



TG/110/4(proj.3)

ORIGINAL: English

DATE: 2024-04-20

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

GUAVA

UPOV Code(s): PSIDI_GUA;
PSIDI_CAT_CAT*Psidium guajava* L.;
Psidium cattleianum Sabine var. *littorale*
(Raddi) Fosberg

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from China
to be considered by the
Technical Working Party for Fruit Crops
at its fifty-fifth session, to be held virtually
from 2024-06-03 to 2024-06-06*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	English	French	German	Spanish
<i>Psidium guajava</i> L.	Guava	Goyavier	Guave	
<i>Psidium cattleianum</i> Sabine var. <i>littorale</i> (Raddi) Fosberg, <i>Psidium littorale</i> Raddi, <i>Psidium littorale</i> var. <i>littorale</i> Raddi	Chinese strawberry guava, Strawberry guava, Yellow Cattle guava, Yellow strawberry guava			

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

ASSOCIATED DOCUMENTS

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

Other associated UPOV documents:

TG/110/3

Date/Datum: 1987-10-07

* 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.]

TABLE OF CONTENTS	PAGE
1. SUBJECT OF THESE TEST GUIDELINES.....	4
2. MATERIAL REQUIRED.....	4
3. METHOD OF EXAMINATION.....	4
3.1 Number of Growing Cycles.....	4
3.2 Testing Place.....	4
3.3 Conditions for Conducting the Examination.....	5
3.4 Test Design.....	6
3.5 Additional Tests.....	6
4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY.....	6
4.1 Distinctness.....	6
4.2 Uniformity.....	7
4.3 Stability.....	7
5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL.....	8
6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS.....	8
6.1 Categories of Characteristics.....	8
6.2 States of Expression and Corresponding Notes.....	8
6.3 Types of Expression.....	8
6.4 Example Varieties.....	8
6.5 Legend.....	9
7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES.....	10
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS.....	23
8.1 Explanations covering several characteristics.....	23
8.2 Explanations for individual characteristics.....	24
9. LITERATURE.....	33
10 TECHNICAL QUESTIONNAIRE.....	34

1. Subject of these Test Guidelines

- 1.1 These Test Guidelines apply to all varieties of *Psidium guajava* L. and *Psidium cattleyanum* Sabine var. *littorale* (Raddi) Fosberg and the hybrid varieties (*Psidium guajava* L. × *Psidium littorale* Raddi).
- 1.2 In the case of industrial varieties, in particular, it may be necessary to use additional characteristics or additional states of expression to those included in the Table of Characteristics in order to examine Distinctness, Uniformity and Stability.

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 cutting seedlings, air-layering trees or grafted trees.
- 2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:
8 plants.
- 2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.
- 2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 *Number of Growing Cycles*

- 3.1.1 The minimum duration of tests should normally be two independent growing cycles.
- 3.1.2 The two independent growing cycles may be observed from a single planting, examined in two separate growing cycles.
- 3.1.3 In particular, it is essential that the plants produce a satisfactory crop of fruit in each of the two growing cycles.
- 3.1.4 The growing cycle is considered to be the duration of a single growing season, beginning with bud burst (flowering and/or vegetative), flowering and fruit harvest and concluding when the following dormant period ends with the swelling of new season buds.
- 3.1.5 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

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 The optimum stage of development for the assessment of each characteristic is indicated by a number in the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

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

4.2.3 For the assessment of uniformity of vegetatively propagated, 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 further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

4.3.3 Where appropriate, or in cases of doubt, the stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

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:

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 All relevant states of expression are presented in the characteristic.

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

6.3 *Types of Expression*

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

6.4 *Example Varieties*

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

6.5 Legend

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

- 1 Characteristic number
- 2 (*) Asterisked characteristic – see Chapter 6.1.2
- 3 Type of expression
 QL Qualitative characteristic – see Chapter 6.3
 QN Quantitative characteristic – see Chapter 6.3
 PQ Pseudo-qualitative characteristic – see Chapter 6.3
- 4 Method of observation (and type of plot, if applicable)
 MG, MS, VG, VS – see Chapter 4.1.5
- 5 (+) See Explanations on the Table of Characteristics in Chapter 8.2
- 6 (a)-(e) See Explanations on the Table of Characteristics in Chapter 8.1
- 7 Not applicable

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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	QN	VG	(a)				
	Tree: growth habit						
	upright						1
	spreading						2
	drooping						3
	weeping						4
2. (*)	PQ	VG	(+)	(b)			
	Young shoot: color						
	yellow green						1
	green					Oakford, Puerto Rico	2
	reddish green					Pink Indian	3
	red						4
	dark red						5
3.	QN	VG	(+)	(b)			
	Young leaf: anthocyanin coloration						
	absent or very weak					Oakford, Puerto Rico	1
	weak					WK 11-26	3
	medium						5
	strong					Pink Indian	7
4.	QN	VG	(+)	(b)			
	Young leaf: pubescence on lower side						
	absent or very sparse						1
	sparse					Beaumont	3
	medium					Puerto Rico	5
	dense						7
	very dense						9
5.	QN	MS/VG	(c)				
	Shoot: thickness						
	thin						3
	medium						5
	thick						7

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	QN	MS/VG	(+)	(c)				
	Leaf blade: length							
	short						Puerto Rico	3
	medium							5
	long						DA 6, Dert	7
7.	QN	MS/VG		(c)				
	Leaf blade: width							
	narrow						Buys	3
	medium							5
	broad						Dert	7
8. (*)	QN	MS/VG		(c)				
	Leaf blade: ratio length/width							
	low						Curflau	3
	medium							5
	high						Buys	7
9. (*)	PQ	VG	(+)	(c)				
	Leaf blade: shape							
	ovate							1
	trullate							2
	rounded							3
	oblong						Buys, Welken	4
	obovate							5
	obtrullate							6
10	QN	VG	(+)	(c)				
	Leaf blade: curvature in cross section							
	weak							3
	medium							5
	strong						Oakford I	7
11	QL	VG	(+)	(c)				
	Leaf blade: twisting							
	absent						Beaumont	1
	present						Oakford I	9

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
12	QL	VG	(+)	(c)				
	Leaf blade: curvature of midrib							
	absent						Curflau	1
	present						Welken	9
13	QN	VG		(c)				
	Leaf blade: degree of curvature of midrib							
	weak						Welken	3
	medium							5
	strong							7
14	QL	VG		(c)				
	Leaf blade: variegation							
	absent						Beaumont, Puerto Rico	1
	present							9
15	PQ	VG	(+)	(c)				
	Leaf blade: color							
	light green						Puerto Rico	1
	medium green						Oakford I	2
	dark green							3
	reddish green							4
	red							5
16	PQ	VG	(+)	(c)				
	Leaf blade: color of midrib on lower side							
	white							1
	yellow							2
	green							3
	red							4
17	QN	MS/VG		(c)				
	Leaf blade: spacing of secondary veins							
	close						DA 6	3
	medium							5
	wide						Oakford I	7

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
18	PQ	VG	(c)				
	Leaf blade: texture of upper side						
	smooth					WK 11-26	1
	slightly wrinkled						3
	wrinkled					Welken	5
19	QN	VG	(+)	(c)			
	Leaf blade: undulation of margin						
	absent or very weak						1
	weak					Buys	3
	medium					Oakford II	5
	strong						7
20	PQ	VG	(+)	(c)			
	Leaf blade: shape of base						
	obtuse						1
	rounded					Pink Indian	2
	cordate						3
	asymmetric						4
21	PQ	VG	(+)	(c)			
	Leaf blade: shape of apex						
	attenuate						1
	apiculate					Pink Indian, Puerto Rico	2
	acute						3
	obtuse						4
	rounded					Dert	5
	cordate						6
22	QN	MS	(d)				
	Inflorescence: predominant number of flowers						
	one						1
	one to three						2
	three						3

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23	QN	MS/VG	(d)			
	Flower: size					
	small					3
	medium					5
	large					7
24	QN	MS/VG	(d)			
	Flower: number of <u>fully developed</u> petals					
	few					1
	medium					2
	many					3
25	QL	VG	(d)			
	Flower: staminoid petals					
	absent					1
	present					9
26	QN	MS/VG	(d)			
	Flower: number of <u>staminoid</u> petals					
	few					1
	medium					2
	many					3
27 (*)	QN	MS/VG	(e)			
	Fruit: length					
	short					3
	medium					5
	long					7
28 (*)	QN	MS/VG	(e)			
	Fruit: width					
	narrow					3
	medium					5
	broad					7

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29 (*)	QN	MS/VG	(e)			
	Fruit: ratio length/width					
	small				Dert	3
	medium				Fan Retief	5
	long				Beaumont	7
30 (*)	PQ	VG	(+)	(e)		
	Fruit: shape at stalk end					
	broadly rounded					1
	rounded					2
	truncate					3
	pointed					4
	necked					5
31 (*)	PQ	VG	(e)			
	Fruit: color of skin					
	white green					1
	light yellow				Beaumont	2
	dark yellow					3
	orange					4
	orange green					5
	medium green					6
	dark green					7
	pink red					8
	dark red					9
32 (*)	PQ	VG	(e)			
	Fruit: texture of surface					
	smooth				Fan Retief	1
	rough					2
	bumpy					3
33	QL	VG				
	Fruit: color of outer flesh in relation to inner flesh					
	same color					1
	other color					2

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34	QL	VG	(e)				
	Fruit: longitudinal ridges						
	absent						1
	present						9
35	QN	VG	(e)				
	Fruit: prominence of longitudinal ridges						
	weak						3
	medium						5
	strong						7
36	QL	VG	(e)				
	Fruit: longitudinal grooves						
	absent						1
	present						9
37	QN	MS/VG	(e)				
	Fruit: size of sepal						
	small						3
	medium						5
	large						7
38 (*)	QN	MS/VG	(+)	(e)			
	Fruit: diameter of calyx cavity in relation to that of fruit						
	small						3
	medium						5
	large						7
39	QL	VG	(+)	(e)			
	Fruit: ridged collar around calyx cavity						
	inconspicuous						1
	conspicuous						2
40	QN	MS/VG	(e)				
	Fruit: length of stalk						
	short						3
	medium						5
	long						7

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41	(*)	PQ	VG	(e)			
		Fruit: color of flesh					
		white					1
		light yellow					2
		light pink					3
		medium pink				Beaumont, Ka Hua Kula	4
		dark pink				DA 6	5
		orange pink				Fan Retief	6
		orange				Puerto Rico	7
		dark red					8
42	(*)	QL	VG	(+)	(e)		
		Fruit: evenness of color of flesh					
		even					1
		mottled					2
43	(*)	QL	VG	(e)			
		Fruit: grittiness of outer flesh					
		absent				Malherbe	1
		present					9
44	(*)	QL	VG	(+)	(e)		
		Fruit: discoloration of flesh after cutting					
		absent					1
		present					9
45	(*)	QN	MS/VG	(+)	(e)		
		Fruit: thickness of outer flesh in relation to core diameter					
		very thin				Madeira	1
		thin					3
		medium					5
		thick					7
		very thick				Hong Kong Pink	9
46	(*)	QL	VG	(e)			
		Fruit: puffiness					
		absent					1
		present				Beaumont	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
47	(*)	QN	VG	(e)			
		Fruit: degree of puffiness					
		weak					3
		medium					5
		strong					7
48	(*)	QN	MG	(e)			
		Fruit: juiciness					
		low				Madeira	1
		medium				Fan Retief	2
		high				Oakford	3
49	(*)	QN	MG	(+)	(e)		
		Fruit: sweetness					
		low					3
		medium					5
		high					7
50		QL	VG	(e)			
		Fruit: muskiness					
		absent				Fan Retief	1
		present					9
51	(*)	QN	MS/VG	(e)			
		Fruit: number of seeds					
		very few				Indonesian Seedless	1
		few					3
		medium					5
		many					7
		very many				Madeira	9
52		QN	VG	(e)			
		Seed: size					
		small					1
		medium					2
		large					3

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
53	QN	MG					
	Time of harvest maturity						
	early						3
	medium					Beaumont, Ka Hua Kula	5
	late						7

8. Explanations on the Table of Characteristics

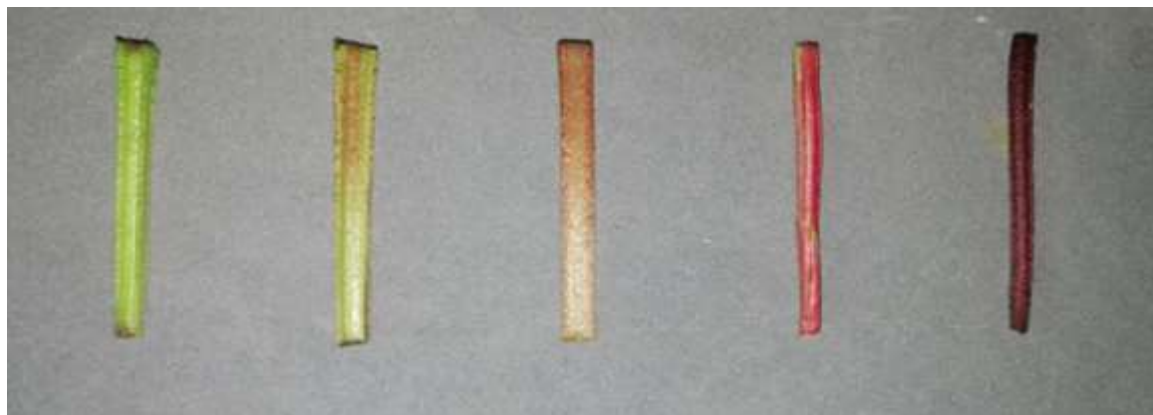
8.1 *Explanations covering several characteristics*

Characteristics containing the following key in the Table of Characteristics should be examined as indicated below:

- (a) Observations on the whole plant should be made during the dormant season before pruning.
- (b) Observations on the young leaf and young shoot should be made during a period of active growth (flush), on leaves at the outside of the upper canopy completely exposed to sunlight.
- (c) Observations on shoot and leaf should be made in the middle third of the current season's shoot, after the period of active growth at the outside of the upper canopy completely exposed to sunlight.
- (d) Observations on the inflorescence and flower should be made on fully developed flowers at the outside of the upper canopy.
- (e) Observations on the fruit should be made on fruits from the outside of upper canopy at the time of maturity for consumption.

8.2 *Explanations for individual characteristics*

Ad. 2: Young shoot: color



1 green 2 reddish green 3 light red 4 medium red 5 dark red

Ad. 3: Young leaf: anthocyanin coloration



1 absent or very weak 3 weak 5 medium 7 strong

Ad. 4: Young leaf: pubescence on lower side



3
sparse



5
medium



9
very dense

Ad. 6: Leaf blade: length

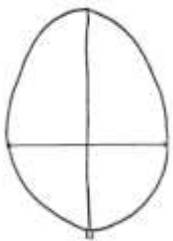


3
short

5
medium

7
long

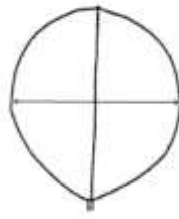
Ad. 9: Leaf blade: shape



1
ovate



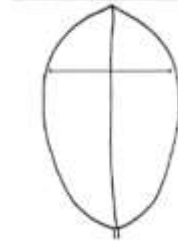
2
trullate



3
rounded



4
oblong

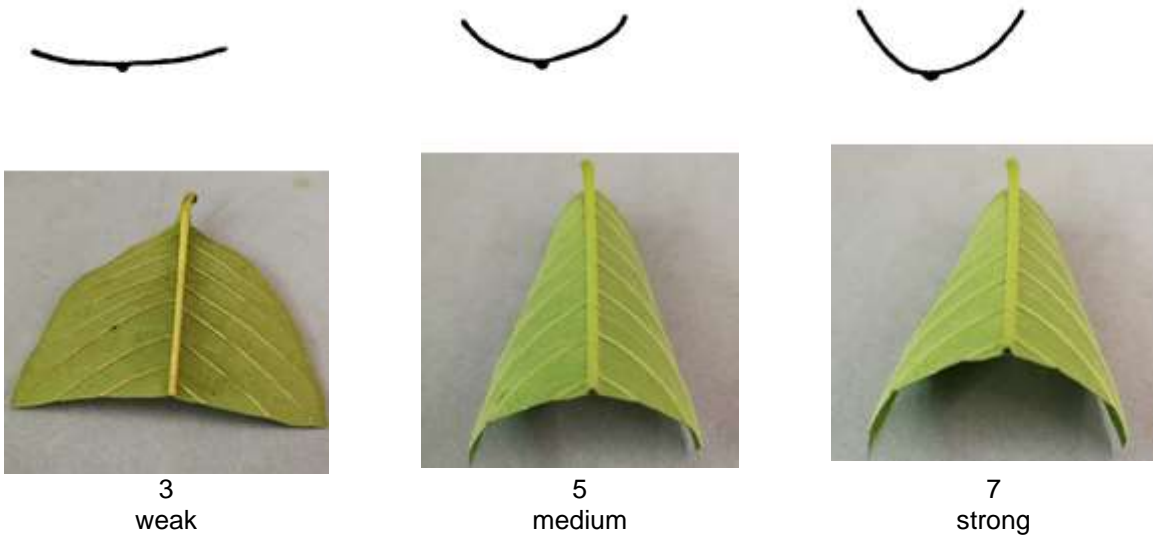


5
obovate

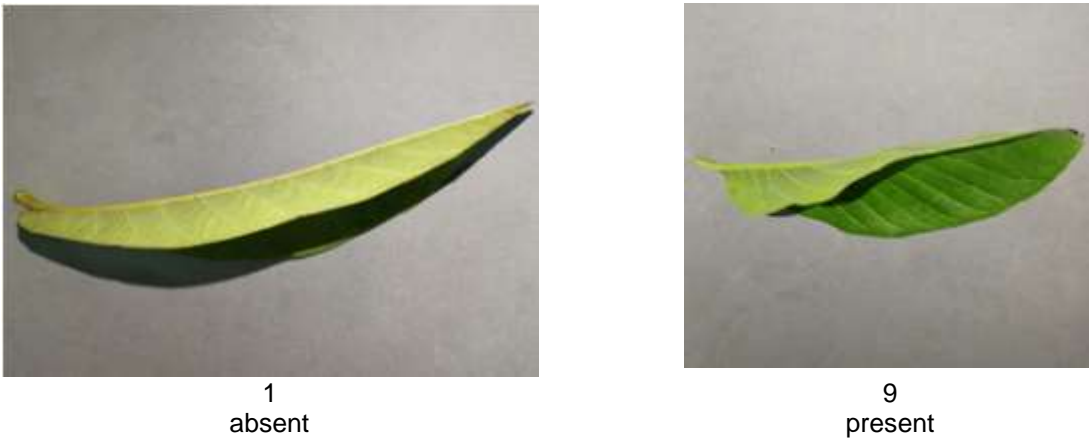


6
obtrullate

Ad. 10: Leaf blade: curvature in cross section



Ad. 11: Leaf blade: twisting



Ad. 12: Leaf blade: curvature of midrib



Ad. 15: Leaf blade: color



1
light green



2
medium green



3
dark green



4
reddish green



5
red

Ad. 16: Leaf blade: color of midrib on lower side



1
white



2
yellow



3
green



4
red

Ad. 19: Leaf blade: undulation of margin



3
weak



5
medium

Ad. 20: Leaf blade: shape of base



1
obtuse



2
rounded



3
cordate



4
asymmetric

Ad. 21: Leaf blade: shape of apex



1
attenuate



2
apiculate



3
acute



4
obtuse



5
rounded



6
cordate

Ad. 30: Fruit: shape at stalk end



1
broadly rounded



2
rounded



3
truncate



4
pointed

Ad. 38: Fruit: diameter of calyx cavity in relation to that of fruit



3
small



5
medium



7
large

Ad. 39: Fruit: ridged collar around calyx cavity



1
inconspicuous



2
conspicuous

Ad. 42: Fruit: evenness of color of flesh



1
even



2
mottled

Ad. 44: Fruit: discoloration of flesh after cutting



1
absent



9
present

Ad. 45: Fruit: thickness of outer flesh in relation to core diameter



3
thin



5
medium



7
thick

Ad. 49: Fruit: sweetness

Sweetness of fruit should be expressed as the amount of the total sugar.

The total sugar should be expressed as the amount of the total soluble solids (TSS) deducting the total titratable acids (TTA).

The TSS should be measured by means of a hand refractometer and expressed in Brix.

9. Literature

Wu, J.X., Wang, J.B., Zhang,X.C., etc., 2009: Genetic Relationship of Some Guava (*Psidium guajava* L.) Germplasm by ISSR Markers. Chinese Journal of Tropical Crops.Hainan, CN, 961-964 pp.

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		
In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.		
1. Subject of the Technical Questionnaire		
1.1.1	Botanical name	<input type="text" value="Psidium guajava L."/> []
1.1.2	Common name	<input type="text" value="Guava"/>
1.2.1	Botanical name	<input type="text" value="Psidium cattleianum Sabine var. littorale (Raddi) Fosberg"/> []
1.2.2	Common name	<input type="text" value="Chinese strawberry guava, Strawberry guava, Yellow Cattley guava, Yellow strawberry guava"/>
2. Applicant		
	Name	<input type="text"/>
	Address	<input type="text"/>
	Telephone No.	<input type="text"/>
	Fax No.	<input type="text"/>
	E-mail address	<input type="text"/>
	Breeder (if different from applicant)	<input type="text"/>
3. Proposed denomination and breeder's reference		
	Proposed denomination (if available)	<input type="text"/>
	Breeder's reference	<input type="text"/>

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

#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 []

(b) partially known cross []

(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) Tuber
- (b) Cuttings
- (c) *In vitro* propagation
- (d) Other (state method)

4.2.2 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 Fruit: shape at stalk end (30)		
broadly rounded		1 []
rounded		2 []
truncate		3 []
pointed		4 []
necked		5 []
5.2 Fruit: color of skin (31)		
white green		1 []
light yellow	Beaumont	2 []
dark yellow		3 []
orange		4 []
orange green		5 []
medium green		6 []
dark green		7 []
pink red		8 []
dark red		9 []
5.3 Fruit: texture of surface (32)		
smooth	Fan Retief	1 []
rough		2 []
bumpy		3 []
5.4 Fruit: color of flesh (41)		
white		1 []
light yellow		2 []
light pink		3 []
medium pink	Beaumont, Ka Hua Kula	4 []
dark pink	DA 6	5 []
orange pink	Fan Retief	6 []
orange	Puerto Rico	7 []
dark red		8 []

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
<i>Example</i>			
<p>Comments:</p>			

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

A representative color photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.

The key points to consider when taking a photograph of the candidate variety are:

- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)"

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (<http://www.upov.int/tgp/en/>).

[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

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

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

8. Authorization for release

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

Yes No

(b) Has such authorization been obtained?

Yes No

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

9. Information on plant material to be examined or submitted for examination

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a) Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
(b) Chemical treatment (e.g. growth retardant, pesticide)	Yes <input type="checkbox"/>	No <input type="checkbox"/>
(c) Tissue culture	Yes <input type="checkbox"/>	No <input type="checkbox"/>
(d) Other factors	Yes <input type="checkbox"/>	No <input type="checkbox"/>

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