

UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

GRANADILLA

(Fruit species)

UPOV Code: PASSI

(*Passiflora* L.)

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-sixth session
to be held in Kôfu, Japan, from September 5 to 9, 2005*

Alternative Names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Passiflora</i> L.	Granadilla			

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 fruit varieties** of the genus *Passiflora* L. of the family *Passifloraceae*.

1.2 **Any varieties which might be considered as ornamental varieties but which might also be used for fruit production should be examined for DUS using these Test Guidelines in addition to other Test Guidelines.**

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 plants.

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

10 rooted cuttings or 10 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:

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. In the case of a sample size of 10 plants, 1 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 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.	Main branch: color					
PQ (a)	green					1
	green purple				Ester	2
	purple				Makatini	3
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 (where applicable) in relation to length of leaf					
QN (b)	narrow					3
	medium					5
	broad					7
5.	Leaf blade: intensity of green color					
QN (b)	light					3
	medium				Common purple	5
	dark				Ester	7
6.	Leaf blade: blistering					
(*)						
QL (b)	absent					1
	present					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7.	Leaf blade: blistering					
QN (b)	absent or very weak				Ester	1
	weak					2
	strong				Common purple	3
8.	Flower: length of bract					
QN (c)	short				Common purple	3
	medium				Ester	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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
13.	Flower: presence of spotted ring in throat						
QL	(c) absent				Common purple	1	
	present				Ester	9	
14.	Flower: conspicuousness of color of spotted ring in throat						
QN	(c) weak					3	
	medium				Ester	5	
	strong				Makatini A,B & C	7	
15.	Flower:presence of purple rings on corona filaments						
QL	(c) absent				Common purple, Ester	1	
	present					9	
16.	Flower: width of purple rings on corona filaments						
QN	(c) narrow				Common purple, Ester	3	
	medium					5	
	broad				Makatini A, B & C	7	
17.	Flower: intensity of color of purple rings on corona filaments.						
QN	(c) weak					3	
	medium				Common Purple, Ester	5	
	strong				Makatini A, B & C	7	
18.	Flower: spots on corona filaments						
QL	(c) absent				Common purple	1	
	present				Ester	9	

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24.	Fruit: conspicuousness of lenticels					
QN (d)	absent or weak				Common purple	1
	medium					2
	strong				Ester	3
25.	Fruit: thickness of skin					
QN (d)	thin					3
	medium				Common purple	5
	thick				Ester	7
26.	Fruit: number of seeds					
QN (d)	few					3
	medium				Common purple	5
	many				Ester?	7
27.	Fruit: size of seed					
QN (d)	small					3
	medium					5
	large					7
28.	Fruit: color of filaments					
PQ (d)	white to yellowish				Ester	1
	pink to red				Common purple	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				Ester, 4 months	3	
	medium				Common purple, 1 year	5	
	late					7	
31.	Time of main harvest						
QN	early				Common purple	3	
	medium				Ester	5	
	late					7	

8. Explanations on the Table of Characteristics

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

- (a) Main branch: Observations should be made on the current year's growth.
- (b) Leaf blade: Observations on the leaf blade should be made on fully developed leaves from the middle third of vigorous current season shoots.
- (c) Flower: Observations 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 dropping.

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:
		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	<input type="text" value="Passiflora L."/>	
1.2 Common name	<input type="text" value="GRANADILLA"/>	
2. APPLICANT		
Name	<input type="text"/>	
Address	<input type="text"/>	
Telephone No.	<input type="text"/>	
Fax No.	<input type="text"/>	
E-mail address	<input type="text"/>	
Breeder (if different from applicant)	<input type="text"/>	
3. PROPOSED DENOMINATION AND BREEDER'S REFERENCE		
Proposed denomination (if available)	<input type="text"/>	
Breeder's reference	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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 Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
5.1 Leaf blade: blistering (6)		
absent		1
present		9
5.2 Flower: presence of spotted ring in throat (13)		
absent	Common purple	1
present	Ester	9
5.3 Fruit: ratio length/diameter (22)		
very small	Makatini A	1
small		3
medium	Common purple, Ester, Makatini B, Makatini C	5
large		7
very large		9
5.4 Fruit: color of skin (23)		
yellow		1
reddish purple	Ester	2
purple	Common purple	3

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

Fruit color

purple

yellow

Comments:

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

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

Yes [] No []

(If yes, please provide details)

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

Yes [] No []

(If yes, please provide details)

7.3 Other information

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

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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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 of 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