested [ ]
(indicate against which virus)

.....

(iii) The virus status is unknown [ ]

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]