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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

MARIGOLD

(*Tagetes* L.)

*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

to be considered by the
Technical Working Party for Ornamental Plants and Forest Trees
at its thirty-sixth session,
to be held in Niagara Falls, Canada, from September 22 to 26, 2003

Alternative Names:*

Latin	*English*	*French*	*German*	*Spanish*
Tagetes L.	Marigold	Tagète, Oeillet d'Inde, Rose d'Inde	Sammetblume	Clavel de las Indias, Clavelón

ASSOCIATED DOCUMENTS

These 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.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Tagetes* L. of the family *Asteraceae* (Compositae).

2. Material Required

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

2.2 The material is to be supplied in the form of seeds and rooted cuttings.

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

- seed-propagated varieties: 5 grams of seed
- vegetatively-propagated varieties: 25 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. Method of Examination

3.1 Duration of Tests

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

3.2 Testing Place

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be observed at that place, the variety may be tested at an additional place.

3.3 Conditions for Conducting the Examination

3.3.1 The test 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 observations should be made 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 60 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

For 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.

3.6 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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, a population standard of 3% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 4 off-types are allowed.

4.2.3 For the assessment of uniformity of hybrid seed-propagated and 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.

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 is 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 3)
(b) Flower head: type (characteristic 14)
(c) Inflorescence: number of colors (characteristic 19)

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

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

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

6.1.2 Asterisked Characteristics

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

6.2 States of Expression and Corresponding Notes

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

6.3 Types of Expression

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

6.4 Example Varieties

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

6.5 Legend

(QL) Qualitative characteristic – see Section 6.3
(QN) Quantitative characteristic – see Section 6.3
(PQ) Pseudo-qualitative characteristic – see Section 6.3

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	**Hypocotyl: anthocyanin coloration**					
QL	absent					1
	present					9
2.	**Hypocotyl: distribution of anthocyanin coloration**					
QN	on one third					1
	on half part					2
	entirely					3
3.	**Plant: height**					
QN	very short				Cupidon, Golden boy	1
	short				Mistral, Spry	3
	medium				Monsieur Majestic, Golden, Jubilee	5
	tall				Sourire, Jaune supreme	7
	very tall				Orange prince, Lemon queen	9
4.	**Plant: shape**					
(+)	bushy					1
PQ	globular					2
	compact					3
5.	**Plant: branching**					
QN/	single stem					1
PQ	weak					2
	strong				Pumila	3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	**Stem: anthocyanin coloration**					
QN	absent or very weak					1
	weak					3
	medium					5
	strong					7
	very strong					9
7.	**Leaf: type**					
QL	pinnate					1
	single					2
8.	**Leaf: length**					
(+)	short					3
QN	medium					5
	long					7
9.	**Leaf: width**					
(+)	very narrow					1
QN	narrow					3
	medium					5
	broad					7
	very broad					9
10.	**Leaf: intensity of green color**					
QN	light					3
	medium					5
	dark					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11.	**Leaf: shape of leaflets**					
PQ	narrow lanceolate					1
	lanceolate					2
12.	**Stipule: length**					
QN	small					3
	medium					5
	long					7
13.	**Stipule: anthocyanin coloration**					
QL	absent					1
	present					9
14.	**Flower head: type**					
QL	simple					1
	semi-double					2
	double					3
15.	**Inflorescence: flower type**					
PQ	all tubulate					1
	tubulate and ligulate					2
	all ligulate					3
	tubuligulate and ligulate					4
	all tubuligulate					5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	**Inflorescence: diameter**					
QN	very small					1
	small					3
	medium					5
	large					7
	very large					9
17.	**Terminal flower head: length of peduncle**					
QN	short					3
	medium					5
	long					7
18.	**Inflorescence: number of ray floret whorls**					
QN	few					3
	medium					5
	many					7
19.	**Inflorescence: number of colors**					
QL	self-colored				Tangerine orange, Vanilla	1
	bicolored				Monsieur Majestic, Bee	9

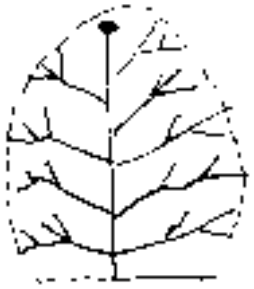
	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20.	**Flower: color of upper side**					
PQ	cream				Vainilla, Blanca	1
	pale yellow				Banza gelb	2
	dark yellow				Excel gelb	3
	pale orange				Inca orange	4
	orange				Tangerine orange	5
	red					6
	brown					7
21.	**Two colored varieties only: Ligulate flower: secondary color**					
PQ	cream				Vainilla, Blanca	1
	pale yellow				Aurora	2
	dark yellow				Granada	3
	pale orange					4
	orange					5
	red					6
	brown					7
22.	**Two colored varieties only: distribution of color**					
QL	uniform				Queen Sophia	1
	different between tubulate and ligulate flowers				Bonanza spray	2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
23. (+)	**Ray floret: distribution of color**					
PQ	border				Espanared Marietta	1
	solid flush				Monsieur Majestic	2
	partly colored				Sevilla bicolour ro gelb	3
24. (+)	**Two colored varieties only (type I): Ray floret: width of margin**					
QN	very narrow				Scarlet Sophia	1
	narrow				Discoflamme, Red Marietta	3
	medium				Pascal	5
	broad				Granada, Sophia yellow	7
	very broad				Aurora jaune	9
25.	**Ray floret: attitude of longitudinal axis**					
QN	erect					1
	semi-erect					2
	drooping					3
26.	**Ray floret: length of corolla tube**					
QN	short					3
	medium					5
	long					7
27.	**Ray floret: corolla margin**					
QL	continuous					1
	discontinuous					2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
28.	**Ray floret: depth of margin discontinuous**					
QN	very shallow					1
	shallow					3
	medium					5
	deep					7
	very deep					9
29.	**Ray floret: margins continuous: shape of apex**					
QL	round					1
	flat					2
30.	**Outer ray floret: length**					
QN	short					3
	medium					5
	long					7
31.	**Outer ray floret: width**					
QN	narrow					3
	medium					5
	broad					7
32.	**Flowering: time of beginning of flowering**					
QN	early				Double Mistral, Heroflame	3
	medium				Cupidon double, Aurora Fold	5
	late				Inca yellow, Discovery orange	7

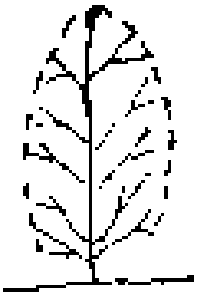
8. Explanations on the Table of Characteristics

Ad. 4: Plant: shape



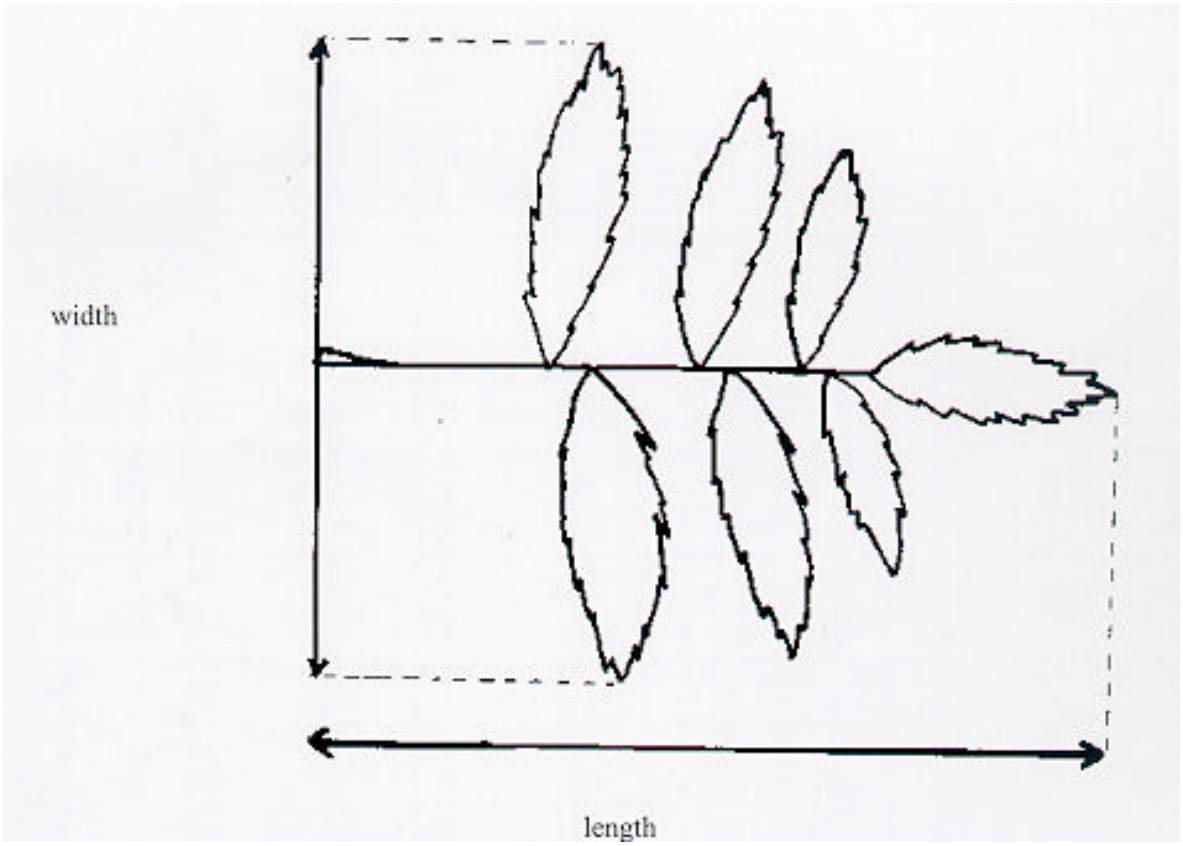
1
bushy

2
globular

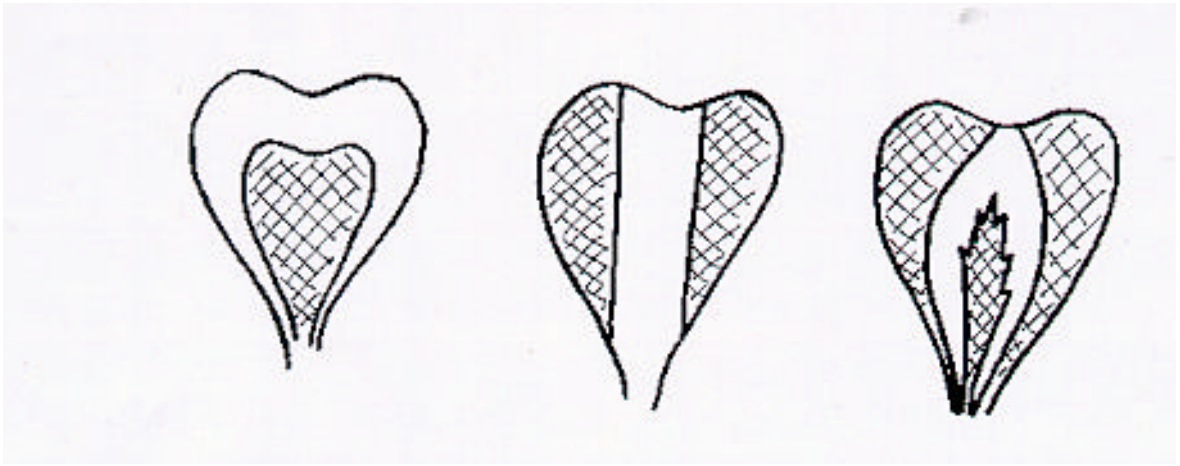


3
compact

Ad. 8: Leaf: length
Ad. 9: Leaf: width

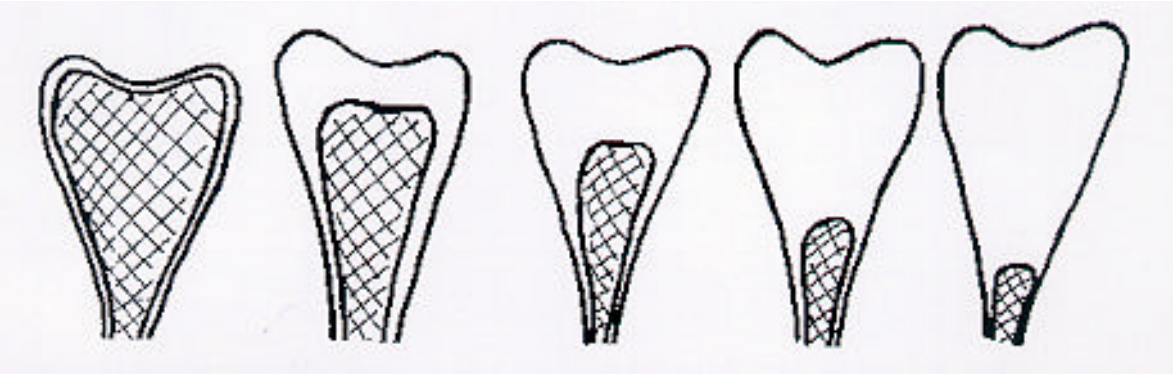


Ad.23: Ray floret: distribution of color



1	2	3
border	solid flush	partly colored

Ad.24: Two colored varieties only (Type I): ray floret: width of margin



1	3	5	7	9
very narrow	narrow	medium	broad	very broad

9. Literature

10. Technical Questionnaire

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

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.

1. Subject of the Technical Questionnaire

1.1 *Latin Name*	*Tagetes* L.
1.2 Common Name	Marigold

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

[Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)
(b) partially known cross [ ]
(please state known parent variety(ies))
(c) totally unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery [ ]
(please state where, when and how developed)

4.1.4 Other [ ]
(please provide details)]

4.2 Method of propagating the variety

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example		*(example to be inserted)*	*(example to be inserted)*

Comments:

TECHNICAL 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 Special conditions for the examination of the variety

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

Yes [ ] No [ ]

7.2.2 If yes, please give details:

7.3 Other information

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.

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

9. Information on plant material to be examined.

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

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

(a) Microorganisms (e.g. virus, bacteria, phytoplasma) Yes [ ] No [ ]

(b) Chemical treatment (e.g. growth retardant or pesticide) 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 is correct:

Applicant’s name

Signature Date

[End of document]