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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

FLAX, LINSEED *

UPOV Code: LINUM_USI

Linum usitatissimum L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Linum usitatissimum L.	Flax, Linseed	Lin	Lein, Flachs	Lino

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), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Linum usitatissinum* 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

1 kg

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 two independent growing cycles.

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 second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 1,000 plants, which should be divided between at least two 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 / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 40 plants or parts taken from each of 40 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 second column of 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 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 1,000 plants, 15 off-types are allowed.

4.2.3 For characteristic "Corolla: color" (characteristic 4), a population standard of 0.1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 1,000 plants, 3 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) Corolla: color (characteristic 4)
(b) Boll: ciliation of false septa (characteristic 16)
(c) Stem: length from cotyledon scar to first branch (characteristic 20)
(d) Seed: color (characteristic 23)

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 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

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

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

6.4.2 Type of example varieties:

(F) Fiber variety
(O) Oil variety

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

MG, MS, VG, VS: see Chapter 4.1.5

(a)-(d): See Explanations on the Table of Characteristics in Chapter 8.1

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

55-99 See Chapter 3.3.2 and Explanations on the Table of Characteristics in Chapter 8.3

(F): Fiber variety: see Chapter 6.4.2
(O): Oil variety: see Chapter 6.4.2

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. **(+)**	**VG**	**Petal: color of crown at bud stage**	**Pétale : couleur de la couronne au stade bouton**	**Blütenblatt: Farbe der Krone im Knospenstadium**	**Pétalo: color de la corona en la fase de botón**		
PQ	**55-61**	white	blanche	weiß	blanco	Belinka (F), Laser (O)	1
		pink	rose	rosa	rosa	Hella (O)	2
		blue violet	bleu-violet	blauviolett	azul violeta	Violin (F), Oural (O)	3
		violet	violette	violett	violeta	Lorea (F), Banquise (O)	4
2. **(*)** **(+)**	**MG**	**Time of beginning of flowering**	**Époque de début de floraison**	**Zeitpunkt des Blühbeginns**	**Época de inicio de la floración**		
QN		very early	très précoce	sehr früh	muy temprana	Comtess (O)	1
		early	précoce	früh	temprana	Eole (O)	3
		medium	moyenne	mittel	media	Agatha (F), Juliet (O)	5
		late	tardive	spät	tardía	Aretha (F), Aries (O)	7
		very late	très tardive	sehr spät	muy tardía	Drakkar (F), Bilton (O)	9
3. **(+)**	**VG 61-65**	**Corolla : arrangement of petals**	**Corolle : disposition des pétales**	**Krone: Anordnung der Blütenblätter**	**Corola: disposición de los pétalos**		
QN	**(a)**	free	disjoints	freistehend	separados	Caesar augutus (F), Altess (O)	1
		intermediate	intermédiaires	intermediär	en contacto	Andréa (F), Oural (O)	2
		overlapping	chevauchants	überlappend	solapados	Electra (F), Valoal (O)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4. (*)	**VG 61-65**	**Corolla : color**	**Corolle : couleur**	**Krone: Farbe**	**Corola: color**		
PQ	**(a)**	white	blanche	weiß	blanco	Belinka (F), Laser (O)	1
		light pink	rose clair	hellrosa	rosa claro	Zhong Ya Ma No.3 (F)	2
		medium pink	rose moyen	mittelrosa	rosa medio	Petra (O)	3
		red violet	rouge-violet	rotviolett	rojo violeta		4
		violet	violette	violett	violeta	Violin (F), Hungarian Gold (O)	5
		blue violet	bleu-violet	blauviolett	azul violeta	Hermes (F), Niagara (O)	6
		medium blue	bleu moyen	mittelblau	azul medio	Escalina (F), Alaska (O)	7
		light blue	bleu clair	hellblau	azul claro	Melina (F), Barbara (O)	8
5. (+)	**MS/VG 61-65**	**Flower: size of corolla**	**Fleur : taille de la corolle**	**Blüte: Größe der Krone**	**Flor: tamaño de la corola**		
QN	**(a)**	small	petite	klein	pequeña	Eden (F), Laser (O)	3
		medium	moyenne	mittel	media	Escalina (F), Ingot (O)	5
		large	grande	groß	grande	Juliet (O)	7
6. (+)	**VG 61-65**	**Excluding varieties with corolla color : white : Flower : shape of corolla heart**	**À l'exception des variétés avec corolle de couleur : blanche : Fleur : forme du cœur de la corolle**	**Ohne Sorten mit Farbe der Krone: weiß: Blüte: Form des Kroneninneren**	**Excluídas las variedades con color de la corola: blanco: Flor: forma del corazón de la corola**		
QN	**(a)**	circular	orbiculaire	kreisförmig	circular	Barbara (O)	1
		circular to pentagonal	orbiculaire à pentagonal	kreisförmig bis fünfeckig	circular a pentagonal	Agatha (F), Eole (O)	2
		pentagonal	pentagonal	fünfeckig	pentagonal	Hermes (F), Baikal (O)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7. **(+)**	**MS 61-65**	**Petal: length**	**Pétale : longueur**	**Blütenblatt: Länge**	**Pétalo: longitud**		
QN	**(a)**	very short	très court	sehr kurz	muy corto	Lorea (F)	1
	(b)	short	court	kurz	corto	Diane (F)	3
		medium	moyen	mittel	medio	Electra (F)	5
		long	long	lang	largo	Escalina (F)	7
		very long	très long	sehr lang	muy largo		9
8. **(+)**	**MS 61-65**	**Petal: width**	**Pétale : largeur**	**Blütenblatt: Breite**	**Pétalo: anchura**		
QN	**(a)**	very narrow	très étroit	sehr schmal	muy estrecho	Lorea (F)	1
	(b)	narrow	étroit	schmal	estrecho	Diane (F)	3
		medium	moyen	mittel	medio	Agatha (F)	5
		broad	large	breit	ancho	Ariane (F)	7
		very broad	très large	sehr breit	muy ancho	Violin (F)	9
9.	**MS 61-65**	**Petal: ratio length/width**	**Pétale : rapport longueur/largeur**	**Blütenblatt: Verhältnis Länge/Breite**	**Pétalo: relación longitud/anchura**		
QN	**(a)**	very compressed	très comprimé	stark zusammengedrückt	muy comprimida	Violin (F)	1
	(b)	moderately compressed	modérément comprimé	mäßig zusammengedrückt	moderadamente comprimida	Venica (F)	3
		medium	moyen	mittel	media	Alizee (F)	5
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada	Electra (F)	7
		very elongated	très allongé	stark langgezogen	muy alargada	Hermes (F)	9
10.	**VG 61-65**	**Stamen: color of distal part of filament**	**Étamine : couleur de la partie distale du filet**	**Staubblatt: Farbe des distalen Teils des Staubfadens**	**Estamen: color de la parte distal del filamento**		
QL	**(a)**	white	blanche	weiß	blanco	Selena (F), Valoal(O)	1
		blue	bleue	blau	azul	Artemida (F), Aries (O)	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11.	**VG 61-65**	**Stamen: color of basal part of filament**	**Étamine : couleur de la base du filet**	**Staubblatt: Farbe des basalen Teils des Staubfadens**	**Estamen: color de la parte basal del filamento**		
QL	**(a)**	white	blanche	weiß	blanco	Artemida (F), Valoal(O)	1
		blue	bleue	blau	azul	Selena (F), Aries (O)	2
12. (*)	**VG 61-65**	**Anther: color**	**Anthère : couleur**	**Staubbeutel: Farbe**	**Antera: color**		
PQ	**(a)**	yellowish	jaunâtre	gelblich	amarillento	Laser (O)	1
		pinkish	saumonée	zartrosa	rosáceo	Aardvark (O)	2
		greyish	grisâtre	gräulich	grisáceo	Diane (F)	3
		bluish	bleuâtre	bläulich	azulado	Escalina (F), Barbara (O)	4
13. (*)	**VG 61-65**	**Style: color**	**Style : couleur**	**Griffel: Farbe**	**Estilo: color**		
PQ	**(a)**	white	blanc	weiß	blanco	Belinka (F), Abacus (O)	1
		white with a yellow dot at base	blanc avec un point jaune à la base	weiß mit gelbem Punkt an der Basis	blanco con un punto amarillo en la base	Laura (F)	2
		yellow	jaune	gelb	amarillo		3
		white with a blue dot at base	blanc avec un point bleu à la base	weiß mit blauem Punkt an der Basis	blanco con un punto azul en la base	Melina (F), Banquise (O)	4
		blue	bleu	blau	azul	Violin (F), Hivernal (O)	5
14. (+)	**MG 65-69**	**Plant: height**	**Plante : hauteur**	**Pflanze: Höhe**	**Planta: altura**		
QN		very short	très basse	sehr niedrig	muy corta	Comtess (O)	1
		short	basse	kurz	corta	Germini (O)	3
		medium	moyenne	mittel	media	Violin (F), Aries (O)	5
		tall	haute	hoch	larga	Andréa (F)	7
		very tall	très haute	sehr hoch	muy larga	Drakkar (F)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15. (*)	**VG 89-99**	**Boll: size**	**Capsule : taille**	**Kapsel: Größe**	**Cápsula: tamaño**		
QN		very small	très petite	sehr klein	muy pequeña	Jitka (F), Mac Gregor (O)	1
		small	petite	klein	pequeña	Melina (F); Hivernal (O)	2
		medium	moyenne	mittel	media	Agatha (F), Kaolin (O)	3
		large	grande	groß	grande	Barbara (O)	4
		very large	très grande	sehr groß	muy grande	Biltstar (O)	5
16. (*) (+)	**VG 99**	**Boll: ciliation of false septa**	**Capsule : ciliation des fausses cloisons**	**Kapsel: Bewimperung der Kapselscheide**	**Cápsula: ciliación de las falsas membranas**		
QL		absent	absente	fehlend	ausente	Violin (F), Hivernal (O)	1
		present	présente	vorhanden	presente	Heljä (F), Barbara (O)	9
17. (+)	**MS 99**	**Boll: length**	**Capsule : longueur**	**Kapsel: Länge**	**Cápsula: longitud**		
QN	**(b)**	very short	très courte	sehr kurz	muy corta	Drakkar (F)	1
	(c)	short	courte	kurz	corta	Hermes (F)	3
		medium	moyenne	mittel	media	Escalina (F)	5
		long	longue	lang	larga	Violin (F)	7
		very long	très longue	sehr lang	muy larga	Eden (F)	9
18. (+)	**MS 99**	**Boll: width**	**Capsule : largeur**	**Kapsel: Breite**	**Cápsula: anchura**		
QN	**(b)**	very narrow	très étroite	sehr schmal	muy estrecha		1
	(c)	narrow	étroite	schmal	estrecha	Electra (F)	3
		medium	moyenne	mittel	media	Hermes (F)	5
		broad	large	breit	ancha	Agatha (F)	7
		very broad	très large	sehr breit	muy ancha		9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
19.	**MS 99**	**Boll: ratio length/width**	**Capsule : rapport longueur/largeur**	**Kapsel: Verhältnis Länge/Breite**	**Cápsula: relación longitud/anchura**		
QN	**(b)**	very compressed	très comprimé	stark zusammengedrückt	muy comprimida	Drakkar (F)	1
	(c)	moderately compressed	modérément comprimé	mäßig zusammengedrückt	moderadamente comprimida	Diane (F)	3
		medium	moyen	mittel	media	Ilona (F)	5
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada	Agatha (F)	7
		very elongated	très allongé	stark langgezogen	muy alargada	Violin (F)	9
20. (*) (+)	**MS 99**	**Stem: length from cotyledon scar to first branch**	**Tige : longueur entre la cicatrice du cotylédon et la première ramification**	**Stengel: Länge von Keimblattnarbe zu erstem Zweig**	**Tallo: longitud desde la cicatriz del cotiledón hasta la primera rama**		
QN		very short	très courte	sehr kurz	muy corta	Abacus (O)	1
		short	courte	kurz	corta	Eole (O)	3
		medium	moyenne	mittel	media	Mac Gregor (O)	5
		long	longue	lang	larga	Agatha (F)	7
		very long	très longue	sehr lang	muy larga	Drakkar (F)	9
21. (+)	**MS 99**	**Stem: length from cotyledon scar to top boll**	**Tige : longueur entre la cicatrice du cotylédon et le sommet de la capsule**	**Stengel: Länge von Keimblattnarbe zu oberster Kapsel**	**Tallo: longitud desde la cicatriz del cotiledón hasta la cápsula superior**		
QN		very short	très courte	sehr kurz	muy corta	Banquise (O)	1
		short	courte	kurz	corta	Barbara (O)	3
		medium	moyenne	mittel	media	Bilton (O)	5
		long	longue	lang	larga	Escalina (F)	7
		very long	très longue	sehr lang	muy larga	Drakkar (F)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22. (*)	**MG 99**	**1000 seed weight**	**Poids de 1000 graines**	**1000-Korngewicht**	**Peso de 1000 semillas**		
QN		very low	très petit	sehr gering	muy pequeño	Ariane(F), Ingot (O)	1
		low	petit	gering	pequeño	Alizee (F), Banquise (O)	3
		medium	moyen	mittel	medio	Barbara (O)	5
		high	grand	hoch	grande	Astral (O)	7
		very high	très grand	sehr hoch	muy grande	Master (O)	9
23. (*)	**VG 99**	**Seed: color**	**Graine : couleur**	**Korn: Farbe**	**Semilla: color**		
QL		white	blanche	weiß	blanco	Zhang Bei white linseed (O)	1
		yellow	jaune	gelb	amarillo	Aardvark (O)	2
		brown	brune	braun	marrón	Escalina (F), Barbara (O)	3
24.	**MS 99**	**Seed: length**	**Graine : longueur**	**Korn: Länge**	**Semilla: longitud**		
QN	**(b)**	very short	très courte	sehr kurz	muy corta	Delphine (F)	1
	(d)	short	courte	kurz	corta	Marylin (F)	2
		medium	moyenne	mittel	media	Rosalin (F)	3
		long	longue	lang	larga	Alizee (F)	4
		very long	très longue	sehr lang	muy larga	Escalina (F)	5
25.	**MS 99**	**Seed : width**	**Graine : largeur**	**Korn: Breite**	**Semilla: anchura**		
QN	**(b)**	very narrow	très étroite	sehr schmal	muy estrecha	Sofie (F)	1
	(d)	narrow	étroite	schmal	estrecha	Electra (F)	2
		medium	moyenne	mittel	media	Marylin (F)	3
		broad	large	breit	ancha	Escalina (F)	4
		very broad	très large	sehr breit	muy ancha	Viking (F)	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	**MS 99**	**Seed: ratio length/width**	**Graine : rapport longueur/largeur**	**Korn: Verhältnis Länge/Breite**	**Semilla: relación longitud/anchura**		
QN	**(b)**	very compressed	très comprimé	stark zusammengedrückt	muy comprimida	Josephine (F)	1
	(d)	moderately compressed	modérément comprimé	mäßig zusammengedrückt	moderadamente comprimida	Marylin (F)	2
		medium	moyen	mittel	media	Hermes (F)	3
		moderately elongated	modérément allongé	mäßig langgezogen	moderadamente alargada	Escalina (F)	4
		very elongated	très allongé	stark langgezogen	muy alargada	Sofie (F)	5

8. Explanations on the Table of Characteristics

8.1 Explanation covering several characteristics

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

(a) To be observed on fresh fully opened flowers

(b) To be observed for long and medium type varieties with brown seed color only. The observation is not useful for short type varieties and for varieties with yellow seed color.

Varieties are classified in short type varieties (Note 1-4), medium type varieties (Note 5) and long type varieties (Note 6-9) based on characteristic 20 (Stem: length from cotyledon scar to first branch).

(c) Should be observed on the top boll

(d) Should be observed on single seed taken from top boll. Seeds should be extracted by hand. Seed width and seed length are measured on the same sample of 20 seeds.

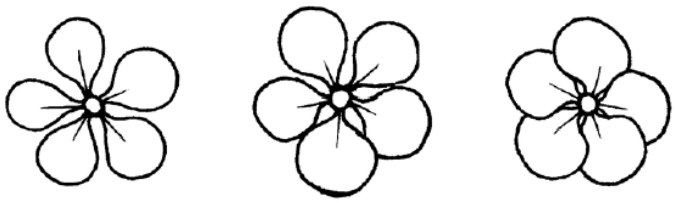
8.2 Explanations for individual characteristics

Ad. 1: Petal: color of crown at bud stage

Ad. 2: Time of beginning of flowering

Time of flowering is reached when the first flower is open in 10% of plants.

Ad. 3: Corolla: arrangement of petals



1
free

2
intermediate

3
overlapping

Ad. 5: Flower: size of corolla

The size is the diameter of the corolla observed in the natural position (not with corolla held flat).

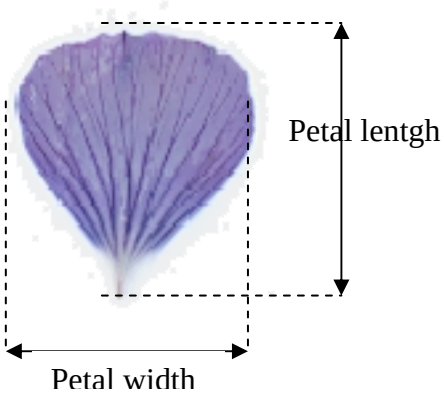
Ad. 6: Excluding varieties with corolla color: white: Flower: shape of corolla heart

1
circular

2
circular to pentagonal

3
pentagonal

Ad. 7: Petal: length
Ad. 8: Petal: width



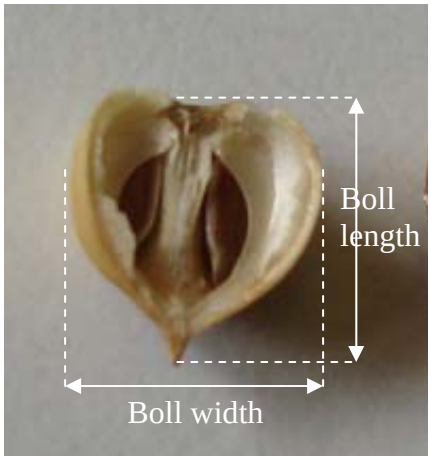
Ad. 14: Plant: height

Should be measured on the plot including lateral branches (at time of flowering) (see Ad. 21).

Ad. 16: Boll: ciliation of false septa

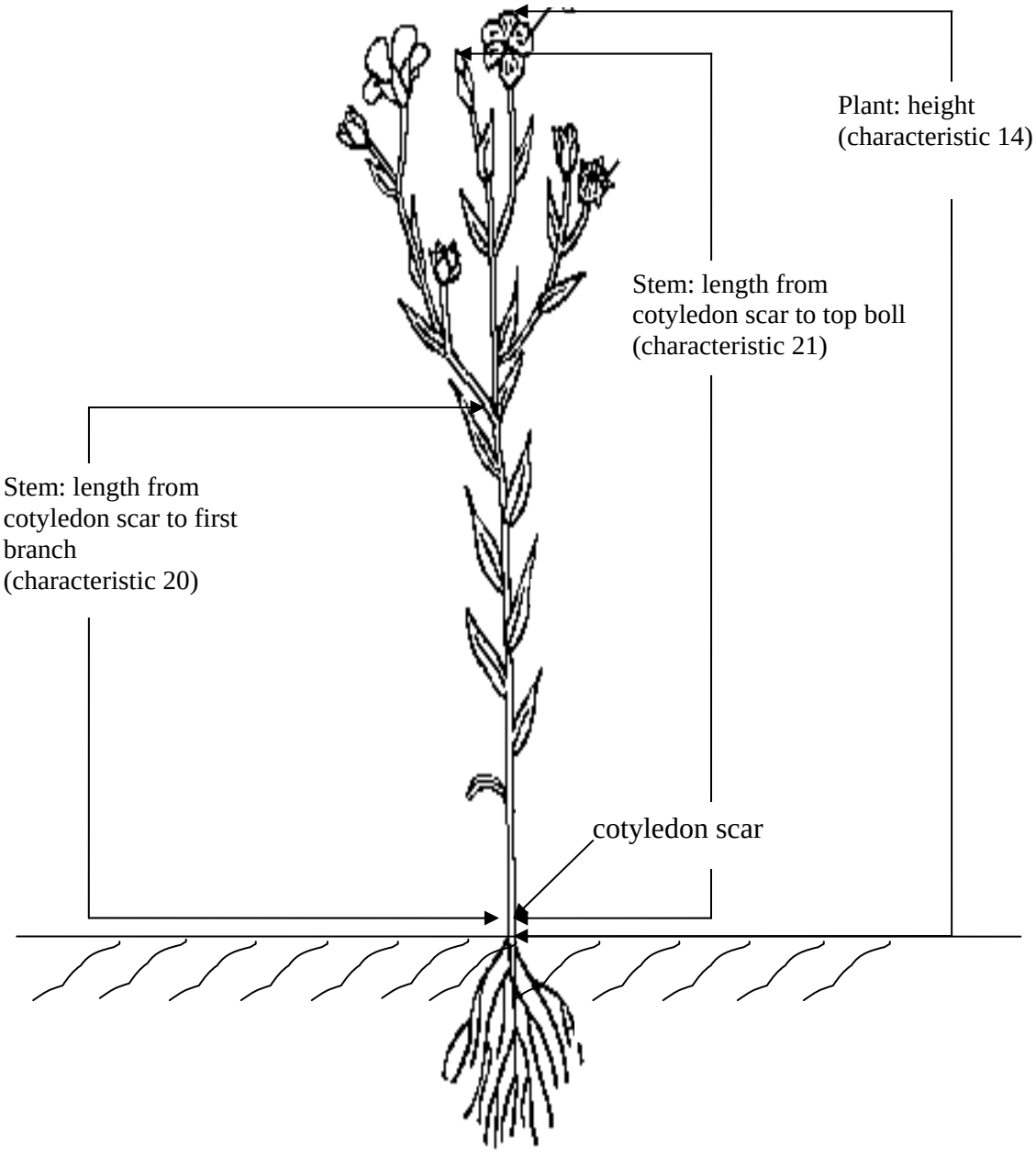
1 absent | 9 present

Ad. 17: Boll: length
Ad. 18: Boll: width



Ad. 20: Stem: length from cotyledon scar to first branch
Ad. 21: Stem: length from cotyledon scar to top boll

Characteristics should be observed on the main stem.



8.3 Growth stages of Linum usitatissimum *L. adapted to the BBCH (Meier U., 1997) scale applicable to individual plant*

Stage 0	Germination
00	Dry seed
01	Beginning of seed imbibition
05	Radicle (root) emerged from seed
09	Emergence, Coleoptiles breaks through soil surface
Stage 1	Leaf development (main shoot)
11	First true leaf unfolded
12	Two true leaves unfolded
15	Five true leaves unfolded
..	Stages continuous till stage 19
Stage 5	Inflorescence emergence (main shoot)/heading
51	Flower buds visible
55	First individual flowers visible (still closed)
59	First flower petals visible
Stage 6	Flowering (main shoot)
60	First flowers open (sporadically)
61	Beginning of flowering: 10% of flowers open
65	Full flowering: 50% of flowers open
69	End of flowering: fruit set visible
Stage 7	Development of bolls
71	10% of bolls have reached final size
75	50% of bolls have reached final size
79	Nearly all bolls have reached final size
Stage 8	Ripening or maturity of fruit and seed
81	Beginning of ripening or boll colouration
85	Sepals and bolls yellow coloured
89	Fully ripe, boll and seed show fully ripe colour
Stage 9	Senescence
99	Harvested plants and/or seeds

9. Literature

Anonyme, 1969: Le lin au service des hommes, sa vie, ses techniques, son histoire. Editions J-B Baillière et Fils. Paris, FR.

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Keefe, P.D., 1999: Measurement of linseed (*Linum usitatissimum* L.) seed characters distinctness, uniformity and stability testing using image analysis, Plant Varieties and Seeds, Cambridge, GB.

Marshall, G., Editor, 1988: "Flax: Breeding and utilisation" Proceedings of the EEC Flax Workshop held in Brussels, Belgium, May 4-5 1998, sponsored by the Commission of the European Communities, Directorate-General for agriculture, Kluwer Academic Publishers, BE.

Meier U., 1997: Growth stages of mono- and dicotyledonous plants: BBCH-Monograph. Wien Federal Biological Research Center for Agriculture and Forestry, Blackwell Wissenschafts-Verlag, Berlin, DE.

Plonka, F., 1956: Les variétés de lin. INRA (Institut National de la Recherche Agronomique). Paris, FR.

10. Technical Questionnaire

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

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

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

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Linum usitatissinum* L.
1.2 Common name	Flax, Linseed

2. Applicant

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

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…) 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:

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]
(please provide details)

4.2.2 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
5.1 (4)	**Corolla : color**		
	white	Belinka (F), Laser (O)	1[ ]
	light pink	Zhong Ya Ma No. 3 (F)	2[ ]
	medium pink	Petra (O)	3[ ]
	red violet		4[ ]
	violet	Violin (F), Hungarian Gold (O)	5[ ]
	blue violet	Hermes (F), Niagara (O)	6[ ]
	medium blue	Escalina (F), Alaska (O)	7[ ]
	light blue	Melina (F), Barbara (O)	8[ ]
5.2 (16)	**Boll: ciliation of false septa**		
	absent	Violin (F), Hivernal (O)	1[ ]
	present	Heljä (F), Barbara (O)	9[ ]
5.3 (20)	**Stem: length from cotyledon scar to first branch**		
	very short	Abacus (F)	1[ ]
	very short to short		2[ ]
	short	Eole (O)	3[ ]
	short to medium		4[ ]
	medium	Mac Gregor (O)	5[ ]
	medium to long		6[ ]
	long	Agatha (F)	7[ ]
	long to very long		8[ ]
	very long	Drakkar (F)	9[ ]

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

	Characteristics	Example Varieties	Note
5.4 (23)	**Seed: color**		
	white	Zhang Bei white linseed (O)	1[ ]
	yellow	Aardvark (O)	2[ ]
	brown	Escalina (F), Barbara (O)	3[ ]

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

6. Similar varieties and differences from these varieties

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

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

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 Other information

7.3.1 Main use

(a) Fibre [ ]
(b) Oil [ ]
(c) Fibre and Oil [ ]
(please provide details)

7.3.2 Time of sowing

(a) winter [ ]
(b) spring [ ]

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

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

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

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

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

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

(a) Microorganisms (e.g. virus, bacteria, 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]