



PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY

Gladiolus L.

GLADIOLUS

UPOV Code: GLADI

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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 *Gladiolus* L.

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/108/4 dated 20/03/2013 (<http://www.upov.int/edocs/tgdocs/en/tg108.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://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

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

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 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 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/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 all 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:

Uniformity assessment by off-types

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/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 plants 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) Flower: width (characteristic 15)
- b) Flower: main colour (characteristic 16) with the following groups:
 - Gr. 1: white
 - Gr. 2: yellow
 - Gr. 3: orange
 - Gr. 4: pink orange
 - Gr. 5: pink
 - Gr. 6: purple
 - Gr. 7: red purple
 - Gr. 8: blue
 - Gr. 9: 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 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
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) 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

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note	
1.	1. (*)	VG/MS	Plant: height			
			(+)	short	Albus, Nymph	3
			QN	medium	Dainty, Shocking, White Friendship	5
			tall	Traderhorn, Venetië, White Prosperity	7	
2.	2.	VG/MG	Foliage: height			
			(+)	short	Spic and Span	3
			QN	medium	Caprice, Eurovision, Princess Margaret Rose	5
			tall	Fidelio, Traderhorn	7	
3.	3. (*)	VG/MG	Leaf: width			
			(+)	narrow	Imperator, Flevo Primo	3
			QN	medium	Bono's Memory, Caprice, Traderhorn, White Friendship	5
			broad	Sancerre	7	
4.	4. (*)	VG	Leaf: curvature of distal half			
			(+)	absent or very weak	Jessica	1
			QN	weak		3
				medium	Advance	5
			strong		7	
5.	5. (*)	VG	Inflorescence: lateral branches			
			QL	absent	Pink Event Treasure, Spic and Span	1
			present	Charm, Elegance, Rose Supreme, White Prosperity	9	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note	
6.	6. (*)	VG/MS	Spike: length			
			(+)	short		3
			QN	medium	Flevo Laguna, Millenium	5
			long		7	
7.	7. (*)	VG/MS	Spike: number of flowers			
			(+)	few	Hawaii, Nymph	3
			QN	medium	Little Darling, Picture, White Friendship	5
			many	Traderhorn	7	
8.	8. (*)	VG/MS	Spike: number of open flowers			
			(+)	few		3
			QN	medium	Aurora, Pink Event	5
			many	Eva, Exselsa, Millenium	7	
9.	9.	VG/MS	Spike: length of internode			
			QN	short	Jazmina	1
				medium	Cartago	2
			long	White Prosperity	3	
10.	10. (*)	VG	Spike: arrangement of flowers			
			(+)	one row	Early Bird, Groene Specht	1
			PQ	zig-zag	Charm, Flevo Laguna, Lady Godiva	2
				two rows	Carqueiranne, Jessica	3
			irregular	Albus, Harrogate	4	
11.	11.	VG	Bract: shape of apex			
			(+)	acute	Flevo Primo, Kalderon	1
			QN	acute to obtuse		2
			obtuse	Mexico, Sophie	3	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
12.	12. (*)	VG	Bract: anthocyanin coloration		
QN			absent or very weak	Charm, Lady Godiva, Nova Lux, White Friendship	1
			weak	Carqueiranne, Jessica, Spic and Span	3
			medium	Eva, Helvetia, Treasure, Venetië	5
			strong	Firebird, Harrogate, Oscar, Flevo Junior	7
			very strong	Caprice	9
13.	13. (*)	VG	Flower: shape in front view		
(+)			triangular	Beijing, Charm, Early Bird, Flevo Laguna, Lady Godiva	1
PQ			star-shaped	Albus, Beauty of Holland	2
			round	Caprice, Orlando, Pegasus	3
14.	14. (*)	VG	Flower: attitude		
(+)			upright	Princess Summer Yellow	1
QN			semi-upright	Flevo Laguna	2
			horizontal		3
15.	15. (*)	VG/MS	Flower: width		
(+)			narrow	Dainty, Flevo Laguna, Flevo Primo, Jackpot	3
QN			medium	Groene Specht, Joyeuse Entrée, Shocking	5
G			broad	Traderhorn, White Friendship	7
16.	16. (*)	VG	Flower: main colour		
(+) PQ G			RHS Colour Chart (indicate reference number)		

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
17.	17.	VG	Flower: shading of main colour		
(+)			none	Novalux	1
PQ			lighter towards the base	Idola, Priscilla	2
			evenly shaded		3
			lighter towards the apex	Charlotte	4
18.	18.	VG/MG	Perianth tube: length		
QN			short	Eva, Picture	1
			medium	Anitra, Flevo Laguna, Harrogate, Millenium	2
			long	Elegance, Zigeunerbaron	3
19.	19. (*)	VG	Perianth tube: number of spots on inner side		
QN			none or very few	Flevo Laguna, Lady Godiva, Leonore	1
			few	Elegance, Fire Bird, Zigeunerbaron	3
			medium	Bonaire, Eva, Nymph	5
			many	Costa Mary Hously, Little Darling	7
			very many	Groene Specht, Jessica	9
20.	20. (*)	VG	Perianth tube: distribution of spots on inner side		
(+)			irregular	Elegance, Libelle, Princess Margaret Rose, Treasure	1
PQ			interrupted band	Nymph, Picure, Sancerre	2
			continuous band	Groene Specht, Helvetia, Morning Kiss, Zigeunerbaron	3
21.	21. (*)	VG	Perianth throat: number of spots on outer side		
QN			none		1
			few		2
			medium		3
			many	Millenium, Flevo Laguna	4

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note	
22.	22. (*)	VG	Perianth throat: colour of spots on outer side			
			PQ	orange	Aurora	1
				pink	White Prosperity	2
				medium red	Bonaire, Helvetia, Nymph	3
				dark red	Elegance, Groene Specht, Jessica	4
			violet	Peter Pears, Zigeunerbaron	5	
23.	23.	VG	Outer tepal: shape of blade			
			(+)			
			QN	ovate	Elegance, Millenium	1
			elliptic	Helvetia, Speranta	2	
			obovate	Candida Ali	3	
24.	24.	VG	Outer tepal: undulation of margin			
			QN	absent or very weak	Albus, Ben Trovato, Caprice, Lady Godiva, Lustige Witwe	1
				weak	Jessica, Maestro, Spic and Span, Traderhorn	3
				medium	Groene Specht, White Friendship, Zigeunerbaron	5
				strong	Alice, Flevo Primo, June	7
			very strong		9	
25.	25.	VG	Inner tepal: undulation of margin			
			QN	absent or very weak	Flevo Beach	1
				weak		3
				medium	Casablanca	5
				strong		7
			very strong	Jester, White Pepper	9	
26.	26. (*)	VG	Inner tepal: stripe			
			QL	absent	Elegance	1
			present	Advance, Alice Caprice	9	

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
27.	27.	VG/MS	Inner tepal: length of stripe		
QN		(a)	short		1
			medium	Fidelio, Pink Event, Venetië	2
			long	Eva, Flevo Party, Millenium	3
28.	28.	VG/MS	Inner tepal: width of stripe		
QN		(a)	narrow	Costa	1
			medium	Flevo Party, Flevo Primo, Spic and Span	2
			broad	Flevo Salsa	3
29.	29. (*)	VG	Inner tepal: colour of stripe		
PQ		(a)	white	Bono's Memory, Millenium	1
			yellowish white	Fire Bird, Perseus	2
			yellow	Bonaire, Charm	3
			orange		4
			pink		5
			red	Treasure	6
			purple red	Flevo Primo, Pegasus, Pink Event	7
			violet blue	Costa	8
			dark purple		9
30.	30. (*)	VG	Inner tepal: macule		
QL		(a)	absent	Charm, Flevo Laguna	1
			present	Elegance, Hypnose, Millenium	9
31.	31. (*)	VG	Inner tepal: position of macule		
(+)		(a)	at base	Flevo Sunset, Home Coming	1
QN			between base and centre		2
			central	Traderhorn	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
32.	32.	VG/MS	Inner tepal: size of macule in relation to size of inner tepal		
QN		(a)	small	Elegance, Victor Borge	3
			medium		5
			large	Jazmine, Velvet Eyes	7
33.	33. (*)	VG	Inner tepal: shape of macule		
(+)		(a)	type 1		1
PQ			type 2	Costa	2
			type 3	Helvetia, Millenium	3
			type 4	Elegance, Pink Event, Zigeunerbaron	4
34.	34. (*)	VG	Inner tepal: main colour of macule		
(+) PQ		(a)	RHS Colour Chart (indicate reference number)		
35.	35.	VG	Inner tepal: secondary colour of macule		
(+) PQ		(a)	RHS Colour Chart (indicate reference number)		
36.	36.	VG	Inner tepal: margin of macule		
(+)		(a)	regular of slightly irregular	Hypnose, Jazmine	1
QN			moderately irregular	Helvetia, Traderhorn	2
			very irregular		3
37.	37. (*)	VG	Inner tepal: different colour of marginal zone		
QL		(a)	absent		1
			present	Priscilla, Nymph	9
38.	38.	VG/MS	Inner tepal: width of marginal zone		
(+)		(a)	narrow	Flevo Junior, Millenium, Pink Event	1
QN			medium		2
			broad	Priscilla	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
39.	39.	VG	Inner tepal: border of marginal zone		
(+)		(a)	slightly irregular		1
QN			moderately irregular	Priscilla	2
			very irregular		3
40.	40. (*)	VG	Inner tepal: colour of marginal zone		
PQ		(a)	RHS Colour Chart (indicate reference number)		
41.	41.	VG	Median inner tepal: attitude		
(+)		(a)	semi-erect	Charm, Jessica	1
QN			semi-erect to horizontal		2
			horizontal	Bonaire, Lady Godiva, Nymph	3
42.	42.	VG	Median inner tepal: attitude of apex		
(+)		(a)	moderately incurved	Candy, Lady Godiva	1
QN			straight	Praha, White Prosperity	2
			moderately reflexed	Charm, Nymph, Zoe	3
			strongly reflexed	Little Darling	4
43.	43. (*)	VG	Filament: main colour		
(+)			white	Bonaire, Nymph, White Friendship	1
PQ			light yellow	Corona	2
			light pink	Peter Pears, Spic and Span, Traderhorn	3
			medium pink	Bono's Memory	4
			light red	Jessica, Zigeunerbaron	5
44.	44. (*)	VG	Filament: small spots at base		
QL			absent	Charm, Zigeunerbaron	1
			present	Jessica, Nymph, Traderhorn	9

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
45.	45.	VG	Filament: colour of apex compared to main colour		
QN			same colour	Treasure, White Friendship, White Prosperity	1
			slightly different colour		2
			very different colour	Charm, Nymph, Traderhorn	3
46.	46.	VG	Anther: colour of connective		
(+)			white	White Friendship, White Prosperity, Zigeunerbaron	1
PQ			yellow white	Charm, Lady Godiva	2
			light yellow	Mykonos	3
			pink	Fire Bird, Helvetia, Peter Pears	4
47.	47.	VG	Anther: colour of stomium		
PQ			white	Nymph, White Friendship	1
			yellow	Costa	2
			orange		3
			red	Denisa	4
			pink purple	Jessica, Princess Margaret Rose, White Friendship	5
			bleu purple	Bonaire, Charm, Elegance	6
			violet		7
48.	48. (*)	VG	Style: main colour		
(+)			white	Eva, Nymph, Treasure	1
PQ			yellow	Elegance, Flevo Laguna, Mykonos, Pegasus	2
			yellow pink	Jessica, Peter Pears	3
			red	Zigeunerbaron	4
			violet		5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
49.	49.	VG	Style: colour of base		
(+)			white	Flevo Primo, Pegasus, Treasure, White Goddess	1
PQ			yellow white	Bonaire, Traderhorn, White Friendship, Zigeunerbaron	2
			yellow green	Nymph, White Prosperity	3
			pink	Excelsa	4
50.	50.	VG	Style: colour of branches		
(+)			white	Bonaire, Flevo Laguna, Lady Godiva, White Friendship	1
PQ			light yellow	Mykonos, Pegasus	2
			light pink	Groene Specht, Treasure	3
			medium pink	Charm, Elegance, Zigeunerbaron	4
			red	Princess Margaret Rose, Venetië	5
			violet		6
51.	51. (*)	VG	Corm: colour of flesh		
(+)			RHS Colour Chart		
PQ			(indicate reference number)		
52.	52.	VG/MG	Time of beginning of flowering		
(+)			very early	Charm, Jackpot, Leonore	1
QN			early	Fidelio, Groene Specht, Pegasus, Pink Event	3
			medium	Jessica, Nymph, Peter Pears	5
			late	Evening Sun, Princess Margaret Rose, White Prosperity	7
			very late	Carqueianne, Prelude	9

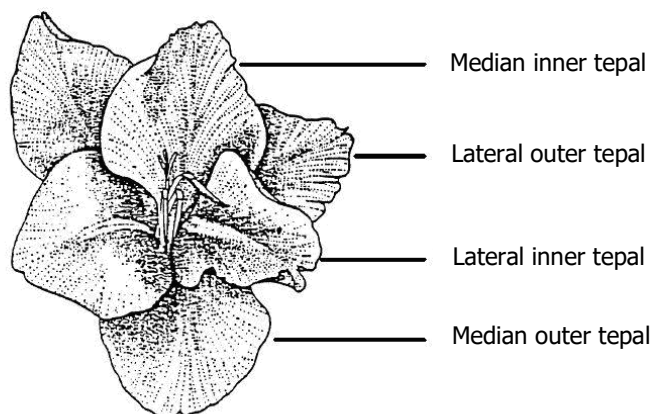
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

8.1 Explanations covering several characteristics

Observations should be made when the first flower is fading.

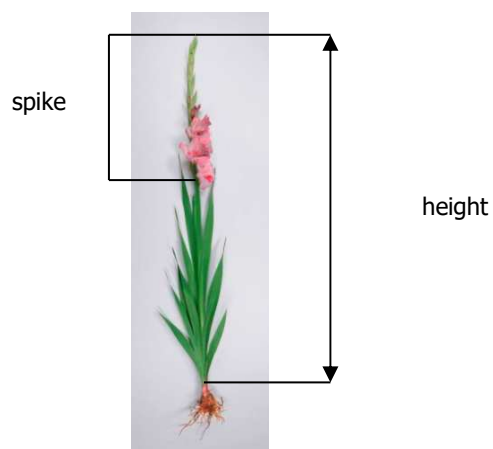
Characteristics containing the following key in the third column of the Table of Characteristics should be examined as indicated below

(a) Illustration of inner and outer tepals



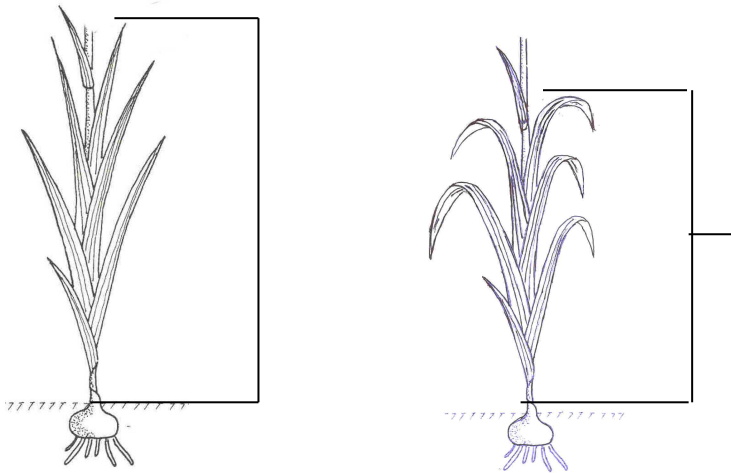
8.2 Explanations for individual characteristics

Ad. 1: Plant: height



Ad. 2: Foliage: height

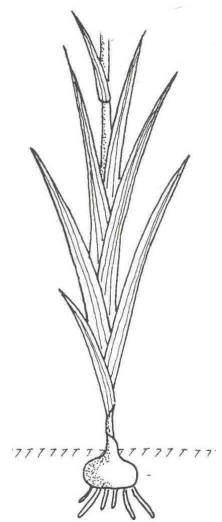
The height of the foliage is to be observed excluding bracts.



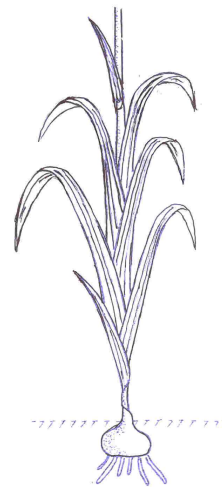
Ad. 3: Leaf: width

Observations on leaf width should be made on the second to last leaf.

Ad. 4: Leaf: curvature of distal half

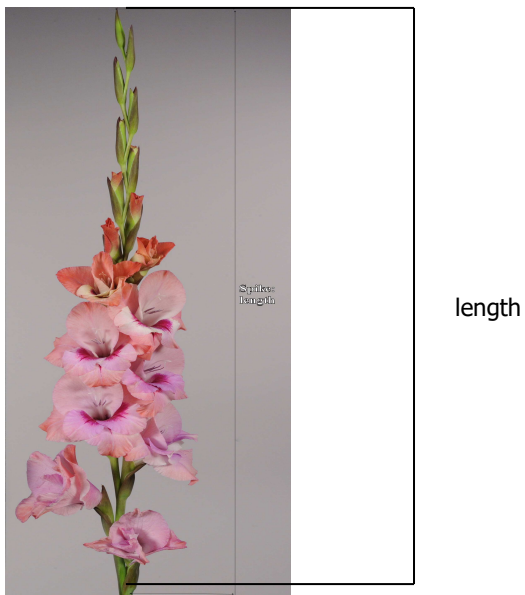


1
absent or very weak



7
strong

Ad. 6: Spike: length



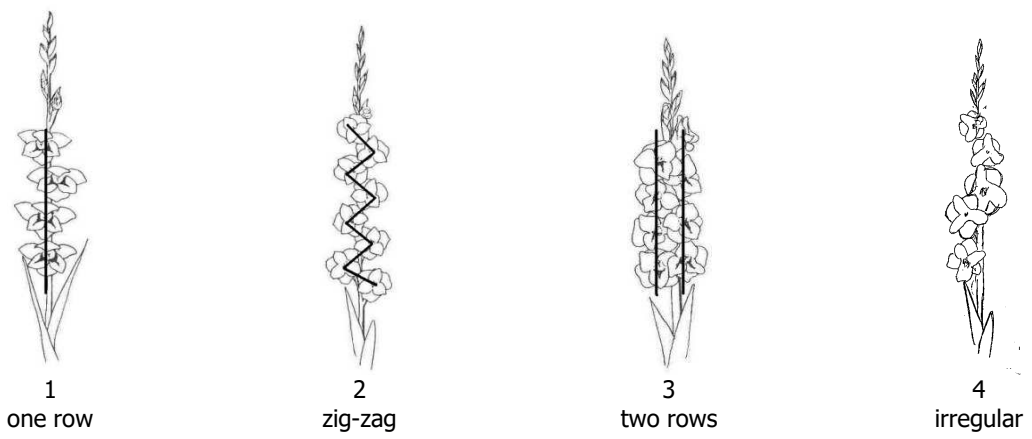
Ad. 7: Spike: number of flowers

All flowers including the closed buds.

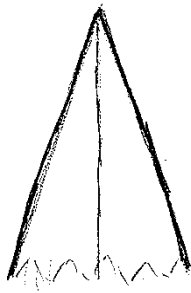
Ad. 8: Spike: number of open flowers

The observation should be made on all flowers which are fully open at the same time, including the first flower.

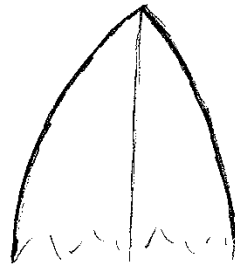
Ad. 10: Spike: arrangement of flowers



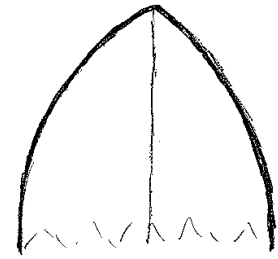
Ad. 11: Bract: shape of apex



1
acute



2
acute to obtuse

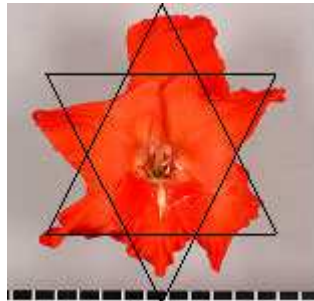


3
obtuse

Ad. 13: Flower: shape in front view



1
triangular



2
star-shaped



3
round

Ad. 14: Flower: attitude



1
upright



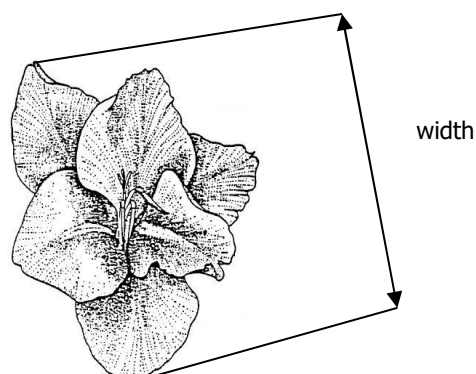
2
semi-upright



3
horizontal

Ad. 15: Flower: width

The broadest part of the flower should be observed.



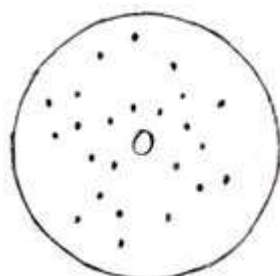
Ad. 16: Flower: main colour

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 lightest colour is considered to be the main colour.

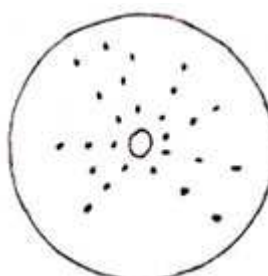
Ad. 17: Flower: shading of main colour

Only varieties with more than one colour.

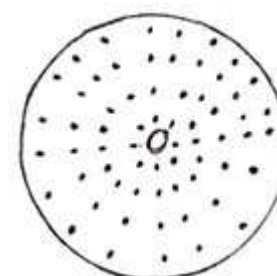
Ad. 20: Perianth tube: distribution of spots on inner side



1
irregular






2
interrupted band



3
continuous band

Ad. 23 Outer tepal: shape of blade

broadest part toward base		1 ovate
broadest part at the middle		2 elliptic
broadest part towards apex		3 obovate

Ad. 31 Inner tepal: position of macule



1
at base



2
between base and centre



3
central

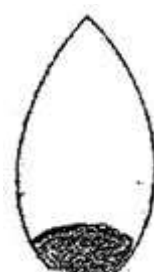
Ad. 33 Inner tepal: shape of macule



1
type 1



2
type 2



3
type 3



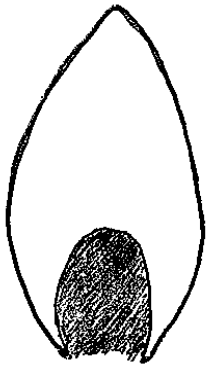
4
type 4

Ad. 34 Inner tepal: main colour of macule

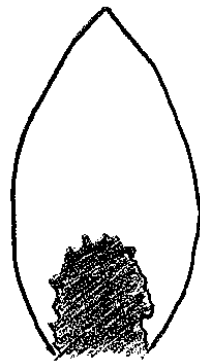
Ad. 35 Inner tepal: secondary colour of macule

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 lightest colour is considered to be the main colour.

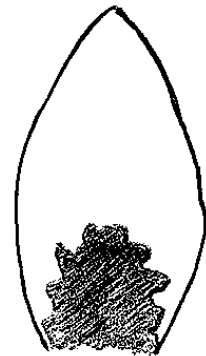
Ad. 36 Inner tepal: margin of macule



1
regular or slightly irregular

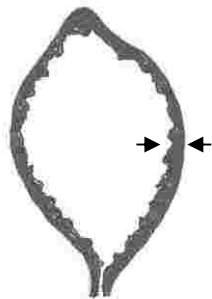


2
moderately irregular



3
strongly irregular

Ad. 38 Inner tepal: width of marginal zone



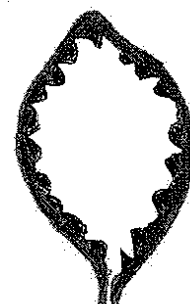
Ad. 39 Inner tepal: border of marginal zone



1
slightly irregular

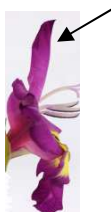


2
moderately irregular



3
very irregular

Ad. 41: Median inner tepal: attitude



1
semi-erect

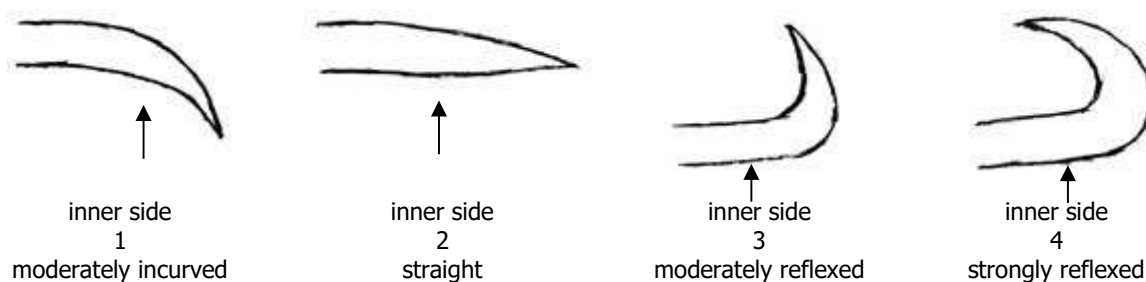


2
semi-erect to horizontal



3
horizontal

Ad. 42: Median inner tepal: attitude of apex



Ad. 43: Filament: main colour

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 lightest colour is considered to be the main colour. In cases where the areas of the secondary and tertiary colour are too similar to reliably decide which colour has the largest area, the lightest colour is considered to be the secondary colour.

Ad. 46: Anther: colour of connective

The connective is the tissue between the two parts of the anther.



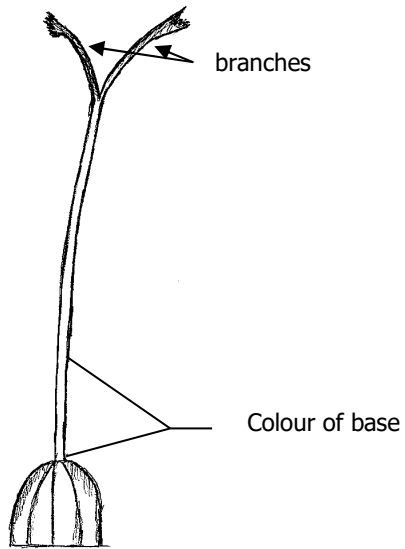
Ad. 48: Style: main colour

The main colour of the style should be observed without the basal part.

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 lightest colour is considered to be the main colour.

Ad. 49: Style: colour of base

Ad. 50: Style: colour of branches



Ad. 51: Corn: colour of flesh

For observation of the colour of the flesh, the corm must be cut in cross section.

Ad. 52: Time of beginning of flowering

Time of beginning of flowering is the time when 50 % of the plants have the first flower fully open.

9. LITERATURE

Baardse, A.A., 1972: Bloembollenteelt IV; de gladiool. Tjeenk Willink. Zwolle, NL

Bloembollenkeuringsdienst, 1984: Gladiolenstatistiek. Lisse, NL

Burge, A.A. et al., 1980: A Selected List of Gladiolus Varieties. NL

Delpierre, G.R., du Plessis, N.M., 1974: The wintergrowing Gladioli of South Africa. Tafelberg-Uitgewers Beperk, Capetown and Johannesburg and Nasionale Boekhandel (Publishers) Ltd., London, UK

Hamilton, A.P., 1976: The European Gladioli. Quart. Bull. Alp. Gard. Soc. 44(2). Wallington, UK

Lewis, G.J., Obermeyer, A.A., 1972: Gladiolus, a revision of the South African species. Purnell, Capetown, Johannesburg, London, New York

Nederlandse Gladiolus Vereniging, 1973: Kleurbeschrijvingslijst. Hillegom, NL

North American Gladiolus Council, 1980-86: A Selected List of Gladiolus Varieties. Sun City, AZ, USA

Raalte, D. van, 1965: Handboek voor de bloemisterij 2. Born uitg., Assen, Amsterdam, NL

10. TECHNICAL QUESTIONNAIRE

The Technical Questionnaire is available on the CPVO website under the following reference: CPVO-TQ/108/3