|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | |  | E  TG/ACCA(proj.3)  **ORIGINAL:** English  DATE: 2014-03-21 | |
| INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS | | | | |
| Geneva | | | | |
| DRAFT | | |

|  |  |  |
| --- | --- | --- |
|  | **ACCA**  UPOV Code: ACCAA\_SEL  *Acca sellowiana* (Berg) Burret | [[1]](#footnote-1)\* |

**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.

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines 3

2. Material Required 3

3. Method of Examination 3

3.1 Number of Growing Cycles 3

3.2 Testing Place 3

3.3 Conditions for Conducting the Examination 3

3.4 Test Design 3

3.5 Additional Tests 4

4. Assessment of Distinctness, Uniformity and Stability 4

4.1 Distinctness 4

4.2 Uniformity 5

4.3 Stability 5

5. Grouping of Varieties and Organization of the Growing Trial 5

6. Introduction to the Table of Characteristics 6

6.1 Categories of Characteristics 6

6.2 States of Expression and Corresponding Notes 6

6.3 Types of Expression 6

6.4 Example Varieties 6

6.5 Legend 7

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres 8

8. Explanations on the Table of Characteristics 15

8.1 Explanations covering several characteristics 15

8.2 Explanations for individual characteristics 15

9. Literature 23

10. Technical Questionnaire 24

# Subject of these Test Guidelines

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

# 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.

# 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.

# 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.

# 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”.

# 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.

# 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 |
| 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 |
| **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 |
| **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 |
| **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 |
| **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 |
| **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 |

# 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 |
|  | |  | |  |  |  |
| broad (*low)*🡨 width (ratio length/width) 🡪 narrow (*high*) | |  | |  | 3  oblong |  |
|  | |  | 2 elliptic |  |
|  | | 1  ovate |  | 4 obovate |

Ad. 9: Leaf blade: shape of apex

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

Ad. 10: Leaf blade: shape of base

|  |  |  |  |
| --- | --- | --- | --- |
| cuneate leaf base | acute apex |  |  |
| 1 | 2 | 3 | 4 |
| cuneate | acute | obtuse | rounded |

Ad. 11: Leaf blade: profile in cross section

|  |  |  |
| --- | --- | --- |
| perfil involuto | perfil plano | perfil revoluto |
| 1 | 2 | 3 |
| concave | flat | 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

5

medium

3

narrow

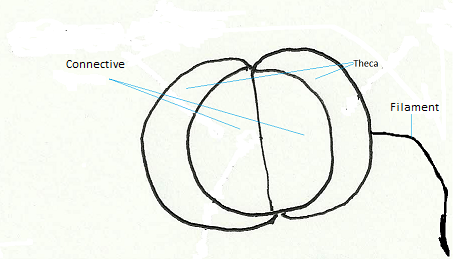
|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1 | 2 | 3 |
| few | medium | many |

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

Stalk end

Calyx end

Length

Width (diameter)



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 | 2 | 3 |
| symmetric or slightly asymmetric | moderately asymmetric | strongly asymmetric |

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

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1 | 2 | 3 |
| weak | medium | strong |

shoulder

Ad. 31: Fruit: point of attachment of stalk

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1 | 3 | 5 |
| depressed | flat | 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 | 2 | 3 |
| absent or weak | medium | strong |

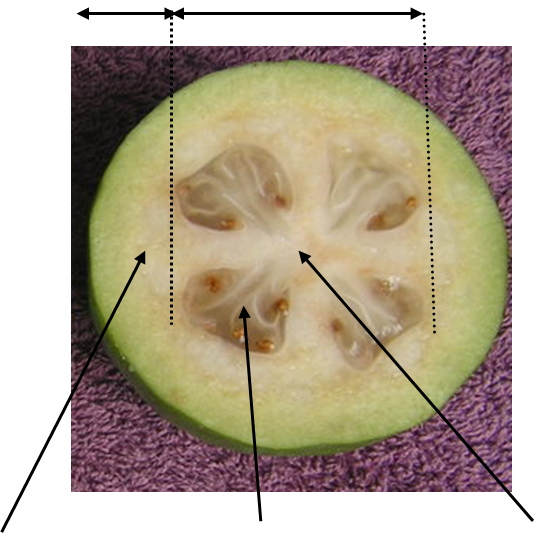
Ad. 37: Fruit: thickness of pericarp

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.

Pericarp width

Width of locules



Core

Indicidual locule

Pericarp

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.

# Literature

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

# 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 | | |  | | | | | | |  | |
|  | | |  | | | | | | |  | |
|  | | |  | | | | | | |  | |
| [[2]](#footnote-2)#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)   |  | | --- | |  | | | | | | | | | | | | |
| 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)   |  | | --- | |  | | | | | | | | | | | | |
| 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[ ] |
|  | 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[ ] |
| 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: | | | | | | | | | | | |
| [[3]](#footnote-3)#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”. | | | | | | | | | | | |
| 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]

1. \* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website ([www.upov.int](http://www.upov.int)), for the latest information.] [↑](#footnote-ref-1)
2. # Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire. [↑](#footnote-ref-2)
3. # Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire. [↑](#footnote-ref-3)