



TG/134/4

ORIGINAL: English

DATE: 2023-10-24

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

Geneva

## SAFFLOWER

UPOV Code(s): CARTH\_TIN

*Carthamus tinctorius* L.

## GUIDELINES

## FOR THE CONDUCT OF TESTS

## FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative names:\*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Carthamus tinctorius</i> L.	Safflower	Carthame	Saflor	Cártamo

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.

\* 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 *Carthamus tinctorius* L.

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 seed.

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

500 g

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*

3.1.1 The minimum duration of tests should normally be two independent growing cycles.

3.1.2 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

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.

3.3.2 The optimum stage of development for the assessment of each characteristic is indicated by a number in the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.3.

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 60 plants, which should be divided between at least 2 replicates.

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

3.5 *Additional Tests*

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.

###### 4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts of plants taken from each of 20 plants and any other observations made on all plants in the test, disregarding any off-type plants.

###### 4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 "Examining Distinctness", Section 4 "Observation of characteristics"):

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

## 4.2 *Uniformity*

- 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 These Test Guidelines have been developed for the examination of seed-propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.
- 4.2.3 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.

## 4.3 *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 further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

## 5. Grouping of Varieties and Organization of the Growing Trial

- 5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.
- 5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.
- 5.3 The following have been agreed as useful grouping characteristics:
- (a) Time of flowering (characteristic 6)
  - (b) Plant: height (characteristic 7)
  - (c) Petal: color (characteristic 9)
  - (d) Petal: change of color (characteristic 21)
- 5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

## 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*

6.2.1 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.

6.2.2 All relevant states of expression are presented in the characteristic.

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 "Development of Test Guidelines".

## 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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7	
		Name of characteristics in English	Nom du caractère en français	Name des Merkmals auf Deutsch	Nombre del carácter en español		
		states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (\*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression

QL

Qualitative characteristic – see Chapter 6.3

QN

Quantitative characteristic – see Chapter 6.3

PQ

Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)

MG, MS, VG, VS

– see Chapter 4.1.5

5 (+)

See Explanations on the Table of Characteristics in Chapter 8.2

6 (a)-(b)

See Explanations on the Table of Characteristics in Chapter 8.1

7 Growth stage key

See Explanations on the Table of Characteristics in Chapter 8.3

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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>1.</b>	<b>QN</b>	<b>MS</b>		<b>16</b>			
	<b>First leaf: length</b>	<b>Première feuille : longueur</b>	<b>Erstes Blatt: Länge</b>	<b>Primera hoja: longitud</b>			
	very short	très courte	sehr kurz	muy corta			1
	short	courte	kurz	corta			2
	medium	moyenne	mittel	media	Kanariengelb		3
	long	longue	lang	larga			4
	very long	très longue	sehr lang	muy larga			5
<b>2.</b>	<b>QN</b>	<b>MS</b>		<b>16</b>			
	<b>First leaf: width</b>	<b>Première feuille : largeur</b>	<b>Erstes Blatt: Breite</b>	<b>Primera hoja: anchura</b>			
	very narrow	très étroite	sehr schmal	muy estrecha			1
	narrow	étroite	schmal	estrecha			2
	medium	moyenne	mittel	media	Kanariengelb, Salem		3
	broad	large	breit	ancha			4
	very broad	très large	sehr breit	muy ancha			5
<b>3.</b>	<b>QN</b>	<b>MS</b>		<b>16</b>			
	<b>First leaf: ratio length/width</b>	<b>Première feuille : rapport longueur/largeur</b>	<b>Erstes Blatt: Verhältnis Länge/Breite</b>	<b>Primera hoja: relación longitud/anchura</b>			
	very low	très bas	sehr klein	muy baja			1
	low	bas	klein	baja			2
	medium	moyen	mittel	media	Salem		3
	high	élevé	groß	alta			4
	very high	très élevé	sehr groß	muy alta			5
<b>4.</b>	<b>QN</b>	<b>VG</b>		<b>16</b>			
	<b>First leaf: number of spines</b>	<b>Première feuille : nombre d'épines</b>	<b>Erstes Blatt: Anzahl Stacheln</b>	<b>Primera hoja: número de espinas</b>			
	absent or very few	absent ou très petit	fehlend oder sehr gering	ausente o muy bajo	Catima		1
	few	petit	gering	bajo			2
	medium	moyen	mittel	medio	Alarosa		3
	many	élevé	hoch	alto			4
	very many	très élevé	sehr hoch	muy alto			5



	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>5.</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>16</b>			
	<b>First leaf: incisions</b>	<b>Première feuille : incisions</b>	<b>Erstes Blatt: Einschnitte</b>	<b>Primera hoja: incisiones</b>			
	absent or very weak	absentes ou très faibles	fehlend oder sehr gering	ausentes o muy débiles	Catima		1
	weak	faibles	gering	débiles	Orange Ball		2
	medium	moyennes	mittel	medias			3
	strong	fortes	stark	fuertes			4
	very strong	très fortes	sehr stark	muy fuertes			5
<b>6. (*)</b>	<b>QN</b>	<b>MG</b>	<b>(+)</b>	<b>61-65</b>			
	<b>Time of flowering</b>	<b>Époque de floraison</b>	<b>Zeitpunkt der Blüte</b>	<b>Época de floración</b>			
	very early	très précoce	sehr früh	muy temprana			1
	very early to early	très précoce à précoce	sehr früh bis früh	muy temprana a temprana			2
	early	précoce	früh	temprana	Orange Ball		3
	early to medium	précoce à moyenne	früh bis mittel	temprana a media			4
	medium	moyenne	mittel	media	Calin		5
	medium to late	moyenne à tardive	mittel bis spät	media a tardía	Catima		6
	late	tardive	spät	tardía			7
	late to very late	tardive à très tardive	spät bis sehr spät	tardía a muy tardía			8
	very late	très tardive	sehr spät	muy tardía			9
<b>7. (*)</b>	<b>QN</b>	<b>MS</b>		<b>61-65</b>			
	<b>Plant: height</b>	<b>Plante : hauteur</b>	<b>Pflanze: Höhe</b>	<b>Planta: altura</b>			
	very short	très basse	sehr niedrig	muy baja			1
	very short to short	très basse à basse	sehr niedrig bis niedrig	muy baja a baja			2
	short	basse	niedrig	baja			3
	short to medium	basse à moyenne	niedrig bis mittel	baja a media	Goldschopf, Orange Ball		4
	medium	moyenne	mittel	media			5
	medium to tall	moyenne à haute	mittel bis hoch	media a alta			6
	tall	haute	hoch	alta	Catima		7
	tall to very tall	haute à très haute	hoch bis sehr hoch	alta a muy alta			8
	very tall	très haute	sehr hoch	muy alta			9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>8.</b>	<b>QN</b>	<b>MS</b>	<b>61-65</b>			
	<b>Plant: length of longest side branch</b>	<b>Plante : longueur de la branche latérale la plus longue</b>	<b>Pflanze: Länge des längsten Seitentriebs</b>	<b>Planta: longitud de la rama lateral más larga</b>		
	very short	très courte	sehr kurz	muy corta		1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short	courte	kurz	corta		3
	short to medium	courte à moyenne	kurz bis mittel	corta a media	Goldschopf	4
	medium	moyenne	mittel	media		5
	medium to long	moyenne à longue	mittel bis lang	media a larga	Catima	6
	long	longue	lang	larga		7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga		8
	very long	très longue	sehr lang	muy larga		9
<b>9. (*)</b>	<b>PQ</b>	<b>VG</b>	<b>61-65</b>			
	<b>Petal: color</b>	<b>Pétale : couleur</b>	<b>Blütenblatt: Farbe</b>	<b>Pétalo: color</b>		
	white	blanc	weiß	blanco		1
	yellow	jaune	gelb	amarillo	Calin	2
	orange	orange	orange	naranja	Catima	3
<b>10.</b>	<b>QN</b>	<b>VG</b>	<b>61-65</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>		
	very light	très claire	sehr hell	muy clara		1
	light	claire	hell	clara		2
	medium	moyenne	mittel	media	Catima	3
	dark	foncée	dunkel	oscura	Alarosa	4
	very dark	très foncée	sehr dunkel	muy oscura		5
<b>11. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(a)</b>	<b>61-65</b>		
	<b>Leaf: length</b>	<b>Feuille : longueur</b>	<b>Blatt: Länge</b>	<b>Hoja: longitud</b>		
	very short	très courte	sehr kurz	muy corta		1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta		2
	short	courte	kurz	corta		3
	short to medium	courte à moyenne	kurz bis mittel	corta a media	Goldschopf	4
	medium	moyenne	mittel	media		5
	medium to long	moyenne à longue	mittel bis lang	media a larga	Alarosa	6
	long	longue	lang	larga	Calin, Salem	7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga		8
	very long	très longue	sehr lang	muy larga		9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>12. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(a)</b>	<b>61-65</b>			
	<b>Leaf: width</b>	<b>Feuille : largeur</b>	<b>Blatt: Breite</b>	<b>Hoja: anchura</b>			
	very narrow	très étroite	sehr schmal	muy estrecha			1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha			2
	narrow	étroite	schmal	estrecha			3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media	Alarosa		4
	medium	moyenne	mittel	media	Orange Ball		5
	medium to broad	moyenne à large	mittel bis breit	media a ancha	Salem		6
	broad	large	breit	ancha			7
	broad to very broad	large à très large	breit bis sehr breit	ancha muy ancha			8
	very broad	très large	sehr breit	muy ancha			9
<b>13. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(a)</b>	<b>61-65</b>			
	<b>Leaf: ratio length/width</b>	<b>Feuille : rapport longueur/largeur</b>	<b>Blatt: Verhältnis Länge/Breite</b>	<b>Hoja: relación longitud/anchura</b>			
	very low	très bas	sehr klein	muy baja			1
	very low to low	très bas à bas	sehr klein bis klein	muy baja a baja			2
	low	bas	klein	baja			3
	low to medium	bas à moyen	klein bis mittel	baja a media	Goldschopf		4
	medium	moyen	mittel	media	Salem		5
	medium to high	moyen à élevé	mittel bis groß	media a alta	Calin		6
	high	élevé	groß	alta			7
	high to very high	élevé à très élevé	groß bis sehr groß	alta a muy alta			8
	very high	très élevé	sehr groß	muy alta			9
<b>14.</b>	<b>PQ</b>	<b>VG</b>	<b>(+)</b> <b>(a)</b>	<b>61-65</b>			
	<b>Leaf: shape</b>	<b>Feuille : forme</b>	<b>Blatt: Form</b>	<b>Hoja: forma</b>			
	oblong	oblongue	rechteckig	oblonga	Zanzibar		1
	ovate	ovale	eiförmig	oval			2
	elliptic	elliptique	elliptisch	elíptica			3
	obovate	obovale	verkehrt eiförmig	oboval	Calin, Salem		4
<b>15.</b>	<b>QN</b>	<b>VG</b>	<b>(a)</b>	<b>61-65</b>			
	<b>Leaf: number of spines</b>	<b>Feuille : nombre d'épines</b>	<b>Blatt: Anzahl Stacheln</b>	<b>Hoja: número de espinas</b>			
	absent or very few	absent ou très petit	fehlend oder sehr gering	ausente o muy bajo	Catima		1
	few	petit	gering	bajo	Orange Ball, Zanzibar		2
	medium	moyen	mittel	medio			3
	many	élevé	hoch	alto			4
	very many	très élevé	sehr hoch	muy alto			5

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>16.</b>	<b>QN</b>	<b>VG</b>	<b>(+)</b>	<b>(a)</b>	<b>61-65</b>			
	<b>Leaf: incisions</b>	<b>Feuille : incisions</b>	<b>Blatt: Einschnitte</b>	<b>Hoja: incisiones</b>				
	absent or very weak	absentes ou très faibles	fehlend oder sehr gering	ausentes o muy débiles	Catima			1
	weak	faibles	gering	débiles	Calin, Goldschopf, Kanariengelb			2
	medium	moyennes	mittel	medias				3
	strong	fortes	stark	fuertes	Alarosa			4
	very strong	très fortes	sehr stark	muy fuertes				5
<b>17. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(+)</b>	<b>(b)</b>	<b>61-65</b>			
	<b>Bract: length</b>	<b>Bractée : longueur</b>	<b>Hochblatt: Länge</b>	<b>Bráctea: longitud</b>				
	very short	très courte	sehr kurz	muy corta				1
	very short to short	très courte à courte	sehr kurz bis kurz	muy corta a corta				2
	short	courte	kurz	corta				3
	short to medium	courte à moyenne	kurz bis mittel	corta a media	Catima			4
	medium	moyenne	mittel	media	Zanzibar			5
	medium to long	moyenne à longue	mittel bis lang	media a larga				6
	long	longue	lang	larga	Alarosa, Salem			7
	long to very long	longue à très longue	lang bis sehr lang	larga a muy larga				8
	very long	très longue	sehr lang	muy larga				9
<b>18. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(+)</b>	<b>(b)</b>	<b>61-65</b>			
	<b>Bract: width</b>	<b>Bractée : largeur</b>	<b>Hochblatt: Breite</b>	<b>Bráctea: anchura</b>				
	very narrow	très étroite	sehr schmal	muy estrecha				1
	very narrow to narrow	très étroite à étroite	sehr schmal bis schmal	muy estrecha a estrecha				2
	narrow	étroite	schmal	estrecha				3
	narrow to medium	étroite à moyenne	schmal bis mittel	estrecha a media	Calin			4
	medium	moyenne	mittel	media	Catima			5
	medium to broad	moyenne à large	mittel bis breit	media a ancha	Zanzibar			6
	broad	large	breit	ancha				7
	broad to very broad	large à très large	breit bis sehr breit	ancha a muy ancha				8
	very broad	très large	sehr breit	muy ancha				9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>19. (*)</b>	<b>QN</b>	<b>MS</b>	<b>(b)</b>	<b>61-65</b>		
	<b>Bract: ratio length/width</b>	<b>Bractée : rapport longueur/largeur</b>	<b>Hochblatt: Verhältnis Länge/Breite</b>	<b>Bráctea: relación longitud/anchura</b>		
	very low	très bas	sehr klein	muy baja		1
	very low to low	très bas à bas	sehr klein bis klein	muy baja a baja		2
	low	bas	klein	baja		3
	low to medium	bas à moyen	klein bis mittel	baja a media	Catima, Goldschopf, Zanzibar	4
	medium	moyen	mittel	media	Calin	5
	medium to high	moyen à élevé	mittel bis groß	media a alta		6
	high	élevé	groß	alta		7
	high to very high	élevé à très élevé	groß bis sehr groß	alta a muy alta		8
	very high	très élevé	sehr groß	muy alta		9
<b>20. (*)</b>	<b>QN</b>	<b>VG</b>	<b>(b)</b>	<b>61-65</b>		
	<b>Bract: number of spines</b>	<b>Bractée : nombre d'épines</b>	<b>Hochblatt: Anzahl Stacheln</b>	<b>Bráctea: número de espinas</b>		
	absent or very few	absent ou très petit	fehlend oder sehr gering	ausente o muy bajo	Catima	1
	very few to few	très petit à petit	sehr gering bis gering	muy bajo a bajo		2
	few	petit	gering	bajo	Calin	3
	few to medium	petit à moyen	gering bis mittel	bajo a medio		4
	medium	moyen	mittel	medio		5
	medium to many	moyen à élevé	mittel bis hoch	medio a alto	Salem	6
	many	élevé	hoch	alto	Alarosa	7
	many to very many	élevé à très élevé	hoch bis sehr hoch	alto a muy alto		8
	very many	très élevé	sehr groß	muy alto		9
<b>21. (*)</b>	<b>QL</b>	<b>VG</b>		<b>65-67</b>		
	<b>Petal: change of color</b>	<b>Pétale : changement de la couleur</b>	<b>Blütenblatt: Änderung der Farbe</b>	<b>Pétalo: cambio de color</b>		
	absent	absent	fehlend	ausente	Kanariengelb	1
	present	présent	vorhanden	presente	Alarosa, Catima	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>22.</b>	<b>QN</b>	<b>MG</b>	<b>99</b>			
	<b>Seed: 1000 seed weight</b>	<b>Graine : poids de 1.000 grains</b>	<b>Samen: Tausendkorngewicht</b>	<b>Semilla: peso de 1000 semillas</b>		
	very low	très bas	sehr niedrig	muy bajo		1
	very low to low	très bas à bas	sehr niedrig bis niedrig	muy bajo a bajo		2
	low	bas	niedrig	bajo		3
	low to medium	bas à moyen	niedrig bis mittel	bajo a medio		4
	medium	moyen	mittel	medio	Calin, Salem	5
	medium to high	moyen à élevé	mittel bis hoch	medio a alto		6
	high	élevé	hoch	alto	Catima	7
	high to very high	élevé à très élevé	hoch bis sehr hoch	alto a muy alto		8
	very high	très élevé	sehr hoch	muy alto		9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

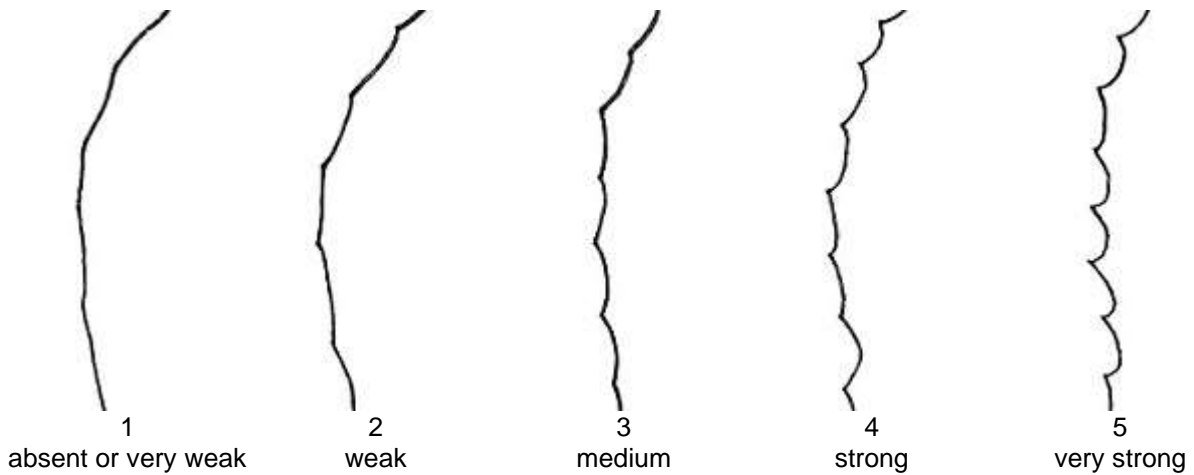
Characteristics containing the following key in the Table of Characteristics should be examined as indicated below:

- (a) Observations should be made on leaves from the fourth node from the top of the main stem.
- (b) Observations should be made on inner bracts.



8.2 *Explanations for individual characteristics*

Ad. 5: First leaf: incisions



Ad. 6: Time of flowering

Time of flowering is reached when 50 % of plants have at least one open flower head.

Ad. 14: Leaf: shape



1  
oblong



2  
ovate



3  
elliptic

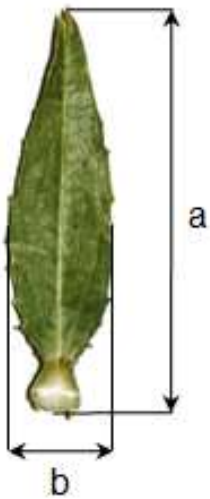


4  
obovate

Ad. 16: Leaf: incisions

See Ad. 5

Ad. 17: Bract: length



a - length  
b - width

Ad. 18: Bract: width

See Ad. 17



8.3 *Phenological growth stages based on the general BBCH-scale (Meier, 2018)*

Principal growth stage 1: Leaf development

10: Cotyledons completely unfolded

12: 2 leaves unfolded

14: 4 leaves unfolded

16: 6 leaves unfolded

...

Principle growth stage 6: Flowering

61: Beginning of flowering: 10 % of flowers open

62: 20 % of flowers open

63: 30 % of flowers open

64: 40 % of flowers open

65: Full flowering: 50 % of flowers open

66: -

67: Flower declining: majority of petals fallen or dry

68: -

69: End of flowering: fruit set visible

Principle growth stage 9: Senescence

99: Harvested seed

9. Literature

Meier, U., 2018: Growth stages of mono- and dicotyledonous plants. BBCH-Monograph, German Federal Biological Research Centre for Agriculture and Forestry.

URL: <https://www.julius-kuehn.de/en/jki-publication-series/bbch-scale> (as of September 6th, 2023).

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE  
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire	
1.1 Botanical name	<input type="text" value="Carthamus tinctorius L."/>
1.2 Common name	<input type="text" value="Safflower"/>
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"/>

#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 variety)  
(.....) x (.....)  
female parent male parent

(b) partially known cross [ ]  
(please state known parent variety(ies))  
(.....) x (.....)  
female parent male parent

(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)

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

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4.2	Method of propagating the variety	
4.2.1	Seed-propagated varieties	[ ]
4.2.2	Other (Please provide details)	[ ]
	<input type="text"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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 Time of flowering (6)</b>		
very early		1 [ ]
very early to early		2 [ ]
early	Orange Ball	3 [ ]
early to medium		4 [ ]
medium	Calin	5 [ ]
medium to late	Catima	6 [ ]
late		7 [ ]
late to very late		8 [ ]
very late		9 [ ]
<b>5.2 Plant: height (7)</b>		
very short		1 [ ]
very short to short		2 [ ]
short		3 [ ]
short to medium	Goldschopf, Orange Ball	4 [ ]
medium		5 [ ]
medium to tall		6 [ ]
tall	Catima	7 [ ]
tall to very tall		8 [ ]
very tall		9 [ ]
<b>5.3 Petal: color (9)</b>		
white		1 [ ]
yellow	Calin	2 [ ]
orange	Catima	3 [ ]
<b>5.4 Petal: change of color (21)</b>		
absent	Kanariengelb	1 [ ]
present	Alarosa, Catima	9 [ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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>Time of flowering</i>	<i>early</i>	<i>late</i>

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#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 Other information



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

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]