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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

GRANADILLA, PASSION FRUIT *

UPOV Code: PASSI_EDU

(Passiflora edulis Sims)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from South Africa**to be considered by the Technical Working Party for Fruit Crops at its thirty-seventh session,
to be held in Salvador, Bahia State, Brazil, from August 21 to 25, 2006*

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Passiflora edulis</i> Sims	Granadilla, Passion fruit			

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

1.1 These Test Guidelines apply to all varieties of *Passiflora edulis* Sims of the family *Passifloraceae*, including sub-species *edulis* and *flavicarpa* Degener.

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 rooted cuttings or young plants.

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

5 rooted cuttings or 5 young plants.

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.1.2 The growing cycle is considered to be the period ranging from the beginning of active vegetative growth or flowering, continuing through active vegetative growth or flowering and fruit development and concluding with the harvesting 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*

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.

3.4 *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 test 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.

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:

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 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) Fruit: ratio length/diameter (characteristic 22);
- (b) Fruit: color of skin (characteristic 23).

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

(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.	Vine: color					
PQ (a)	green					1
	green purple					2
	purple					3
1a	Vine: number of flowers					
(+)						
QN (a)	few					3
	medium					5
	many					7
2.	Leaf blade: length					
(*)						
QN (b)	short					3
	medium					5
	long					7
3.	Leaf blade: width					
(*)						
QN (b)	narrow					3
	medium					5
	broad					7
4.	Leaf blade: width of middle lobe					
QN (b)	narrow					3
	medium					5
	broad					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4a.	Leaf blade: degree of lobing					
QN (b)	weak					3
	medium					5
	strong					7
4b.	Leaf blade: depth of incisions of margin					
QN (b)	weak					3
	medium					5
	strong					7
5.	Leaf blade: green color					
QN (b)	light					3
	medium					5
	dark					7
6.	Leaf blade: blistering					
QN (b)	absent or very weak					1
	medium					2
	strong					3
7.	Petiole: length					
QN (b)	short					3
	medium					5
	long					7
7a	Petiole: position of nectaries					
(+)						
QL (b)	adjacent to leaf blade					1
	distant from leaf blade					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
8.	Flower: length of bract					
QN (c)	short					3
	medium					5
	long					7
9.	Flower: length of sepal					
QN (c)	short					3
	medium					5
	long					7
10.	Flower: width of sepal					
QN (c)	narrow					3
	medium					5
	broad					7
11.	Flower: length of petal					
QN (c)	short					3
	medium					5
	long					7
12.	Flower: width of petal					
QN (c)	narrow					3
	medium					5
	broad					7
13.	Flower: presence of spotted ring in throat					
QL (*) (c)	absent					1
	present					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14.	Flower: intensity of color of spotted ring in throat					
QN (c)	light					3
	medium					5
	dark					7
14a	Flower: diameter of corona					
QN (c)	small					3
	medium				Ruby Star, Summer Queen	5
	large					7
15.	Flower: presence of purple rings on corona filaments					
QL (c)	absent					1
	present					9
16.	Flower: width of purple rings on corona filaments					
QN (c)	narrow					3
	medium					5
	broad					7
17.	Flower: intensity of color of purple rings on corona filaments					
QN (c)	light					3
	medium					5
	dark					7
18.	Flower: spots on distal part of corona filaments					
QL (c)	absent					1
	present					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
19.	Flower: number of spots on distal part of corona filaments					
QN (c)	few					3
	medium					5
	many					7
20.	Fruit: length					
(*)						
QN (d)	short					3
	medium					5
	long					7
21.	Fruit: diameter					
(*)						
QN (d)	small					3
	medium					5
	large					7
22.	Fruit: ratio length/diameter					
(*)						
QN (d)	very small					1
	small					3
	medium					5
	large					7
	very large					9
23.	Fruit: color of skin					
(*)						
PQ (d)	yellow					1
	reddish purple					2
	purple					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24.	Fruit: conspicuousness of lenticels					
QN (d)	absent or weak					1
	medium					2
	strong					3
25.	Fruit: thickness of skin					
QN (d)	thin					3
	medium					5
	thick					7
26.	Fruit: number of seeds					
QN (d)	few					3
	medium					5
	many					7
27.	Fruit: size of seed					
QN (d)	small					3
	medium					5
	large					7
28.	Fruit: color of filaments					
PQ (d)	white to yellowish					1
	pink to red					2
29.	Fruit: color of pulp					
PQ (d)	whitish					1
	greenish yellow					2
	yellow					3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
30.	Plant: time of first crop bearing					
QN	early					3
	medium					5
	late					7
31.	Time of main harvest					
QN	early					3
	medium					5
	late					7

8. Explanations on the Table of Characteristics

8.1

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

- (a) Vine: Observations should be made on vigorous current seasons shoots.
- (b) Leaf blade and petiole: Observations on the leaf blade and petiole should be made on fully developed leaves from the middle third of vigorous current season shoots.
- (c) Flower: Observations on the flower should be made on fully opened flowers.
- (d) Fruit: Observations on the fruit should be made on 10 typical fruits taken from a minimum sample of 20 fruits, at the time of ripeness for eating.

8.2 Explanations for individual characteristics

Ad. 1a: Vine: number of flowers

Explanation to be provided by Brazil

Ad. 7a: Petiole : position of nectaries

Shadowgraph to be provided by Israel

9. Literature

Van der Plank, J.,1991: "Passion Flowers and Passion Fruit", The MIT Press Cambridge, Massachusetts, 176 pp.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. SUBJECT OF THE TECHNICAL QUESTIONNAIRE

1.1 Botanical name

1.2 Common name

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:
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#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 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:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in the Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
6. Leaf blade: blistering		
absent or weak		1
medium		2
strong		3
13. Flower: presence of spotted ring in throat		
absent		1
present		9
22. Fruit: ratio length/diameter		
very small		1
small		3
medium		5
large		7
very large		9
23. Fruit: color of skin		
yellow		1
reddish purple		2
purple		3

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Fruit color</i>	<i>purple</i>	<i>yellow</i>

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

<p>#7. Additional information which may help in the examination of the variety</p> <p>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?</p> <p>Yes [] No []</p> <p>(If yes, please provide details)</p> <p>7.2 Are there any special conditions for growing the variety or conducting the examination?</p> <p>Yes [] No []</p> <p>(If yes, please provide details)</p> <p>7.3 Other information</p> <p>A representative color photograph of the variety should accompany the Technical Questionnaire.</p>
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<p>8. Authorization for release</p> <p>(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?</p> <p>Yes [] No []</p> <p>(b) Has such authorization been obtained?</p> <p>Yes [] No []</p> <p>If the answer to (b) is yes, please attach a copy of the authorization.</p>
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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:
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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 [] No []

(If yes, please provide details as specified by the Authority)

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]