



TG/187/2(proj.2)
ORIGINAL: English
DATE: 2013-03-21

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

PRUNUS ROOTSTOCKS

UPOV Code: PRUNU

(*Prunus* L.)

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-fourth session, to be held in Napier, New Zealand, from April 29 to May 3, 2013

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Prunus</i> L.	Prunus rootstocks	Porte-greffe de Prunus	Prunus-Unterlagen	Portainjertos de Prunus

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

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

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
1. SUBJECT OF THESE TEST GUIDELINES	3
2. MATERIAL REQUIRED.....	3
3. METHOD OF EXAMINATION	3
3.1 NUMBER OF GROWING CYCLES	3
3.2 TESTING PLACE	3
3.3 CONDITIONS FOR CONDUCTING THE EXAMINATION	3
3.4 TEST DESIGN	3
3.5 ADDITIONAL TESTS.....	3
4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY	4
4.1 DISTINCTNESS	4
4.2 UNIFORMITY	5
4.3 STABILITY.....	5
5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL.....	5
6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS.....	5
6.1 CATEGORIES OF CHARACTERISTICS	5
6.2 STATES OF EXPRESSION AND CORRESPONDING NOTES.....	6
6.3 TYPES OF EXPRESSION	6
6.4 EXAMPLE VARIETIES	6
6.5 LEGEND	6
7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES	7
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS.....	13
8.1 EXPLANATIONS COVERING SEVERAL CHARACTERISTICS.....	13
8.2 EXPLANATIONS FOR INDIVIDUAL CHARACTERISTICS	13
9. LITERATURE	19
10. TECHNICAL QUESTIONNAIRE.....	20

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties used as rootstocks of all species of *Prunus* L. If characteristics of the flower, the fruit or the seed are necessary to examine the varieties, the Test Guidelines for Almond TG/56, Apricot TG/70, Cherry TG/35, European Plum TG/41, Japanese Plum TG/84, Mume (Japanese Apricot) TG/160 or Peach, Nectarine TG/53 should be used for those characteristics, as appropriate.

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 plants on their own roots, the method of propagation of which is to be specified.

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

- (a) 5 plants, for vegetatively propagated varieties, or
- (b) 40 one-year-old seedlings or 40 two-year-old seedlings for seed propagated varieties, and/or
- (c) sufficient seeds ready for germinating into 40 seedlings.

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*

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.

3.4 *Test Design*

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

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 / Parts of Plants to be Examined

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 observations 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.

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 second column of 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.

4.2 *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-type is allowed. In case of a sample size of 40 plants, 2 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) Plant: vigor (characteristic 1)
- (b) Leaf blade: length (characteristic 15)
- (c) Leaf blade: shape (characteristic 18)
- (d) Plant: flowers (characteristic 37)

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

(*) Asterisked characteristic – see Chapter 6.1.2

QL Qualitative characteristic – see Chapter 6.3

QN Quantitative characteristic – see Chapter 6.3

PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

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

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

(C): for the use as rootstock for cherry varieties

(PL): for the use as rootstock for plum varieties

(PE): for the use as rootstock for peach and nectarine varieties

(AP): for the use as rootstock for apricot varieties

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. VG (*) (+)	Plant: vigor					
QN	(a)	weak			Edabriz (C), Ferlenain (PL), Pumiselekt (AP, PE)	1
		medium			Brokforest (C), GF 305 (PE), GM 61/1 (C), Rubira (PE), Ute (PL)	3
		strong			Alkavo (C), Hamyra (PL), MF 12/1 (C)	5
2. VG (*)	Plant: habit					
QN	(a)	upright			Colt (C), Prudom (PL)	1
		upright to spreading				2
		spreading			Gisela 5 (C)	3
		spreading to drooping				4
		drooping			Prunus besseyi (PL)	5
3. VG	Plant: branching					
QN	(a)	weak			To check: MF 12/1 (C), Ferciana (PL)	1
		medium			To check: Pixy (PL)	3
		strong			To check: Gisela 5 (C), Myruni (PL)	5
4. VG	One-year-old shoot: thickness					
QN	(a)	thin			Edabriz (C), Gisela 5 (C), Hamyra (PL)	1
		medium			Colt (C), GF 655-2 (PL), Pixy (PL)	3
		thick			Brooks-60 (C), MF 12/1 (C)	5
5. VG/ MS (+)	One-year-old shoot: length of internode					
QN	(a)	short			Prudom (PL), Pumiselekt (AP, PE), SL 64 (C)	1
		medium			Colt (C), VVA 1 (PL)	3
		long			MF 12/1 (C)	5
6. VG (+)	One-year-old shoot: pubescence					
QL	(a)	absent			Pixy (PL), Pumiselekt (AP, PE)	1
		present			SL 64 (C), Ute (PL), VVA 1 (PL)	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	VG	One-year-old shoot: number of lenticels				
QN	(a)	few			Colt (C), Fereley (PL)	1
		medium			Gisela 4 (C), Pixy (PL)	2
		many			SL 64 (C), Ute (PL)	3
8.	VG	One-year-old shoot: anthocyanin coloration of apex				
(+)						
QN	(a)	absent or very weak			MF 12/1 (C)	1
		weak			To check: Fereley (PL)	2
		medium			To check: Pixy (PL)	3
		strong			Hamyra (PL)	4
		very strong			Ferciana (PL)	5
9.	VG	One-year-old shoot: position of vegetative bud in relation to shoot				
(+)						
QN	(a)	adpressed			Hamyra (PL)	1
		slightly held out			Gisela 5 (C)	2
		markedly held out			MF 12/1 (C)	3
10.	VG	One-year-old shoot: size of vegetative bud				
QN	(a)	small			Hamyra (PL), SL 64 (C)	1
		medium			MF 12/1 (C)	3
		large			Piku 1 (C)	5
11.	VG	One-year-old shoot: shape of apex of vegetative bud				
(*)						
(+)						
PQ	(a)	acute			Hamyra (PL), Pixy (PL)	1
		obtuse			Gisela 5 (C)	2
		rounded			MF 12/1 (C), Pumiselekt (AP, PE)	3
12.	VG	One-year-old shoot: size of vegetative bud support				
(+)						
QN	(a)	small			Hamyra (PL)	1
		medium			MF 12/1 (C)	2
		large				3
13.	VG	One-year-old shoot: feathering				
(*)						
(+)						
QN	(d)	weak			Felinem (PL), Hamyra (PL), Mayor (PE, PL), Pumiselekt (AP, PE)	1
		medium			Adafuel (PL), Ute (PL)	3
		strong			GF 677 (PL)	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14.	VG	Young shoot: anthocyanin coloration of young leaf				
	(+)					
QN	(c)	absent or weak			Edabriz (C), Fereley (PL)	1
		medium			GF 655-2 (PL), Hamyra (PL), MF 12/1 (C)	3
		strong			Colt (C), Ute (PL)	5
15.	VG/ (*) MS	Leaf blade: length				
QN	(b)	very short			Myrobalan B (PL)	1
		short			Edabriz (C), Weito T6 (C, PL)	3
		medium			Piku 1 (C)	5
		long			MF 12/1 (C)	7
		very long			GF 677 (PL)	9
16.	VG/ MS	Leaf blade: width				
QN	(b)	very narrow			GF 677 (PL)	1
		narrow			Myrobalan B (PL)	3
		medium			Fereley (PL), Weito T6 (C, PL)	5
		broad			Brooks-60 (C), MF 12/1 (C)	7
		very broad			Colt (C)	9
17.	VG/ MS	Leaf blade: ratio length/width				
QN	(b)	very small			GF 8-1 (PL), GM 61/1 (C), Prudom (PL)	1
		small			Gisela 5 (C)	3
		medium			MF 12/1 (C), Pixy (PL)	5
		large			Piku 3 (C), Pumiselekt (AP, PE)	7
		very large			GF 677 (PL)	9
18.	VG (*) (+)	Leaf blade: shape				
PQ	(b)	narrow elliptic			GF 677 (PL), Pumiselekt (AP, PE)	1
		medium elliptic			Colt (C), Fereley (PL), Pixy (PL)	2
		circular			Adara (PL), Hamyra (PL), Prudom (PL), SL 64 (C)	3
		narrow ovate			Greenpac (AL, PE)	4
		broad ovate			Edabriz (C), Gisela 5 (C)	5
		obovate				6

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19.	VG	Leaf blade: angle at apex				
	(+)					
QN	(b)	acute			GF 677 (PL), Pixy (PL), Pumiselekt (AP, PE)	1
		right-angled			Edabriz (C)	2
		obtuse			Colt (C), Fereley (PL)	3
20.	VG	Leaf blade: length of tip				
	(*)					
	(+)					
QN	(b)	short			Fereley (PL)	1
		medium			GM 61/1 (C)	3
		long			Colt (C), Ferlenain (PL)	5
21.	VG	Leaf blade: shape of base				
	(*)					
	(+)					
PQ	(b)	acute			Colt (C), Hamyra (PL), Pumiselekt (AP, PE)	1
		obtuse			MF 12/1 (C), Ferlenain (PL)	2
		truncate			GF 655 (PL), SL 64 (C)	3
22.	VG	Leaf blade: color of upper side				
PQ	(b)	light green			Gisela 5 (C), Hamyra (PL), Pixy (PL), Pumiselekt (AP, PE)	1
		dark green			Colt (C)	2
		red			Citation (PE, PL)	3
		reddish brown			Rubira (PE)	4
23.	VG	Leaf blade: glossiness of upper side				
QN	(b)	absent or weak			Hamyra (PL), Weito T 6 (C, PL)	1
		medium			Fereley (PL), Gisela 5 (C)	2
		strong			Colt (C), Ute (PL)	3
24.	VG	Leaf blade: pubescence of lower side at apex				
QN	(b)	absent or weak			Hamyra (PL)	1
		medium			Pixy (PL)	2
		strong			Weito T 6 (C, PL)	3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. VG (*) (+)	Leaf blade: incisions of margin	Proposal 1:	Proposal 2:			
QL (b)	only crenate	predominantly crenate	crenate		Pixy (PL)	1
	both crenate and serrate	equally crenate and serrate	crenate and serrate		Adesoto (PL), GF 1869 (PL)	2
	only serrate	predominantly serrate	serrate		Gisela 5 (C), Hamyra (PL), VVA 1 (PL), Wangenheim (PL)	3
26. VG	Leaf blade: depth of incisions of margin					
QN (b)	shallow				Edabriz (C), Pumiselekt (AP, PE)	1
	medium				Piku 3 (C)	3
	deep				Colt (C)	5
27. VG/ (*) MS	Petiole: length					
QN (b)	short				To check: Piku 3 (C)	3
	medium				To check: Pixy (PL)	5
	long					7
28. VG	Petiole: intensity of pubescence of upper side					
QN (b)	absent or very weak				Colt (C), Hamyra (PL), Pumiselekt (AP, PE)	1
	sparse				Hamyra (PL)	2
	dense				Ute (PL), Weito T 6 (C, PL)	3
29. VG (+)	Petiole: depth of groove					
QN (b)	shallow				GF 8-1 (PL), MF 12/1 (C)	1
	medium				Gisela 5 (C), Prudom (PL)	2
	deep				Myrobalan B (PL)	3
30. VG/ MS	Leaf blade: length relative to petiole length					
QN (b)	short				Hamyra (PL), Piku 1 (C), Pumiselekt (AP, PE)	1
	medium				Colt (C)	3
	long				Fereley (PL), GF 677 (PL), Weito T 6 (C, PL)	5
31. VG/ MS	Leaf: length of stipule					
QN (b)	absent or very short				Weito T 6 (C, PL)	1
	medium				Gisela 5 (C), Pixy (PL)	3
	long				MF 12/1 (C)	5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
32. VG (*)	Leaf: presence of nectaries					
To check QL	(b) absent				Ferlenain (PL), Hamyra (PL)	1
	present				GF 677 (PL), Pixy (PL), St. Julien A (PL), Weito T 6 (C, PL)	9
33. VG (*)	<u>Varieties with nectaries only</u>: Leaf: predominant number of nectaries					
QN	(b) one				Hamyra (PL), Weiroot 158 (C)	1
	two				Gisela 5 (C), Pixy (PL)	2
	more than two				Weito T 6 (C, PL)	3
34. VG	Leaf: position of nectaries					
QN	(b) predominantly on base of blade				Gisela 5 (C)	1
	equally distributed on base of blade and petiole				Colt (C), GF 655 (PL), Prudom (PL)	2
	predominantly on petiole				MF 12/1 (C)	3
35. VG (*)	Nectary: color					
PQ	(b) green				Pixy (PL)	1
	yellow				Weito T 6 (C, PL)	2
	red				GF 8-1 (PL), Weiroot 158 (C)	3
	violet				Colt (C)	4
36. VG (*)	Nectary: shape					
QL	(b) circular				GF 655 (PL), Gisela 5 (C), Prudom (PL)	1
	reniform				Colt (C), Pumiselekt (AP, PE)	2
37. VG (*)	Plant: flowers					
QL	(c) absent				Brokforest (C)	1
	present				Colt (C), Hamyra (PL), Pumiselekt (AP, PE)	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) All observations on the plant should be made in the dormant season.
- (b) All observations on the leaf should be made at the stage of fully developed leaves on the upper third of typical one-year-old shoots.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: vigor

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

Ad. 5: One-year-old shoot: length of internode

Should be assessed at the middle third of the shoot.

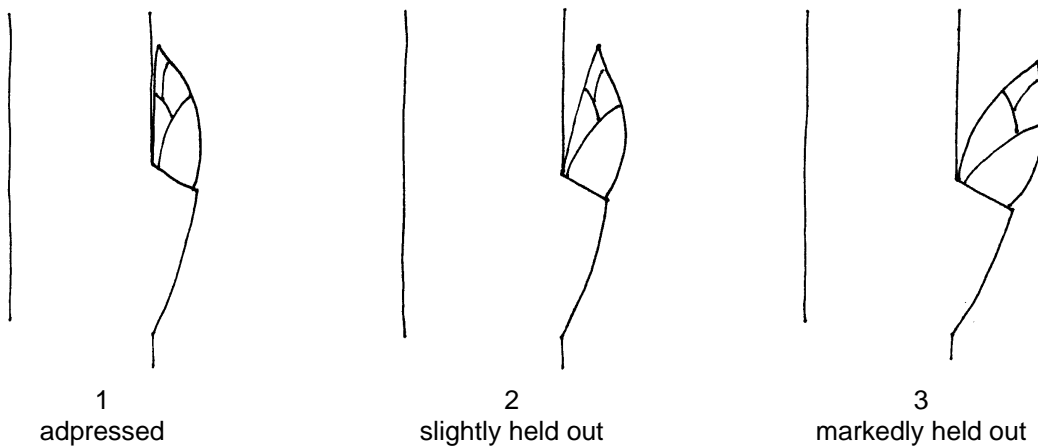
Ad. 6: One-year-old shoot: pubescence

Should be assessed at the upper third of the shoot.

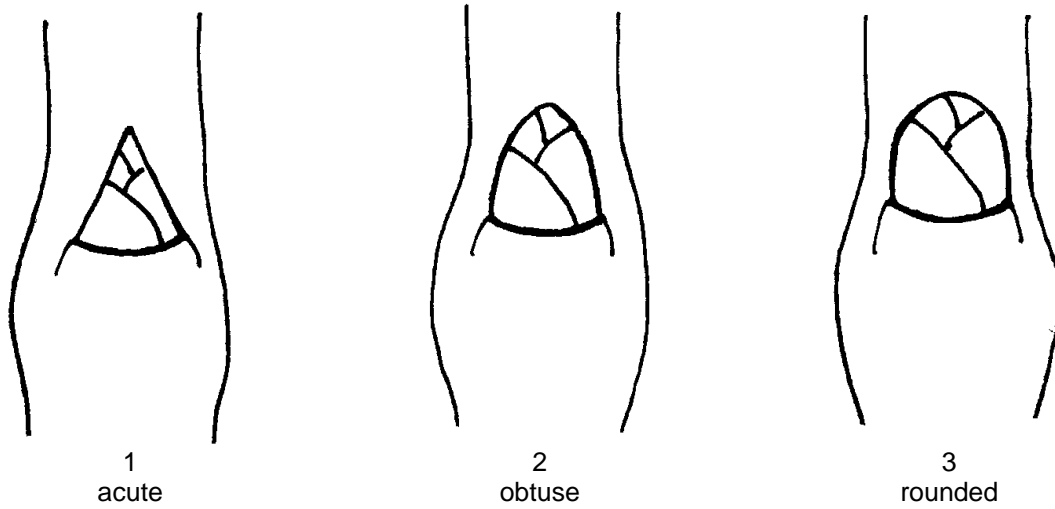
Ad. 8: One-year-old shoot: anthocyanin coloration of apex

Should be assessed on the sunny side of the shoot.

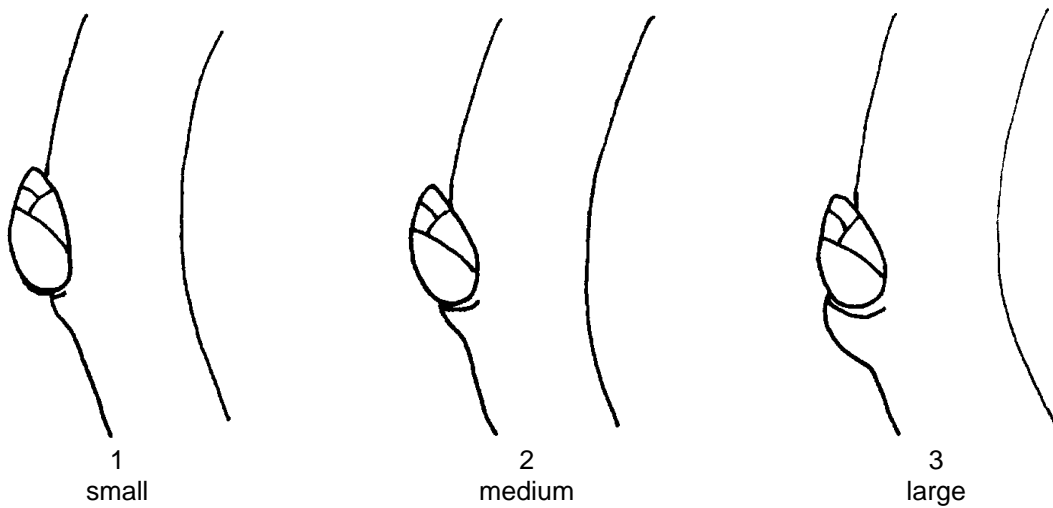
Ad. 9: One-year-old shoot: position of vegetative bud in relation to shoot



Ad. 11: One-year-old shoot: shape of apex of vegetative bud



Ad. 12: One-year-old shoot: size of vegetative bud support



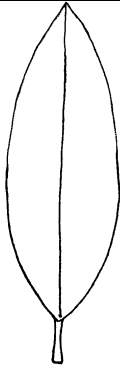
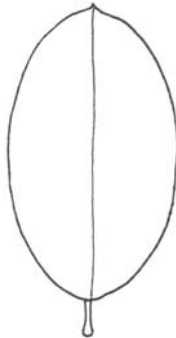
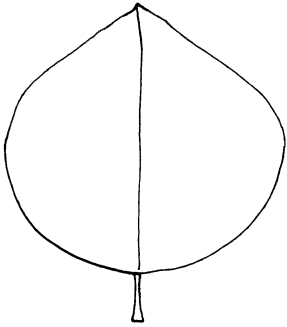
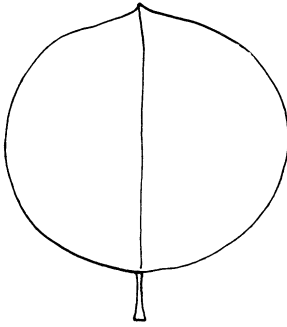
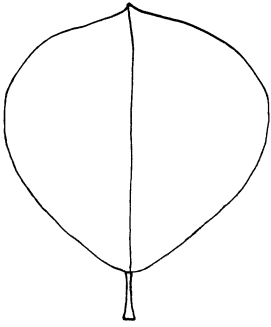
Ad. 13: One-year-old shoot: feathering

Should be assessed at the end of summer.

Ad. 14: Young shoot: intensity of anthocyanin coloration of young leaf

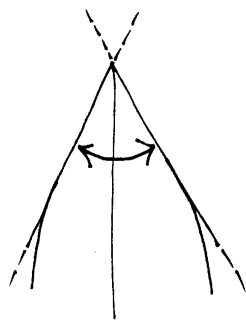
Should be assessed during rapid growth.

Ad. 18: Leaf blade: shape

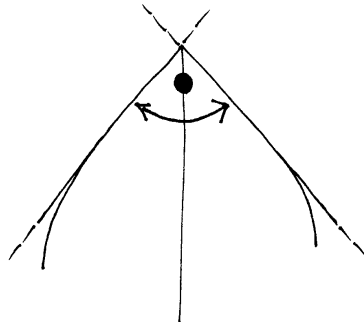
		← broadest part →		
		below middle	at middle	above middle
ratio length/width ↑ ↓	narrow (elongated)		 <p>1 narrow elliptic</p>	
			 <p>2 medium elliptic</p>	
	broad (compressed)	 <p>4 ovate</p>	 <p>3 circular</p>	 <p>5 obovate</p>

Ad. 19: Leaf blade: angle of apex

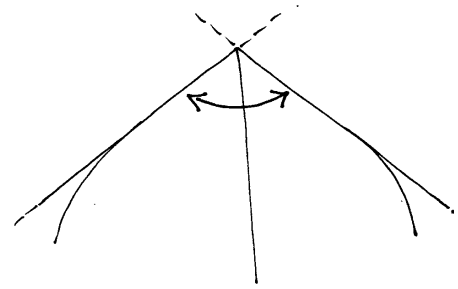
Should be assessed excluding the tip.



1
acute

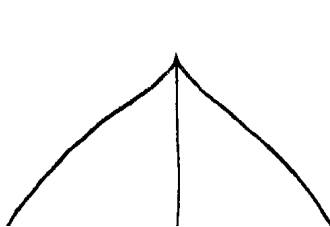


2
right-angled

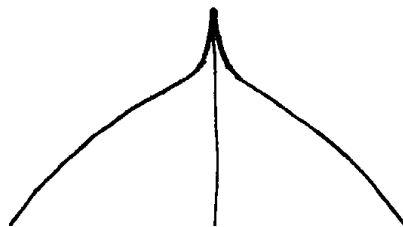


3
obtuse

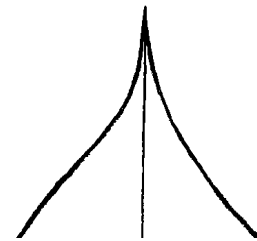
Ad. 20: Leaf blade: length of tip



1
short

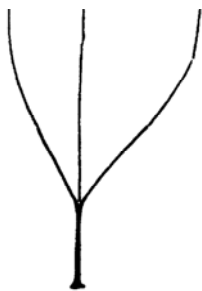


3
medium

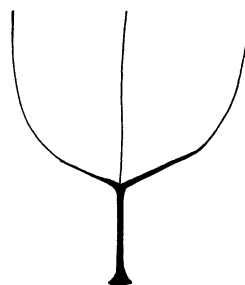


5
long

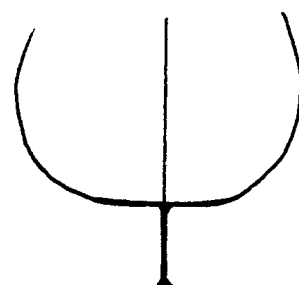
Ad. 21: Leaf blade: shape of base



1
acute



2
obtuse



3
truncate

Ad. 25: Leaf blade: incisions of margin



1
only crenate

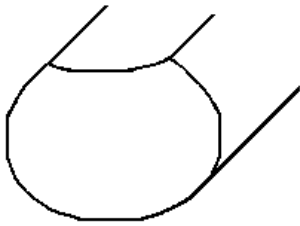


2
both crenate and serrate

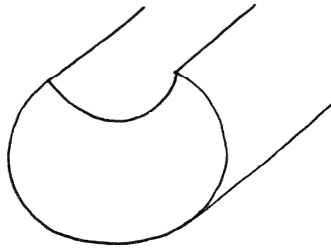


3
only serrate

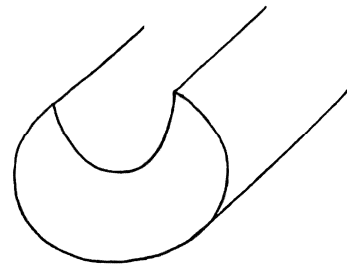
Ad. 29: Petiole: depth of groove



1
shallow



2
medium



3
deep

Explanations on the Example Varieties

Variety denomination	Species
Adafuel	<i>Prunus dulcis</i> (Mill.) D.A. Webb x <i>P. persica</i> (L.) Batsch.
Adara	<i>Prunus cerasifera</i> Ehrh., open pollinated
Adesoto	<i>Prunus domestica</i> L. ssp. <i>insititia</i> (L.) Schneid
Alkavo	(syn. Altenwedding er Kaukasische Vogelkirsche) <i>Prunus avium</i> (L.) L.
Brokforest	(syn. M x M14) <i>Prunus mahaleb</i> L. x <i>P. avium</i> (L.) L.
Brooks-60	(syn. Broksec, M x M60) <i>Prunus mahaleb</i> L. x <i>P. avium</i> (L.) L.
Citation	<i>Prunus domestica</i> L. x <i>P. persica</i> (L.) Batsch.
Colt	<i>Prunus avium</i> (L.) L. x <i>P. pseudocerasus</i> Lindl.
Edabriz	<i>Prunus cerasus</i> L.
Felinem	<i>Prunus persica</i> (L.) Batsch. x <i>P. dulcis</i> (Mill.) D.A. Webb
Ferciana	(<i>Prunus cerasifera</i> Ehrh. x <i>P. salicina</i> Lindl.) x (<i>P. domestica</i> L. x <i>P. persica</i> (L.) Batsch.)
Fereley	(<i>Prunus salicina</i> Lindl. x <i>P. cerasifera</i> Ehrh.) x <i>P. spinosa</i> L.
Ferlenain	<i>Prunus besseyi</i> (PL) L.H. Bailey x <i>P. cerasifera</i> Ehrh.
GF 8-1	<i>Prunus marianna</i> ined.
GF 305	<i>Prunus persica</i> (L.) Batsch.
GF 655	<i>Prunus domestica</i> L. ssp. <i>insititia</i> (L.) Schneid.
GF 677	<i>Prunus persica</i> (L.) Batsch. x <i>P. dulcis</i> (Mill.) D.A. Webb
GF 1869	<i>Prunus domestica</i> (L.) x <i>P. persica</i> (L.) Batsch.
Gisela 4	(syn. 473/10) <i>Prunus avium</i> (L.) L. x <i>P. fruticosa</i> Pall.
Gisela 5	(syn. 148/2) <i>Prunus cerasus</i> L. x <i>P. canescens</i> Bois
GM 61/1	<i>Prunus dawyckensis</i> Sealy
Greenpac	[<i>Prunus persica</i> (L.) Batsch x <i>P. davidiana</i> (L.) Batsch.] x [<i>P. dulcis</i> (Mill.) D.A. Webb x <i>P. persica</i>]
Hamyra	<i>Prunus cerasifera</i> Ehrh.
Mayor	<i>Prunus persica</i> (L.) Batsch. x <i>P. dulcis</i> (Mill.) D.A. Webb
MF 12/1	<i>Prunus avium</i> (L.) L.
Myrobalan B	<i>Prunus cerasifera</i> Ehrh.
Piku 1	(syn. Pi-Ku 4,20) <i>Prunus avium</i> (L.) L. x (<i>P. canescens</i> Bois x <i>P. tomentosa</i> Thunb. ex Murr.)
Piku 3	(syn. Pi-Ku 4,83) <i>Prunus. pseudocerasus</i> Lindl. x (<i>P. canescens</i> Bois x <i>P. incisa</i> Thunb. ex Murr.)
Pixy	<i>Prunus domestica</i> L. ssp. <i>insititia</i> (L.) Schneid.
Prudom	<i>Prunus domestica</i> L. ssp. <i>domestica</i>
Pumiselekt	<i>Prunus pumila</i> L.
Rubira	<i>Prunus persica</i> (L.) Batsch.
SL 64	(syn. 'Saint Lucie 64') <i>Prunus mahaleb</i> L.
St. Julien A	<i>Prunus domestica</i> L. ssp. <i>insititia</i> (L.) Schneid.
Ute	<i>Prunus domestica</i> L. ssp. <i>domestica</i>
VVA 1	<i>Prunus cerasifera</i> Ehrh. x <i>P. tomentosa</i> Thunb.
Wangenheim	<i>Prunus domestica</i> L. ssp. <i>domestica</i>
Weiroot 158	<i>Prunus cerasus</i> L.
Weito T 6	<i>Prunus tomentosa</i> Thunb. ex Murr.

9. Literature

- Anonymous (1997): The Brooks and Olmo Register of Fruit & Nut Varieties. ASHS Press, 3rd edition, Alexandria VA, US, 744 p..
- De Haas, P.G. (1976): Die Unterlagen- und Baumformen des Kern- und Steinobstes. Stuttgart: Ulmer Verlag, DE.
- Friedrich, G. (1993): Handbuch des Obstbaus. Radebeul: Neumann Verlag, DE.
- Kester, D. E. and C. Grasselly (1987): Almond rootstocks, in: Roy C. Rom and Robert F. Carlson: Rootstocks for Fruit Crops. J. Wiley and Sons, pp. 265-293.
- Layne, R. E. C. (1987): Peach rootstocks, in: Roy C. Rom and Robert F. Carlson: Rootstocks for Fruit Crops. J. Wiley and Sons, pp. 185-216.
- Maurer, E. (1939): Die Unterlagen der Obstgehölze. Berlin: Parey Verlag, DE.
- Okie, W. R. (1987): Plum rootstocks, in: Roy C. Rom and Robert F. Carlson: Rootstocks for Fruit Crops. J. Wiley and Sons, pp. 321-360.
- Perry, R. L. (1987): Cherry rootstocks, in: Roy C. Rom and Robert F. Carlson: Rootstocks for Fruit Crops. J. Wiley and Sons, pp. 217-264.
- Raynaud, P. C. and J.M. Audergon (1987): Apricot rootstocks, in: Roy C. Rom and Robert F. Carlson: Rootstocks for Fruit Crops. J. Wiley and Sons, pp. 295-320.
- Salesses, G., Grasselly, C., Renaud, R., Claverie, J. (1992): Les porte greffe des espèces fruitières à noyau du genre *Prunus*. "Amélioration des espèces végétales cultivées. Objectifs et critères de sélection", pp. 768, A. Gallais, H. Bannerot I.N.R.A. Paris, FR, pp. 605-619.
- Wertheim, S.J. (1998): Rootstock Guide. Publication no. 25, Fruit Research Station Wilhelminadorp, NL.

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)

(.....) x (.....)
female parent male parent

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

(.....) x (.....)
female parent male parent

(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)

.....

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

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 Seed []

4.2.3 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 Plant: vigor (1)		
weak	Edabriz (C), Ferlenain (PL), Pumiselekt (AP, PE)	1[]
weak to medium		2[]
medium	Brokforest (C), GF 305 (PE), GM 61/1 (C), Rubira (PE), Ute (PL)	3[]
medium to strong		4[]
strong	Alkavo (C), Hamyra (PL) MF 12/1 (C)	5[]
5.2 Leaf blade: length (15)		
very short	Myrobalan B (PL)	1[]
very short to short		2[]
short	Edabriz (C), Weito T 6 (C, PL)	3[]
short to medium		4[]
medium	Piku 1 (C)	5[]
medium to long		6[]
long	MF 12/1 (C)	7[]
long to very long		8[]
very long	GF 677 (PL)	9[]
5.3 Leaf blade: shape (18)		
narrow elliptic	GF 677 (PL), Pumiselekt (AP, PE)	1[]
medium elliptic	Colt (C), Fereley (PL), Pixy (PL)	2[]
circular	Adara (PL), Hamyra (PL), Prudom (PL), SL 64 (C)	3[]
narrow ovate	Greenpac (AL, PE)	4[]
broad ovate	Edabriz (C), Gisela 5 (C)	5[]
obovate		6[]

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

Characteristics	Example Varieties	Note
5.4 Plant: flowers (37)		
absent	Brokforest (C)	1[]
present	Colt (C), Hamyra (PL), Pumiselekt (AP, PE)	9[]

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

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 the characteristic(s) for your candidate variety
<i>Example</i>	<i>Plant: flowers</i>	<i>absent</i>	<i>present</i>
Comments:			

7. Additional information which may help in the examination of the variety
- 7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?
- Yes [] No []
- (If yes, please provide details)
- 7.2 Are there any special conditions for growing the variety or conducting the examination?
- Yes [] No []
- (If yes, please provide details)
- 7.3 Utilization as rootstock for
- | | |
|--|--------|
| <i>P. armeniaca</i> L. | 1 [] |
| <i>P. avium</i> (L.) L. | 2 [] |
| <i>P. cerasifera</i> Ehrh. | 3 [] |
| <i>P. cerasus</i> L. | 4 [] |
| <i>P. domestica</i> L. | 5 [] |
| <i>P. dulcis</i> (Mill.) D.A. Webb (<i>P. amygdalus</i> Batsch) | 6 [] |
| <i>P. mahaleb</i> L. | 7 [] |
| <i>P. persica</i> (L.) Batsch | 8 [] |
| <i>P. salicina</i> Lindl. | 9 [] |
| other species
(please specify) | 10 [] |
- 7.3 Other information

A representative color image of the variety should accompany 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".

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes []
(please provide details as specified by the Authority)

No []

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature

Date

[Annex follows]

OBSERVATIONS AND COMMENTS TO DOCUMENT TG/187/2(PROJ.2)

front page	QZ likes to discuss the right use of the term "alternative names", as according to the International Code of Botanical Nomenclature, alternative names would be two or more different names based on the same type proposed simultaneously for the same taxon by the same author
2.3 (a)	FR: to consider a higher number of plants in case of mutant varieties
2.3 (b)	FR: to reduce to 30 seedlings; QZ: to reduce substantially (e.g. 10)
2.4	FR requires precision on the term "important pests and diseases"
2.5	FR wishes consideration on micropropagation
3.1	FR: to point out that plants have to be DUS examined as ungrafted plants; QZ considers an indication that the duration of the test refers to two independent assessment periods
4.1.4	QZ: to delete "..., disregarding any off-type plants"
chapter 7	NZ: to pay attention to the fact that the appearance of example varieties does not take place according to the species related, but to what it is used for
char. 2	ZA: Add explanation
char. 3	QZ raises the question of influence of in-vitro propagation on the expression
char. 4.	AU: Indicate where to observe in chapter 8 (e.g. middle third of shoot) NZ: Suggest 3 states would be sufficient, especially considering the VG option
char. 5	NZ: Suggest 3 states would be sufficient, especially considering the VG option ZA: Add (+)
char. 6	ZA: Add (+)
Char. 7.	AU: Indicate where to observe in chapter 8 (e.g. middle third of shoot)
char. 8	FR proposes additional example var. Citation (AP) and Rubira (AP) <i>[Leading Expert (LE): both AP and PE?] for state 5</i>
char. 8	ZA: No explanation in 8.2
char. 11	NZ: a recent Editorial Committee comment indicates that the principle of narrow to broad has changed and that the order should be rounded, obtuse, acute. I do not support this but the subgroup should be aware of this possible change
char. 13	AU, ZA: Add(+), Explanation for (d) in 8.1
char. 14	ZA: Add (+) Explanation for (c) in 8.1
new char.	ZA: Proposing new char. Leaf blade: attitude in relation to shoot Upwards (Gisela 5 C)(1); outwards (Stockton Morello C) (2); downwards (Mahaleb C)(3)
char. 18	ZA: Change order to tgp 14 Broad ovate (1) Narrow ovate (2), Circular (3) Medium elliptic (4) Narrow elliptic (5) Obovate (6)
char. 20	NZ: Suggest 3 states only
char. 22	FR proposes add. ex. var. Mariana 26-24 (AP) and GF8-1 (AP) for state 1, and add. ex. var. Torinel (AP) for state 2
char. 25	ZA prefer proposal 2 NZ: Support proposal 2
char. 26	NZ: It is difficult to determine in between states when the differences are small. Suggest three states only.
char. 28	AU: Replace "intensity" with "density"; ZA: State 1 absent or very sparse
char. 31	ZA: Propose to delete absent as length could not be absent NZ: Suggest 3 states only, taking into account the size of the organ
char. 33	ZA: Delete (*) not that clear differences. Have explanation for where to observe
char. 37	AU: Add explanation on when to observe; QZ: asks for information after how many growing cycles to assess
after chap. 7	FR proposes to insert an indication <ul style="list-style-type: none"> • on the species able to be grafted onto the rootstock varieties used as ex. var. <i>[LE likes to draw people's attention on chap. 7.3 of the TQ]</i> • on the type of graft-incompatibility expected • on the resistance to diseases • on the resistance to calcareous soils • on the soil adaptation properties
8 (c)	NZ: is stated in table, but missing from here. C only applies to character 14, an Ad. for that character is present
Ad. 6	NZ: on the sunny side

Ad. 18	AU: Should "ovate" be "broad ovate"? Add illustration of "narrow ovate" in top left box
Explanations on the Example Varieties	QZ: according to the International Code for Botanical Nomenclature as regards the naming of interspecific hybrids (see H.2A.1.), it is usually preferable to place the names or epithets in a formula in alphabetical order. The direction of a cross may be indicated by including the sexual symbols ({o+}: female;{o!}: male) in the formula, or by placing the female parent first. If a non-alphabetical sequence is used, its basis should be clearly indicated. <i>[LE: the order of species mentioned in the parental formula follows the principle (female parent) x (male parent)]</i>
TQ 5	NZ: to consider characteristic 22 (Leaf blade: colour) as useful to differentiate between green and red leaf colours

[End of Annex and of document]