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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

ACCA

UPOV Code: ACCAA_SEL

Acca sellowiana (Berg) Burret [*]

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from New Zealand

to be considered by the

Technical Working Party for Fruit Crops
at its forty-fifth session, to be held in Marrakesh, Morocco, from May 26 to 30, 2014

Disclaimer: this document does not represent UPOV policies or guidance

Alternative Names:[*]

Botanical name	*English*	*French*	*German*	*Spanish*
Acca sellowiana (Berg) Burret	Feijoa, Pineapple Guava, Guavasteen			

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.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Acca sellowiana* (Berg) Burret.

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 one year old trees. The trees can be cutting grown or grafted on a rootstock as specified by the testing authority.

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

5 trees.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

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

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The growing cycle is considered to be the duration of a single growing season, beginning with vegetative growth, continuing through flowering, active vegetative growth and fruit development and concluding after the harvest of fruit.

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

3.3.2 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 5 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 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 of vegetatively propagated varieties, 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.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Tree: growth habit (characteristic 1)
(b) Leaf blade: variegation on upper side (characteristic 13)
(c) Fruit: weight (characteristic 24)
(d) Fruit: predominant shape (characteristic 28)
(e) Fruit: color of skin (characteristic 33)
(f) Fruit: texture of skin (characteristic 34)
(g) Time of harvest maturity (characteristic 42)

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)-(c)	See Explanations on the Table of Characteristics in Chapter 8.1	
(+)	See Explanations on the Table of Characteristics in Chapter 8.2.	

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG**	**Tree: growth habit**					
PQ		upright				Apollo, Marion	1
		semi upright				Alcantara, Kakapo, Unique	2
		spreading				Helena, Pounamu,	3
2.	**VG**	**Tree: vigor**					
(+)							
QN		weak				Helena, Unique	3
		medium				Alcantara, Opal Star	5
		strong				Apollo, Gemini	7
3. **(*)** **(+)**	**VG/** **MG**	**Current seasons shoot: length of internode**					
QN		short				Unique	3
		medium				Marion	5
		long				Gemini	7
4. **(*)**	**VG/** **MS**	**Leaf blade: length**					
QN	**(a)**	short				Opal Star, Unique	3
		medium				Apollo, Pounamu	5
		long				Kakariki	7
5. **(*)**	**VG/** **MS**	**Leaf blade: width**					
QN	**(a)**	narrow				Marion	3
		medium				Unique	5
		broad				Anatoki	7
6. **(*)** **(+)**	**VG/** **MS**	**Leaf blade: ratio length/width**					
QN	**(a)**	slightly elongated				Helena, Opal Star	1
		moderately elongated				Alcantara, Apollo, Marion	2
		strongly elongated				Pounamu	3
		very strongly elongated				Kawatiri	4
7. **(*)** **(+)**	**VG**	**Leaf blade: shape**					
PQ	**(a)**	ovate					1
		elliptic				Apollo	2
		oblong					3
		obovate				Alcantara, Helena	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8. **(*)** **(+)**	**VG**	**Leaf blade: position of broadest part**					
QN	**(a)**	towards base					1
		in middle				Marion, Unique	2
		towards apex				Alcantara, Helena, Triumph	3
9. **(+)**	**VG**	**Leaf blade: shape of apex**					
PQ	**(a)**	acute				Gemini	1
		obtuse				Alcantara, Apollo	2
		rounded				Helena, Marion	3
		truncate					4
		retuse					5
10. **(+)**	**VG**	**Leaf blade: shape of base**					
PQ	**(a)**	cuneate				Marion	1
		acute				Gemini, Helena, Kakapo	2
		obtuse				Alcantara, Unique	3
		rounded					4
11. **(+)**	**VG**	**Leaf blade: profile in cross section**					
QN	**(a)**	concave				Helena	1
		flat				Alcantara, Opal Star	2
		convex					3
12. **(*)** **(+)**	**VG**	**Leaf blade: main color of upper side**					
PQ	**(a)**	light green					1
		medium green				Opal Star	2
		dark green				Apollo	3
		grey green				Marion	4
13. **(*)**	**VG**	**Leaf blade: variegation on upper side**					
QL	**(a)**	absent					1
		present					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14. **(+)**	**VG**	**Leaf blade: color of lower side**					
PQ	**(a)**	whitish				Apollo, Helena	1
		light green				Alcantara	2
		medium green				Mattos	3
		greyish green				Nonante	4
15.	**VG**	**Inflorescence: arrangement**					
QL	**(b)**	terminal only					1
		terminal and lateral				Alcantara, Helena	2
16.	**VG/ MS**	**Petal: length**					
QN	**(b)**	short					1
		medium				Alcantara, Helena, Kawatiri	2
		long					3
17. **(*)** **(+)**	**VG**	**Petal: color of upper side**					
PQ	**(b)**	RHS Color Chart (indicate reference number)					
18. **(*)** **(+)**	**VG/ MG**	**Stamens: number**					
QN	**(b)**	few				Anatoki	1
		medium				Gemini	2
		many				Kaiteri	3
19.	**VG**	**Filaments: color**					
PQ	**(b)**	pink					1
		reddish pink					2
		red				Alcantara, Helena	3
20. **(*)** **(+)**	**VG**	**Anthers: color of theca**					
PQ	**(b)**	yellowish white					1
		reddish white				Apollo, Gemini	2
		medium red				Alcantara	3
		dark red				Nonante	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. **(+)**	**VG**	**Anthers: color of connective**					
PQ	**(b)**	yellowish white				Unique	1
		reddish white				Apollo, Gemini	2
		medium red				Alcantara	3
		dark red				Nonante	4
22.	**VG**	**Style: color of basal part**					
PQ	**(b)**	green					1
		reddish green				Alacantara	2
		red				Apollo, Helena	3
23.	**VG**	**Stigma: height above the anthers**					
QN	**(b)**	level to slightly above					1
		moderately above				Alcantara, Helena	2
		strongly above				Apollo, Unique	3
24. **(*)** **(+)**	**MG**	**Fruit: weight**					
QN	**(c)**	low				Apollo, Opal Star	3
		medium				Alcantara, Pounamu	5
		high				Anilvinkoru, Helena	7
25. **(*)** **(+)**	**VG/** **MS**	**Fruit: length**					
QN	**(c)**	short					3
		medium				Apollo, Opal Star	5
		long				Gemini, Pounamu	7
		very long				Marion	9
26. **(*)** **(+)**	**VG/** **MS**	**Fruit: width**					
QN	**(c)**	narrow				Unique	3
		medium				Kakapo, Opal Star	5
		broad				Kawatiri	7
27. **(*)** **(+)**	**VG/** **MG**	**Fruit: ratio length/width**					
QN	**(c)**	low				Alcantara	3
		medium				Helena, Pounamu	5
		high				Triumph	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
28. **(*)** **(+)**	**VG**	**Fruit: predominant shape**					
PQ	**(c)**	ovate				Pounamu	1
		circular					2
		elliptic				Alcantara, Opal Star	3
		oblong					4
		rhombic					5
		obovate				Gemini, Helena, Kakapo	6
		oblanceolate					7
29. **(+)**	**VG**	**Fruit: longitudinal symmetry**					
QN	**(c)**	symmetric or slightly asymmetric				Alcantara, Opal Star, Unique	1
		moderately asymmetric				Apollo	2
		strongly asymmetric				Triumph	3
30. **(*)** **(+)**	**VG**	**Fruit: slope of shoulder at stalk end**					
QN	**(c)**	weak				Alcantara, Opal Star	1
		medium				Kakapo, Pounamu	2
		strong				Anilvinkoru, Apollo	3
31. **(+)**	**VG**	**Fruit: point of attachment of stalk**					
QN	**(c)**	depressed				Gemini, Helena, Unique	1
		flat				Opal Star	3
		raised				Apollo	5
32. **(*)**	**VG**	**Fruit: attitude of sepals**					
QN	**(c)**	erect				Helena, Kakapo, Opal Star	1
		semi erect				Marion, Unique	2
		horizontal				Apollo, Pounamu	3
33. **(*)**	**VG**	**Fruit: color of skin**					
PQ	**(c)**	light green				Unique	1
		medium green				Alcantara, Apollo, Opal Star	2
		dark green				Anilvinkoru, Kakapo	3
		grey green				Marion	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. **(*)** **(+)**	**VG**	**Fruit: texture of skin**					
	(c)	smooth or very slightly rugose				Helena, Opal Star	1
QN		slightly rugose				Kakapo, Marion	3
		moderately rugose				Alcantara, Apollo, Triumph	5
		strongly rugose				Unique	7
35. **(+)**	**VG**	**Fruit: longitudinal grooving**					
QN	**(c)**	absent or weak				Helena, Pounamu	1
		medium				Kakapo	2
		strong				Anilvinkoru	3
36.	**VG**	**Fruit: thickness of skin**					
QN	**(c)**	thin					1
		medium					3
		thick					5
37. **(+)**	**VG**	**Fruit: thickness of pericarp**					
QN	**(c)**	thin					1
		medium					3
		thick					5
38.	**VG**	**Fruit: color of outer pericarp**					
PQ	**(c)**	white				Kakapo	1
		yellowish white				Gemini, Unique	2
		yellow				Opal Star	3
39. **(*)** **(+)**	**VG**	**Fruit: width of locules relative to fruit**					
QN	**(c)**	very small				Triumph	1
		small				Kakapo, Pounamu	3
		medium				Helena, Unique	5
		large				Alcantara	7
40. **(*)**	**VG**	**Fruit: color of locules**					
PQ	**(c)**	opaque					1
		whitish				Nonante	2
		reddish					3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
41.	**MG**	**Seed: size**					
(+)							
QN	**(c)**	small				Unique	1
		medium				Alcantara, Helena	2
		large					3
42. **(*)** **(+)**	**VG/** **MG**	**Time of harvest maturity**					
QN		very early				Kakariki	1
		early				Unique	3
		medium				Apollo, Gemini	5
		late				Kakapo, Opal Star	7
		very late				Triumph	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) Observations on the leaf should be made on the middle third of a one year old shoot.

(b) Observations on flowers should be made when approximately 50% of flowers on a tree are open.

(c) Observations on fruit should be made when harvested

8.2 Explanations for individual characteristics

Ad. 1: Tree: growth habit

The growth habit is observed at the end of the growing season after fruit harvest.

Ad. 2: Tree: vigor

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

Ad. 3: Current seasons shoot: length of internode

The length of the internode is observed on the middle third on a current season shoot.

Ad. 6: Leaf blade: ratio length/width
Ad. 7: Leaf blade: shape
Ad. 8: Leaf blade: position of broadest part

	← broadest part →		
	below middle	at middle	above middle
→ narrow (*high*)		 3 oblong	
width (ratio length/width)		 2 elliptic	
broad (*low*) ←	 1 ovate		 4 obovate

Ad. 9: Leaf blade: shape of apex

1 acute | 2 obtuse | 3 rounded | 4 truncate | 5 retuse

Ad. 10: Leaf blade: shape of base

1 cuneate | 2 acute | 3 obtuse | 4 rounded

Ad. 11: Leaf blade: profile in cross section

1
concave

2
flat

3
convex

Ad. 12: Leaf blade: main color of upper side

The main color is the color with the largest surface area present on the inner side of a leaf. In cases where the areas of the main and secondary colors are too similar to reliably decide which color has the largest area of the blade, the darkest color is considered to be the main color.

Ad.14: Leaf blade: color of lower side

The color of the lower side includes any pubescence that may be present.

Ad. 17: Petal: color of upper side

The observation is made on the color covering the largest surface area of the petal.

Ad. 18: Stamens: number

1
few

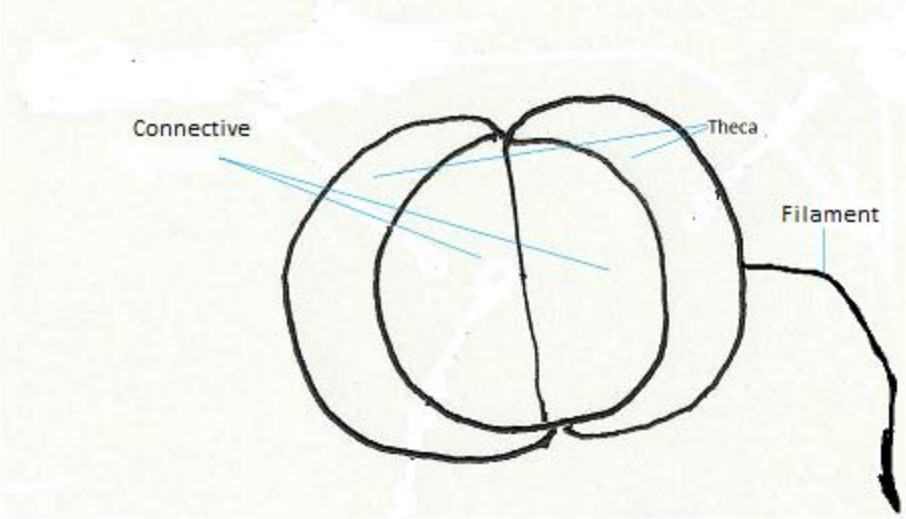
2
medium

3
many

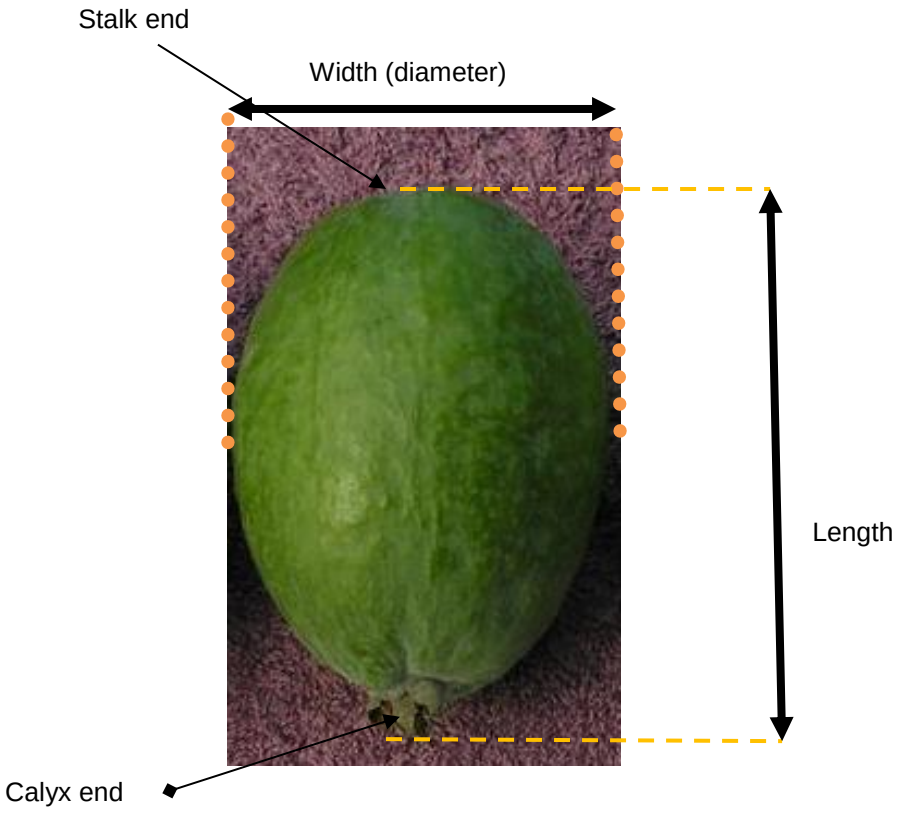
Ad. 20: Anthers: color of theca
Ad. 21: Anthers: color of connective

The theca is the covering or sheath of an anther consisting of two halves.

The connective is the top part of the anther, between the two halves of the theca.



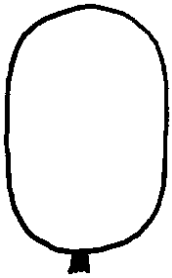
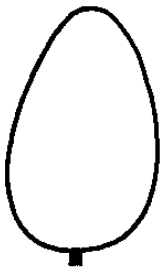
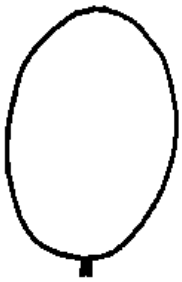
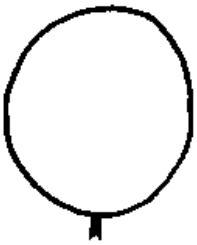
Ad. 25: Fruit: length
Ad. 26: Fruit: width



Ad. 27: Fruit: ratio length/width
Ad. 28: Fruit: predominant shape

← broadest part →		
below middle	at middle	above middle

broad (*low*) ← width (ratio length/width) → narrow (*high*)

	 5 rhombic	 7 oblanceolate
	 4 oblong	
 1 ovate	 3 elliptic	 6 obovate
	 2 circular	

Ad. 29: Fruit: longitudinal symmetry

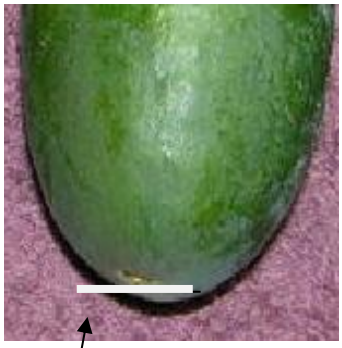
1
symmetric or slightly asymmetric

2
moderately asymmetric

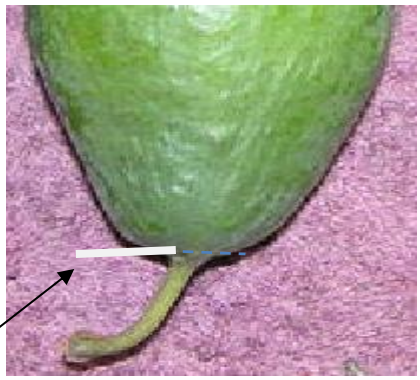
3
strongly asymmetric

Ad. 30: Fruit: slope of shoulder at stalk end

1
weak



2
medium



3
strong

shoulder

Ad. 31: Fruit: point of attachment of stalk

1
depressed

3
flat

5
raised

Ad. 34: Fruit: texture of skin

Rugosity of the fruit is defined as the number of wrinkles. The wrinkles are irregular and net like. A variety with a rough fruit surface has greater rugosity than a variety with a smoother skin surface.

Ad. 35: Fruit: longitudinal grooving

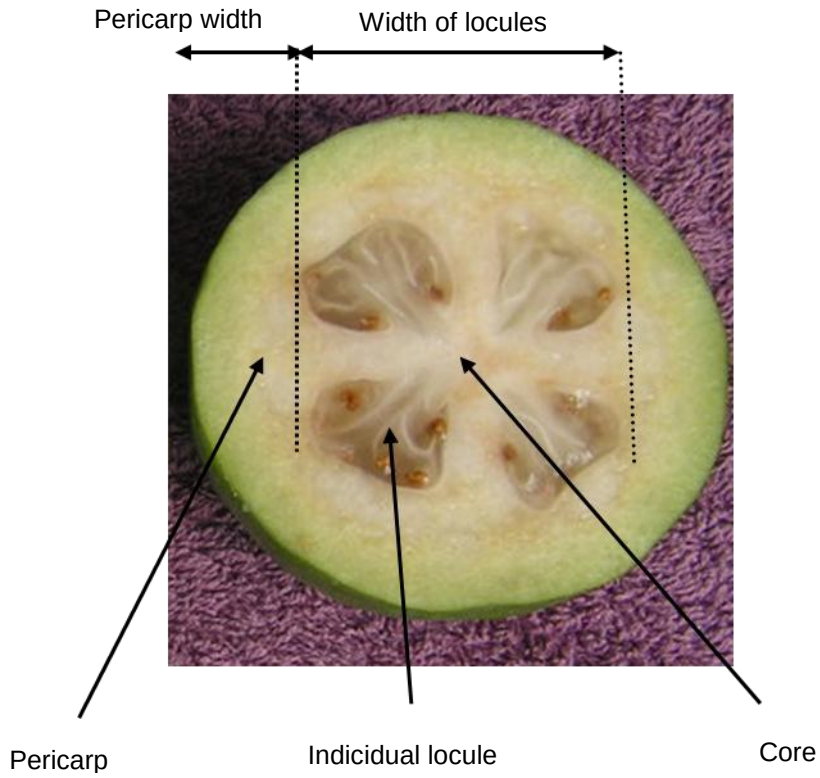
1
absent or weak

2
medium

3
strong

Ad. 37: Fruit: thickness of pericarp
Ad. 39: Fruit: width of locules relative to fruit

The thickness of the pericarp is the width of flesh from the edge of the locule to the skin.



Ad. 41: Seed: size

The seed size is determined by the weight of dry seed from a single fruit.

Ad. 42: Time of harvest maturity

Harvest maturity is reached when fruit naturally drops from the tree or is picked when readily detached from the tree with minimal effort. The harvest period begins when the first few fruit have naturally dropped. Maturity of the fruit cannot be determined by observation of external fruit characteristics only.

9. Literature

Thorp G., Bieleski R. 2002: Feijoas: Origins, Cultivation and Uses, Horticulture and Food Research Institute of New Zealand and David Bateman Ltd, Auckland

10. Technical Questionnaire

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

	Application date: (not to be filled in by the applicant)

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

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Acca sellowiana*
1.2 Common name	Feijoa

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

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

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

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

(……..……) 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)

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

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

4.2 Method of propagating the variety

4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) grafting

(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 (1)	**Tree: growth habit**		
	upright	Apollo, Marion	1[ ]
	semi upright	Alcantara, Kakapo, Unique	2[ ]
	spreading	Helena, Pounamu,	3[ ]
5.2 (13)	**Leaf blade: variegation on upper side**		
	absent		1[ ]
	present		9[ ]
5.3 (24)	**Fruit: weight**		
	very low		1[ ]
	very low to low		2[ ]
	low	Apollo, Opal Star	3[ ]
	low to medium		4[ ]
	medium	Alcantara, Pounamu	5[ ]
	medium to high		6[ ]
	high	Anilvinkoru, Helena	7[ ]
	high to very high		8[ ]
	very high		9[ ]
5.4 (28)	**Fruit: predominant shape**		
	ovate	Pounamu	1[ ]
	circular		2[ ]
	elliptic	Alcantara, Opal Star	3[ ]
	oblong		4[ ]
	rhombic		5[ ]
	obovate	Gemini, Helena, Kakapo	6[ ]
	oblanceolate		7[ ]

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

	Characteristics	Example Varieties	Note
5.5 (33)	**Fruit: color of skin**		
	light green	Unique	1[ ]
	medium green	Alcantara, Apollo, Opal Star	2[ ]
	dark green	Anilvinkoru, Kakapo	3[ ]
	grey green	Marion	4[ ]
5.6 (34)	**Fruit: texture of skin**		
	smooth or very slightly rugose	Helena, Opal Star	1[ ]
	very slightly rugose to slightly rugose		2[ ]
	slightly rugose	Kakapo, Marion	3[ ]
	slightly rugose to moderately rugose		4[ ]
	moderately rugose	Alcantara, Apollo, Triumph	5[ ]
	moderately rugose to strongly rugose		6[ ]
	strongly rugose	Unique	7[ ]
	strongly rugose to very strongly rugose		8[ ]
	very strongly rugose		9[ ]
5.7 (42)	**Time of harvest maturity:**		
	very early	Waitui	1[ ]
	very early to early		2[ ]
	early	Unique	3[ ]
	early to medium		4[ ]
	medium	Apollo, Gemini	5[ ]
	medium to late		6[ ]
	late	Kakapo, Opal Star	7[ ]
	late to very late		8[ ]
	very late	Triumph	9[ ]

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

6. Similar varieties and differences from these varieties

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

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

Comments:

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

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

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

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

A representative color image of the variety should accompany the Technical Questionnaire.

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”.

.....

[#] 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:

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

Applicant's name			
Signature		Date	

[End of document]