

ORIGINAL: English DATE: June 24, 2004

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

UPOV

GENEVA

DRAFT

ANTIRRHINUM^{*}

UPOV Code: ANTIR_MAJ

(Antirrhinum majus L.)

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by the Technical Working Party for Ornamental Plants and Forest Trees at its thirty-seventh session, to be held in Hanover, Germany, from July12 to 16, 2004

Alternative Names:*

Botanical	English	French	German	Spanish
Antirrhinum majus (L.)	Common snap dragon	Muflier, Gueule de loup, Gueule de lion	Löwenmaul	Boca de dragón

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These guidelines ("Test Guidelines") should be read in conjunction with document TG/1/3, "General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants" (hereinafter referred to as the "General Introduction") and its associated "TGP" documents..

^{*} These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

TABLE OF CONTENTS

1.	SUBJECT OF THESE TEST GUIDELINES	3
2.	MATERIAL REQUIRED	3
3.	METHOD OF EXAMINATION	3
	3.1 Duration of Tests	3
	3.2 Testing Place	3
	3.3 Conditions for Conducting the Examination	3
	3.4 Test Design	4
	3.5 Number of Plants / Parts of Plants to be Examined	4
	3.6 Additional Tests	4
4.	ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY	4
	4.1 Distinctness	4
	4.2 Uniformity	5
	4.3 Stability	5
5.	GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL	6
6.	INTRODUCTION TO THE TABLE OF CHARACTERISTICS	7
	6.1 Categories of Characteristics	7
	6.2 States of Expression and Corresponding Notes	7
	6.3 Types of Expression	7
	6.4 Example Varieties	7
	6.5 Legend	7
7.	TABLE OF CHARACTERISTICS/TABLEAU DES	
	CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES	8
8.	EXPLANATIONS ON THE TABLE OF CHARACTERISTICS	
	8.1 Explanations covering several characteristics	14
9.	EXPLANATIONS ON THE TABLE OF CHARACTERISTICS	
10.	LITERATURE	17
11.	TECHNICAL QUESTIONNAIRE	18

<u>PAGE</u>

1. <u>Subject of these Test Guidelines</u>

These Test Guidelines apply to all varieties of Antirrhinum majus L. of the family Scrophulariaceae.

2. <u>Material Required</u>

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seed or rooted cuttings.

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

- seed-propagated varieties: 600 seeds; preferably in 6 portions.
- vegetatively propagated varieties: 30 rooted cuttings

2.4 In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

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

3. <u>Method of Examination</u>

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".

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination. In particular, unless otherwise indicated, all observation should be made on flowering plants at the time of full flowering.

3.3.2 Because daylight varies, color determinations made against a color 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.

3.4 Test Design

3.4.1 In the case of seed-propagated varieties, each test should be designed to result in a total of at least 40 plants.

3.4.2 In the case of 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 Number of Plants / Parts of Plants to be Examined

3.5.1 In the case of seed-propagated varieties, unless otherwise indicated, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test.

3.5.2 In the case of vegetatively propagated varieties, unless otherwise indicated 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.

3.6 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. <u>Assessment of Distinctness, Uniformity and Stability</u>

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One

means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 For the assessment of uniformity of seed-propagated varieties which are self-pollinated, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 40 plants, 2 off-types area llowed.

4.2.3 For the assessment of uniformity of seed-propagated varieties which are cross-pollinated or hybrids, the recommendations in the General Introduction for cross-pollinated or hybrid varieties should be followed, as appropriate.

4.2.4 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 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed or plant stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

4.3.3 The stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

5. <u>Grouping of Varieties and Organization of the Growing Trial</u>

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: growth habit (characteristic 1)
- (b) Plant: attitude of shoot (characteristic 2)
- (c) Flower: form (characteristic 13)

(d) Upper petal: main color of upper side (characteristic 19) with the following groups:

Gr.1 white Gr.2 yellow Gr.3 orange Gr.4 red Gr.5 pink Gr.6 purple Gr.7 other color

(e) Lower petal: main color of upper side of cusp(characteristic 22) with the following groups:

Gr.1 white Gr.2 yellow Gr.3 orange Gr.4 red Gr.5 pink Gr.6 purple Gr.7 other color

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

6. <u>Introduction to the Table of Characteristics</u>

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

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

6.5 Legend

- (*) Asterisked characteristic see Section 6.1.2
- (QL) Qualitative characteristic see Section 6.3
- (QN) Quantitative characteristic see Section 6.3
- (PQ) Pseudo-qualitative characteristic see Section 6.3
- (a) (c) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1
- (+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

7. <u>Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres</u>

	English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
1. (*)	Plant: growth habit					
(+)	single stem					1
QL	bushy					2
2. (*) (+) QL	<u>Only varieties</u> <u>with bushy plant</u> growth habit: Plant: attitude of shoot					
	upright					1
	semi upright					2
	horizontal					3
	semi drooping					4
	drooping					5
3. (*)	Stem: length					
QN	short				Lared	3
	medium				Bridal Pink	5
	long				Napoleon Red	7
4. QN	Stem: anthocyanin coloration					
(a)	absent or very weak					1
	weak					3
	medium					5
	strong					7
	very strong					9

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
5.		Stem: position of branching					
QL		upper half					1
		lower half					2
		whole					3
6.		Stem: number of primary branches	5				
QN		few				Chihaya Yellow 1go	3
		medium				Yapear	5
		many				Sankisupink	7
7. (*)		Leaf: length					
QN	(b)	short				Lared	3
		medium				Bridal Pink	5
		long				Iyonokurenai	7
8. (*)		Leaf: width					
QN	(b)	narrow				Lared	3
		medium				Bridal Pink	5
		broad				Iyonokurenai	7
9. (*)		Leaf: variegation					
QL	(b)	absent					1
		present				Dancing Flame	9

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
10. (*) QN		<u>Only varieties</u> <u>with leaf</u> <u>variegation</u> <u>absent:</u> Leaf: intensity of green color of upper side					
	(b)	light					3
		medium				Lared	5
		dark				Yapear	7
11. QN		<u>Only varieties</u> <u>with single stem</u> <u>plant growth</u> <u>habit:</u> Inflorescence: length					
		short				Sankisupink	3
		medium				Iyonokurenai	5
		long				Napoleon Red	7
12. (+) QL		<u>Only varieties</u> <u>with single stem</u> <u>plant growth</u> <u>habit:</u> Inflorescence: density					
		sparse					1
		medium				Bridal Pink	2
		dense				Bridal White	3
13. (*) (+)		Flower: form					
QL	(c)	zygomophic					1
		radiate					2

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
14. (*)		Flower: type					
QL	(c)	single					1
		double					2
15. (*) (+)		Flower: length					
QN	(c)	short				Lared	3
		medium				Bridal Pink	5
		long				Napoleon Red	7
16. (*) (+)		Flower: width					
QN	(c)	narrow				Lared	3
		medium				Bridal Pink	5
		broad					7
17. (+)		Upper petal: width of lobes					
QN	(c)	narrow				Lared	3
		medium				Bridal Pink	5
		broad					7
18. QN		Upper petal: intensity of violet veining	t				
	(c)	absent or weak					1
		weak					3
		medium					5
		strong					7
		very strong					9

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
19. (*)		Upper petal: main color of upper side	l				
PQ	(c)	RHS Colour Chart (indicate reference number)					
20.		Upper petal: main color of lower side	l ;				
PQ	(c)	RHS Colour Chart (indicate reference number)					
21. (+)		Lower petal: width of middle lobe					
QN	(c)	narrow				Lared	3
		medium				Chihaya Yellow 1go	5
		broad				Bridal Pink	7
22. (*) (+)		Lower petal: main color of upper side of cusp					
PQ	(c)	RHS Colour Chart (indicate reference number)					
23.		Lower petal: main color of lower side of cusp					
PQ	(c)	RHS Colour Chart (indicate reference number)					
24. (*) (+)		Lower petal: main color of upper side of base					
PQ	(c)	RHS Colour Chart (indicate reference number)					

		English	français	Deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Not e/ Not a
25. (*) (+)		Lower petal: spot	ţ				
QL	(c)	absent					1
		present					9
26.		Lower petal: size of spot					
QN	(c)	very small					1
		small					3
		medium					5
		large					7
		very large					9
27.		Lower petal: color of spot					
PQ	(c)	RHS Colour Chart (indicate reference number)					
28.		Corolla tube: color of outer side	e				
PQ	(c)	RHS Colour Chart (indicate reference number)					
29.		Time of flowering	5				
QN	(c)	very early					1
		early					3
		medium					5
		late					7
		very late					9

- 14 -

8. <u>Explanations on the Table of Characteristics</u>

8.1 Explanations covering several characteristics

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

- (a) Observations on the stem to be made on the middlepart of main stem
- (b) Observations on the leaf to be made on leaves on the middle part of main stem
- (c) Observations on the flower to be made on the second flower to open

8.2 Explanations for individual characteristics

Ad. 1: Plant: growth habit



1 2 single stem bushy

Ad. 2: Plant: attitude of shoot



1 upright

2 semi upright

3 horizontal

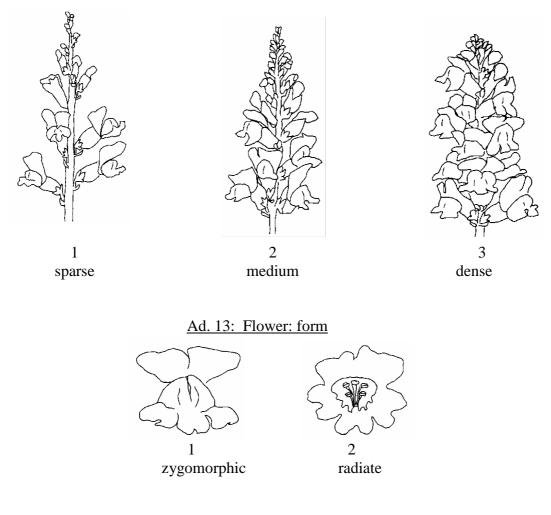
4 semi drooping

5

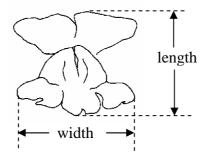
drooping

- 15 -

Ad. 12: Inflorescence: density



Ad. 15: Flower: length Ad. 16: Flower: width



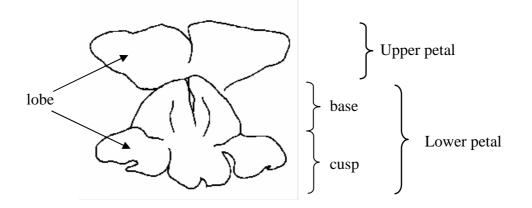
- 16 -

Ad. 17: Upper petal: width of lobe

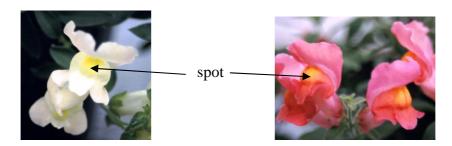
Ad. 21: Lower petal: width of middle lobe

Ad. 22: Lower petal: main color of upper side of cusp

Ad. 24: Lower petal: main color of upper side of base



Ad. 25: Lower petal: spot



9. <u>Literature</u>

- 18 -

10. <u>Technical Questionnaire</u>

TEC	CHNICAL QUESTIONNAIR	E	Page {x} of {y}	Reference Number:					
				Application date: (not to be filled in by the applicant)					
	TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights								
1.	Subject of the Technical Qu	esti	ionnaire						
	1.1 Botanical name	An	tirrhinum majus L.						
	1.2 Common name	Sna	ap dragon						
2.	Applicant								
	Name								
	Address								
	Telephone No.								
	Fax No.								
	E-mail address								
	Breeder (if different from a	opli	cant)						
	L								
3.	Proposed denomination and	bre	eeder's reference		-				
	Proposed denomination								
	(if available)								
	Breeder's reference								

- 19 -

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
[#] 4. Information on the breeding sci	heme and propagation of	of the variety
4.1 Breeding scheme		
Variety resulting from:		
4.1.1 Crossing		
(a) controlled c		[]
(please state (b) partially kn	e parent varieties) own cross	[]
(please state (c) unknown cr	e known parent variety(oss	ies))
4.1.2 Mutation		
(please state pare	nt variety)	[]
4.1.3 Discovery and de (please state when	velopment e and when discovered	[] and how developed)
4.1.4 Other (please provide d	etails)	[]
4.2 Method of propagating th	e variety	
4.2.1 Vegetative propa	gation	
 (a) cuttings (b) <i>in vitro</i> proj (c) other (state) 		[] [] []
4.2.2 Seed		[]

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

- 20 -	
--------	--

TECI	HNICAL QUESTIONNAIRE Pa	ge {x} of {y}	Reference Number:		
5. corre	Characteristics of the variety to esponding characteristic in Test Guid				
	Characteristics		Example Varieties	No	te
5.1 (1)	Plant: growth habit				
	sngle stem			1[]
	bushy			2[]
5.2 (2)	Only varieties with bushy plant growth	h habit: Plant: attitu	de of shoot		
	upright			1[]
	semi upright			2[]
	horizontal			3[]
	semi drooping			4[]
	drooping			5[]
5.3 (13)	Flower: form				
	zygomorphic			1[]
	radiate			2[]
5.4 (19)	Upper petal: main color of upper side				
	RHS Colour Chart (indicate reference nu	mber)			
5.5 (22)	Lower petal: main color of upper cusp)			
	RHS Colour Chart (indicate reference nu	mber)			

- 21 -

TECHNICAL QUESTIONNAIRE	Page $\{x\}$ of $\{y\}$	Reference Number:

6. Similar varieties and differences from these varieties

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

Denomination(s) of	Characteristic(s) in	Describe the expression	Describe the
variety(ies) similar to	which your candidate	of the characteristic(s)	expression of the
your candidate variety	variety differs from the	for the similar	characteristic(s) for
	similar variety(ies)	variety(ies)	your candidate variety
Example	Plant: height	short	medium

Comments:

- 22 -

TEC	HNICAL QUESTIONNAIRE	Page $\{x\}$ of $\{y\}$	Reference Number:		
[#] 7.	Additional information which may help in the examination of the variety				
7.1	In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?				
	Yes []	No []			
	(If yes, please provide details)				
7.2	2 Are there any special conditions for growing the variety or conducting the examination?				
	Yes []	No []			
	(If yes, please provide details)				
7.3	3 Other information				
A representative color photograph of the variety should accompany the Technical Questionnaire.					
8.	Authorization for release				
	(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?				
	Yes []	No []			
	(b) Has such authorization been obtained?				
	Yes []	No []			
	If the answer to (b) is yes, please attach a copy of the authorization.				

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

- 23 -

TECHNICAL QUESTIONNAIRE	Page $\{x\}$ of $\{y\}$	Reference Number:

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

	(a)	Microorganisms (e.g. virus, bacteria, phytoplasm	na)	Yes []	No []
	(b)	Chemical treatment (e.g. growth retardant, pestic	cide)	Yes []	No []
	(c)	Tissue culture		Yes []	No []
	(d)	Other factors		Yes []	No []
	Please provide details of where you have indicated "yes".				
10. I hereby declare that, to the best of my knowledge, the information provided in this form s correct:					
	Appl	icant's name			
	Signa	ature	Date		

[End of document]