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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

TECHNICAL WORKING PARTY FOR FRUIT CROPS

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WORKING PAPER ON DRAFT TEST GUIDELINES FOR AVOCADO
DOCUMENT TG/97/4(PROJ.1)

Document prepared by Experts from Mexico

The attached document TG/97/4(proj.1) already incorporates the standard wording of document TGP/7.2, which was adopted by the Technical Committee at its thirty-eighth session in April 2002, and includes some additional standard wording from document TGP/7.1 Draft 1, also agreed at that session.

[Document TG/97/4(proj.1) follows]

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

AVOCADO [*]

(*Persea americana* Mill.)[*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:[*]

Latin	English	French	German	Spanish
Persea americana Mill.	**Avocado**	**Avocatier**	**Avocado**	**Aguacate**

ASSOCIATED DOCUMENTS

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

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

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1. Subject of these Guidelines

These Test Guidelines apply to all varieties of *Persea americana* Mill. (Lauraceae).

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 graft sticks.

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

8 graft sticks, to be tested on a standard, vegetatively propagated rootstock.

The rootstock to be used is specified by the competent authority.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease. It should preferably not be obtained from *in vitro* propagation. If it has been produced by *in vitro* propagation this fact has to be stated by the applicant.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Duration of Tests

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

3.2 Testing Place

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

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. In particular, it is essential that the trees produce a satisfactory crop of fruit in each of the two growing cycles.

3.3.2 When resistance or tolerance characteristics are used for the examination of distinctness, uniformity and stability, tests should be done under controlled conditions.

3.3.3 Characteristics containing the following notes in the second column of the Table of Characteristics should be examined as indicated below:

[a] Young shoot/Young leaf: All observations on the young shoot and young leaf should be made on upward growing shoots of the current season's growth, during a period of active growth (flush). All observations on the young leaf should be made on actively growing spring flush. Young leaves should be about 5 cm long.

[b] Pubescence : All observations on pubescence should be made with the aid of a microscope.

[c] Leaf: Unless otherwise indicated, all observations on the leaf should be made on mature leaves from branches which are neither bearing fruit nor showing signs of new flush. They should be made in the central third of the current season's growth.

[d] Inflorescence: All observations on the inflorescence should be made at the time of full flowering.

[e] Flower: All observations on the flower should be made during female opening. To determine the flowering type of a variety, the average night and day minimum temperatures should not be below 15°C and 25°C, respectively.

[f] Pollen: Observations on the pollen should be made at anther dehiscence.

[g] Pedicel: All observations on the pedicel should be made on mature fruits.

[h] Mature fruit: The mature fruit is defined as the fruit ready for harvesting.

[i] Ripe fruit: The ripe fruit is defined as the fruit ready for eating (seed coat color changed from pale brown to brown.)

3.4 Test Design

3.4.1 Each test should be designed to result in a total of, at least, four plants.

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 determined by measuring or counting should be made on four plants or five parts taken from each of four plants.

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.2 Uniformity

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

4.2.2 The acceptable number of off-types tolerated in a sample size of four plants is { }on the basis of a population standard of {e.g. 1%}and an acceptance probability of {95%}.

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 seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

5.3.1 Leaves anise-scented, and/or skin of fruit thin, and/or flowers heavily pubescent, and/or pedicel cylindrical

⟶ Mexican (Duke, Topa Topa);

if not ⟶ Section 5.3.2

5.3.2 Leaves not anise-scented

5.3.2.1 Skin of fruit medium thick, and/or flowers less pubescent or almost devoid of pubescence, and/or with "nail head" shape of pedicel at point of fruit attachment

⟶ West Indian (Pollock)

if not ⟶ Section 5.3.2.2

5.3.2.2 Skin of fruit thick, and/or flowers finely pubescent, and/or pedicel tapering conspicuously from fruit to peduncle

⟶ Guatemalan (Nabal, Reed)

5.3.3 Varieties exhibiting characteristics of more than one group should be tested in each of the appropriate groups.

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(*) Asterisked characteristic – see Section 6.1.2

(QL) Qualitative characteristic – see Section 6.3
(QN) Quantitative characteristic – see Section 6.3
(PQ) Pseudo-Qualitative characteristic – see Section 6.3

(+) See Explanations on the Table of Characteristics in Chapter 8.

[a] to [i] See Section 3.3.1

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

	MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)**	a	**Young shoot: color**					
		yellow-green (yellow)				Collinson	1
		green				Benedict, Ferdyn, G-22, Teague	2
		redish (red)				Duke 6	3
2.		**Plant: shape**	**(TO BE DELETED)**				
		absent					1
		present					9
3.	a	**Young shoot: distribution of anthocyanin coloration**					
		uneven				Fuerte	1
		even				Duke 6	2
4.	a	**Young shoot: color of lenticels**					
		yellow					1
		green				Collinson, G-22	2
		red				Bendict, Duke 6	3
		purple					4
5. **(*)**	a	**Young leaf: anthocyanin coloration**	**(TO BE DELETED)**				
		absent					1
		present					9

° MoE = Method of Examination

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	**a**	**Young leaf: bloom**	**(TO BE DELETED)**				
		absent				Collinson	1
		present				Fuerte	9
7.	**a**	**Young leaf: color of pubescence of petiole**					
	b	white				Edranol	1
		yellow				Duke 6	2
		brown					3
		red brown				Fuerte	4
8.	**c**	**Leaf: attitude (during active growth)**					
		erecta				G-6	3
		horizontal					5
		drooping					7
9. **(+)**	**c**	**Leaf blade: folding**					
		absent (flat or slightly concave)				Fuerte	1
		concave				Santana	2
		asymetrically folded	(NZ: to be checked; MX: it is OK)			Collinson	3
		twisted	(NZ: to be checked; MX: it is OK)			Zutano	4
10.	**c**	**Leaf blade: size**	**(TO DELETE)**				
		small				Duke	3
		medium				Fuerte	5
		large				Collinson	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10.1.	c	**Leaf blade: length**	**(NEW)**				
		short					3
		medium					5
		long					7
10.2.	c	**Leaf blade: width**	**(NEW)**				
		narrow					3
		medium					5
		broad					7
10.3.	c	**Leaf blade: length/width ratio**	**(NEW)**				
		small					3
		medium					5
		large					7
11. **(+)**	c	**Leaf blade: shape**	**(TO BE CHECKED)**				
		elliptical				Duke	1
		lanceolate				*Collinson*	2
		ovate				*Teague*	3
		obovate				*Dilly*	4
		circular (MX) (rounded)				*Santana*	5
12. **(+)**	c	**Leaf blade: shape of apex (tip)**	**(TO BE CHECKED)**				
		attenuate				Ettinger	
		acuminate				Fuerte	
		acute					
		obtuse or rounded				Santana	

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13. (+).	c	**Leaf blade: twisting of tip**					
		absent				Fuerte	1
		present				Collinson	9
14.	c	**Leaf blade: undulation of margin**					
		absent or very weak				Duke	1
		weak					3
		medium				Ettinger	5
		strong				Pinkerton	7
		very strong				Arturo	9
15.	c	**leaf blade: conspicuity of venation of upper surface**					
		inconspicuous				Duke	1
		conspicuous				Teague	2
15.1	c	**Leaf blade: spacing between secondary veins**	**(NEW) (MX: Better to place “number of secondary venation”)**				
		short	few				3
		medium	medium				5
		long	many				7
16.	c	**Leaf blade: relief of venation on upper surface**					
		sunken				Topa Topa	3
		medium				Fuerte	5
		raised				Edranol, Teague	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.	**b** **c**	**Leaf blade: density of pubescence on the under surface**					
		sparse				Hass	3
		medium				Edranol	5
		dense				Duke	7
18. **(*)**	**c**	**Leaf blade: anise aroma**					
		absent				Edranol, Pollock	1
		present				Duke	9
19.		**Petiole: grooving**					
		incomplete				Fuerte	1
		complete				Collinson	2
20.	**d**	**Inflorescence: length of axis**					
		short				Bacon	3
		medium				Fuerte	5
		long				Pinkerton	7
21.	**d**	**Inflorescence: color of lenticels**					
		green					
		red					
22. **(+)**	**d**	**Inflorescence: flowering type**	**(NZ: to delete; MX: to keep)**				
		type A				Hass	1
		type B				Fuerte	2

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23.		**Duration of flowering**					
		short					3
		medium					5
		long					7
24. **(*)**	**e** **f**	**Flower: pubescence of sepal**					
		absent				Pollock	
		present				Duke, Hass	
25. **(*)**	**e** **f**	**Flower: density of pubescence of sepal**					
		sparse				Hass	3
		medium					5
		dense				Duke	7
26. **(+)**	**e**	**Flower: nectary stalks (dissected, with magnifying glass)**					
		absent				Ettinger	1
		present				Fuerte	9
27. **(+)**	**e**	**Flower: style**					
		straight				Fuerte	1
		kinked				Collinson	2
28.	**f**	**Flower: pollen**					
		absent				Collinson	1
		present				Fuerte	9

	MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29. **(*)**	**h**	**Mature fruit: size**					
		small				Duke, Topa Topa	3
		medium				Fuerte	5
		large				Collinson, Ferdyn, Santana	7
30.	**h**	**Mature fruit: shape of basal part of fruit**					
		broadly rounded				G-22, Nabal	1
		rounded				Bacon, Ferdyn	2
		oblong				Alboyce, Ettinger	3
		pointed				Santana	4
		necked				Horshim	5
31.	**h**	**Mature fruit: ratio length/maximum diameter**					
		low				G-22, Nabal	3
		medium				Bacon	5
		high				Horshim	7
32. **(+)**	**h**	**Mature fruit: stalk cavity**					
		absent				Sharwil, Wurtz	1
		present				Bacon, Etttinger	9
33.	**h**	**Mature fruit: ratio neck length/width (at bending point)**					
		low					3
		medium					5
		high					7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. **(+)**	h	**Mature fruit: shape of stylar region**					
		deeply depressed				Duke	1
		slightly depressed				Fuerte	2
		flat				Ettinger, Ferdy	3
		rounded				Ahaheim, Wurtz	4
		pointed					5
35. **(+)**	h	**Mature fruit: remains of stigmatic surface**	**(TO DELETE)**				
		sunken				Collinson	1
		raised				Fuerte	2
36.	h	**Mature fruit: size of leticels**					
		small				Rincon	3
		medium				Fuerte	5
		large				Ettinger	7
37.	h	**Mature fruit: color of lenticels**					
		whitish	(NEW)				1
		light green					2 (1)
		yellow					3 (2)
		brown					4 (3)
		red					5 (4)
38.	h	**Mature fruit: conspicuousness of lenticels**					
		inconspicuous				Topa Topa	1
		conspicuous				Ettinger	2

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
39.	**h**	**Mature fruit: distribution of lenticels**					
		diffused				Duke, Rincon	1
		in linear bands				Sharwil	2
40.	**h**	**Mature fruit: glossiness**					
		weak				Fuerte, Horshim	
		medium				Ettinger, Zutano	
		strong				Duke, Santana, Topa Topa	
41. (*)	**h**	**Mature fruit: relief of surface**					
		very smooth				Duke, Ferdyn, Teague, Topa Topa	1
		smooth				Bacon, Ettinger	3
		medium				Alboyce, Fuerte, Horshim	5
		rough				Hass	7
		very rough				Pinkerton	9
42.	**h**	**Mature fruit: persistence of perianth**					
		weak				Hass	3
		medium					5
		strong				Fuerte	7
43.	**h**	**Mature fruit: width of stalk cavity**					
		narrow				Ettinger	3
		medium				Fuerte	5
		broad				Collinson	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
44.	**h**	**Mature fruit: position of stalk**					
		along axis				G-22, Nabal	1
		oblique				Fuerte, Wurtz	2
45. **(*)**	**g**	**Pedicel: length**					
		very short					1
		short				Pollock	3
		medium				Fuerte	5
		long				G-22, Hass	7
		very long				Pinkerton	9
46.	**g**	**Pedicel: conspicuousness of junction with peduncle**					
		inconspicuous				Alboyce	1
		conspicuous				Hass, Nabal, Topa Topa	2
47. **(+)**	**g**	**Pedicel: diameter compared to peduncle**					
		same				Ettinger	1
		larger				Duke, Ferdyn, Sharwil	2
48. **(*)** **(+)**	**g**	**Pedicel: shape**					
		cylindrical				Ferdyn, Horshim, Teague	1
		conical				Edranol	2
49. **(*)** **(+)**	**g**	**Pedicel: “nailhead”**					
		absent				Duke, Edranol, Wurtz	1
		present				Pollock	9

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
50.	g	**Pedicel: color**					
		yellow				Duke	1
		yellow green				Hass	2
		green				Alboyce	3
		reddish				Wurtz	4
51.	g	**Pedicel: surface**					
		smooth				Duke, Ferdyn, Topa Topa	1
		wrinkled				Edranol, Ettinger	2
52.	i	**Ripe fruit: color of skin:**					
		dark green				Ahaheim, Pinkerton	1
		green					2
		yellow green				Duke, Ferdyn, Teague	3
		red					4
		purple					5
		purple black				Hass, Topa Topa	6
53. **(*)**	i	**Ripe fruit: thickness of skin**					
		very thin				Ettinger, Topa Topa	1
		thin				Fuerte	3
		medium				Edranol	5
		thick				Hass	7
		very thick				Dickinson (to delete G-22)	9

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
54.	i	**Ripe fruit: texture of skin**					
		membranous				Ettinger, Teague, Topa Topa	1
		leathery				Edranol, Pollock, Santana	2
		corky				G-22, Nabal	3
55.	i	**Ripe fruit: adherence of skin to flesh**					
		weak				Edranol, Fuerte	3
		medium				Sharwil	5
		strong				Ettinger, Nabal, Teague	7
56.	i	**Ripe fruit: main color of flesh**					
		whitish				Bacon, Ettinger, Teague	1
		pale green				G-6	2
		cream				Alboyce, Fuerte	3
		yellow				Nabal	4
57.	i	**Ripe fruit: color of flesh next to skin**					
		pale green				Santana	1
		green				Fuerte, Sharwil	2
		yellow green				Duke	3
58.	i	**Ripe fruit: width of colored layer of flesh next to skin**					
		narrow				Duke, Santana	3
		medium				Fuerte	5
		wide				Edranol	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
59.	i	**Ripe fruit: conspicuousness of fibers (fibres) in flesh**					
		inconspicuous				Fuerte, Santana	1
		conspicuous				Edranol, Ettinger, Ryan	2
60.	i	**Ripe fruit: texture of flesh**	**(TO BE DELETED)**				
		smooth				Fuerte	1
		granular					2
61.	i	**Ripe fruit: firmness of flesh**					
		weak				Santana (MX: to be cheked)	3
		medium				Fuerte, Santana (MX: to be cheked)	5
		strong					7
62.	i	**Ripe fruit: anise aroma of flesh**					
		absent				Hass	1
		present				Mexicola	9
63.	i	**Ripe fruit: bitterness of flesh**					
		absent				Fuerte	1
		present				Aguilar (MX)	9
64.	i	**Ripe fruit: setting of seed in cavity**					
		loose					1
		tight				Nabal	2

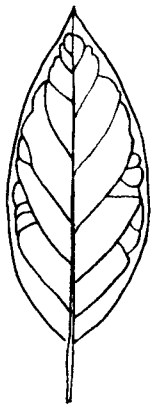
	MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
65.		**Seed: length (size) compared to fruit length (size)**					
		small				Pinkerton	3
		medium				Fuerte	5
		large				G-22, Topa Topa	7
65.1.		**Seed: width**	**(NEW)**				
		narrow					3
		medium					5
		broad					7
66. **(+)**		**Seed: shape in longitudinal section**	**(To be checked)** **(MX, Seed: shape)**				
		elliptic (elliptical)				Alboyce, Topa Topa	1
		ovate				Wurtz	2
		circular				Mayapan	3
		oblate				Edranol, G-22	4
		base flattened, apex rounded				Bacon, Ferdyn	5
		base flattened, apex conical				Ettinger, Fuerte	6
		broadly ovate (MX: new)					
67.		**Seed: shape in cross section**					
		circular				Fuerte	1
		elliptic (elliptical)				Ryan	2
68.		**Seed: multiple sprouting (polyembryony)**					
		absent				Hass	1
		present				Lula	9

MoE°	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
69.	**Seed coat: adherence**					
	to embryo				Edranol	1
	to flesh				Ettinger	2
	to neither				Horshim	3
69.1.	**Seed coat: surface**	**(NEW)**				
	smooth					
	wrinkled					
69.2.	**Seed coat: color (on fresh seed)**	**(NEW)**				
	light brown					1
	medium brown					2
	dark brown					3
	black brown					4
70.	**Cotyledon: surface**					
	smooth				Bacon	1
	slightly wrinkled					2
	wrinkled				Collinson, Zutano	3
71.	**Time of flowering**					
	early				Duke	3
	medium				Fuerte	5
	late				Hass	7

	MoE	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
72. **(*)**	h	**Time of fruit maturity for harvesting**					
		very early				Topa Topa	1
		early				Ettinger	3
		medium				Fuerte	5
		late				Hass, Ryan	7
		very late				Reed	9
73.	h	**Mature fruit: storage on tree**					
		very short					1
		short					3
		medium					5
		long					7
		very long					9

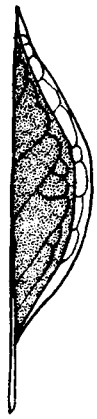
8. Explanations on the Table of Characteristics

Ad. 9: Leaf blade: folding



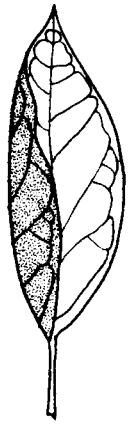
1

absent (flat)



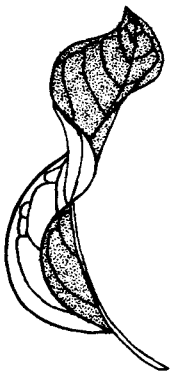
2

concave



3

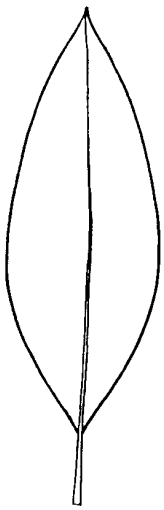
assymmetrically folded



4

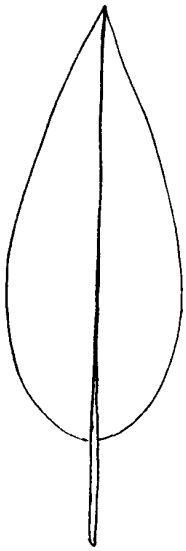
twisted

Ad. 11: Leaf blade: shape



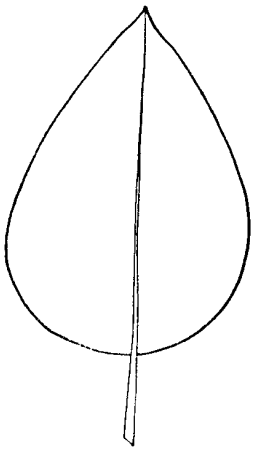
1

elliptic



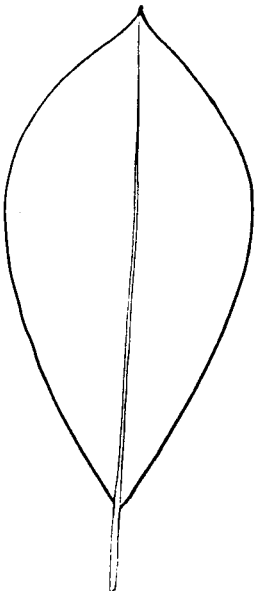
2

lanceolate



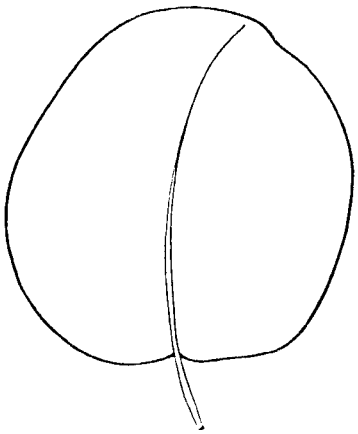
3

ovate



1

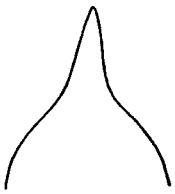
obovate



2

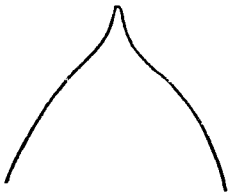
circular (rounded)

Ad. 12: Leaf blade: shape of tip



1

attenuate

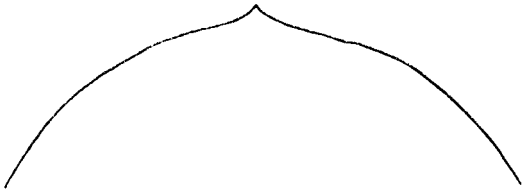


2

acuminate

3

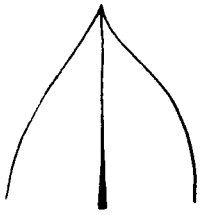
acute



4

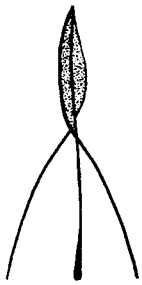
obtuse or rounded

Ad. 13: Leaf blade: twisting of tip



1

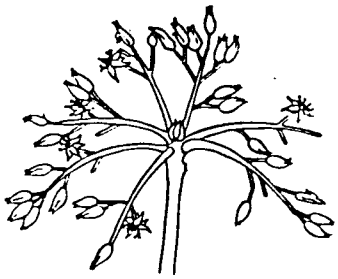
absent



9

present

Ad. 20: Inflorescence: length of axis

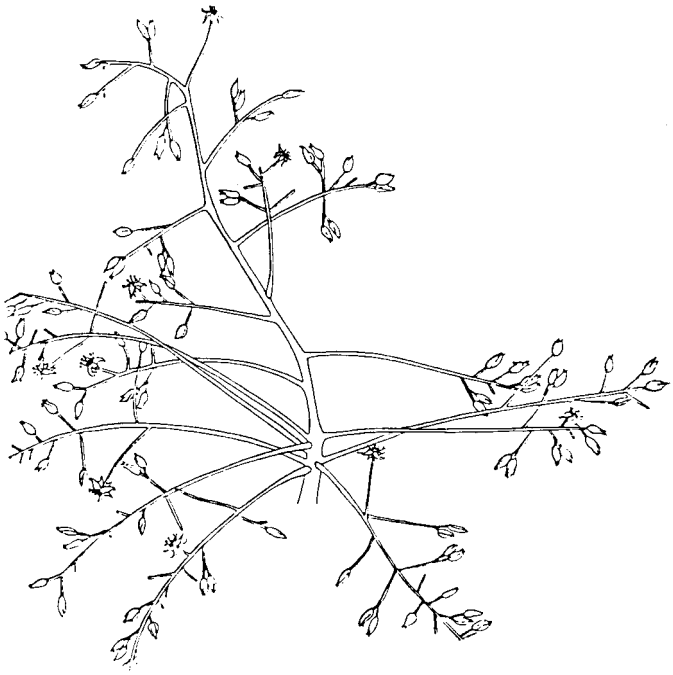


3

short

5

medium



7

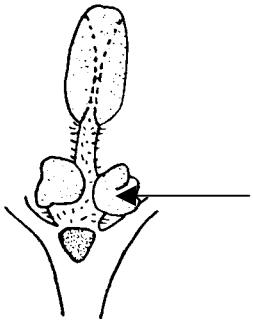
long

Ad. 22: Inflorescence: type

A flower from inflorescence

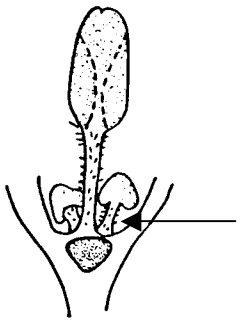
Type		A	B
Day 1	a.m.	open with female parts functional	closed
	p.m.	closed	open with female parts functional
Day 2	a.m.	closed	open with male parts functional
	p.m.	open with male parts functional	closed

Ad. 26: Flower: nectary stalks (dissected, with magnifying glass)



1

absent



9

present

Ad. 27: Flower: style

1

straight

9

kinked

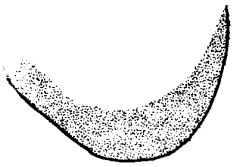
Ad. 34: Mature fruit: shape of stylar region

1

deeply depressed

2

slightly depressed



3

flat

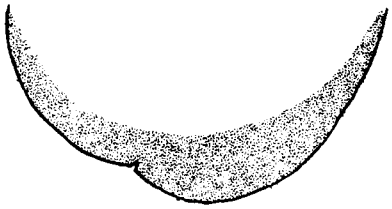
4

rounded

5

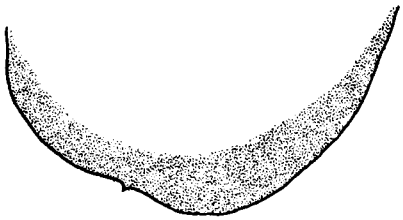
pointed

Ad. 35: Mature fruit: remains of stigmatic surface (TO DELETE)



1

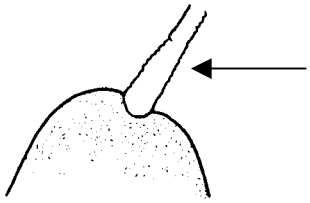
sunken



2

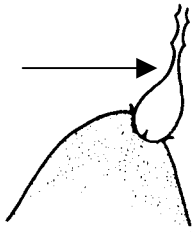
raised

Ad. 47: Pedicel: diameter compared to peduncle



1

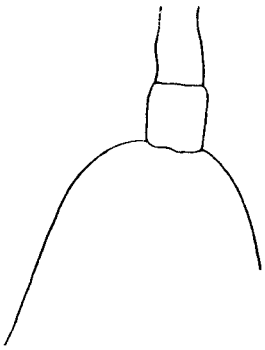
same



2

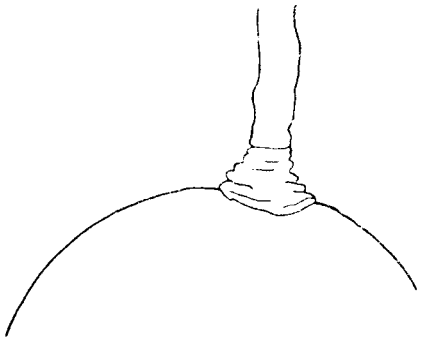
larger

Ad. 48: Pedicel: shape



1

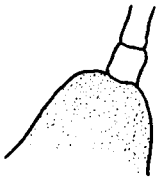
cylindrical



2

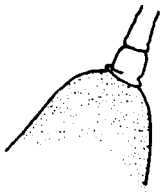
conical

Ad. 49: Pedicel: "nailhead" shape



1

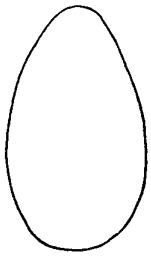
same



9

larger

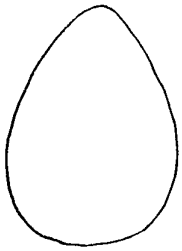
Ad. 66: Seed: shape in longitudinal section



1

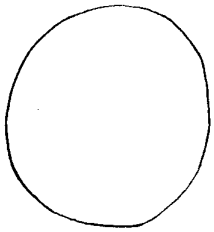
(MX: to check drawing, it looks like broadly ovate that should be included as NEW)

elliptic (elliptical)



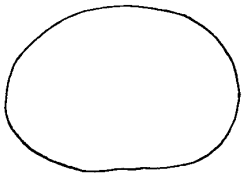
2

ovate



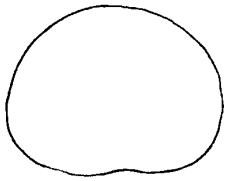
3

circular



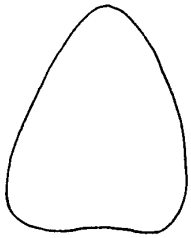
4

oblate



5

base flattened, apex rounded



6

base flattened, apex conical

9. Literature

IPGRI. 1995. “Descriptors for Avocado (*Persea* spp.)”. International Plant Genetic Resources Institute. Rome, Italy. 52 p.

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 *Latin Name*	*Persea americana L.*
1.2 Common Name	AVOCADO

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

4.1.1 Variety resulting from:

(a) controlled cross [ ]
(please state parent varieties)
(b) partially unknown cross [ ]
(please state known parent variety(ies))
(c) totally unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(please provide details)

4.2 Method of Propagating the Variety

4.2.1 *In vitro* propagation
The plant material of the candidate variety has been obtained by *in vitro* propagation yes [ ]
no [ ]

4.2.2 Other type of multiplication (seed, leaf cutting, hardwood cutting, layer): [ ]
(please specify)
.....

4.3 Virus status

4.3.1 The variety is free from all known viruses as follows: [ ]
(indicate from which viruses)
.....

4.3.2 The plant material is virus tested (indicate against which viruses): [ ]
.....

4.3.3 The virus status is unknown [ ]

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 (5)	**Young leaf: anthocyanin coloration**	**(TO DELETE)**	
	absent	Duke, Pollock	1[ ]
	present	Edranol	9[ ]
5.1 (18)	**Leaf blade: anise aroma**		
	absent	Edranol, Pollock	1[ ]
	present	Duke	9[ ]
5.2 (48)	**Pedicel: shape**		
	cylindrical	Ferdyn, Horshim, Teague	1[ ]
	conical	Edranol	2[ ]
5.3 (49)	**Pedicel: "nailhead" shape**		
	absent	Duke, Edranol	1[ ]
	present	Pollock	9[ ]

6. Similar varieties and differences from these varieties

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
(Example)	*Plant: height*	*e.g. note 3*	*note 7*
		e.g. short	*tall*
		e.g. 90 cm	*130 cm*

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Special conditions for the examination of the variety

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

Yes [ ] No [ ]

7.2.2 If yes, please give details:

7.3 Other information

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

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

Applicant's name

Signature Date

[End of document]