E

TG/ACERO(proj.1)
ORIGINAL: English
DATE: 2009-07-30

UPOV

**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**

GENEVA

**Note: Comments by experts are highlighted:**
**Brazil:,Office of the union:,Japan:**

**DRAFT**

# ACEROLA

UPOV Code: MALPI_EMA

*Malpighia emarginata* DC.*

## GUIDELINES

## FOR THE CONDUCT OF TESTS

## FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from Japan*

*to be considered by the*
*Technical Working Party for Fruit Crops*
*at its fortieth session, to be held in Angers, France, from September 21 to 25, 2009*

Alternative Names:*

| *Botanical name* | *English* | *French* | *German* | *Spanish* |
|---|---|---|---|---|
| *Malpighia emarginata DC.* | Acerola,<br>Barbados cherry,<br>West Indian-cherry | Cerise de Cayenne,<br>Cerisier de Barbade,<br>Cerisier des Antilles | Barbadoskirsche,<br>Westindische Kirsche | Semeruco,<br>Grosella |

(additional names from GRIN)

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.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Malpighia emarginata* DC.

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 budsticks.

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

5 budsticks (BR: 10)

*how about to consider: " __seeds in the case of seed-propagated varieties, or __ plants in the case of vegetatively propagated varieties" I wonder is it really necessary such a large number in the case of vegetively propagated varieties.

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

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

3. Method of Examination

*3.1 Number of Growing Cycles*

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

*3.2 Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

*3.3 Conditions for Conducting the Examination*

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 plants produce a satisfactory crop of fruit in each of the two growing cycles.

3.3.2 The recommended method of observing the characteristic is indicated by the following key in the second column of the Table 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

*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 Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations should be made on 5 plants or parts taken from each of 5 plants. In the case of parts of plants, the number to be taken from each of the plants should be 2. *In particular, in the case of fruit and stone characteristics, observations should be made on 15 fruits, three taken from each of five trees.*

*3.6 Additional Tests*

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

## 4. Assessment of Distinctness, Uniformity and Stability

*4.1 Distinctness*

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The 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.

*4.2 Uniformity*

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

4.2.2 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 5 plants, no off-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 tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

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

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness 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) Leaf blade: ratio length/width (characteristic 8)
(b) Petal: intensity of pink color (characteristic 15)
(c) Fruit: ratio of height/diameter (characteristic 18)
(d) Fruit: size of fruit (characteristic 20)
(e) Fruit: sourness (characteristic 30)

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

## 6. Introduction to the Table of Characteristics

### *6.1 Categories of Characteristics*

#### 6.1.1 Standard Test Guidelines Characteristics

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

#### 6.1.2 Asterisked Characteristics

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

### *6.2 States of Expression and Corresponding Notes*

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

### *6.3 Types of Expression*

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

### *6.4 Example Varieties*

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

### *6.5 Legend*

(*) Asterisked characteristic – see 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 3.3.2

(a)-(d) 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** | **Plant: growth habit** | | | | | |
| **(+)** | | | | | | | |
| **PQ** | **(a)** | upright | | | | Maunawili | 1 |
| | | spreading | | | | Hawaiian Queen, Rubra | 2 |
| | | weeping | | | | Cabocla, Sertaneja | 3 |
| **2.** | **VG** | **Plant: vigor** | add (+) with explanation e.g. “The vigor of the plant should be considered as the overall abundance of vegetative growth.”*agree | | | | |
| **(+)** | | | | | | | |
| **QN** | **(a)** | weak | | | | | 3 |
| | | medium | | | | Tropical Ruby | 5 |
| | | strong | | | | Maunawili | 7 |
| **3.** | **VG** | **Plant: density of branches** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(a)** | sparse | | | | | 3 |
| | | medium | | | | Cabocla, Maunawili, Rubra, | 5 |
| | | dense | | | | Tropical ruby | 7 |
| **4.** | **MS** | **One-year-old shoot: length of internode** | | | | | |
| **QN** | **(a)** | short | | | | Tropical ruby | 3 |
| | | medium | | | | Maunawili | 5 |
| | | long | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **5.** | **MS** | **One-year-old shoot: thickness of branch** | | | | | |
| **QN** | **(a)** | thin | | | | Hawaiian Queen | 3 |
| | | medium | | | | Maunawili | 5 |
| | | thick | | | | C.F.Rehnborg | 7 |
| **6.** ~~**(+)**~~ | **VG** | **Young shoot: ~~density of~~ pubescence** | | | | | |
| **QN** | **(a)** | ~~absent or~~ sparse | absent is always note 1 *agree | | | Maunawili | 3 |
| | | medium | 2? | | | Hawaiian Queen | 5 |
| | | dense | 3? | | | | 7 |
| **7.** **(+)** | **MS** | **Leaf blade: length** | | | | | |
| **QN** | **(b)** | short | | | | | 3 |
| | | medium | | | | Tropical Ruby | 5 |
| | | long | | | | Maunawili | 7 |
| **8.** **(*)** **(+)** | **MS** | **Leaf blade: ratio length/width** | to use states such as<br>moderately elongated (3)<br>medium (5)<br>moderately compressed (7)<br><br>*hope to know the reason of this suggestion. | | | | |
| **QN** ~~**G**~~ | **(b)** | small | | | | | 3 |
| | | medium | delete all references to „G“ *agree | | | | 5 |
| | | large | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **9.** **(+)** | **VG** | **Leaf blade: position of maximum diameter** | | | | | |
| ~~**QL**~~ | **(b)** | toward base | to be indicated as QN ? *yes (mistake). | | | | 1 |
| **QN** | | at middle | | | | Maunawili | 2 |
| | | toward apex | | | | | 3 |
| **10.** **(+)** | **VG** | **Leaf blade: undulation of margin** | | | | | |
| **QN** | **(b)** | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | | 7 |
| **11.** | **VG** | **Leaf blade: ~~degree~~ intensity of green color on~~t~~ upper side** | | | | | |
| **QN** | **(b)** | light | | | | Flor Branca | 3 |
| | | medium | | | | Cabocla | 5 |
| | | dark | | | | Maunawili, Rubra | 7 |
| **12.** | **MS** | **~~Flower~~ Inflorescence: number of flowers ~~per inflorescence~~** | | | | | |
| **QN** | **(c)** | few | | | | | 3 |
| | | medium | | | | | 5 |
| | | many | | | | | 7 |
| **13.** **(+)** | **MS** | **~~Flower~~ Petal: length ~~of petal~~** | to delete – variability is so small | | | | |
| **QN** | **(c)** | short | move “petal” characteristics after flower characteristics (*agree) | | | | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **14.** **(+)** | **VG** | **~~Flower~~ Petal: undulation of margin ~~of petal~~** | move “petal” characteristics after flower characteristics *agree | | | | |
| **QN** | **(c)** | weak | | | | | 3 |
| | | medium | | | | | 5 |
| | | strong | | | | Hawaiian Queen | 7 |
| **15.** **(*)** **(+)** | **VG** | **~~Flower~~ Petal: intensity of pink color** | BR proposal: color of petal: white, light pink, medium pink – but we are cheking *agree | | | | |
| **QN** | **(c)** | ~~light~~ white | move “petal” characteristics after flower characteristics *agree | | | | 1 |
| **~~C~~** | | ~~medium~~ light pink | | | | Manuawili | 2 |
| | | ~~dark~~ medium pink | | | | Hawaiian Queen | 3 |
| **16.** | **VG** | **Flower: position of stigma in relation to anthers** | | | | | |
| **QN** | **(c)** | below | | | | | 1 |
| | | same level | | | | Cabocla, Rubra | 2 |
| | | above | BR is checking | | | | 3 |
| **17.** **(+)** | **MS** | **Fruit: height** | | | | | |
| **QN** | **(d)** | short | | | | | 3 |
| | | medium | | | | | 5 |
| | | tall | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **18. (*) (+)** | **MS** | **Fruit: ratio height/diameter** | to use states such as<br>moderately elongated (3)<br>medium (5)<br>moderately compressed (7)<br>*hope to know the reason of this suggestion. | | | | |
| **QN** | **(d)** | small | | | | Maunawili | 3 |
| ~~**G**~~ | | medium | | | | | 5 |
| | | large | | | | Re | 7 |
| **19. (+)** | **VG** | **Fruit: position of maximum diameter** | BR is checking | this should not be a QL characteristic and should have at least 3 states (QN)<br>at middle (1)<br>slightly towards stalk cavity (2)<br>moderately towards stalk cavity (3) *agree | | | |
| ~~**QL**~~ | **(d)** | at middle | | | | Maunawili | 1 |
| **QN** | | slightly towards stalk cavity | | | | | 2 |
| | | moderately towards stalk cavity | | | | Tropical Ruby | ~~2~~ 3 |
| **20. (*)** | **MS** | **Fruit: size of fruit** | how is MS achieved?<br>*Propose to read “Fruit: weight”? | | | | |
| **QN** | **(d)** | small | | | | Maunawili, Sertaneja | 3 |
| ~~**G**~~ | | medium | | | | Hawaiian Queen, Rubra | 5 |
| | | large | | | | Cabocla, C.F.Rehnborg | 7 |
| **21. (+)** | **VG** | **Fruit: depth of grooves** | | | | | |
| **QN** | **(d)** | shallow | | | | Maunawili | 1 |
| | | medium | | | | | 2 |
| | | deep | | | | | 3 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **22.** | **VG** | **Fruit: depth of basin** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(d)** | shallow | | | | Maunawili | 1 |
| | | medium | | | | Tropical Ruby | 2 |
| | | deep | | | | | 3 |
| **23.** | **VG** | **Fruit: width of basin** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(d)** | narrow | | | | Maunawili | 1 |
| | | medium | | | | Tropical Ruby | 2 |
| | | broad | | | | Hawaiian Queen | 3 |
| **24.** | **VG** | **Fruit: depth of stalk cavity** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(d)** | shallow | | | | Maunawili | 1 |
| | | medium | | | | | 2 |
| | | deep | | | | Hawaiian Queen | 3 |
| **25.** **(*)** **(+)** | **VG** | **Fruit: width of stalk cavity** proposal: 3, 5, 7 | | | | | |
| **QN** | **(d)** | ~~shallow~~ narrow | | | | | 1 |
| | | medium | | | | Maunawili | 2 |
| | | ~~deep~~ broad | | | | Hawaiian Queen | 3 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **26. (*)** | **VG** | **Fruit: color of skin** | main color? (color with largest surface area?) *If bicolor varieties exist, “main color” is right. But I don’t know such varieties at the physiological ripeness stage. | | | | |
| **PQ** | **(d)** | white | | | | | 1 |
| | | yellow | | | | | 2 |
| | | light red | | | | | 3 |
| | | medium red | | | | Rubra, Cabocla | 4 |
| | | dark red | | | | Maunawili | 5 |
| **27.** | **MS** | **Fruit: length of stalk** | | | | | |
| **(+)** | | | | | | | |
| **QN** | **(d)** | short | | | | Maunawili | 3 |
| | | medium | | | | Hawaiian Queen | 5 |
| | | long | | | | Red Jumbo | 7 |
| **28. NEW (+)** | **MS** | **Fruit: thickness of flesh** | *hope to provide explanation or drawing. | | | | |
| **QN** | **(d)** | thin | | | | Sertaneja | 3 |
| | | mediun | | | | Rubra | 5 |
| | | thick | | | | Cabocla | 7 |
| **29.** | **VG** | **Fruit: color of flesh** | to agree orange *agree. do you have example varieties? | | | | |
| **PQ** | **(d)** | yellow | | | | Red Jumbo | 1 |
| | | pink | | | | Maunawili | 2 |
| | | red | | | | C.F.Rehnborg | 3 |
| | | orange | | | | | 4 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **30. (*)** | **MS** | **Fruit: sourness** | | | | | |
| **QN** | **(d)** | low | | | | Rubra | 3 |
| ~~G~~ | | medium | | | | Cabocla, Maunawili | 5 |
| | | high | | | | Sertaneja | 7 |
| **31.** | **VG** | **Fruit: juiciness of flesh** | | | | | |
| **QN** | **(d)** | ~~low~~ few | | | | Florida Sweet, Red Jumbo, | 3 |
| | | medium | | | | Maunawili | 5 |
| | | ~~high~~ many | | | | Cabocla | 7 |
| ~~32.~~ (+) | ~~MS~~ | ~~Seed: length~~ | to delete 31 and 32 and agree size of seed<br><br>*I can understand. Could you suggest how do we assess its size ? | | | | |
| ~~QN~~ | ~~(d)~~ | ~~short~~ | | | | | ~~3~~ |
| | | ~~medium~~ | | | | | ~~5~~ |
| | | ~~long~~ | | | | | ~~7~~ |
| ~~33.~~ (+) | ~~MS~~ | ~~Seed: ratio of length/width~~ | to delete 31 and 32 and agree size of seed<br><br>to use states such as<br>moderately elongated (3)<br>medium (5)<br>moderately compressed (7) | | | | |
| ~~QN~~ | ~~(d)~~ | ~~small~~ | | | | | ~~3~~ |
| | | ~~medium~~ | | | | | ~~5~~ |
| | | ~~large~~ | | | | | ~~7~~ |
| **34.** | **VG** | **Seed: color** | | | | | |
| **QN** | **(d)** | light brown | | | | Maunawili | 3 |
| | | medium brown | | | | Tropical Ruby | 5 |
| | | dark brown | | | | | 7 |

| | | English | français | deutsch | español | Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo | Note/ Nota |
|---|---|---|---|---|---|---|---|
| **35.** **(+)** | **VG** | **Fruit: adherence of the peduncle in the stem** | ask how to acess ? | *By sense. | | | |
| **QN** | **(d)** | weak | | | | | 1 |
| | | medium | | | | | 2 |
| | | strong | | | | | 3 |
| **36.** **(+)** | **VG** | **Fruit: adherence of the peduncle** | ask how to acess ? | *By sense. | | | |
| **QN** | **(d)** | weak | | | | | 1 |
| | | medium | | | | | 2 |
| | | strong | | | | | 3 |
| **37.** | **MG** | **Fruit: days for mature after blooming** | to delete – very small variation<br>add (+) with explanation | | | | |
| **QN** | | short | | | | Maunawili | 3 |
| | | medium | | | | | 5 |
| | | long | | | | | 7 |

## 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) Plant, one-year-old shoot and young shoot: All observations on the plant, one-year-old shoot and young shoot should be made at the harvest time.

(b) Leaf blade: All observations on the leaf blade should be made on fully developed leaves. Leaves should be taken from the middle third of the current season's shoot.

(c) Flower: All observations of the flower should be made within the day its flower bloomed.

(d) Fruit and seed: All observations on the fruit should be made at the time of physiological ripeness

### *8.2 Explanations for individual characteristics*

Ad. 1: Plant: growth habit

1
upright

2
spreading

3
weeping

Ad. 2: Plant: vigor

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

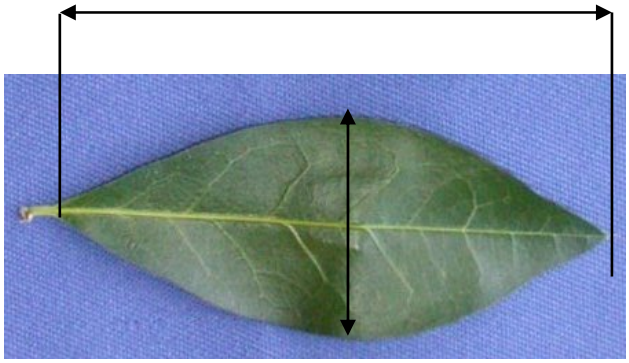
Ad. 3: Plant: density of branches

3
sparse

5
medium

7
dense

Ad. 7: Leaf blade: length
Ad. 8: Leaf blade: ratio length/width




Ad. 8: Leaf blade: ratio length/width

3
small

5
medium

7
large

to use states such as moderately elongated (3) medium (5) moderately compressed (7)

Ad. 9: Leaf blade: position of maximum diameter

1
towards base

2
at middle

3
towards apex

Ad. 10: Leaf blade: undulation of margin

3
weak

5
medium

7
strong

Ad. 13: ~~Flower~~ Petal: length ~~of petal~~

Ad. 14: ~~Flower~~ Petal: undulation of margin ~~of petal~~

1
weak

2
medium

3
strong

Ad. 15: ~~Flower~~ Petal: intensity of pink color

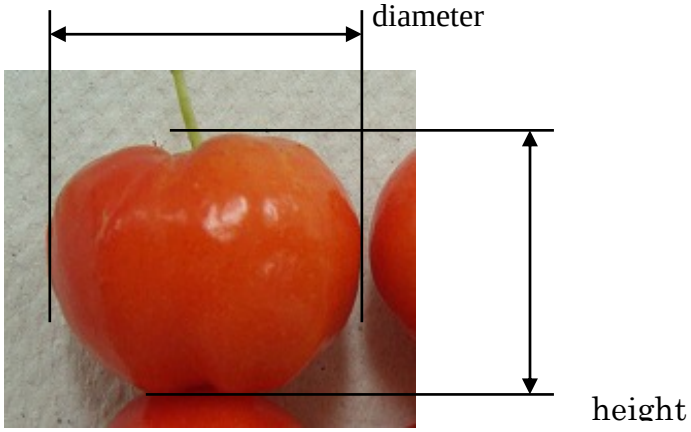
1
~~light~~ white

2
~~medium~~ light pink

3
~~dark~~ medium pink

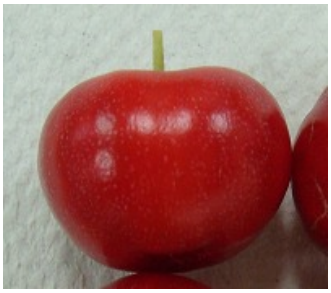
*Photographs provide information not about color itself but degree of differences between each status.

Ad. 17: Fruit: height
Ad. 18: Fruit: ratio height/diameter



Ad. 18: Fruit: ratio height/diameter

3
small



5
medium

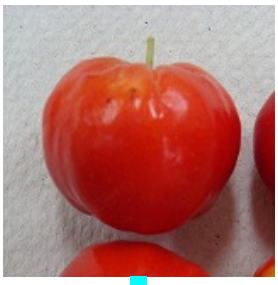
to be provided

7
large

to use states such as moderately elongated (3) medium (5) moderately compressed (7)

Ad. 19: Fruit: position of maximum diameter

1
at middle



2
slightly towards stalk cavity

3 ~~2~~
moderately towards stalk cavity

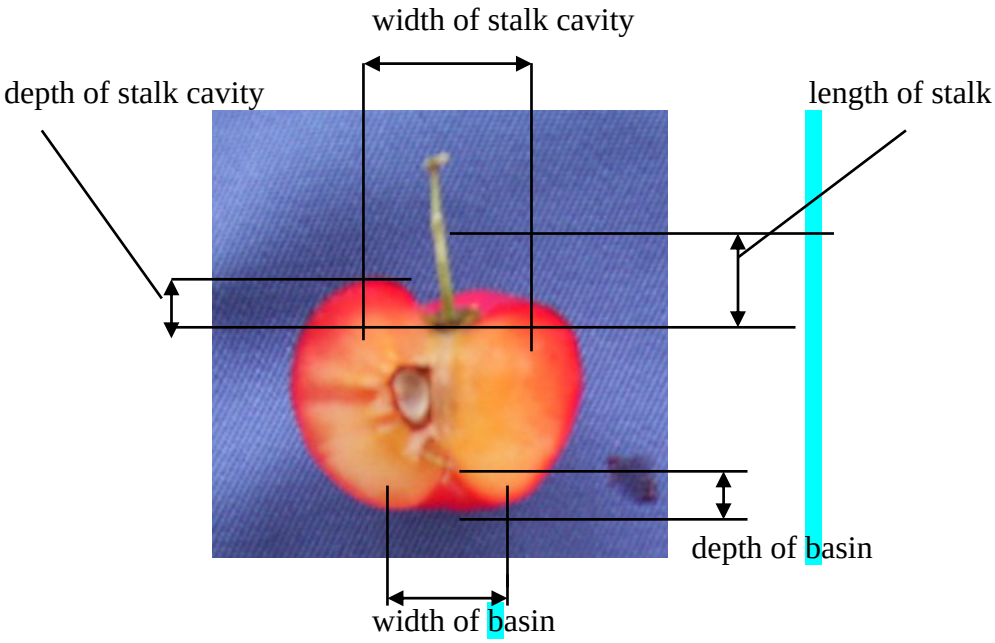
Ad. 21: Fruit: depth of grooves

1
weak

2
medium

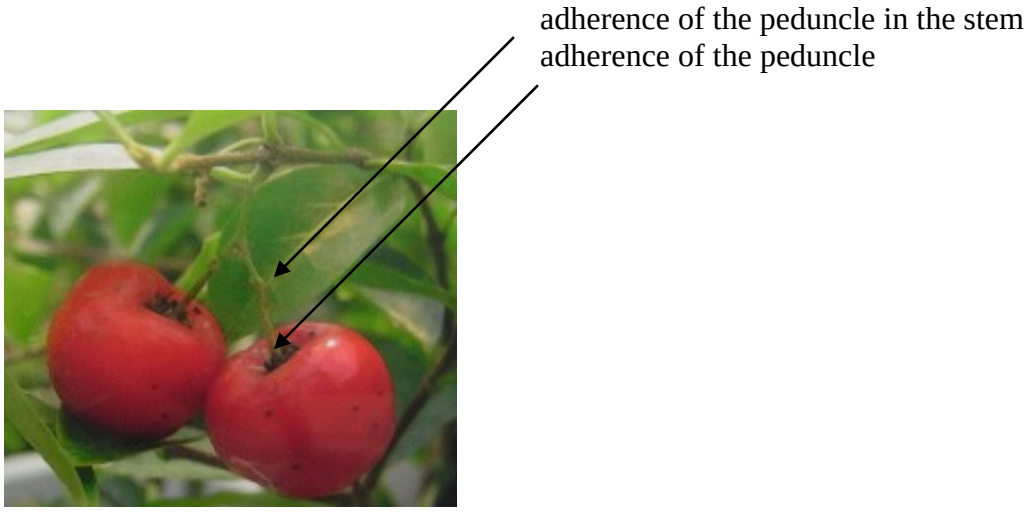
3
deep

Ad. 22: Fruit: depth of basin
Ad. 23: Fruit: width of basin
Ad. 24: Fruit: depth of stalk cavity
Ad. 25: Fruit: width of stalk cavity
Ad. 27: Fruit: length of stalk




Ad. 28: Fruit: thickness of flesh

Ad. 35: Fruit: adherence of the peduncle in the stem
Ad. 36: Fruit: adherence of the peduncle



## 9. Literature

To be provided.

10. Technical Questionnaire

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
|---|---|---|
| | | Application date:<br>(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 | *Malpighia emarginata* DC. |
| 1.2 Common name | Acerola |

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)
(b) partially known cross [ ]
(please state known parent variety(ies))
(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) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.2 Seed [ ]

4.2.3 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: |
|---|---|---|

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 (8)** | **Leaf blade: ratio length/width** | | |
| | small | | 3[ ] |
| | medium | | 5[ ] |
| | large | | 7[ ] |
| **5.2 (15)** | **~~Flower~~ Petal: intensity of pink color** | | |
| | ~~light~~ white | | 3[ ] |
| | ~~medium~~ light pink | Manuawili | 5[ ] |
| | ~~dark~~ medium pink | Hawaiian Queen | 7[ ] |
| **5.3 (18)** | **Fruit: ratio of height/diameter** | | |
| | short | Maunawili | 3[ ] |
| | medium | | 5[ ] |
| | dark | | 7[ ] |
| **5.4 (20)** | **Fruit: size of fruit** | | |
| | small | Maunawili, Sertaneja | 3[ ] |
| | medium | Hawaiian Queen, Rubra | 5[ ] |
| | large | Cabocla, C.F.Rehnborg | 7[ ] |
| **5.5 (30)** | **Fruit: sourness** | | |
| | low | Rubra | 3[ ] |
| | medium | Cabocla, Maunawili | 5[ ] |
| | high | Sertaneja | 7[ ] |

| 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 color* | *orange red* | *orange* |
| | | | |
| | | | |
| | | | |

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 What is this variety used for?

Fruit [ ] Ornamental [ ]

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

Yes [ ] No [ ]

(If yes, please provide details)

7.4 Other information

A representative color photograph 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.

[#] 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: |
|---|---|---|

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

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant, pesticide) Yes [ ] No [ ]

(c) Tissue culture Yes [ ] No [ ]

(d) Other factors Yes [ ] No [ ]

Please provide details for where you have indicated “yes”.

……

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

Yes [ ]

(please provide details as specified by the Authority)

No [ ]

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

Applicant’s name

Signature Date

[End of document]