



## **PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY**

***Vriesea* Lindl.**

**VRIESEA**

UPOV Code: VRIES

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## **1. SUBJECT OF THE PROTOCOL AND REPORTING**

### **1.1 Scope of the technical protocol**

This Technical Protocol applies to all varieties of *Vriesea* Lindl.

The protocol describes the technical procedures to be followed in order to meet the requirements of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on documents agreed by the International Union for the Protection of New Varieties of Plants (UPOV), such as the General Introduction to DUS (UPOV Document TG/1/3 [http://www.upov.int/en/publications/intro\\_dus.htm](http://www.upov.int/en/publications/intro_dus.htm)), its associated TGP documents (<http://www.upov.int/en/publications/tgp/>) and the relevant UPOV Test Guideline TG/266/1 Rev. dated 20/03/2013 (<http://www.upov.int/edocs/tgdocs/en/tg269.pdf>) for the conduct of tests for Distinctness, Uniformity and Stability.

### **1.2 Entry into Force**

The present protocol enters into force on **11.03.2015**. Any on-going DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the Technical Protocol. Technical examinations of candidate varieties are carried out according to the TP in force when the DUS test starts. The starting date of a DUS examination is considered to be the due date for submitting of plant material for the first test period.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the technical examination started.

### **1.3 Reporting between Examination Office and CPVO and Liaison with Applicant**

#### **1.3.1 Reporting between Examination Office and CPVO**

The Examination Office shall deliver to the CPVO a preliminary report ("the preliminary report") no later than two weeks after the date of the request for technical examination by the CPVO.

The Examination Office shall also deliver to the CPVO a report relating to each growing period ("the interim report") and, when the Examination Office considers the results of the technical examination to be adequate to evaluate the variety or the CPVO so requests, a report relating to the examination ("the final report").

The final report shall state the opinion of the Examination Office on the distinctness, uniformity and stability of the variety. Where it considers those criteria to be satisfied, or where the CPVO so requests, a description of the variety shall be added to the report. If a report is negative the Examination Office shall set out the detailed reasons for its findings.

The interim and the final reports shall be delivered to the CPVO as soon as possible and no later than on the deadlines as laid down in the designation agreement.

#### **1.3.2 Informing on problems in the DUS test**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior permanent agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

#### **1.3.3 Sample keeping in case of problems**

If the technical examination has resulted in a negative report, the CPVO shall inform the Examination Office as soon as possible in case that a representative sample of any relevant testing material shall be kept.

## **2. MATERIAL REQUIRED**

### **2.1 Plant material requirements**

Information with respect to the agreed closing dates and submission requirements of plant material for the technical examination of varieties can be found on <http://www.cpvo.europa.eu/main/en/home/documents-and-publications/s2-gazette> in the special issue S2 of the Official Gazette of the Office. General requirements on submission of samples are also to be found following the same link.

## **2.2 Informing the applicant of plant material requirements**

The CPVO informs the applicant that

- he is responsible for ensuring compliance with any customs and plant health requirements.
- the plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.
- 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.

## **2.3 Informing about problems on the submission of material**

The Examination Office shall report to the CPVO immediately in cases where the test material of the candidate variety has not arrived in time or in cases where the material submitted does not fulfil the conditions laid down in the request for material issued by the CPVO.

In cases where the examination office encounters difficulties to obtain plant material of reference varieties the CPVO should be informed.

## **3. METHOD OF EXAMINATION**

### **3.1 Number of growing cycles**

The minimum duration of tests should normally be a single growing cycle.

### **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"

[http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_9\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_9_1.pdf).

### **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.

Because daylight varies, colour determinations made against a colour 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 colour chart and version used should be specified in the variety description.

### **3.4 Test design**

3.4.1 Seed propagated varieties: each test should be designed to result in a total of at least 45 plants.

3.4.2 Vegetatively propagated varieties: each test should be designed to result in a total of at least 20 plants.

3.4.3 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**

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, an additional test may be undertaken providing that a technically acceptable test procedure can be devised.

Additional tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

### **3.6 Constitution and maintenance of a variety collection**

The process for the constitution and the maintenance of a variety collection can be summarized as follows:

Step 1: Making an inventory of the varieties of common knowledge

Step 2: Establishing a collection ("variety collection") of varieties of common knowledge which are relevant for the examination of distinctness of candidate varieties

Step 3: Selecting the varieties from the variety collection which need to be included in the growing trial or other tests for the examination of distinctness of a particular candidate variety.

#### 3.6.1 Forms of variety collection

The variety collection shall comprise variety descriptions and may comprise living plant material. The variety description shall be produced by the examination office unless special cooperation exists between examination offices and the CPVO. The descriptive and pictorial information produced by the examination office shall be held and maintained in a form of a database.

#### 3.6.2 Living Plant Material

The examination office shall obtain living plant material of reference varieties as and when those varieties need to be included in growing trials or other tests.

#### 3.6.3 Making an inventory of varieties of common knowledge for inclusion in the variety collection

The inventory shall include varieties protected under National and Community PBR and varieties in trade or in commercial registers.

In addition to the above, the inventory shall be extended to the appropriate to

- any commercial document in which varieties are marketed as propagating or harvested material, especially when there is no official registration system;
- any list including varieties which are publicly available within plant collections (varieties included in genetic resource collections, collection of old varieties, etc.);
- information provided by relevant plant experts;
- relevant example varieties referred to in the technical protocols for the examination of distinctness.

### **4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY**

The prescribed procedure is to assess distinctness, uniformity and stability in a growing trial.

#### **4.1 Distinctness**

##### 4.1.1 General recommendations

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 9 'Examining Distinctness' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_9\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_9_1.pdf)) prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in this Technical Protocol.

##### 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 Technical Protocols are familiar with the recommendations contained in the UPOV-General Introduction to DUS 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 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test, disregarding any off-type plants.

#### 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 third 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. colour 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

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 10 'Examining Uniformity' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_10\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_10_1.pdf)) prior to making decisions regarding uniformity. However, the following point is provided for elaboration or emphasis in this Technical Protocol.

- 4.2.1 The assessment of uniformity of seed-propagated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.
- 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 20 plants, 1 off-type is allowed.

## 4.3 Stability

- 4.3.1 It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 11 'Examining Stability' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_11\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_11_1.pdf))  
In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.
- 4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new plant stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

## 5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL

- 5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.
- 5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

**5.3** The following have been agreed as useful grouping characteristics:

- a) Plant: height of foliage (characteristic 1)
- b) Leaf blade: main colour of upper side (excluding variegation) (characteristic 16)
- c) Inflorescence: branching (characteristic 24)
- d) Flower bract: main colour of outer side (characteristic 39), with the following groups:
  - Gr. 1: white
  - Gr. 2: yellow
  - Gr. 3: orange
  - Gr. 4: orange red
  - Gr. 5: red
  - Gr. 6: red purple
  - Gr. 7: purple
  - Gr. 8: green

**5.4** If other characteristics than those from the TP are used for the selection of varieties to be included into the growing trial, the examination office shall inform the CPVO and seek the prior consent of the CPVO before using these characteristics.

## **6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS**

### **6.1 Characteristics to be used**

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the table of characteristics. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted or by specific legislation on plant health. In the latter case, the CPVO should be informed.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N°874/2009, to insert additional characteristics and their expressions in respect of a variety.

#### **States of expression and corresponding notes**

In the case of qualitative and pseudo-qualitative characteristics, 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 Example Varieties**

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

### 6.3 Legend

For the CPVO N° column:

G	Grouping characteristic	– see Chapter 5
MG, MS, VG, VS		– see Chapter 4.1.5
QL	Qualitative characteristic	
QN	Quantitative characteristic	
PQ	Pseudo-qualitative characteristic	

For the UPOV N° column:

The numbering of the characteristics is provided as a reference to the ad hoc UPOV guideline.

(\*) UPOV Asterisked characteristic – Characteristics that are important for the international harmonization of variety descriptions.

(a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.2



**7. TABLE OF CHARACTERISTICS**

<b>CPVO N°</b>	<b>UPOV N°</b>	<b>Stage, Method</b>	<b>Characteristics</b>	<b>Examples</b>	<b>Note</b>
<b>1.</b>	<b>1. (*)</b>	<b>VG/MG</b>	<b>Plant: height of foliage</b>		
<b>(+)</b>		<b>(a)</b>	very short		1
<b>QN</b>			short	Pluto	3
			medium	Clementine	5
			tall	Enjoy	7
<b>G</b>			very tall	Evita	9
<b>2.</b>	<b>2. (*)</b>	<b>VG/MG</b>	<b>Plant: width</b>		
<b>(+)</b>		<b>(a)</b>	very narrow	Pluto	1
<b>QN</b>			narrow	Cathy	3
			medium	Venus	5
			broad	Magic	7
			very broad	Saturn	9
<b>3.</b>	<b>3.</b>	<b>VG/MG</b>	<b>Plant: number of leaves</b>		
<b>QN</b>		<b>(a)</b>	few	Era	3
			medium	Saturn	5
			many	Oberon	7
<b>4.</b>	<b>4. (*)</b>	<b>VG</b>	<b>Young leaf blade: main colour of upper side (excluding variegation)</b>		
<b>(+)</b>		<b>(a)</b>	light green		1
<b>PQ</b>			medium green	Style	2
			dark green	Lion	3
			grey green		4
			red purple	Autumn Blaze	5
			purple	Pacific Ruby	6
			red brown		7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>5.</b>	<b>5. (*)</b>	<b>VG</b>	<b>Young leaf blade: variegation</b>		
<b>QL</b>		<b>(a)</b>	absent	Style	1
			present	Robin	9
<b>6.</b>	<b>6. (*)</b>	<b>VG</b>	<b>Young leaf blade: type of variegation</b>		
<b>(+)</b>		<b>(a)</b>	narrow marginal		1
<b>PQ</b>			broad marginal		2
			central stripe	Robin	3
			multiple stripes	Clementine	4
<b>7.</b>	<b>7. (*)</b>	<b>VG</b>	<b>Young leaf blade: pattern of secondary colour (excluding variegation)</b>		
<b>(+)</b>		<b>(a)</b>	none	Stream	1
<b>PQ</b>			flushed		2
			striated	Tasman Cherry White	3
			netted		4
			banded	Era	5
			marbled	Purple Haze	6
			spotted	Racine	7
			marbled and spotted	Tasman Tartan	8
			marginal	Lion	9
<b>8.</b>	<b>8. (*)</b>	<b>VG</b>	<b>Young leaf blade: secondary colour of upper side (excluding variegation)</b>		
<b>PQ</b>		<b>(a)</b>	light green	Kiwi Cream	1
			medium green	Splenriet	2
			dark green	Pacific Opal	3
			grey green	Tasman Candyman	4
			red purple	Style	5
			purple	Kiwi Sunset	6
			red brown	Era	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>9.</b>	<b>9.</b>	<b>VG</b>	<b>Young leaf blade: colour of apical part if different from main colour (excluding variegation)</b>		
(+)		(a)	light green	Purple Haze	1
<b>PQ</b>		(b)	medium green	Snowman	2
			dark green		3
			grey green	Tasman Coconut Ice	4
			red purple	Tasman rose	5
			purple		6
			red brown		7
<b>10.</b>	<b>10. (*)</b>	<b>VG/MG</b>	<b>Leaf sheath: length</b>		
(+)		(a)	short	Era	3
<b>QN</b>		(b)	medium	Clementine	5
			long	Deplacar	7
<b>11.</b>	<b>11. (*)</b>	<b>VG/MG</b>	<b>Leaf sheath: width</b>		
(+)		(a)	narrow	Venus	3
<b>QN</b>		(b)	medium	Clementine	5
			broad	Saturn	7
<b>12.</b>	<b>12. (*)</b>	<b>VG/MG</b>	<b>Leaf blade: length</b>		
(+)		(a)	short	Deplacar	3
<b>QN</b>		(b)	medium	Draco	5
			long	Saturn	7
<b>13.</b>	<b>13. (*)</b>	<b>VG/MG</b>	<b>Leaf blade: width</b>		
(+)		(a)	narrow	Draco	3
<b>QN</b>		(b)	medium	Clementine	5
			broad	Stream	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>14.</b>	<b>14.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: shape of tip</b>		
<b>(+)</b>		<b>(a)</b>	acute	Pluto	1
<b>PQ</b>		<b>(b)</b>	acuminate	Isabel	2
			mucronate	Stream	3
<b>15.</b>	<b>15.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: variegation</b>		
<b>(+)</b>		<b>(b)</b>	absent		1
<b>QL</b>			present	Robin	9
<b>16.</b>	<b>16.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: main colour of upper side (excluding variegation)</b>		
<b>PQ</b>		<b>(b)</b>	light green	Draco	1
			medium green	Era	2
			dark green	Isabel	3
			grey green	Kiwi Sunset	4
			red purple		5
			purple		6
			red brown	Alcantarea vinicolor	7
<b>G</b>			dark brown		8
<b>17.</b>	<b>17.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: type of variegation</b>		
<b>(+)</b>			narrow marginal		1
<b>PQ</b>			broad marginal		2
			central stipe	Robin	3
			multiple stripes	Clémentine	4

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>18.</b>	<b>18.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: pattern of secondary colour (excluding variegation)</b>		
<b>(+)</b>			none	Stream	1
<b>PQ</b>			flushed	Tasman Candyman	2
			striated	Tasman Cherry White	3
			banded	Era	4
			marbled	Kiwi Cream	5
			spotted	Racine	6
			marbled and spotted	Tasman Tartan	7
			marginal	Lion	8
<b>19.</b>	<b>19.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: secondary colour of upper side (excluding variegation)</b>		
<b>PQ</b>			light green	Kiwi Dush	1
			medium green	Splenriet	2
			dark green	Dark Knight	3
			grey green	Tasman Coconut Ice	4
			red purple	Style	5
			purple		6
			red brown	Era	7
<b>20.</b>	<b>20.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf blade: colour of apical part if different from main colour (excluding variegation)</b>		
<b>(+)</b>		<b>(a)</b>	pink		1
<b>PQ</b>		<b>(b)</b>	red	Tasman Rose	2
			red purple	Draco	3
			purple brown	Enjoy	4

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>21.</b>	<b>21.</b>	<b>VG</b>	<b>Leaf blade: main colour of lower side (excluding variegation)</b>		
<b>PQ</b>		<b>(a)</b>	light green		1
			medium green	Enjoy	2
			dark green	Saturn	3
			grey green	Evita	4
			red purple		5
			purple		6
			red brown		7
			dark brown		8
<b>22.</b>	<b>22. (*)</b>	<b>VG</b>	<b>Peduncle: colour of bracts</b>		
<b>PQ</b>		<b>(c)</b>	RHS Colour Chart (indicate reference number)		
<b>23.</b>	<b>23. (*)</b>	<b>VG</b>	<b>Inflorescence: position in relation to foliage</b>		
<b>(+)</b>		<b>(a)</b>	same height		1
<b>QN</b>			partly above	Modesta	2
			completely above	Draco	3
<b>24.</b>	<b>24. (*)</b>	<b>VG</b>	<b>Inflorescence: branching</b>		
<b>(+)</b>		<b>(a)</b>	absent	Era, Venus	1
<b>QL G</b>			present	Goldstar, Pluto	9
<b>25.</b>	<b>25. (*)</b>	<b>VG/MG</b>	<b>Inflorescence: number of branches</b>		
<b>(+)</b>		<b>(a)</b>	few	Cathy	3
<b>QN</b>			medium	Style	5
			many	Evita	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>26.</b>	<b>26.</b>	<b>VG</b>	<b>Inflorescence: attitude</b>		
(+)		(a)	erect	Style	1
<b>PQ</b>			semi-erect		2
			drooping		3
<b>27.</b>	<b>27. (*)</b>	<b>VG/MG</b>	<b>Inflorescence: length</b>		
(+)		(c)	short	Pavo	3
<b>QN</b>			medium	Clementine	5
			long	Evita	7
<b>28.</b>	<b>28. (*)</b>	<b>VG/MG</b>	<b>Inflorescence: length of flowering part</b>		
(+)		(c)	short	Energy	3
<b>QN</b>			medium	Style	5
			long	Deplacar	7
<b>29.</b>	<b>29. (*)</b>	<b>VG/MG</b>	<b><u>Only varieties with inflorescence branching: present:</u> Inflorescence: width of flowering part</b>		
(+)		(c)	narrow	Style	3
<b>QN</b>			medium	Latina	5
			broad	Elan, Splendide	7
<b>30.</b>	<b>30. (*)</b>	<b>VG/MG</b>	<b><u>Only varieties with inflorescence branching: present:</u> Inflorescence: length of terminal branch</b>		
(+)		(c)	short	Oberon	1
<b>QN</b>			medium	Lion	2
			long	Stream	3
<b>31.</b>	<b>31. (*)</b>	<b>VG/MG</b>	<b>Inflorescence: width of terminal branch</b>		
(+)		(c)	narrow	Pacific Ruby	1
<b>QN</b>			medium	Lion	2
			broad	Venus	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>32.</b>	<b>32.</b>	<b>VG/MG</b>	<b>Inflorescence: thickness of terminal branch</b>		
<b>QN</b>		<b>(c)</b>	thin		3
			medium		5
			thick		7
<b>33.</b>	<b>33. (*)</b>	<b>VG</b>	<b>Inflorescence: shape of terminal branch</b>		
<b>(+)</b>		<b>(c)</b>	narrow ovate	Jumping Bofire	1
<b>PQ</b>			medium ovate	Clementine	2
			elliptic	Deplacar	3
			oblong	Pacific Ruby	4
			obovate	Lion	5
<b>34.</b>	<b>34. (*)</b>	<b>VG/MG</b>	<b>Inflorescence: number of floral bracts of terminal branch</b>		
<b>QN</b>		<b>(c)</b>	few	Annie	3
			medium	Draco	5
			many	Oberon	7
<b>35.</b>	<b>35. (*)</b>	<b>VG</b>	<b>Inflorescence: position of floral bracts</b>		
<b>(+)</b>		<b>(c)</b>	free	Jumping Bofire	1
<b>QL</b>			adpressed	Lion	2
<b>36.</b>	<b>36. (*)</b>	<b>VG/MG</b>	<b>Floral bract: length</b>		
<b>QN</b>		<b>(c)</b>	short	Pacific ruby	3
			medium	Lion	5
			long	Enjoy	7
<b>37.</b>	<b>37. (*)</b>	<b>VG/MG</b>	<b>Floral bract: width</b>		
<b>QN</b>		<b>(c)</b>	narrow	Oberon	3
			medium	Pavo	5
			broad	Stream	7



CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>38.</b>	<b>38.</b>	<b>VG</b>	<b>Floral bract: angle of apex</b>		
<b>QN</b>		<b>(c)</b>	small		1
			medium		2
			large		3
<b>39.</b> <b>(+)</b>	<b>39.</b> <b>(*)</b>	<b>VG</b>	<b>Floral bract: main colour of outer side</b>		
<b>PQ</b> <b>G</b>		<b>(c)</b>	RHS Colour Chart (indicate reference number)		
<b>40.</b> <b>(+)</b>	<b>40.</b> <b>(*)</b>	<b>VG</b>	<b>Floral bract: secondary colour of outer side</b>		
<b>PQ</b>		<b>(c)</b>	RHS Colour Chart (indicate reference number)		
<b>41.</b> <b>(+)</b>	<b>41.</b>	<b>VG</b>	<b>Floral bract: main colour of inner side</b>		
<b>PQ</b>		<b>(c)</b>	RHS Colour Chart (indicate reference number)		
<b>42.</b>	<b>42.</b> <b>(*)</b>	<b>VG</b>	<b>Calyx: colour</b>		
<b>PQ</b>		<b>(c)</b>	whitish	Era	1
			greenish	Magic	2
			yellowish	Pluto	3
<b>43.</b>	<b>43.</b>	<b>VG/MG</b>	<b>Petal: length</b>		
<b>QN</b>		<b>(c)</b>	short		3
			medium	Deplacar	5
			long	Goldstar	7
<b>44.</b>	<b>44.</b>	<b>VG/MG</b>	<b>Petal: width</b>		
<b>QN</b>		<b>(c)</b>	narrow	Oberon	1
			medium	Enjoy	2
			broad	Draco	3
<b>45.</b>	<b>45.</b> <b>(*)</b>	<b>VG</b>	<b>Petal: colour of apex</b>		
<b>PQ</b>		<b>(c)</b>	RHS Colour Chart (indicate reference number)		

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
46. PQ	46.	VG (c)	<b>Ovary: colour</b>		
			white	Clementine, Pluto	1
			light green	Era, Venus	2
			light yellow		3
47. PQ	47.	VG (c)	<b>Style: colour</b>		
			white		1
			yellow green	Goldstar, Pluto	2
			light yellow	Era, Saturn	3
			medium yellow		4
48. PQ	48.	VG (c)	<b>Stigma: colour</b>		
			white		1
			light green	Clementine	2
			medium green	Saturn, Venus	3
			light yellow	Style	4

## 8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

### 8.1 Explanations covering several characteristics

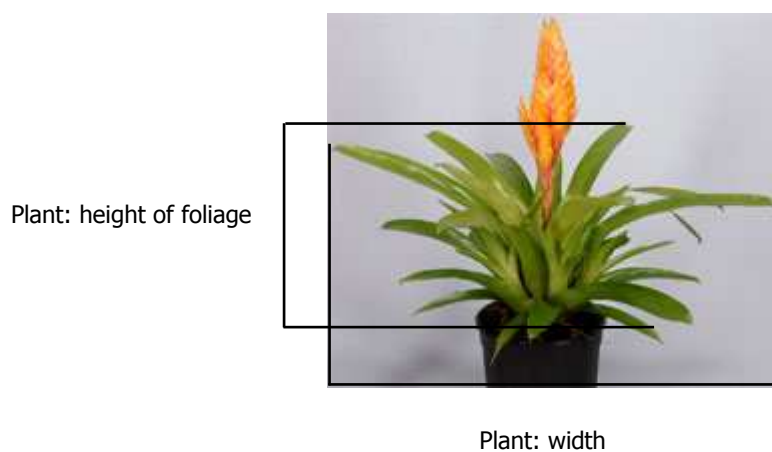
Characteristics containing the following key in the third column of the Table of Characteristics should be examined as indicated below:

- (a) Observations on the young leaf blade should be made on a leaf blade from the first three inner whorls of the rosette.
- (b) Observations on the leaf should be made on the largest fully expanded leaf of the outer whorl of the rosette.
- (c) Observations on the flower should be made on a fully expanded flower in the middle third of the terminal branch.

### 8.2 Explanations for individual characteristics

Ad. 1: Plant: height of foliage

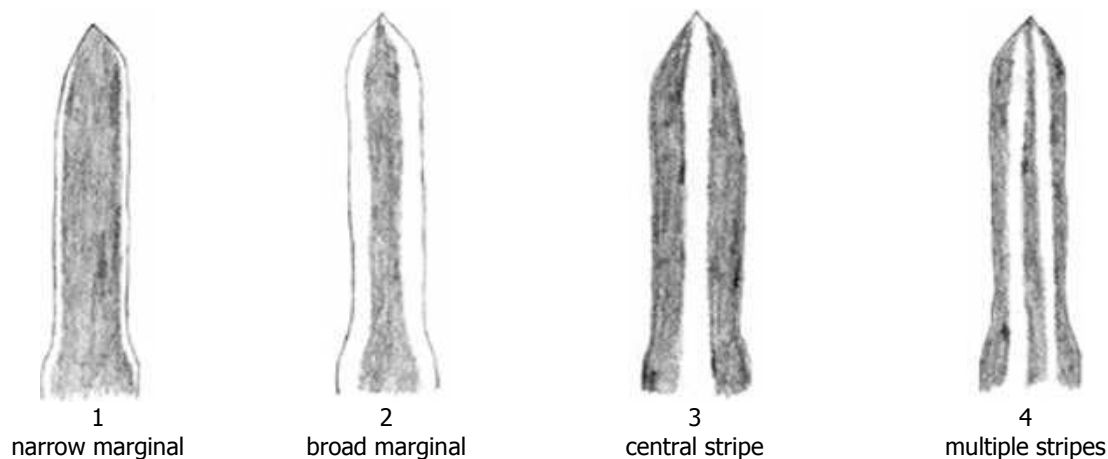
Ad. 2: Plant: width



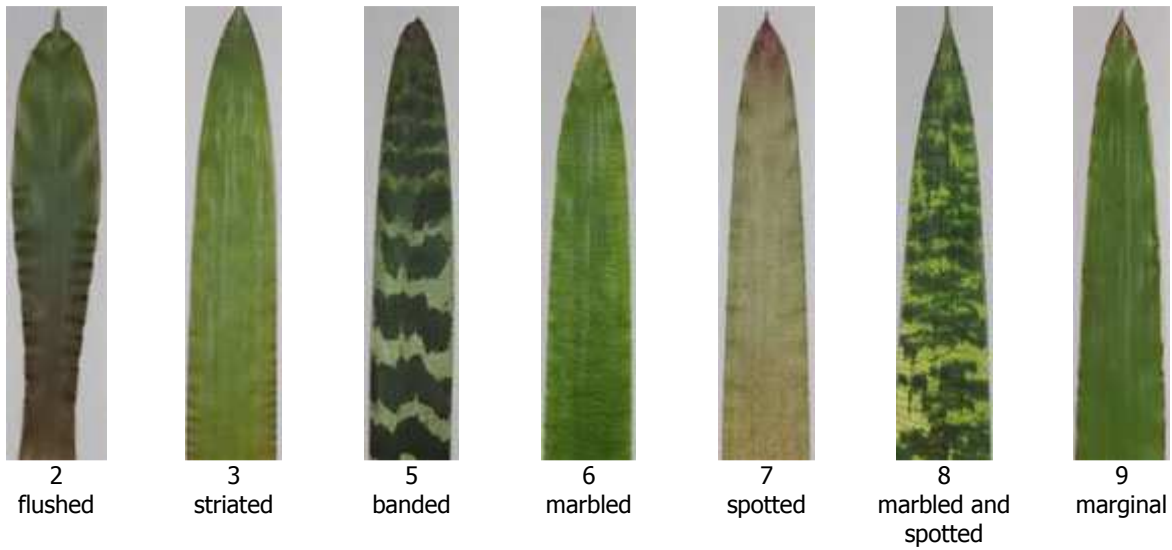
Ad. 4: Young leaf blade: main colour of upper side (excluding variegation)

The main colour is the colour with the largest surface area, excluding variegation. If the area of the colours is nearly half and half, the lighter colour is the main colour.

Ad. 6: Young leaf blade: type of variegation



Ad. 7: Young leaf blade: pattern of secondary colour (excluding variegation)

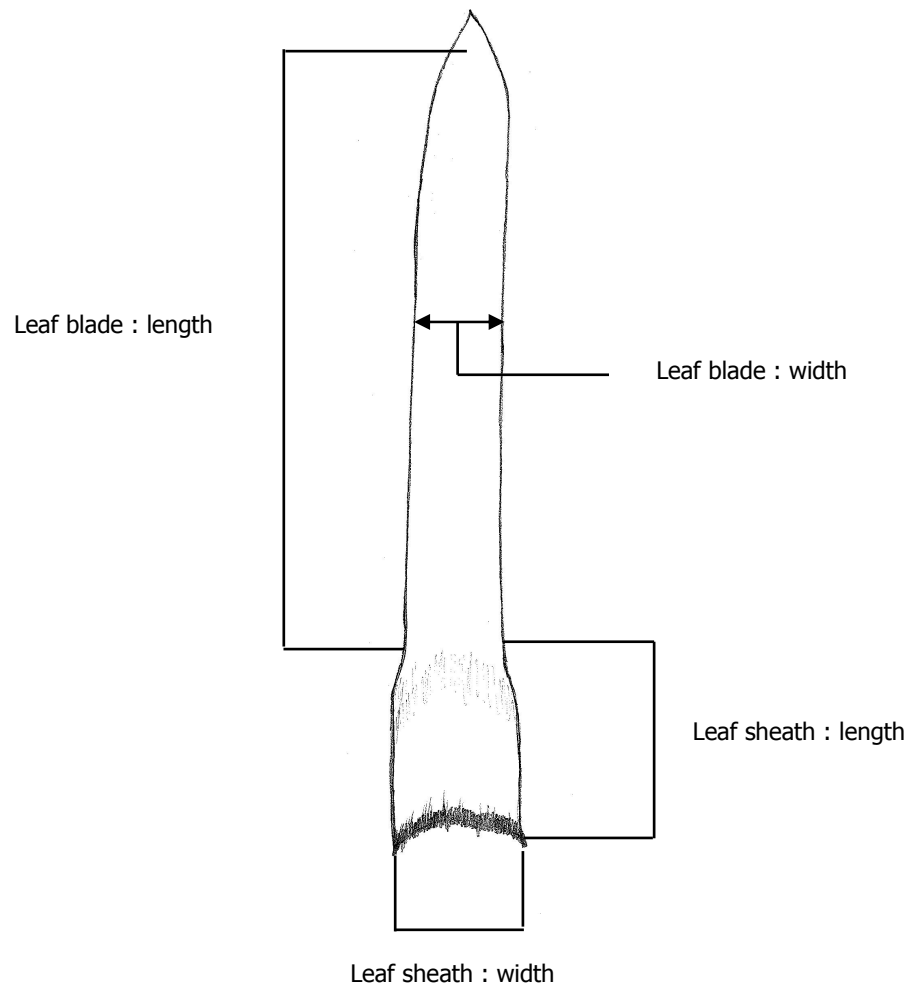


- |                        |   |
|------------------------|---|
| 1. none                | colour equal  |
| 2. flushed             | red purple, purple or red brown colour that changes gradually |
| 3. striated            | small longitudinal stripes                                    |
| 4. netted              | pattern of small stripes making up a net                      |
| 5. banded              | broad transverse stripes                                      |
| 6. marbled             | small irregular transverse stripes                            |
| 7. spotted             | small spots all over the leaf surface                         |
| 8. marbled and spotted | small irregular transverse stripes and small spots            |
| 9. marginal            | narrow zone along the margin                                  |

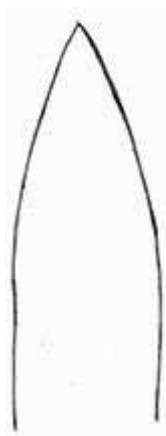
Ad. 9: Young leaf blade: colour of apical part if different from main colour (excluding variegation)



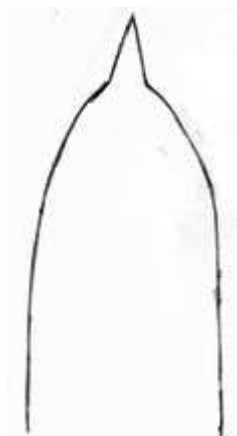
- Ad. 10: Leaf sheath: length
- Ad. 11: Leaf sheath: width
- Ad. 12: Leaf blade: length
- Ad. 13: Leaf blade: width



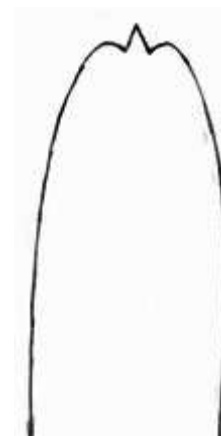
Ad. 14: Leaf blade: shape of tip



1  
acute

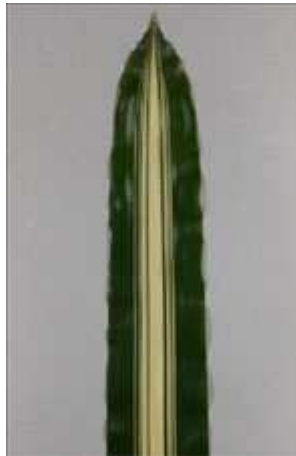


2  
acuminate

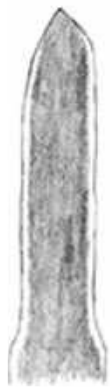


3  
mucronate

Ad. 15: Leaf blade: variegation



Ad. 17: Leaf blade: type of variegation



1  
narrow marginal



2  
broad marginal

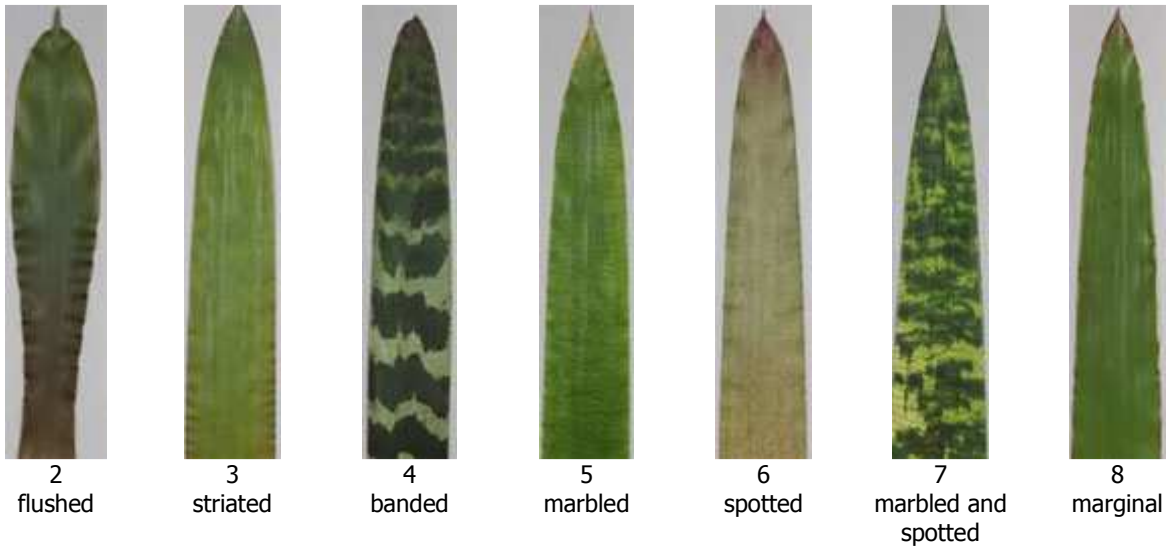


3  
central stripe



4  
multiple stripes

Ad. 18: Leaf blade: pattern of secondary colour (excluding variegation)



- |                        |   |
|------------------------|---|
| 1. none                | colour equal  |
| 2. flushed             | red purple, purple or red brown colour that changes gradually |
| 3. striated            | small longitudinal stripes                                    |
| 4. banded              | broad transverse stripes                                      |
| 5. marbled             | small irregular transverse stripes                            |
| 6. spotted             | small spots   |
| 7. marbled and spotted | small irregular transverse stripes with small spots           |
| 8. marginal            | narrow zone along the margin                                  |

Ad. 20: Leaf blade: colour of apical part if different from main colour (excluding variegation)



Ad. 23: Inflorescence: position in relation to foliage



1  
same height



2  
partly above



3  
completely above

Ad. 24: Inflorescence: branching



1  
absent



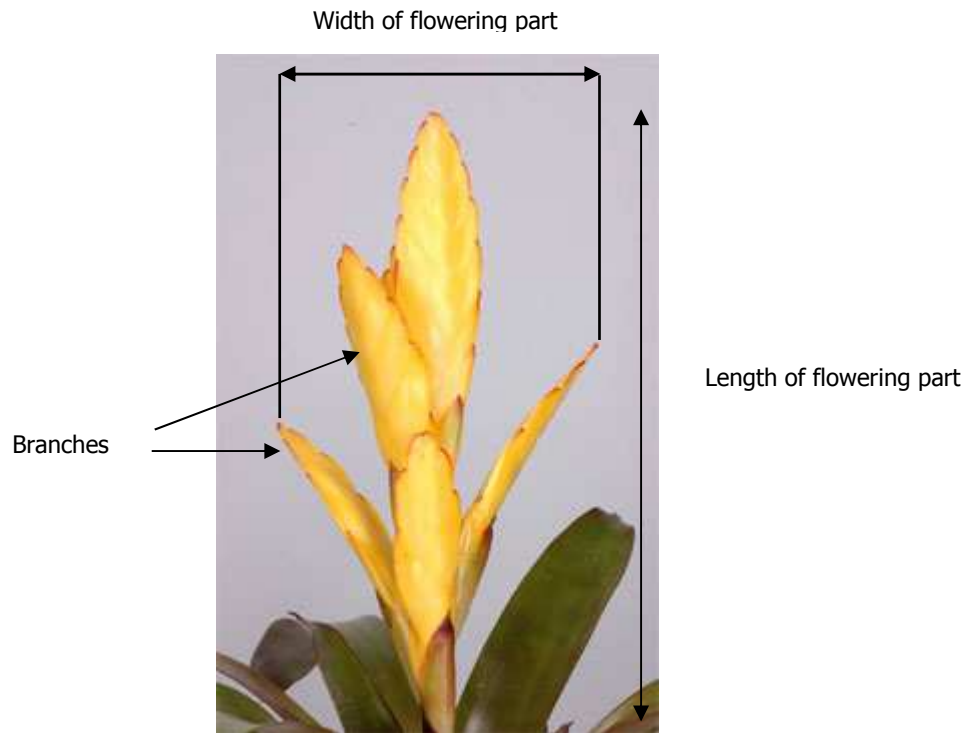
9  
present



Ad. 25: Inflorescence: number of branches

Ad. 28: Inflorescence: length of flowering part

Ad. 29: Only varieties with inflorescence branching: present: Inflorescence: width of flowering part



Ad. 26: Inflorescence: attitude



1  
erect



2  
semi-erect

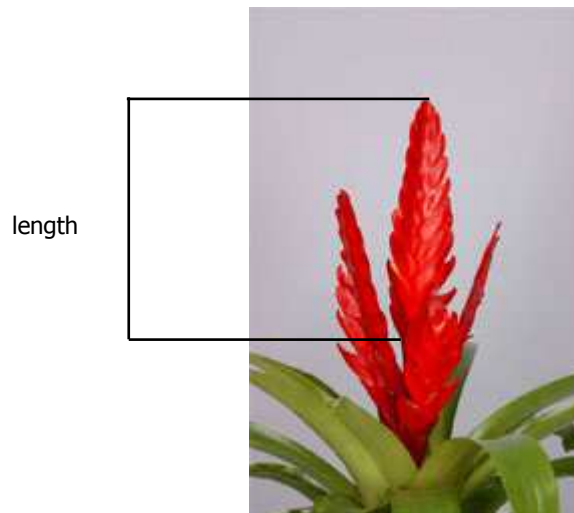


3  
drooping

Ad. 27: Inflorescence: length




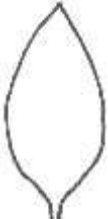


Ad. 30: Only varieties with inflorescence branching: present: Inflorescence: length of terminal branch



Ad. 31: Inflorescence: width of terminal branch



Ad. 33: Inflorescence: shape of terminal branch

		← broadest part →		
		below middle	at middle	above middle
broad (compressed) ← length/width ratio → narrow (elongated)	?			
	1 narrow ovate		4 oblong	
				
	2 medium ovate	3 elliptic	5 obovate	

Ad. 35: Inflorescence: position of floral bracts



1  
free



2  
adpressed

Ad. 39:Floral bract: main colour of outer side

Ad. 40:Floral bract: secondary colour of outer side

Ad. 41:Floral bract: main colour of inner side

The main colour is the colour with the largest total surface area, the secondary colour (if present) is the colour with the second largest total surface area. If the area of the colours is nearly half and half, the lighter colour is the main colour.

Ad. 42: Calyx: colour

Ad. 43: Petal: length

Ad. 47: Style: colour

Ad. 48: Stigma: colour



Ad. 46: Ovary: colour



Ovary

## 9. LITERATURE

Baensch, U. and Baensch, U., 1994: Blooming Bromeliads, Tropic Beauty Publishers, Nassau/Bahamas, ISBN 0-9641056-0-8, BS.

Rauh, W., 1981: Bromelien, Verlag Eugen Ulmer, Stuttgart, ISBN 3-8001-6029-3, DE.

Rauh, W., 1990: The Bromeliad Lexicon, Blandford, London, GB.

## **10. TECHNICAL QUESTIONNAIRE**

The Technical Questionnaire is available on the CPVO website under the following reference: CPVO-TQ/269/1