



PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

***Freesia* Eckl. ex Klatt**

FREESIA

UPOV Code: FREES

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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 *Freesia Eckl. ex Klatt*.

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/export/sites/upov/resource/en/tg_1_3.pdf), its associated TGP documents (<http://www.upov.int/tgp/en/>) and the relevant UPOV Test Guideline TG/27/7 (proj. 5) dated 09/03/2017 (http://www.upov.int/edocs/mdocs/upov/en/tc_53/tg_27_7_proj_5.pdf) for the conduct of tests for Distinctness, Uniformity and Stability.

1.2 Entry into Force

The present protocol enters into force on **04.10.2017**. Any ongoing 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://cpvo.europa.eu/applications-and-examinations/technical-examinations/submission-of-plant-material-s2-publication> 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/edocs/tgpdocs/en/tgp_9.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

Each test should be designed to result in a total of at least 20 plants.

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 EO unless special cooperation exists between EOs and the CPVO. The descriptive and pictorial information produced by the EO shall be held and maintained in a form of a database"

3.6.2 Living Plant Material

The EO 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 take into account the list of protected varieties and the official, or other, registers of varieties, in particular:

The inventory shall include varieties protected under National and Community PBR, varieties of National Catalogues for fruit species) 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.

3.6.4 Maintenance and renewal/update of a living variety collection

The EO shall maintain the variety collection under appropriate growing conditions (e.g. glasshouse, orchard, in vitro), where it shall be ensured that the plants are adequately irrigated, fertilised, pruned and protected from harmful pests and diseases. For the renewal of existing living material the identity of replacement living plant material shall be verified by conducting side-by-side plot comparisons between the material in the collection and the new material or by checking the identity of the new material against the variety description."

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/edocs/tgpdocs/en/tgp_9.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/edocs/tgpdocs/en/tgp_10.pdf) prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in this Technical Protocol:

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 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/edocs/tgpdocs/en/tgp_11.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 (characteristic 1)
- b) Spike: length (characteristic 11)
- c) Flower: type (characteristic 19)
- d) Perianth: main colour of inner side of outer segments (characteristic 35) with the following groups:

- Gr. 1: white
- Gr. 2: yellow
- Gr. 3: yellow orange
- Gr. 4: orange
- Gr. 5: pink
- Gr. 6: red
- Gr. 7: violet
- Gr. 8: blue violet
- Gr. 9: blue

- e) Perianth: main colour of inner side of inner segments (characteristic 43) with the following groups:

- Gr. 1: white
- Gr. 2: yellow
- Gr. 3: yellow orange
- Gr. 4: orange
- Gr. 5: pink
- Gr. 6: red
- Gr. 7: violet
- Gr. 8: blue violet
- Gr. 9: blue

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 EO 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 |
| (*) | Asterisked characteristic | - see Chapter 6.1.2 (only for certain vegetable species) |
| QL | Qualitative characteristic | |
| QN | Quantitative characteristic | |
| PQ | Pseudo-qualitative characteristic | |
| (+) | Explanations for individual Characteristics | - see Chapter 8.2 |

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 harmonisation of variety descriptions. |
|-----|--------------------------------|---|

For column "stage, method":

| | | |
|----------------|---|---------------------|
| MG, MS, VG, VS | | - see Chapter 4.1.5 |
| (a)-(g) | Explanations covering several Characteristics | - see Chapter 8.1 |

7. TABLE OF CHARACTERISTICS

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | |
|-------------------------|-------------------------|----------------------------|--|-----------------|------------|-------------------|---|
| 1. (+) | 1. (*) | MG/MS /VG | Plant: height | | | | |
| | | | QN | (a) | short | Fragrant Sunburst | 3 |
| | | | | | medium | Golden Passion | 5 |
| G | | | tall | Algarve | 7 | | |
| 2. | 2. (*) | MG/MS /VG | Leaf: length | | | | |
| | | | QN | (a), (b) | short | Grumpy | 3 |
| | | | | | medium | Anouk | 5 |
| | | | long | Pink Devotion | 7 | | |
| 3. | 3. | MG/MS /VG | Leaf: width | | | | |
| | | | QN | (a), (b) | narrow | Lovely Lake | 3 |
| | | | | | medium | Golden Passion | 5 |
| | | | broad | Clementine | 7 | | |
| 4. | 4. | VG | Leaf: intensity of green colour | | | | |
| | | | QN | (a), (b) | light | | 1 |
| | | | | | medium | Pink Passion | 2 |
| | | | dark | White Pearl | 3 | | |
| 5. | 5. (*) | VG | Leaf: attitude of distal part | | | | |
| | | | QN | (a), (b) | erect | Golden Passion | 1 |
| | | | | | horizontal | Red Passion | 2 |
| | | | drooping | Hofuni | 3 | | |
| 6. (+) | 6. (*) | MG/MS /VG | Peduncle: length | | | | |
| | | | QN | (a) | short | Vapogom | 3 |
| | | | | | medium | Golden Passion | 5 |
| | | | long | Red Mountain | 7 | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|---|--------------------------|--|--|----------------|------|
| 7. (+) QN | 7. | MG/MS /VG (a) | Peduncle: thickness | | |
| | | | thin | Vapogom | 1 |
| | | | medium | Golden Passion | 2 |
| | | | thick | Moon River | 3 |
| 8. (+) QN | 8. (*) | MG/MS /VG (a) | Peduncle: number of branches | | |
| | | | few | | 1 |
| | | | medium | | 2 |
| | | | many | | 3 |
| 9. QN | 9. | VG (a) | Peduncle: rugosity | | |
| | | | absent or weak | Corvette | 1 |
| | | | medium | Zafretweet | 2 |
| | | | strong | Lovely Romance | 3 |
| 10. (+) QN | 10. (*) | VG (a) | Spike: angle with peduncle | | |
| | | | small | | 3 |
| | | | medium | Yellow Passion | 5 |
| | | | large | Corvette | 7 |
| 11. (+) QN G | 11. (*) | MG/MS /VG (a) | Spike: length | | |
| | | | short | | 3 |
| | | | medium | Yellow Passion | 5 |
| | | | long | Clementine | 7 |
| 12. QN | 12. (*) | MG/MS /VG (a) | Spike: number of flowers and buds | | |
| | | | few | | 3 |
| | | | medium | Golden Passion | 5 |
| | | | many | Zantrechac | 7 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | |
|--------------------------|--------------------------|---------------|--|------------|-----------------|-------------------|---|
| 13. (+) | 13. (*) | MG/VG | Spike: length of rachis between first and second flower | | | | |
| | | | QN | (a) | short | Fragrant Sunburst | 1 |
| | | | | | medium | Golden Passion | 2 |
| | | | | | long | Pink Attraction | 3 |
| 14. (+) | 14. | MG/VG | Spike: length of rachis between second and third flower | | | | |
| | | | QN | (a) | short | Fragrant Sunburst | 1 |
| | | | | | medium | Golden Passion | 2 |
| | | | | | long | Clementine | 3 |
| 15. (+) | 15. (*) | VG | Spike: degree of zig-zag | | | | |
| | | | QN | (a) | weak | Sunsett River | 1 |
| | | | | | medium | Clementine | 2 |
| | | | | | strong | Zafretweet | 3 |
| 16. (+) | 16. (*) | VG | Spike: curvature of distal part | | | | |
| | | | QN | (a) | absent or weak | Zafretweet | 1 |
| | | | | | medium | Lovely River | 2 |
| | | | | | strong | | 3 |
| 17. (+) | 17. | VG | Spike: angle between the rows of flowers | | | | |
| | | | QN | (a) | absent or small | Clementine | 1 |
| | | | | | medium | Zafretweet | 2 |
| | | | | | large | White Floret | 3 |
| 18. (+) | 18. (*) | MG/VG | Flower bud: ratio length/width | | | | |
| | | | QN | | low | Lovely Romance | 1 |
| | | | | | medium | Lovely River | 2 |
| | | | | | high | Purple Velvet | 3 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|--------------------------|--------------------------|----------------------|---|----------------|------|
| 19. (+) | 19. (*) | VG | Flower: type | | |
| QN | | (a), (c) | single | Golden Passion | 1 |
| | | | semi-double | Clementine | 2 |
| G | | | double | Zafrevil | 3 |
| 20. | 20. | VG | Flower: fragrance | | |
| QN | | (a) | absent or weak | Delta River | 1 |
| | | | medium | Gold River | 2 |
| | | | strong | Belleville | 3 |
| 21. | 21. | MG/MS /VG | Bract: length | | |
| QN | | (a), (c) | short | Moon River | 1 |
| | | (f) | medium | Gold River | 2 |
| | | | long | | 3 |
| 22. | 22. | VG | Bract: intensity of green colour | | |
| QN | | (a), (c) | light | Lovely River | 1 |
| | | (f) | medium | Red River | 2 |
| | | | dark | Zafreblos | 3 |
| 23. | 23. | VG | Bract: anthocyanin coloration | | |
| QN | | (a), (c) | absent or weak | Avalanche | 1 |
| | | (f) | medium | Zanmunimba | 2 |
| | | | strong | Zafrecost | 3 |
| 24. | 24. (*) | MG/MS /VG | Perianth tube: length | | |
| QN | | (a), (c) | short | | 1 |
| | | (f) | medium | Lovely River | 2 |
| | | | long | Golden Passion | 3 |
| 25. | 25. (*) | VG | Perianth tube: main colour | | |
| PQ | | (a), (c), (f) | RHS Colour Chart (indicate reference number) | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | |
|------------|------------|---------------|---|------------------|---|-------------------|---|
| 26. | 26. (*) | MG/MS /VG | Perianth throat: length | | | | |
| | | | QN | (a), (c) | short | Anouk | 1 |
| | | | | (f) | medium | Zapogrum | 2 |
| | | | long | White River | 3 | | |
| 27. | 27. (*) | MG/VG | Perianth throat: width of distal part | | | | |
| | | | QN | (a), (c) | narrow | Zafretweet | 1 |
| | | | | (f) | medium | Corvette | 2 |
| | | | broad | Clementine | 3 | | |
| 28. | 28. | VG | Perianth throat: main colour of outer side | | | | |
| | | | PQ | (a), (c), (f) | RHS Colour Chart (indicate reference number) | | |
| 29. | 29. (*) | VG | Perianth throat: main colour of inner side | | | | |
| | | | PQ | (a), (c), (f) | RHS Colour Chart (indicate reference number) | | |
| 30. (+) | 30. (*) | VG | Perianth throat: number of stripes on inner side | | | | |
| | | | QN | (a), (c) | few | Sunsett River | 3 |
| | | | | (f) | medium | Red Passion | 5 |
| | | | many | Clementine | 7 | | |
| 31. | 31. (*) | MG/VG | Perianth: length of outer segment | | | | |
| | | | QN | (a),(c) | short | Red Passion | 3 |
| | | | | (d), (f) | medium | Golden Passion | 5 |
| | | | long | Hofuni | 7 | | |
| 32. | 32. (*) | MG/VG | Perianth: width of outer segment | | | | |
| | | | QN | (a), (c) | narrow | Fragrant Sunburst | 3 |
| | | | | (d), (f) | medium | Golden Passion | 5 |
| | | | broad | Zafremijou | 7 | | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note |
|----------------|----------------|--|--|----------------|------|
| 33. (+) | 33. | MG/VG | Perianth: ratio length/width of outer segments | | |
| QN | | (a), (c) | low | | 1 |
| | | (d), (f) | medium | | 2 |
| | | | high | | 3 |
| 34. | 34. (*) | VG | Perianth: position of broadest part of outer segments | | |
| QN | | (a), (c) | towards base | | 1 |
| | | (d), (f) | at middle | Lovely Lake | 2 |
| | | | towards apex | Boulevard | 3 |
| 35. | 35. (*) | VG | Perianth: main colour of inner side of outer segment | | |
| PQ G | | (a), (c) (d), (e) | RHS Colour Chart (indicate reference number) | | |
| 36. | 36. (*) | VG | Perianth: secondary colour of inner side of outer segment (if present) | | |
| PQ | | (a), (c), (d), (e), (f) | RHS Colour Chart (indicate reference number) | | |
| 37. (+) | 37. (*) | VG | Perianth: distribution of secondary colour of inner side of outer segment | | |
| PQ | | (a),(c) | at base | Lovely Lake | 1 |
| | | (d), (f) | flushed | Boulevard | 2 |
| | | | along veins | Zafremijou | 3 |
| 38. | 38. (*) | MG/VG | Perianth: length of inner segment | | |
| QN | | (a),(c) | short | Port Salut | 3 |
| | | (d), (f) | medium | Lovely Romance | 5 |
| | | | long | Red Mountain | 7 |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | |
|------------|-------------|---------------|--|-------------------------------|---|---|
| 39. | 39. (*) | MG/VG | Perianth: width of inner segment | | | |
| | | | (a),(c) | narrow | Festival | 3 |
| | | | (d), (f) | medium | Zapogrum | 5 |
| | | | broad | Zafrebini | 7 | |
| 40. (+) | 40. (*) | MG/VG | Perianth: ratio length/width of inner segment | | | |
| | | | (a),(c) | low | | 1 |
| | | | (d), (f) | medium | | 2 |
| | | | high | | 3 | |
| 41. | 41. (*) | VG | Perianth: position of broadest part of inner segment | | | |
| | | | (a),(c) | towards base | Lovely Lake | 1 |
| | | | (d), (f) | at middle | Zafrevil | 2 |
| | | | towards apex | | 3 | |
| 42. (+) | 42. (*) | VG | Perianth: attitude of inner segment | | | |
| | | | (a),(c) | semi-erect | Lovely White | 1 |
| | | | (d), (f) | horizontal | Golden Passion | 2 |
| | | | reflexed | | 3 | |
| 43. | 43. (*) | VG | Perianth: main colour of inner side of inner segment | | | |
| | | | PQ G | (a), (c), (d), (e), (f) | RHS Colour Chart (indicate reference number) | |
| 44. | 44. (*) | VG | Perianth: secondary colour of inner side of inner segment | | | |
| | | | PQ | (a), (c), (d), (e), (f) | RHS Colour Chart (indicate reference number) | |

| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | | | |
|------------|-------------|---------------|--|---------------|------------------|------------|-----------------|---|
| 45. | 45. (*) | VG | Perianth: distribution of secondary colour of inner side of inner segment | | | | | |
| | | | | PQ | (a),(c) | at base | Lovely Lake | 1 |
| | | | | | (d), (f) | flushed | Pink Attraction | 2 |
| | | | along veins | Zafrepapil | 3 | | | |
| 46. (+) | 46. | VG | Perianth: area of secondary colour at base of inner side of inner segment | | | | | |
| | | | | QN | (a),(c) | small | | 3 |
| | | | | | (d), (f) | medium | | 5 |
| | | | large | | 7 | | | |
| 47. | 47. (*) | VG | Filament: main colour | | | | | |
| | | | | PQ | (a),(c) | white | Clementine | 1 |
| | | | | | (f), (g) | yellow | Yellow Passion | 2 |
| | | | blue | | 3 | | | |
| 48. (+) | 48. (*) | VG | Anther: main colour | | | | | |
| | | | | QL | (a),(c) | white | Golden Passion | 1 |
| | | | (f), (g) | violet | Red Passion | 2 | | |
| 49. | 49. (*) | VG | Style: main colour | | | | | |
| | | | | PQ | (a),(c) | white | Golden Passion | 1 |
| | | | | | (e), (f), (g) | yellow | Vancouver | 2 |
| | | | blue | Purple Velvet | 3 | | | |
| 50. (+) | 50. | VG | Stigma: position in relation to anthers | | | | | |
| | | | | QN | (a),(c) | below | Clementine | 1 |
| | | | | | (f), (g) | same level | Golden Passion | 2 |
| | | | above | Red Passion | 3 | | | |

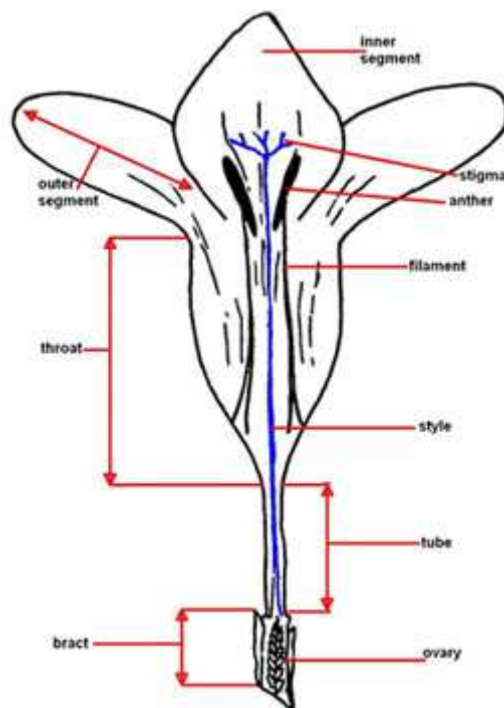
| CPVO N° | UPOV N° | Stage, Method | Characteristics | Examples | Note | |
|----------------|----------------|---------------|--|----------|-------------------|---|
| 51. (+) | 51. (*) | MG/VG | Stigma: length of lobes | | | |
| | | | (a),(c) | short | | 1 |
| | | | (f), (g) | medium | Vancouver | 2 |
| | | | | long | Clementine | 3 |
| 52. (+) | 52. | VG | Stigma: appearance of lobes | | | |
| | | | (a),(c) | fine | Pink Devotion | 1 |
| | | | (f), (g) | medium | Clementine | 2 |
| | | | | coarse | | 3 |
| 53. (+) | 53. | VG | Stigma: colour in relation to upper part of style | | | |
| | | | (a),(c) | lighter | Fragrant Sunburst | 1 |
| | | | (f), (g) | same | Golden Passion | 2 |
| | | | | darker | Red Passion | 3 |

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 should be made when 50% of the flowers on a spike have opened.
- b) Observations on leaves should be made on the longest fully expanded leaves.
- c) Observations on bracts and flower should be made on fully opened flowers of the main spike.
- d) Observations on the inner and outer segments should be made on the largest segment of the flowers of the main spike.
- e) The main colour is the colour with the largest surface area. In cases where the areas of the main and secondary colour are too similar to reliably decide which colour has the largest area, the darker colour is considered to be the main colour. In cases where the areas of the secondary and tertiary colour are approximately the same, the darker colour will be the secondary colour
- f)



- g) Observations on filament, anther, style and stigma should be made on single and semi-double flowers only.

8.2 Explanations for individual characteristics

Ad. 1: Plant: height



Plant height

Ad. 6: Peduncle: length

Peduncle length should be observed from the point of attachment of the upper lateral branch to the first flower of the spike.



Peduncle length

Ad. 7: Peduncle: thickness

Peduncle thickness should be observed at the middle third of the peduncle.

Ad. 8: Peduncle: number of branches

The total number of branches of the peduncle should be observed.

- Note 1 (few): < 3 branches
- Note 2 (medium): 3 – 5 branches
- Note 3 (many): > 5 branches



Ad. 10: Spike: angle with peduncle



3
small

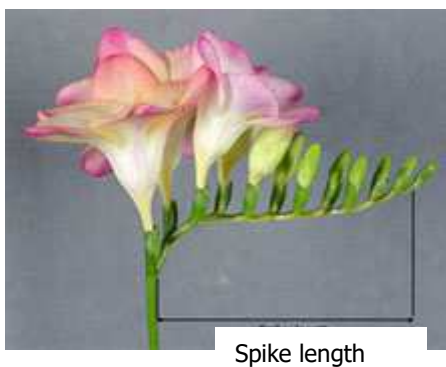


5
medium



7
large

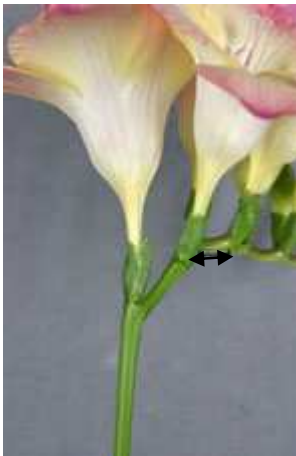
Ad. 11: Spike: length



Ad. 13: Spike: length of rachis between first and second flower



Ad. 14: Spike: length of rachis between second and third flower



Ad. 15: Spike: degree of zig-zag



1
weak



2
medium



3
strong

Ad. 16: Spike: curvature of distal part



1
absent or weak



2
medium



3
strong

Ad. 17: Spike: angle between the rows of flowers



1
absent or small



2
medium



3
large

Ad. 18: Flower bud: ratio length/width

Observations on bud should be made on the first flower of the main spike just before opening of the bud.



1
low



2
medium



3
high

Ad. 19: Flower: type

Single flowers have up to 6 tepals. Semi-double flowers have between 7 and 9 tepals. Double flowers have more than 9 tepals.



1
single



2
semi-double



3
double

Ad. 30: Perianth throat: number of stripes on inner side



Ad. 33: Perianth: ratio length/width of outer segments



1
low



2
medium



3
high

Ad. 37: Perianth: distribution of secondary colour of inner side of outer segment



1
at base



2
flushed



3
along veins

Ad. 40: Perianth: ratio length/width of inner segment



1
low



2
medium



3
high

Ad. 42: Perianth: attitude of inner segment



1
semi-erect



2
horizontal



3
reflexed

Ad. 45: Perianth: distribution of secondary colour of inner side of inner segment

See Ad. 37

Ad. 46: Perianth: area of secondary colour at base of inner side of inner segment



3
small



5
medium



7
large

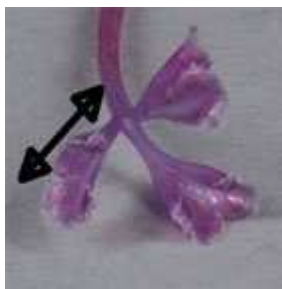
Ad. 48: Anther: main colour

Observations on the colour should be made just before dehiscence of the anther.

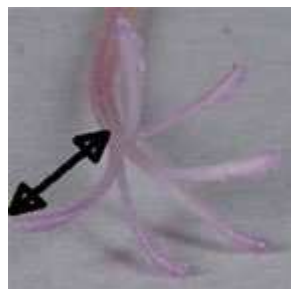
Ad. 50: Stigma: position in relation to anthers

Observations on the position of the style should be made just before dehiscence of the anthers.

Ad. 51: Stigma: length of lobes



1
short



2
medium



3
long

Ad. 52: Stigma: appearance of lobes



1
fine



2
medium



3
coarse

Ad. 53: Stigma: colour in relation to upper part of style

Observations on colour of upper part of style should be made just before dehiscence of the anthers.

9. LITERATURE

Bryan, John. E., 2002: Bulbs. Timber Press. Portland, Oregon, US, page. 233 to page 235

Synge, Patrick M., 1961: Collins Guide to Bulbs. R & R Clark LTD, Edinburgh, UK, page 126 to page 127

Chittenden, Fred J., 1977: Dictionary of Gardening. Clarendon Press, Oxford, UK, page 836 to page 837

10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the CPVO website under the following reference:
CPVO-TQ/027/2.