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## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

**DRAFT****MARIGOLD**

UPOV Code: TAGET

*Tagetes* L.**GUIDELINES****FOR THE CONDUCT OF TESTS****FOR DISTINCTNESS, UNIFORMITY AND STABILITY***prepared by experts from Mexico and France**to be considered by the Technical Committee at its forty-third session,  
to be held in Geneva, Switzerland, from March 26 to 28, 2007*Alternative Names:<sup>\*</sup>

| <i>Botanical name</i> | <i>English</i> | <i>French</i>                         | <i>German</i>  | <i>Spanish</i>                                    |
|-----------------------|----------------|---------------------------------------|----------------|---|
| <i>Tagetes</i> L.     | Marigold       | Tagète, Œillet d'Inde,<br>Rose d'Inde | Studentenblume | Clavel de las indias,<br>Clavelon, Cempoalxóchitl |

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 Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

<sup>\*</sup> 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](http://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 or rooted cuttings.

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

seed-propagated varieties: 3 grams of seed  
vegetatively propagated varieties: 25 rooted cuttings.

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.

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

2.5 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 *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 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 observation 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 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 and any other observations made on all plants in the test.

3.5.2 For 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. 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 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 The assessment of uniformity for seed-propagated varieties, should be according to recommendations for cross-pollinated and hybrid varieties as appropriate, in the General Introduction.

4.2.3 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 10 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 are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

- (a) Plant: height (characteristic 3)
- (b) Leaf: type (characteristic 8)
- (c) Leaf: intensity of green color (characteristic 11)
- (d) Flower head: floret type (characteristic 15)
- (e) Only varieties with one flower head color: Flower head: color (characteristic 25) with the following groups:
  - whitish
  - light yellow
  - dark yellow
  - light orange
  - medium orange
  - red
  - brown
- (f) Tubulate and/or tubuligulate floret: main or only color (characteristic 27) with the following groups:
  - whitish
  - light yellow
  - dark yellow
  - light orange
  - medium orange
  - red
  - brown
- (g) Only varieties with two flower head colors: Ligulate floret: main or only color (characteristic 30) with the following groups:
  - whitish
  - light yellow
  - dark yellow
  - light orange
  - medium orange
  - red
  - brown

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*

(\*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

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

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

|                                | English  | français  | deutsch                                | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|--------------------------------|--|---|--|---|--|---------------|
| <b>1.</b>                      | <b>Hypocotyl:<br/>anthocyanin<br/>coloration</b> | <b>Hypocotyle:<br/>pigmentation<br/>anthocyanique</b> | <b>Hypokotyl:<br/>Anthocyanfärbung</b> | <b>Hipocotilo:<br/>pigmentación<br/>antociánica</b> |  |               |
| <b>QL</b>                      | absent   | absente   | fehlend                                | ausente   |  | 1             |
|                                | present  | présente  | vorhanden                              | presente  |  | 9             |
| <b>2.</b>                      | <b>Plant: fragrance</b>                          | <b>Plante: parfum</b>                                 | <b>Pflanze: Duft</b>                   | <b>Planta: fragancia</b>                            |  |               |
| <b>QL</b>                      | absent   | absent  | fehlend                                | ausente   | Hawaii   | 1             |
|                                | present  | présent   | vorhanden                              | presente  | Cupidon Double   | 9             |
| <b>3.<br/>(*<br/>)</b>         | <b>Plant: height</b>                             | <b>Plante: hauteur</b>                                | <b>Pflanze: Höhe</b>                   | <b>Planta: altura</b>                               |  |               |
| <b>QN</b>                      | very short                                       | très basse  | sehr niedrig                           | muy pequeña   | Cupidon, Golden Boy  | 1             |
|                                | short  | basse   | niedrig                                | pequeña   | Mistral, Spry  | 3             |
|                                | medium   | moyenne   | mittel                                 | media   | Golden Jubilee,<br>Monsieur Majestic                                   | 5             |
|                                | tall   | haute   | hoch                                   | grande  | Jaune Supreme, Sourire   | 7             |
|                                | very tall  | très haute  | sehr hoch                              | muy grande  | Lemon Queen,<br>Orange Prince  | 9             |
| <b>4.<br/>(*<br/>)<br/>(+)</b> | <b>Plant: growth habit</b>                       | <b>Plante: port</b>                                   | <b>Pflanze: Wuchsform</b>              | <b>Planta: porte</b>                                |  |               |
| <b>QN</b>                      | upright  | dressé  | aufrecht                               | erecto  | Puebla   | 1             |
|                                | semi upright                                     | demi-dressé   | halbaufrecht                           | semierecto  | Nueva  | 3             |
|                                | spreading  | étalé   | breitwüchsig                           | rastrero  | Tepeaca  | 5             |
| <b>5.<br/>(*<br/>)</b>         | <b>Plant: branching</b>                          | <b>Plante: ramification</b>                           | <b>Pflanze:<br/>Verzweigung</b>        | <b>Planta: ramificación</b>                         |  |               |
| <b>QN</b>                      | absent or weak                                   | absente ou faible                                     | fehlend oder gering                    | ausente o débil                                     | Morelos  | 1             |
|                                | medium   | moyenne   | mittel                                 | media   | Chapingo   | 2             |
|                                | strong   | forte   | stark                                  | fuerte  | Oriental   | 3             |



|                                 | English  | français  | deutsch                                       | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------------------------|--|---|---|---|--|---------------|
| <b>6.<br/>(*<br/>)</b>          | <b>Stem: anthocyanin coloration</b>              | <b>Tige: pigmentation anthocyanique</b>                 | <b>Stiel: Anthocyanfärbung</b>                | <b>Tallo: pigmentación antociánica</b>                  |  |               |
| <b>QL</b>                       | absent   | absente   | fehlend                                       | ausente   | Hidalgo  | 1             |
|                                 | present  | présente  | vorhanden                                     | presente  | Tlalámac   | 9             |
| <b>7.</b>                       | <b>Stem: intensity of anthocyanin coloration</b> | <b>Tige: intensité de la pigmentation anthocyanique</b> | <b>Stiel: Intensität der Anthocyanfärbung</b> | <b>Tallo: intensidad de la pigmentación antociánica</b> |  |               |
| <b>QN</b>                       | weak   | faible  | gering  | débil   | Tepoztlán  | 3             |
|                                 | medium   | moyenne   | mittel  | media   | Chapingo   | 5             |
|                                 | strong   | forte   | stark   | fuerte  | Itarichen  | 7             |
| <b>8.<br/>(*<br/>)<br/>(+)</b>  | <b>Leaf: type</b>                                | <b>Feuille: type</b>                                    | <b>Blatt: Typ</b>                             | <b>Hoja: tipo</b>                                       |  |               |
| <b>QL</b>                       | simple   | simple  | einfach                                       | simple  | Morelos  | 1             |
|                                 | pinnate  | penné   | gefiedert                                     | pinnada   | Tepoztlán  | 2             |
| <b>9.<br/>(*<br/>)<br/>(+)</b>  | <b>Leaf: length</b>                              | <b>Feuille: longueur</b>                                | <b>Blatt: Länge</b>                           | <b>Hoja: longitud</b>                                   |  |               |
| <b>QN</b>                       | short  | courte  | kurz  | corta   | Tajín  | 3             |
|                                 | medium   | moyenne   | mittel  | media   | Teziutlán  | 5             |
|                                 | long   | longue  | lang  | larga   | Carmen   | 7             |
| <b>10.<br/>(*<br/>)<br/>(+)</b> | <b>Leaf: width</b>                               | <b>Feuille: largeur</b>                                 | <b>Blatt: Breite</b>                          | <b>Hoja: anchura</b>                                    |  |               |
| <b>QN</b>                       | narrow   | étroite   | schmal  | estrecha  | Ninín  | 3             |
|                                 | medium   | moyenne   | mittel  | media   | Zongolica  | 5             |
|                                 | broad  | large   | breit   | ancha   | Cuernavaca   | 7             |
| <b>11.<br/>(*<br/>)</b>         | <b>Leaf: intensity of green color</b>            | <b>Feuille: intensité de la couleur verte</b>           | <b>Blatt: Intensität der Grünfärbung</b>      | <b>Hoja: intensidad del color verde</b>                 |  |               |
| <b>QN</b>                       | light  | claire  | hell  | claro   | Fework Jaune   | 3             |
|                                 | medium   | moyenne   | mittel  | medio   | Sendero  | 5             |
|                                 | dark   | foncée  | dunkel  | oscuro  | Bonanza Gelb   | 7             |

|                         | English   | français   | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------------|---|--|--|--|--|---------------|
| <b>12.</b>              | <b><u>Only varieties with pinnate leaves:</u><br/>Terminal leaflet: width</b> | <b><u>Seulement les variétés à fleurs pennées:</u> foliole terminale</b> | <b><u>Nur Sorten mit gefiederten Blättern:</u><br/>Endfieder: Breite</b> | <b><u>Sólo variedades con hojas pinnadas:</u><br/>Folículo terminal: anchura</b> |  |               |
| <b>QN</b>               | narrow  | étroite  | schmal   | estrecho   | Yei  | 3             |
|                         | medium  | moyenne  | mittel   | medio  | Macuilli   | 5             |
|                         | broad   | large  | breit  | ancho  | Chicome  | 7             |
| <b>13.</b><br>(+)       | <b>Leaf margin: depth of indentations</b>                                     | <b>Bord de la feuille: profondeur des découpures</b>                     | <b>Blattrand: Tiefe der Einschnitte</b>                                  | <b>Margen foliar: profundidad de las indentaciones</b>                           |  |               |
| <b>QN</b>               | shallow   | peu profondes  | flach  | superficial  | Tezontla   | 3             |
|                         | medium  | moyennes   | mittel   | media  | Tepetlaoxtoc   | 5             |
|                         | deep  | profondes  | tief   | profunda   | Tlálloc  | 7             |
| <b>14.</b>              | <b>Flower head: length of peduncle of terminal flower head</b>                | <b>Capitule: longueur du pédoncule du capitule terminal</b>              | <b>Blütenstand: Länge des Blütenstiels des Terminalblütenstandes</b>     | <b>Capítulo: longitud del pedúnculo en el capítulo terminal</b>                  |  |               |
| <b>QN</b>               | short   | court  | kurz   | corto  | Tzapinco   | 3             |
|                         | medium  | moyen  | mittel   | medio  | Xochimilco   | 5             |
|                         | long  | long   | lang   | largo  | Toluca   | 7             |
| <b>15.</b><br>(*<br>(+) | <b>Flower head: floret type</b>   | <b>Capitule: type de fleurons</b>  | <b>Blütenstand: Blütentyp</b>  | <b>Capítulo: tipo de flor</b>  |  |               |
| <b>QL</b>               | all tubulate  | tous tubulés   | nur röhrenförmig   | sólo flósculos   | Mexicana I   | 1             |
|                         | tubulate and ligulate   | tubulés et ligulés   | röhrenförmig und zungenförmig  | flósculos y liguladas  | Bonanza, Little Hero Spry, Tecuanulco                                  | 2             |
|                         | tubuligulate and ligulate   | tubuligulés et ligulés   | röhren-zungenförmig und zungenförmig                                     | tubular-liguladas y lígulas  | Ecatzingo, Spry  | 3             |
|                         | all tubuligulate  | tous tubuligulés   | nur röhren-zungenförmig  | todas tubular-liguladas  | Lemon Queen, Orange Prim   | 4             |
|                         | all ligulate  | tous ligulés   | nur zungenförmig   | todas liguladas  | Tzapinco   | 5             |

|                          | English  | français   | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|--------------------------|--|--|--|--|--|---------------|
| <b>16.</b><br>(*)        | <b>Flower head:<br/>diameter</b>   | <b>Capitule: diamètre</b>  | <b>Blütenstand:<br/>Durchmesser</b>  | <b>Capítulo: diámetro</b>  |  |               |
| <b>QN</b>                | very small   | très petit   | sehr klein   | muy pequeño  | Ornament,<br>Tangerine Gem   | 1             |
|                          | small  | petit  | klein  | pequeño  | Disco Orange   | 3             |
|                          | medium   | moyen  | mittel   | medio  | Aurora Orange,<br>Bonanza Orange                                       | 5             |
|                          | large  | grand  | groß   | grande   | Queen Bee  | 7             |
|                          | very large   | très grand   | sehr groß  | muy grande   | Red Seven Star   | 9             |
| <b>17.</b><br>(*)        | <b><u>Only flower heads<br/>with ligulate florets:</u><br/>Flower head:<br/>number of ligulate<br/>florelet whorls</b> | <b><u>Seulement les<br/>capitules à fleurons<br/>ligulés:</u> Capitule:<br/>nombre de<br/>verticilles des<br/>fleurons ligulés</b> | <b><u>Nur Blütenstände<br/>mit zungenförmigen<br/>Blüten:</u> Blütenstand:<br/>Anzahl<br/>zungenförmige<br/>Blütenquirle</b> | <b><u>Sólo capítulos con<br/>lígulas:</u> Capítulo:<br/>número de verticilos<br/>ligulados</b> |  |               |
| <b>QN</b>                | none   | aucun  | keine  | ninguno  | Mexicana I   | 1             |
|                          | very few   | très petit   | sehr gering  | muy escaso   | Disco Orange,<br>Monsieur Majestic                                     | 3             |
|                          | few  | petit  | gering   | escaso   | Guerrero   | 5             |
|                          | medium   | moyen  | mittel   | medio  | Tlaxcala   | 7             |
|                          | many   | grand  | groß   | numeroso   | Celaya   | 9             |
| <b>18.</b><br>(+)        | <b>Ligulate floret:<br/>shape</b>  | <b>Fleuron ligulé:<br/>forme</b>   | <b>Zungenförmige<br/>Blüte: Form</b>   | <b>Lígula: forma</b>   |  |               |
| <b>PQ</b>                | flat   | plat   | flach  | plana  | Teo  | 1             |
|                          | intermediate   | intermédiaire  | intermediär  | intermedia   |  | 2             |
|                          | trumpet  | en trompette   | trompetenförmig  | corneta  | Tlalocan   | 3             |
| <b>19.</b><br>(*)<br>(+) | <b>Ligulate floret:<br/>incision of margin</b>   | <b>Fleuron ligulé:<br/>incision du bord</b>  | <b>Zungenförmige<br/>Blüte:<br/>Randeinschnitte</b>  | <b>Lígula: incisión del<br/>borde</b>  |  |               |
| <b>QL</b>                | absent   | absente  | fehlend  | ausente  | Teotihuacan  | 1             |
|                          | present  | présente   | vorhanden  | presente   | Acuexcomac   | 9             |

|                                 | English  | français  | deutsch  | español  | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|---------------------------------|--|---|--|--|--|---------------|
| <b>20.<br/>(*<br/>)</b>         | <b>Ligulate floret:<br/>depth of incision of<br/>margin</b>                                      | <b>Fleuron ligulé:<br/>profondeur de<br/>l'incision du bord</b>   | <b>Zungenförmige<br/>Blüte: Tiefe der<br/>Randeinschnitte</b>  | <b>Lígula: profundidad<br/>de la incisión del<br/>borde</b>                          |  |               |
| <b>QN</b>                       | very shallow   | très peu profonde   | sehr flach   | muy superficial  | Cardenal   | 1             |
|                                 | shallow  | peu profonde  | flach  | superficial  | Carmen   | 3             |
|                                 | medium   | moyenne   | mittel   | media  | Conzuelo   | 5             |
|                                 | deep   | profonde  | tief   | profunda   | Conde  | 7             |
|                                 | very deep  | très profonde   | sehr tief  | muy profunda   | Clara  | 9             |
| <b>21.</b>                      | <b>Only varieties with<br/>incision of margin<br/>absent: Ligulate<br/>floret: shape of apex</b> | <b>Seulement les<br/>variétés à incision<br/>du bord absente:<br/>fleuron ligulé: forme<br/>du sommet</b> | <b>Nur Sorten mit<br/>fehlendem Rand-<br/>einschnitt: zungen-<br/>förmige Blüte: Form<br/>der Spitze</b> | <b>Sólo variedades sin<br/>incisión en el borde:<br/>lígula: forma del<br/>ápice</b> |  |               |
| <b>QL</b>                       | rounded  | arrondi   | abgerundet   | redondeada   | Comitan  | 1             |
|                                 | truncate   | tronqué   | stumpf   | truncada   | Huejutla   | 2             |
| <b>22.<br/>(*<br/>)</b>         | <b>Outer ligulate floret:<br/>length</b>   | <b>Fleuron ligulé<br/>externe: longueur</b>   | <b>Äußere zungen-<br/>förmige Blüte:<br/>Länge</b>   | <b>Lígula exterior:<br/>longitud</b>   |  |               |
| <b>QN</b>                       | short  | court   | kurz   | corta  | Mixe   | 3             |
|                                 | medium   | moyen   | mittel   | media  | Huave  | 5             |
|                                 | long   | long  | lang   | larga  | Seri   | 7             |
| <b>23.<br/>(*<br/>)</b>         | <b>Outer ligulate floret:<br/>width</b>  | <b>Fleuron ligulé<br/>externe: largeur</b>  | <b>Äußere zungen-<br/>förmige Blüte:<br/>Breite</b>  | <b>Lígula exterior:<br/>anchura</b>  |  |               |
| <b>QN</b>                       | narrow   | étroit  | schmal   | estrecha   | N'yu   | 3             |
|                                 | medium   | moyen   | mittel   | media  | Kut'a  | 5             |
|                                 | broad  | large   | breit  | ancha  | Yohtó  | 7             |
| <b>24.<br/>(*<br/>)<br/>(+)</b> | <b>Flower head:<br/>number of colors</b>   | <b>Capitule: nombre de<br/>couleurs</b>   | <b>Blütenstand: Anzahl<br/>Farben</b>  | <b>Capítulo: número de<br/>colores</b>   |  |               |
| <b>QL</b>                       | one  | une   | eine   | uno  | Tangerine Orange,<br>Vanilla   | 1             |
|                                 | two  | deux  | zwei   | dos  | Bee, Monsieur Majestic   | 2             |

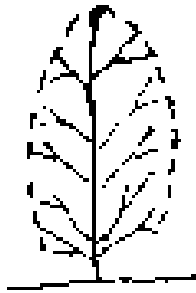
|                         | English  | français  | deutsch  | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------------|--|---|--|---|--|---------------|
| <b>25.</b><br>(*<br>(*  | <b><u>Only varieties with one flower head</u></b><br><b>color: Flower head: color</b>  | <b><u>Seulement les variétés à capitule d'une couleur:</u></b><br><b>capitule: couleur</b>  | <b><u>Nur Sorten mit einer Blütenstandfarbe:</u></b><br><b>Blütenstand: Farbe</b>  | <b><u>Sólo variedades con capítulo de un sólo color:</u></b><br><b>Capítulo: color</b>  |  |               |
| <b>PQ</b>               | RHS Colour Chart (indicate reference number)   | Code RHS des couleurs (indiquer le numéro de référence)   | RHS-Farbkarte (Nummer angeben)   | Carta de colores RHS (sírbase indicar el número de referencia)  |  |               |
| <b>26.</b><br>(*<br>(+) | <b><u>Only varieties with two flower head colors:</u></b> Tubulate and/or tubuligulate floret: number of colors  | <b><u>Seulement les variétés à capitule de deux couleurs:</u></b> fleuron tubulé ou tubuligulé: nombre de couleurs                                      | <b><u>Nur Sorten mit zwei Blütenstandfarben:</u></b> Röhrenförmige und/oder röhren-zungenförmige Blüte: Anzahl Farben  | <b><u>Sólo variedades con capítulo de dos colores:</u></b> Flósculo/ flor tubular-ligulada: número de colores   |  |               |
| <b>QL</b>               | one<br><br>two   | une<br><br>deux   | eine<br><br>zwei   | uno<br><br>dos  |  | 1<br><br>2    |
| <b>27.</b><br>(*<br>(+) | <b><u>Tubulate and/or tubuligulate floret: main or only color</u></b>  | <b><u>Fleuron tubulé et/ou tubuligulé: couleur principale ou unique</u></b>   | <b><u>Röhrenförmige und/oder röhren-zungenförmige Blüte: Haupt farbe oder einzige Farbe</u></b>  | <b><u>Flósculo y/o flor tubular-ligulada: color principal o único</u></b>   |  |               |
| <b>PQ</b>               | RHS Colour Chart (indicate reference number)   | Code RHS des couleurs (indiquer le numéro de référence)   | RHS-Farbkarte (Nummer angeben)   | Carta de colores RHS (sírbase indicar el número de referencia)  |  |               |
| <b>28.</b><br>(*        | <b><u>Only varieties with tubulate and/or tubuligulate florets with two colors:</u></b> Tubulate and/or tubuligulate floret: <b><u>secondary color</u></b> | <b><u>Seulement les variétés à fleurons tubulés ou tubuligulés de deux couleurs:</u></b> fleuron tubulé ou tubuligulé: couleur <b><u>secondaire</u></b> | <b><u>Nur Sorten mit röhrenförmigen und/oder röhren-zungenförmigen Blüten mit zwei Farben:</u></b> röhrenförmige und/oder röhren-zungenförmige Blüte: <b><u>Sekundär farbe</u></b> | <b><u>Sólo variedades de flósculos/flores tubular-liguladas de dos colores:</u></b> Flósculos y/o flor tubular-ligulada: color <b><u>secundario</u></b> |  |               |
| <b>PQ</b>               | RHS Colour Chart (indicate reference number)   | Code RHS des couleurs (indiquer le numéro de référence)   | RHS-Farbkarte (Nummer angeben)   | Carta de colores RHS (sírbase indicar el número de referencia)  |  |               |

|                         | English  | français   | deutsch   | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|-------------------------|--|--|---|---|--|---------------|
| <b>29.</b><br>(*<br>(+) | <b><u>Only varieties with two flower head colors: Ligulate floret: number of colors</u></b>    | <b><u>Seulement les variétés à capitule de deux couleurs: fleuron ligulé: nombre de couleurs</u></b>           | <b><u>Nur Sorten mit zwei Blütenstandfarben: zungenförmige Blüte: Anzahl Farben</u></b>                 | <b><u>Sólo variedades de capítulo de más de un color : Lígula: número de colores</u></b>  |  |               |
| <b>QL</b>               | one  | une  | eine  | uno   | Tangerine Orange,<br>Vanilla   | 1             |
|                         | two  | deux   | zwei  | dos   | Bonanza Harmony,<br>Granada  | 2             |
| <b>30.</b><br>(*<br>(+) | <b><u>Only varieties with two flower head colors: Ligulate floret: main or only color</u></b>  | <b><u>Seulement les variétés à capitule de deux couleurs: fleuron ligulé: couleur principale ou unique</u></b> | <b><u>Nur Sorten mit zwei Blütenstandfarben: Zungenförmige Blüte: Hauptfarbe oder einzige Farbe</u></b> | <b><u>Sólo variedades de capítulo de dos colores: Lígula: color principal o único</u></b> |  |               |
| <b>PQ</b>               | RHS Colour Chart (indicate reference number)   | Code RHS des couleurs (indiquer le numéro de référence)  | RHS-Farbkarte (Nummer angeben)  | Carta de colores RHS (sír vase indicar el número de referencia)                           |  |               |
| <b>31.</b><br>(*        | <b><u>Only varieties with two ligulate floret colors: Ligulate floret: secondary color</u></b> | <b><u>Seulement les variétés à fleuron ligulé de deux couleurs: fleuron ligulé: couleur secondaire</u></b>     | <b><u>Nur Sorten mit zwei Farben der zungenförmigen Blüte: zungenförmige Blüte: Sekundär farbe</u></b>  | <b><u>Sólo variedades de lígula de dos colores: Lígula: color secundario</u></b>          |  |               |
| <b>PQ</b>               | whitish  | blanchâtre   | weißlich  | blanquecino   |  | 1             |
|                         | light yellow   | jaune clair  | hellgelb  | amarillo claro  |  | 2             |
|                         | dark yellow  | jaune foncé  | dunkelgelb  | amarillo oscuro   | San Pablo  | 3             |
|                         | light orange   | orange clair   | hellorange  | naranja claro   |  | 4             |
|                         | medium orange  | orange moyen   | mittlorange   | naranja medio   |  | 5             |
|                         | red  | rouge  | rot   | rojo  | Santa María  | 6             |
|                         | brown  | brun   | braun   | marrón  |  | 7             |

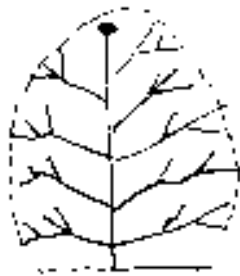
|            | English  | français  | deutsch  | español   | Example Varieties<br>Exemples<br>Beispielssorten<br>Variedades ejemplo | Note/<br>Nota |
|------------|--|---|--|---|--|---------------|
| <b>32.</b> | <b><u>Only varieties with two ligulate floret colors: Ligulate floret: distribution of color</u></b>                     | <b><u>Seulement les variétés à fleuron ligulé de deux couleurs: fleuron ligulé: distribution des couleurs</u></b>                                       | <b><u>Nur Sorten mit zwei Farben der zungenförmigen Blüte: zungenförmige Blüte: Verteilung der Farbe</u></b>                               | <b><u>Sólo variedades de lígula de dos colores: Lígula: distribución cromática</u></b>                                      |  |               |
| (+)        |  |   |  |   |  |               |
| <b>PQ</b>  | type 1   | type 1  | Typ 1  | tipo 1  | España Red, Marietta   | 1             |
|            | type 2   | type 2  | Typ 2  | tipo 2  | Monsieur Majestic  | 2             |
|            | type 3   | type 3  | Typ 3  | tipo 3  | Sevilla Bicolour<br>Rot Gelb   | 3             |
| <b>33.</b> | <b><u>Only varieties with type 1 ligulate floret color distribution: Ligulate floret: size of central color zone</u></b> | <b><u>Seulement les variétés à distribution des couleurs de type 1 sur le fleuron ligulé: fleuron ligulé: taille de la zone de couleur centrale</u></b> | <b><u>Nur Sorten mit Verteilung der Farbe vom Typ 1 an der zungenförmigen Blüte: zungenförmige Blüte: Größe der mittleren Farbzone</u></b> | <b><u>Sólo variedades de distribución cromática de la lígula de tipo 1: Lígula: tamaño de la zona cromática central</u></b> |  |               |
| (+)        |  |   |  |   |  |               |
| <b>QN</b>  | very small   | très petite   | sehr klein   | muy pequeña   | Scarlet Sophia   | 1             |
|            | small  | petite  | klein  | pequeña   | Disco Flamme,<br>Red Marietta  | 3             |
|            | medium   | moyenne   | mittel   | media   | Pascal   | 5             |
|            | large  | large   | groß   | grande  | Granada, Sophia Yellow   | 7             |
|            | very large   | très large  | sehr groß  | muy grande  | Aurora Jaune   | 9             |
| <b>34.</b> | <b><u>Time of beginning of flowering</u></b>   | <b><u>Époque du début de floraison</u></b>  | <b><u>Zeitpunkt des Blühbeginns</u></b>  | <b><u>Época de inicio de la floración</u></b>   |  |               |
| (*)        |  |   |  |   |  |               |
| <b>QN</b>  | early  | précoce   | früh   | temprana  | Double Mistral,<br>Hero Flamme   | 3             |
|            | medium   | moyenne   | mittel   | media   | Aurora Fold,<br>Cupidon Double   | 5             |
|            | late   | tardive   | spät   | tardía  | Discovery Orange,<br>Inca Yellow                                       | 7             |

8. Explanations on the Table of Characteristics

Ad. 4: Plant: growth habit



1  
upright

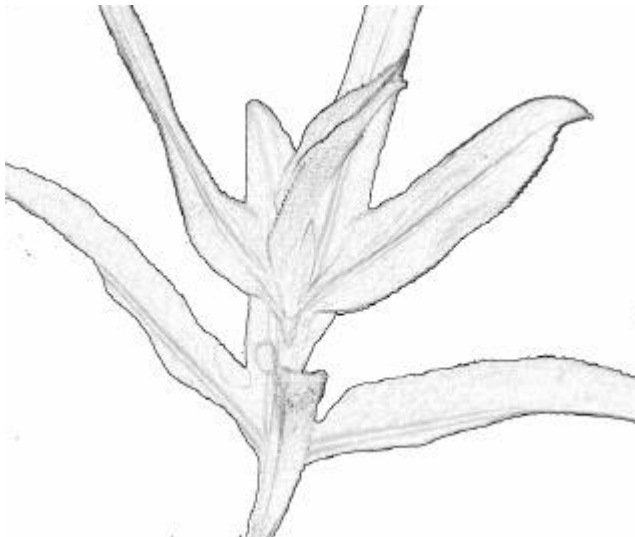


3  
semi-upright

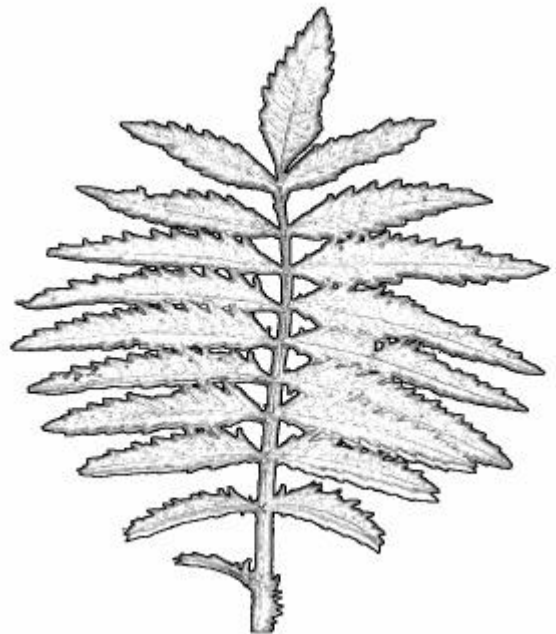


5  
spreading

Ad. 8: Leaf: type



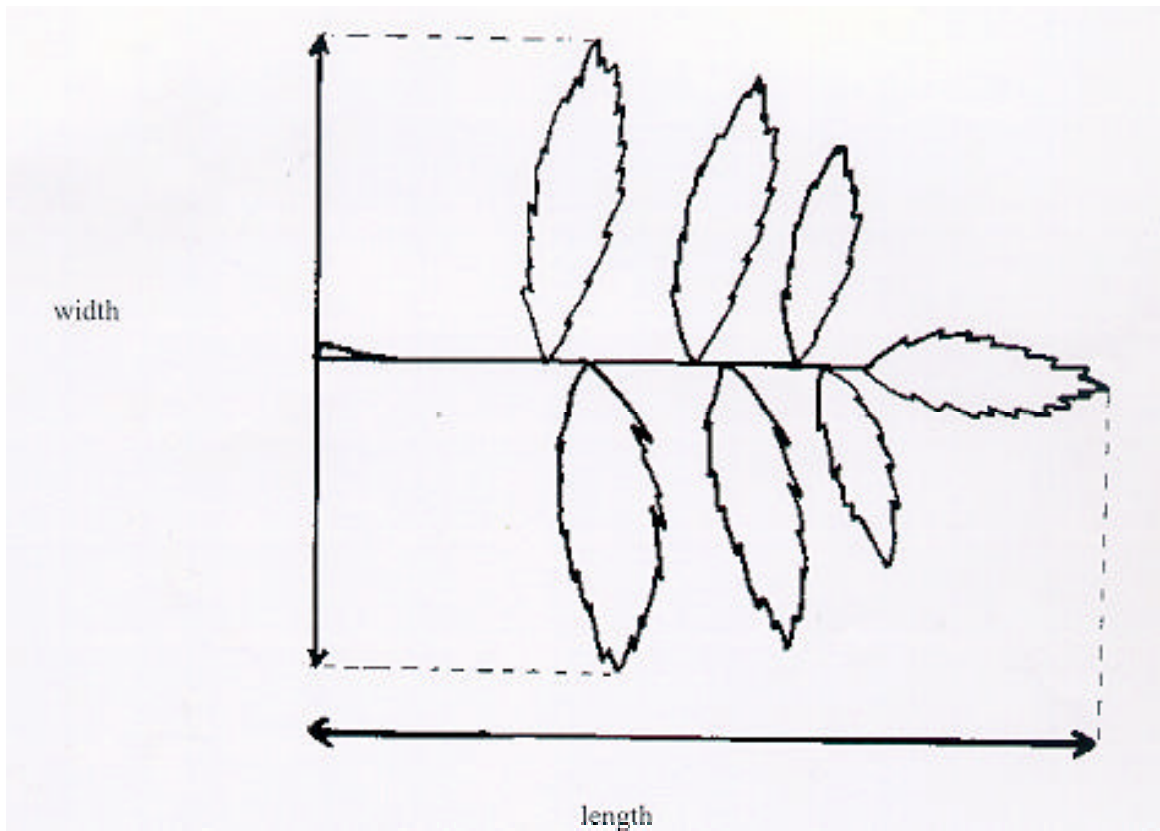
1  
simple



2  
pinnate



Ad. 9: Leaf: length  
Ad. 10: Leaf: width



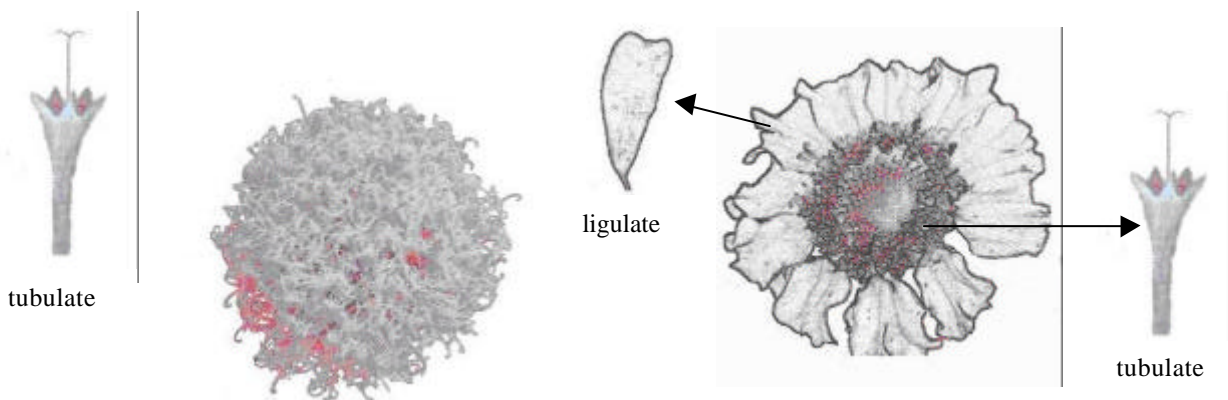
Observations should be made on a leaf in the middle zone of the main stem at the time of full flowering.

Ad. 13: Leaf margin: depth of indentations

In the case of pinnate leaves, the observations should be made on a terminal leaflet.

Ad. 15: Flower head: floret type

The floret can be ligulate, tubuligulate or tubulate and can be inserted in the disc (central zone) or in the periphery (radial zone) of the flower head.



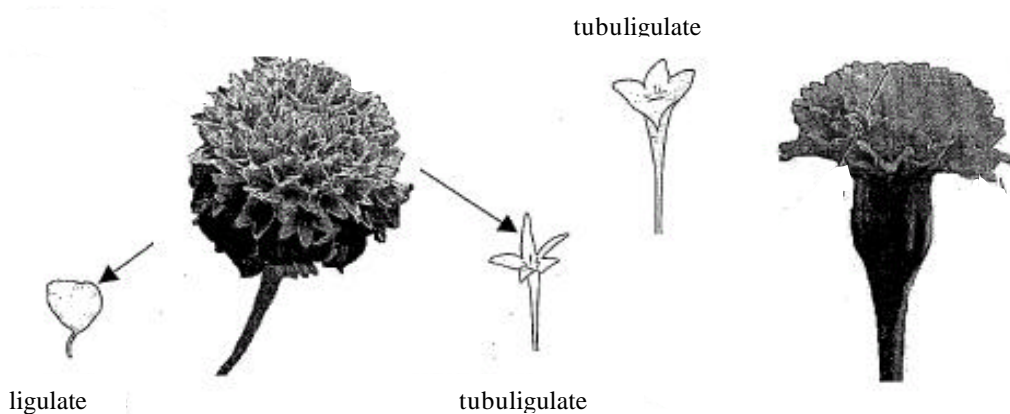
tubulate

ligulate

tubulate

1  
all tubulate

2  
tubulate and ligulate



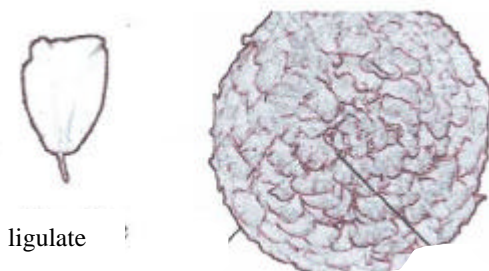
ligulate

tubuligulate

tubuligulate

3  
tubuligulate and ligulate

4  
all tubuligulate



ligulate

5  
all ligulate

Photographs to be replaced

**Ad. 18: Ligulate floret: shape**

**Illustration to be provided.**

Ad. 19: Ligulate floret: incision of margin



1  
absent



2  
present

Ad. 24: Flower head: number of colors

A flower head is considered to have two colors if: (1) the disc florets are a different color from the ray florets; (2) the disc floret and the ray floret with the same floret type are a different color; (3) the disc florets (tubulate or tubuligulate type) are different colors and the ray florets are one of those colors; (4) the ray florets (ligulate type) are two different colors and the disc florets (tubulate and/or tubuligulate) are one of those colors.



Case (1)



Case (2)

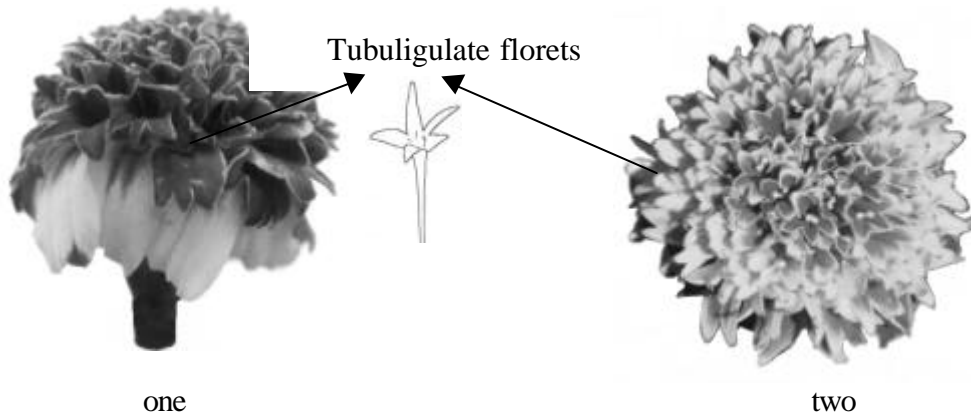


Case (3)



Case (4)

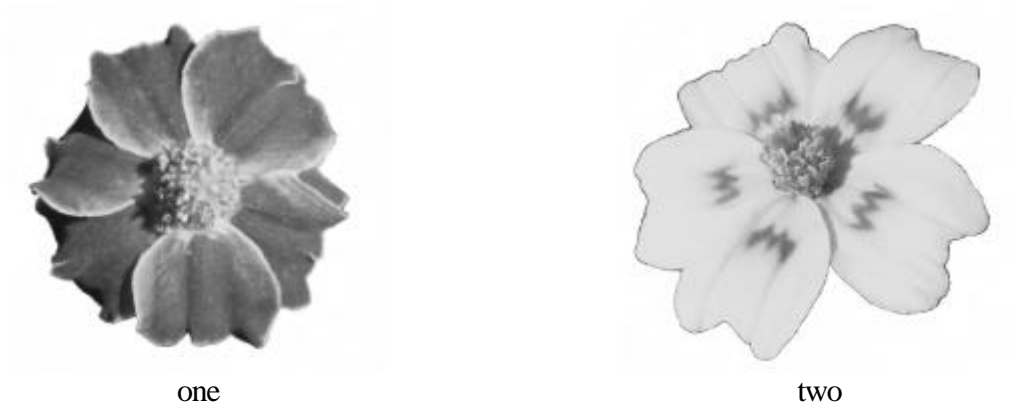
Ad. 26: Only varieties with two flower head colors: Tubulate and/or tubiligulate floret: number of colors



Ad. 27: Tubulate and/or tubuligulate floret: main or only color

In varieties with two tubulate and/or tubuligulate floret colors, the main color is the color with the largest surface area.

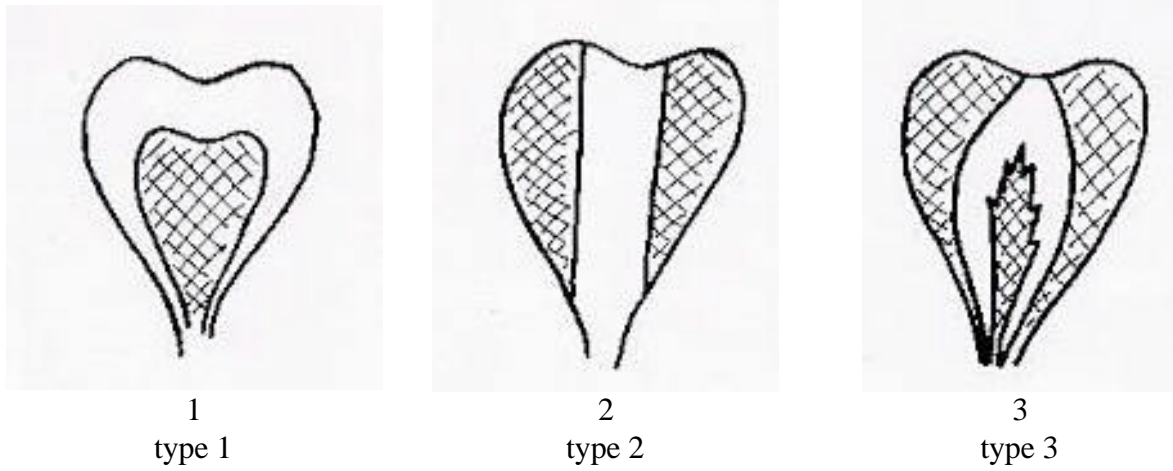
Ad. 29: Only varieties with two flower head colors: Ligulate floret: number of colors



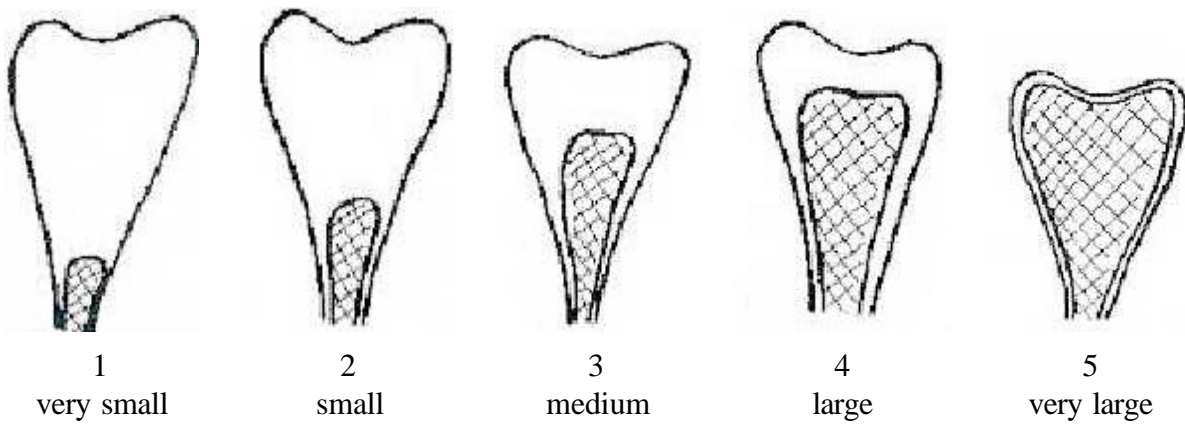
Ad. 30: Only varieties with two flower head colors: Ligulate floret: main or only color

In varieties with two ligulate floret colors, the main color is the color with the largest surface area.

Ad. 32: Only varieties with two ligulate floret colors: Ligulate floret: distribution of color



Ad. 33: Only varieties with type 1 ligulate floret color distribution: Ligulate floret: size of central color zone



9. Literature

Neher, R.T., 1966: Monograph of the genus *Tagetes* (Compositae). Ph.D. Thesis, Indiana University, Bloomington, Indiana, US, 306 pp.

Serrato C., M.A., 1990: Contribución al conocimiento de las características florales del cempoalxóchitl (*Tagetes* sp.). Rev. Chapingo XV, MX, pp. (71-72):151-155.

Serrato C., M.A. y A. Segura, M., 1994: Variación fenotípica en progenies a partir de inflorescencias de *Tagetes erecta* L. Rev. Chapingo serie Horticultura, pp. 1:159-161.

Serrato C., M.A., 2006: Manual Gráfico para la Descripción Varietal de *Tagetes*, SNICS, MX.

10. Technical Questionnaire

|  |   |   |
|--|---|---|
| TECHNICAL QUESTIONNAIRE  | Page {x} of {y}                         | Reference Number:   |
|  |   | Application date:<br>(not to be filled in by the applicant) |
| <b>TECHNICAL QUESTIONNAIRE</b><br>to be completed in connection with an application for plant breeders' rights |   |   |
| 1. Subject of the Technical Questionnaire  |   |   |
| 1.1 Latin Name   | <input type="text" value="Tagetes L."/> |   |
| 1.2 Common Name  | <input type="text" value="Marigold"/>   |   |
| Species (please complete)  | <input type="text"/>                    |   |
| 2. Applicant   |   |   |
| Name   | <input type="text"/>                    |   |
| Address  | <input type="text"/>                    |   |
| Telephone No.  | <input type="text"/>                    |   |
| Fax No.  | <input type="text"/>                    |   |
| E-mail address   | <input type="text"/>                    |   |
| Breeder (if different from applicant)  | <input type="text"/>                    |   |
| 3. Proposed denomination and breeder's reference   |   |   |
| Proposed denomination (if available)   | <input type="text"/>                    |   |
| Breeder's reference  | <input type="text"/>                    |   |

|                         |                 |                   |
|-------------------------|-----------------|-------------------|
| 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) unknown cross [ ]

4.1.2 Mutation (please state parent variety) [ ]

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

4.1.4 Other (please provide details) [ ]

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination [ ]

(c) Hybrid [ ]

(d) Other (please provide details) [ ]

4.2.2 Vegetatively propagated varieties

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.3 Other (please provide details) [ ]



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

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 |
|---------------|---|--|------|
| <b>5.1</b>    | <b>Plant: height</b>  |  |      |
| <b>(3)</b>    |   |  |      |
|               | very short  | Cupidon, Golden Boy                      | 1[ ] |
|               | short   | Mistral, Spry                            | 3[ ] |
|               | medium  | Golden Jubilee,<br>Monsieur Majestic     | 5[ ] |
|               | tall  | Jaune Supreme, Sourire                   | 7[ ] |
|               | very tall   | Lemon Queen, Orange Prince               | 9[ ] |
| <b>5.2</b>    | <b>Leaf: type</b>   |  |      |
| <b>(8)</b>    |   |  |      |
|               | simple  | Morelos                                  | 1[ ] |
|               | pinnate   | Tepoztlán                                | 2[ ] |
| <b>5.3</b>    | <b>Leaf: intensity of green color</b>                                       |  |      |
| <b>(11)</b>   |   |  |      |
|               | ligh  | Fework Jaune                             | 3[ ] |
|               | medium  | Sendero                                  | 5[ ] |
|               | dark  | Bonanza Gelb                             | 7[ ] |
| <b>5.4</b>    | <b>Flower head: floret type</b>   |  |      |
| <b>(15)</b>   |   |  |      |
|               | all tubulate  | Mexicana I                               | 1[ ] |
|               | tubulate and ligulate   | Bonanza, Little Hero Spry,<br>Tecuanulco | 2[ ] |
|               | tubuligulate and ligulate   | Ecatzingo, Spry                          | 3[ ] |
|               | all tubuligulate  | Lemon Queen, Orange Prim                 | 4[ ] |
|               | all ligulate  | Tzapinco                                 | 5[ ] |
| <b>5.5(i)</b> | <b><u>Only varieties with one flower head color</u>: Flower head: color</b> |  |      |
| <b>(25)</b>   |   |  |      |
|               | RHS Color Chart (indicate reference number)                                 |  |      |
|               | .....   |  |      |

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

| Characteristics   | Example Varieties | Note |
|---|-------------------|------|
| <b>5.5(ii) <u>Only varieties with one flower head color</u>: lower head: color</b><br>(25)                |                   |      |
| whitish   | Vanilla, Blanca   | 1[ ] |
| light yellow  | Bonanza Gelb      | 2[ ] |
| dark yellow   | Excel Gelb        | 3[ ] |
| light orange  | Inca Orange       | 4[ ] |
| medium orange   | Tangerine Orange  | 5[ ] |
| red   | Tequexquináhuac   | 6[ ] |
| brown   |                   | 7[ ] |
| <b>5.6 <u>Tubulate and/or tubuligulate floret: main or only color</u></b><br>(27)                         |                   |      |
| RHS Color Chart (indicate reference number)   |                   |      |
| .....   |                   |      |
| <b>5.7 <u>Only varieties with two flower head colors: Ligulate floret: main or only color</u></b><br>(30) |                   |      |
| RHS Color Chart (indicate 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 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 <b>similar</b> variety(ies) | Describe the expression of the characteristic(s) for <b>your</b> candidate variety |
|---|---|--|--|
| <i>Example</i>  | <i>Flower head: type</i>  | <i>single</i>  | <i>semi-double</i>   |
|   |   |  |  |
|   |   |  |  |
|   |   |  |  |

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Use

(a) cut flower [ ]

(b) pot plant [ ]

(c) bedding plant [ ]

(d) industrial (please provide details) [ ]

.....

(e) other (please provide details) [ ]

.....

7.4 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.

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

|                         |                 |                   |
|-------------------------|-----------------|-------------------|
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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, phytoplasma)    | Yes [ ] | No [ ] |
| (b) Chemical treatment (e.g. growth retardant, pesticide) | Yes [ ] | No [ ] |
| (c) Tissue culture  | Yes [ ] | No [ ] |
| (d) Other factors   | Yes [ ] | No [ ] |

Please provide details for 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]