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**INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS**  
GENEVA

**TECHNICAL WORKING PARTY  
FOR  
ORNAMENTAL PLANTS AND FOREST TREES**

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WORKING PAPER ON TEST GUIDELINES FOR TAGETES (*Tagetes* L.)

*Document prepared by experts from France, Germany and Mexico*

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I. Subject of these Guidelines

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

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material required for testing the variety is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must make sure that all customs formalities are complied with. As a minimum, the following quantity of plant material is recommended:

5 grams of seed for seed propagated varieties, and  
25 rooted cuttings for vegetatively propagated varieties.

2. The plant material supplied should be visibly healthy, not lacking in vigor or affected by any important pests or diseases.

3. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

III. Conduct of Tests

1. A test should normally be conducted for one growing period. If distinctness and/or uniformity cannot be sufficiently established in one growing period, the test should be extended for a second growing period.

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. The tests should be carried out under conditions ensuring normal growth. The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing period. Each test should include a total of 60 plants for seed propagated varieties and 20 plants for vegetatively propagated varieties. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Additional tests for special purposes may be established.

IV. Methods and Observations

1. All observations determined by measurement or counting should be made on 20 plants or parts taken from each of 20 plants at the time of full flowering.

2. For the assessment of uniformity of open pollinated 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, the maximum number of off-types allowed would be 4.
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, the maximum number of off-types allowed would be 1.
4. 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 tolerance set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

## V. Grouping of Varieties

1. The collection of varieties to be grown should be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety. Their various states of expression should be fairly evenly distributed throughout the collection.
2. It is recommended that the competent authorities use the following characteristics for grouping varieties:
  - (a) Plant: height (characteristic 2)
  - (b) Flower head: general shape (characteristic 14)
  - (c) Inflorescence: number of colors (characteristic 22)
  - (d) Flower: color of upper side (characteristic 23)

## VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.
2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of expression for each characteristic.
3. Legend
  - (\*) Characteristics that should be used on all varieties in every growing period over which examinations are made and always be included in the variety descriptions, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible.
  - (+) See Explanations on the Table of Characteristics in Chapter VIII.

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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>0. Ploidy</b>	<b>Ploïdie</b>				
diploid	diploïde			Monsieur Majestic, Tangerine orange	2
triploid	triploïde			Red seven star, Fire work, Zenith yellow	3
<b>Proposal to delete, France to check</b>					
<b>1. Hypocotyl: anthocyanin coloration</b>	<b>Hypocotyle: coloration anthocyanique</b>				
absent	absent				
on one third	le tiers coloré				
on half part	la moitié colorée				
entirely	entièrement				
<b>2. Plant: height (<i>with or without inflorescence</i> ?)</b> (*)	<b>Plante: hauteur</b>				
very short	très basse			Cupidon, Golden boy	1
short	basse			Mistral, Spry	3
medium	moyenne			Monsieur Majestic, Golden, Jubilee	5
tall	haute			Sourire, Jaune suprême	7
very tall	très haute			Orange prince, Lemon queen	9
<b>Example varieties for (9) by FleuroSelect (2,00 m)</b>					
<b>3. Plant: growth habit</b> (*)	<b>Plante: port</b>				
very branched	très ramifié			Pumila	1
branched	ramifié				2
globular	globuleux			Gnorn, Discovery orange	3
compact	compact				4
<b>To be replaced by ch. 3.bis and 4 (?)</b>					

English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
<b>3.bis Plant: branching</b>	<b>Plante: ramification</b>				
single stem	unitige				1
slightly branched	légèrement ramifiée				2
strongly branched	fortement ramifiée			Pumila	3
<b>4. Plant: shape</b> (+)	<b>Plante: forme</b>				
bushy	buissonnant				
?	?				
?	?				
<b>Drawings to be proposed by France, Mexico, FleuroSelect.</b>					
<b>5. Stem: anthocyanin coloration</b>	<b>Tige: coloration anthocyanique</b>				
absent or very weak	absente ou très faible				
weak	faible				
medium	moyenne				
strong	forte				
very strong	très forte				
<b>6. Leaf: type</b> (* (+)	<b>Feuille: type</b>				
pennate	penné			<i>Tagetes erecta et patula</i> type	1
<u>???</u> and lanceolate	simple et lancéolé			<i>Tagetes lucida</i> type	2
denticulate in narrow stripes	découpé en lanières étroites			<i>Tagetes tenuifolia</i> type	3
<b>Diagrams and Example Varieties to be added by France. Check "simple". To be included into T.Q.?</b>					
<b>7. Leaf: length</b> (+)	<b>Feuille: longueur</b>				
short	courte				3
medium	moyenne				5
long	longue				7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>8.</b>	<b>Leaf: width</b>	<b>Feuille: largeur</b>			
(*)					
(+)					
	very narrow	très étroite			1
	narrow	étroite			3
	medium	moyenne			5
	broad	large			7
	very broad	très large			9
<b>9.</b>	<b>Leaf: intensity of green color</b>	<b>Feuille: intensité de la couleur</b>			
	light	claire		Fework jaune	3
	medium	moyenne			5
	dark	foncée		Bonanza gelb	7
<b>10.</b>	<b>Leaf: shape of leaflets</b>	<b>Feuille: forme des folioles</b>			
(+)					
	narrow lanceolate	lancéolée étroite			1
	lanceolate	lancéolée			2
	?	?			3
<b>11.</b>	<b>Leaf: aroma</b>	<b>Feuille: arôme</b>			
	absent	absent		Hawaiï	1
	present	présent		Cupidon double	2
<b>11.bis</b>	<b>Leaf: oil glands at lower side</b>	<b>Feuille: glandes à essence sur la face inférieure</b>			
	absent	absent			1
	scarce	peu abondant			3
	medium	moyenne			5
	numerous	nombreuses			7

**To be checked by France and Mexico.**

**To be checked: Number of nodes along stem; Leaf: number of leaflet (<7, 7-10, >10); Leaf: serration.**

English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
<b>12. Stipule: length</b>	<b>Stipule: longueur</b>				
short	courte				3
medium	moyenne				5
long	longue				7
<b>13. Stipule: anthocyanin coloration</b>	<b>Stipule: coloration anthocyanique</b>				
absent	absente				1
present	présente				9
<b>14. Flower head: (* +) general shape</b>	<b>Inflorescence: forme générale</b>				
?	nid d'abeille				1
carnation flower	à fleur d'œillet				2
chrysanthemum flower	à fleur de chrysanthème				3
scabious flower	à fleur de scabieuse				4
flat	plat				5
<b>15. Flower head: type (* +)</b>	<b>Inflorescence : type</b>				
simple ( <i>flat ?</i> )	simple ( <i>plate ?</i> )				1
semi double ( <i>scabious ?</i> )	semi double ( <i>scabieuse ?</i> )				2
double ( <i>flat and liguled ?</i> )	double ( <i>plate et ligulée ?</i> )				3
<b>Ch. 14 and 15 to be checked by France and Mexico to define a synthetic proposal.</b>					
<b>16. Inflorescence: (* +) flower type</b>	<b>Capitule: type de fleurs</b>				
all tubulate	toutes tubulées			Orange prim, Lemon queen	1
tubulate and liguled	tubulées et ligulées			Little hero spry	2
all liguled	toutes ligulées				3



English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>17. Inflorescence: (*) (+) diameter</b>	<b>Capitule: diamètre</b>				
very small	très petite			Ornament, Tangerine gem	1
small	petite			Disco orange	3
medium	moyenne			Bonanza harmony, Aurora orange	5
large	grande			Queen bee	7
very large	très grande			Red seven star	9
<b>18. Terminal flower (+) head: length of peduncle</b>	<b>Inflorescence terminale: longueur du pédoncule</b>				
short	court				3
medium	moyen				5
long	long				7
<b>19. Flower head: height (+) from point of attachment of involucral</b>	<b>Inflorescence: hauteur à partir du point d'insertion de l'involucre</b>				
short	court				3
medium	moyen				5
long	long				7
<b>20. <u>Tubular and liguled flowers varieties</u> only: Inflorescence: number of ray floret whorls</b>	<b><u>Seulement pour variétés à fleurs tubulées et ligulées:</u> Capitule : nombre de couronnes de fleurs ligulées</b>				
one	une			Monsieur Majestic, Disco orange	1
several	plusieurs			Little hero s pry, Bonanza bee	2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>21. <u>Semi-double varieties only:</u> Flower head: number of rows of ray floret</b>	<b><u>Seulement pour les variétés semi doubles:</u> Inflorescence: nombre de rangs de fleurs</b>				
few	peu				3
medium	moyen				5
many	beaucoup				7
<b>22. (*) Inflorescence: number of colors</b>	<b>Capitule: nombre de couleurs</b>				
self-coloured	unicolore			Tangerine orange, Vanilla	1
two-coloured	bicolore			Monsieur Majestic, Bee	2
<b>23. (*) Flower: color of upper side</b>	<b>Inflorescence: couleur de la face supérieure</b>				
cream	crème			Vanilla, Blanca	1
pale yellow	jaune pâle			Bonanza gelb	2
dark yellow	jaune foncé			Excel gelg	3
pale orange	orange pâle			Inca orange	4
orange	orange			Tangerine orange	5
red	rouge acajou				6
brown	brun acajou				7
<b>Or indicate RHS Colour chart ?</b>					

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>24. (*)</b>	<b><u>Two-colored varieties only:</u></b> <b>Liguled flower:</b> <b>secondary color</b>	<b><u>Seulement pour variétés bicolores:</u></b> <b>Fleur ligulée:</b> <b>couleur secondaire</b>			
	cream	crème		Vanilla, Blanca	1
	pale yellow	jaune pâle		Aurora	2
	dark yellow	jaune foncé		Granada	3
	pale orange	orange pâle			4
	orange	orange			5
	red	rouge acajou		Bonanza harmony	6
	brown	brun acajou			7
<b>Or indicate RHS Colour chart ?</b>					
<b>25. (*)</b>	<b><u>Two-colored varieties only:</u></b> <b>Flower: distribution of colors</b>	<b><u>Seulement pour variétés bicolores:</u></b> <b>Fleur: répartition des couleurs</b>			
	uniform	uniforme sur tout le capitule		Queen Sophia	1
	different between tubulate and ligulate flowers	différence entre fleurs tubulées et ligulées		Bonanza sprag	2
<b>26. (*)</b> <b>(+)</b>	<b>Ray floret:</b> <b>distribution of colors</b> <b><u>..?..</u></b>	<b>Fleur ligulée:</b> <b>répartition des couleurs</b> <b>Unie ??</b>			
	edged	bordée (type 1)		Espanared marietta	1
	solid flush	zonée (type 2), <b><u>en plages continues ??</u></b>		Monsieur Majestic	2
	partly colored	panachée (type 3)		Sevilla bicolour rot gelb	3
<b>“Unie” to be checked by France.</b>					

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>27.</b>	<b><u>Two-colored ray</u></b>	<b><u>Variétés bicolores</u></b>			
(*)	<b><u>floret of type 1</u></b>	<b><u>avec des ligules de</u></b>			
(+)	<b><u>varieties only: Ray</u></b>	<b><u>type 1 seulement:</u></b>			
	<b>floret: width of margin</b>	<b>Ligule: largeur de la bordure</b>			
	very narrow	très étroite		Scarlet sophia	1
	narrow	étroite		Discoflamme, Red marietta	3
	medium	moyenne		Pascal	5
	broad	large		Granada, Sophia yellow	7
	very broad	très large		Aurora jaune	9
<b>Ch. 27 to 42 to be checked by Mexico.</b>					
<b>28.</b>	<b>Ray floret:</b>	<b>Fleur ligulée: axe</b>			
(+)	<b>longitudinal axis of majority of ray florets</b>	<b>longitudinal de la majorité des ligules</b>			
	reflexing	réfléchi			1
	straight	droit			2
	broken	brisé			3
<b>29.</b>	<b>Ray floret: length of corolla tube</b>	<b>Fleur ligulée: longueur du tube de la corolle</b>			
(+)					
	short	courte			3
	medium	moyenne			5
	long	longue			7
<b>30.</b>	<b>Ray floret: corolla margins</b>	<b>Fleur ligulée: couleur des bordures</b>			
(+)					
	continuous	continue			1
	discontinuous	discontinue			2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>31.</b>	<b><u>Margins discontinuous varieties only:</u> Ray floret: discontinuous degree in corolla</b>	<b><u>Seulement les variétés à bordures discontinues:</u> Fleur ligulée: ??</b>			
(+)					
	very low				1
	low				3
	medium				5
	high				7
	very high				9
<b>32.</b>	<b><u>Margins discontinuous varieties only:</u> Ray floret: shape of apex</b>	<b><u>Seulement les variétés à bordures discontinues:</u> Fleur ligulée: forme de ??</b>			
	round				1
	flat				2
<b>33.</b>	<b>Outer ray floret: length</b>	<b>Ligule externe: longueur</b>			
	short				1
	medium				2
	long				3
<b>34.</b>	<b>Outer ray floret: width</b>	<b>Ligule externe: largeur</b>			
	narrow				1
	medium				2
	broad				3
<b>35.</b>	<b>Ray floret: ratio length/width</b>	<b>Ligule: rapport longueur/largeur</b>			
	low				1
	medium				2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>36. <u>Double varieties or single with flower head coalescing only</u>: Ray floret: shape of inner and outer ray florets</b>					
same	même				1
different	différent				2
<b>37. <u>Double varieties or single with flower head coalescing only</u>: Ray floret with difference between inner and outer ray florets: ray florets length of central ray floret</b>					
short	court				1
medium	moyen				2
long	long				3
<b>38. <u>Double varieties or single with flower head coalescing only</u>: Ray florets: ratio length outer and inner ray floret</b>					
low	bas				1
medium	moyen				2
high	haut				3
<b>39. Ray floret: color of outer side of majority of ray floret</b>					
white	blanc				1
yellow	jaune				2
orange	orange				3

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
<b>40. <u>Yellow varieties</u> <u>only: Ray floret:</u> <b>color of outer side of majority of ray floret</b></b>					
RHS Colour Chart (indicate reference number)					
<hr/>					
<b>41. <u>Orange varieties</u> <u>only: Ray floret:</u> <b>color of outer side of majority of ray floret</b></b>					
RHS Colour Chart (indicate reference number)					
<hr/>					
<b>42. <u>Receptacle: shape at flowering</u></b>					
<hr/>					
<b>Ch. 27 to 42 to be checked by Mexico.</b>					
<hr/>					
<b>43. <u>Time of beginning (* of flowering</u></b>	<b>Floraison: précocité</b>				
early	précoce		Double mistral, Heroflame	3	
medium	moyenne		Cupidon double, Aurora fold	5	
late	tardive		Inca yellow, Discovery orange	7	
<hr/>					

**Example varieties to be added:**

- by Mexico for characteristics: 1, 5, 10, 11bis, 13, 18, 19, 21, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39;
- by France for characteristics: 23 (6 and 7), 24 (4, 5, 7), 26;
- by FleuroSelect for characteristics: 2 (9).

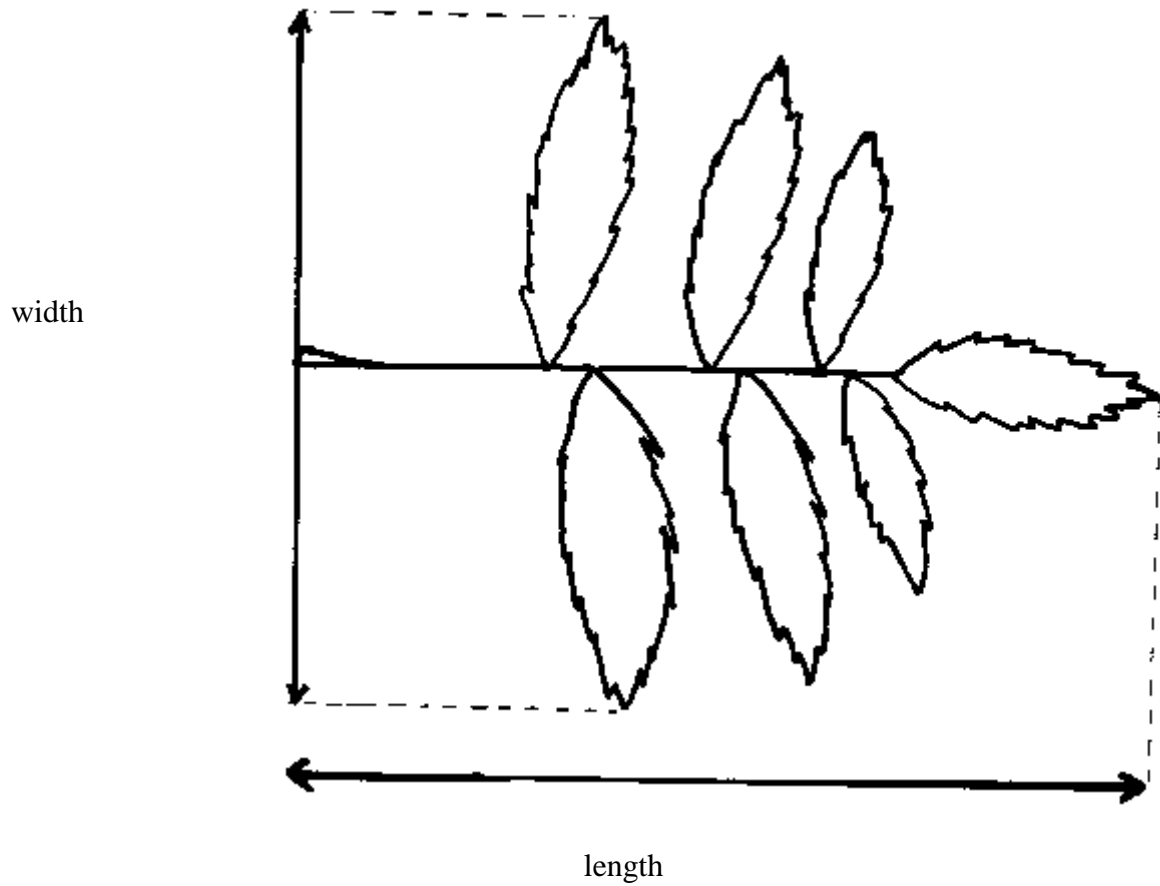
**Diagrams to be added:**

- by France for characteristics: 3, 4, 16, 17;
- by Mexico for characteristics: 4, 10, 18, 19, 28, 29, 30, 31, 32, 36.

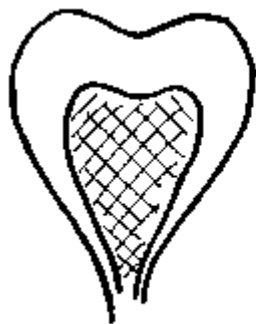
VIII. Explanations on the Table of Characteristics

Ad. 7: Leaf: length

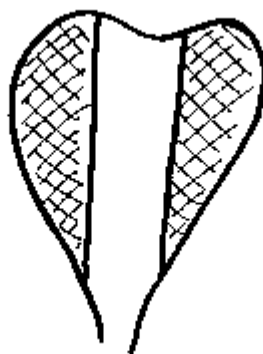
Ad. 8: Leaf: width



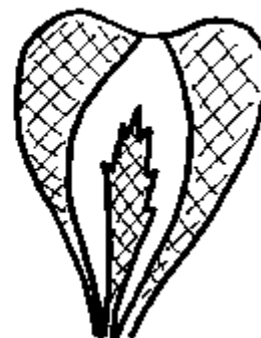
Ad. 26: Ray floret: distribution of colors



1  
edged



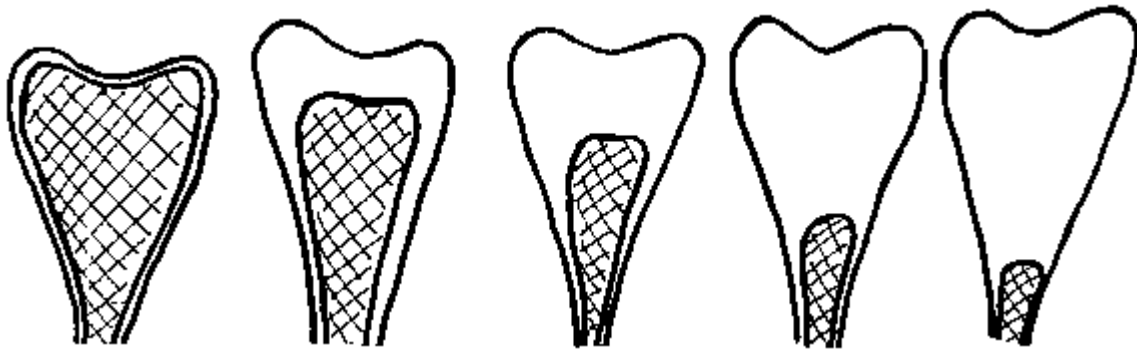
2  
solid flush



3  
partly colored



Ad. 27: Two colored ray floret of type 1 varieties only: Ray floret: width of margin



1  
very narrow

2  
narrow

5  
medium

7  
broad

9  
very broad

IX. Literature

Mexican Experts in *Tagetes* (reference to be added by Mexico).

X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)
<p><b>TECHNICAL QUESTIONNAIRE</b> to be completed in connection with an application for plant breeders' rights</p>	
1.1 Genus	<p><i>Tagetes L.</i></p> <p><b>TAGETES</b></p>
1.2 Species	<p>.....</p> <p>(indicate species)</p>
2. Applicant (Name and address)	
3. Proposed denomination or breeder's reference	

4. Information on origin, maintenance and reproduction of the variety

4.1 Origin

(a) Seedling (indicate parent varieties)

..... [ ]

(b) Mutation (indicate parent variety)

..... [ ]

(c) Discovery (indicate where and when)

..... [ ]

(d) Other (specify)

..... [ ]

4.2 Method of reproduction

– Cuttings [ ]

– *In vitro* propagation [ ]

– Other (specify) [ ]

4.3 Other information

**(GENETIC BACKGROUND ?)**

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

Characteristics	Example Varieties	Note
<b>5.1 Plant: height</b> (2)		
very short	Cupidon, Golden boy	1[ ]
short	Mistral, Spry	3[ ]
medium	Monsieur Majestic, Golden, Jubilee	5[ ]
tall	Sourire, Jaune suprême	7[ ]
very tall	Orange prince, Lemon queen	
<b>5.2 Flower head: general shape</b> (14)		
?		1[ ]
carnation flower		2[ ]
chrysanthemum flower		3[ ]
scabious flower		4[ ]
flat		5[ ]
<b>5.3 Inflorescence : flower type</b> (16)		
all tubulate	Orange prim, Lemon queen	1[ ]
tubulate and liguled	Little hero spry	2[ ]
all liguled		3[ ]
<b>5.4 Inflorescence : number of colors</b> (22)		
self-colored	Tangerine orange, Vanilla	1[ ]
two-colored	Monsieur Majestic, Bee	2[ ]

Characteristics	Example Varieties	Note
<b>5.5 Flower: color of upper side (23)</b>		
yellowish white (or <i>cream?</i> )	<i>Vanilla, Blanca?</i>	1[ ]
light yellow (or <i>pale yellow?</i> )	<i>Bonanza gelb?</i>	2[ ]
dark yellow	Excel gelg	3[ ]
light orange (or <i>pale orange?</i> )	<i>Inca orange?</i>	4[ ]
dark orange (or <i>orange?</i> )	<i>Tangerine orange?</i>	5[ ]
red		6[ ]
brown		7[ ]
other color (indicate which) ???	.....	8[ ]
several colors (indicate which) ???	..... .....	9[ ]

6. Similar varieties and differences from these varieties

Denomination of similar variety	Characteristic in which the similar variety is different <sup>o)</sup>	State of expression of similar variety	State of expression of candidate variety

<sup>o)</sup> In the case of identical states of expressions of both varieties, please indicate the size of the difference.

7. Additional information which may help to distinguish the variety

7.1 Resistance to pest and diseases

