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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS Geneva

DRAFT

LENTIL

UPOV Code: LENSS_CUL

Lens culinaris Medik.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from France

to be considered by the

Enlarged Editorial Committee at its meeting to be held in Geneva, on January 7 and 8, 2015

Disclaimer: this document does not represent UPOV policies or guidance

Alternative Names:*

Botanical name	English	French	German	Spanish
Lens culinaris Medik.	Lentil	Lentille	Linse	Lenteja

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. <u>Subject of these Test Guidelines</u>

These Test Guidelines apply to all varieties of *Lens culinaris* Medik.

2. <u>Material Required</u>

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 or at least 10,000 seeds.

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. <u>Method of Examination</u>

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

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.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 100 plants.

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 20 plants or parts 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 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 100 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. <u>Grouping of Varieties and Organization of the Growing Trial</u>

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) Cotyledon: color (characteristic 1)
- (b) Plant: anthocyanin coloration (characteristic 3)
- (c) Flower: color of standard (characteristic 11)
- (d) Dry seed: main color (characteristic 19)
- (e) Dry seed: weight (characteristic 21)
- (f) Time of flowering (characteristic 22)

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

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 QN PQ	Qualitative characteristic Quantitative characteristic Pseudo-qualitative characteristic	– see Chapter 6.3 – see Chapter 6.3 – see Chapter 6.3
MG, M	S, VG, VS	- see Chapter 4.1.5

- (a)-(c) See Explanations on the Table of Characteristics in Chapter 8.1
- (+) See Explanations on the Table of Characteristics in Chapter 8.2

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	VG	Cotyledon: color	Cotylédon : couleur	Keimblatt: Farbe	Cotiledón: color		
PQ		green	vert	grün	verde	Petrovskaya zelenozjornaya	1
		greenish yellow	jaune verdâtre	grünlichgelb	amarillo verdoso	Anicia, Petrovskaya 4/105	2
		orange	orange	orange	naranja	Lentillon rosé d'hiver, Rosana	3
2. (+)	VG	Plant: habit	Plante : port	Pflanze: Wuchsform	Planta: hábito de crecimiento		
QN		erect	dressé	aufrecht	erecta	Petrovskava 4/105	1
		semi erect	demi-dressé	halbaufrecht	semierecta	Anicia	3
		horizontal	horizontal	waagerecht	horizontal		5
3. (*) (+)	VG	Plant: anthocyanin coloration	Plante : pigmentation anthocyanique	Pflanze: Anthocyanfärbung	Planta: pigmentación antociánica		
QL		absent	absente	fehlend	ausente	Gilda	1
		present	présente	vorhanden	presente	Anicia, Lentillon rosé d'hiver	9
4. (*) (+)	VG	Plant: height	Plante : hauteur	Pflanze: Höhe	Planta: altura		
QN		short	courte	niedrig	corta	Lentillon rosé d'hiver	3
		medium	moyenne	mittel	media	Anicia	5
		tall	haute	hoch	alta	Petrovskaya 4/105	7
		very tall	très haute	sehr hoch	muy alta	Vehovskaya	9
5.	VG	Plant: intensity of	Plante : intensité de la	Pflanze: Stärke der	Planta: intensidad de la		
(+)		Tamincation	Tamincation	verzweigung	Tamincación		
QN		weak	faible	gering	escasa	Vehovskaya	3
		medium	moyenne	mittel	media		5
		strong	forte	stark	abundante	Lentillon rosé d'hiver	7
6. (*)	VG	Leaf: intensity of green color	Feuille : intensité de la couleur verte	Blatt: Intensität der Grünfärbung	Hoja: intensidad del color verde		
QN		light	faible	hell	claro	Santa, Vehovskaya	3
		medium	moyenne	mittel	medio	Anicia	5
		dark	forte	dunkel	oscuro	Lentillon rosé d'hiver, Petrovskaya zelenozjornaya	7

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	VG	Leaflet: shape	Foliole : forme	Fiederblatt: Form	Folíolo: forma		
(+)							
PQ		elliptic	elliptique	elliptisch	elíptico		1
		obovate	obovale	verkehrt eiförmig	oboval	Petrovskaya 4/105	2
_		rectangular	rectangulaire	rechteckig	rectangular	Vehovskaya	3
8.	VG	Leaflet: size	Foliole : taille	Fiederblatt: Größe	Folíolo: tamaño		
QN		small	petite	klein	pequeño	Santa	3
		medium	moyenne	mittel	mediano	Anicia	5
		large	grande	groß	grande	Lentillon rosé d'hiver	7
9.	VG/ MS	Raceme: number of flowers per node	Grappe : nombre de fleurs par nœud	Blütenstand: Anzahl Blüten pro Knoten	Racimo: número de flores por nudo		
(+)							
QN		only one	un seul	nur eine	únicamente una		1
		one or two	un ou deux	eine oder zwei	una o dos		2
		only two	seulement deux	nur zwei	únicamente dos	Lentillon rosé d'hiver	3
		two or three	deux ou trois	zwei oder drei	dos o tres	Anicia, Petrovskaya 4/105	4
		only three	seulement trois	nur drei	únicamente tres	Flora	5
_		more than three	plus de trois	mehr als drei	más de tres		6
10.	VG	Flower: size	Fleur : taille	Blüte: Größe	Flor: tamaño		
QN	(a)	small	petite	klein	pequeña		3
		medium	moyenne	mittel	mediana	Gilda	5
_		large	grande	groß	grande	Petrovskaya 4/105	7
11. (*)	VG	Flower: color of standard	Fleur : couleur de l'étendard	Blüte: Farbe der Fahne	Flor: color del estandarte		
PQ	(a)	white	blanc	weiß	blanco	Anicia	1
		pink	rose	rosa	rosa		2
		blue	bleu	blau	azul	Azer	3
12. (*)	VG	Flower: violet stripes of standard	Fleur : stries violettes de l'étendard	Blüte: violette Streifen der Fahne	Flor: estrías violetas del estandarte		
QL	(a)	absent	absentes	fehlend	ausentes		1
		present	présentes	vorhanden	presentes	Anicia, Lentillon rosé d'hiver	9
13.	VG	Pod: color	Gousse : couleur	Hülse: Farbe	Vaina: color		
QN	(b)	light green	vert clair	hellgrün	verde claro		1
		medium green	vert moyen	mittelgrün	verde medio	Anicia, Lentillon rosé d'hiver	2
		dark green	vert foncé	dunkelgrün	verde oscuro		3

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14.	MG/	Pod: number of	Gousse : nombre	Hülse: Anzahl	Vaina: número de		
(+)	VG	ovules	d'ovules	Samenanlagen	ovulos		
QN	(b)	one	un	eine	uno		1
	(c)	two	deux	zwei	dos	Lentillon rosé d'hiver	3
		three	trois	drei	tres	Anicia	5
15. (*)	VG	Pod: length	Gousse : longueur	Hülse: Länge	Vaina: longitud		
QN	(c)	short	courte	kurz	corta	Anicia, Lentillon rosé d'hiver	3
		medium	moyenne	mittel	media	Arcadia	5
		long	longue	lang	larga	Gilda	7
16.	VG	Pod: width	Gousse : largeur	Hülse: Breite	Vaina: anchura		
(+)							
QN	(c)	narrow	étroite	schmal	estrecha	Lentillon rosé d'hiver	1
		medium	moyenne	mittel	media	Anicia	2
		broad	large	breit	ancha		3
							-
17. (*) (+)	VG	Dry seed: width	Graine sèche : largeur	Trockenkorn: Breite	Grano seco: anchura		
17. (*) (+) QN	VG	Dry seed: width	Graine sèche : largeur étroite	Trockenkorn: Breite	Grano seco: anchura estrecho	Lentillon rosé d'hiver	3
17. (*) (+) QN	VG	Dry seed: width narrow medium	Graine sèche : largeur étroite moyenne	Trockenkorn: Breite schmal mittel	Grano seco: anchura estrecho medio	Lentillon rosé d'hiver Anicia	3 5
17. (*) (+) QN	VG	Dry seed: width narrow medium broad	Graine sèche : largeur étroite moyenne large	Trockenkorn: Breite schmal mittel breit	Grano seco: anchura estrecho medio ancho	Lentillon rosé d'hiver Anicia	3 5 7
17. (*) (+) QN 18. (*) (+)	VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal	Lentillon rosé d'hiver Anicia	3 5 7
17. (*) (+) QN 18. (*) (+) QN	VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho	Lentillon rosé d'hiver Anicia Petrovskaya 4/105	3 5 7 1
17. (*) (+) QN 18. (*) (+) QN	VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico medio	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia	3 5 7 1 2
17. (*) (+) QN 18. (*) (+) QN	VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic broad elliptic	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne elliptique large	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch breit elliptisch	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico medio elíptico ancho	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia Dora	3 5 7 1 2 3
17. (*) (+) QN 18. (*) (+) QN 19. (*) (+)	VG VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic broad elliptic Dry seed: main color	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne elliptique large Graine sèche : couleur principale	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch breit elliptisch Trockenkorn: Hauptfarbe	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico medio elíptico ancho Grano seco: color principal	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia Dora	3 5 7 1 2 3
17. (*) (+) QN 18. (*) (+) QN 19. (*) (+) PQ	VG VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic broad elliptic Dry seed: main color greenish yellow	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne elliptique large Graine sèche : couleur principale	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch breit elliptisch Trockenkorn: Hauptfarbe grünlichgelb	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico medio elíptico ancho Grano seco: color principal amarillo verdoso	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia Dora Petrovskaya 4/105	3 5 7 1 2 3
17. (*) (+) QN 18. (*) (+) QN 19. (*) (+) PQ	VG VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic broad elliptic Dry seed: main color greenish yellow green	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne elliptique large Graine sèche : couleur principale jaune verdâtre vert	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch breit elliptisch Trockenkorn: Hauptfarbe grünlichgelb grün	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico medio elíptico ancho Grano seco: color principal amarillo verdoso verde	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia Dora Petrovskaya 4/105 Anicia, Petrovskaya zelenozjornaya	3 5 7 1 2 3 1 2
17. (*) (+) QN 18. (*) (+) QN 19. (*) (+) PQ	VG VG VG	Dry seed: width narrow medium broad Dry seed: shape in longitudinal section narrow elliptic medium elliptic broad elliptic Dry seed: main color greenish yellow green pink	Graine sèche : largeur étroite moyenne large Graine sèche : forme en section longitudinale elliptique étroite elliptique moyenne elliptique large Graine sèche : couleur principale jaune verdâtre vert rose	Trockenkorn: Breite schmal mittel breit Trockenkorn: Form im Längsschnitt schmal elliptisch mittel elliptisch breit elliptisch grünlichgelb grün rosa	Grano seco: anchura estrecho medio ancho Grano seco: forma en sección longitudinal elíptico estrecho elíptico ancho Grano seco: color principal amarillo verdoso verde rosa	Lentillon rosé d'hiver Anicia Petrovskaya 4/105 Anicia Dora Petrovskaya 4/105 Anicia, Petrovskaya zelenozjornaya	3 5 7 1 2 3 1 2 3

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		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
20. (*) (+)	VG	Dry seed: pattern of secondary color	Graine sèche : répartition de la couleur secondaire	Trockenkorn: Muster der Sekundärfarbe	Grano seco: distribución del color secundario		
PQ		none	nulle	keines	ausente		1
		patches	taches	Flecken	motas		2
		spots	petits points	Punkte	lunares		3
		marbled	marbré	marmoriert	veteado	Petrovskaya 4/105	4
		irregular	tâches irrégulières	unregelmäßig	irregular		5
21. (*) (+)	MG	Dry seed: weight	Graine sèche : poids	Trockenkorn: Gewicht	Grano seco: peso		
QN		very low	très bas	sehr niedrig	muy bajo	Lentillon rosé d'hiver	1
		low	bas	niedrig	bajo	Anicia	3
		medium	moyen	mittel	medio	Petrovskaya 4/105	5
		high	élevé	hoch	alto		7
		very high	très élevé	sehr hoch	muy alto	Vehovskaya	9
22. (*) (+)	MS	Time of flowering	Époque de floraison	Zeitpunkt der Blüte	Época de floración		
QN		very early	très précoce	sehr früh	muy temprana		1
		early	précoce	früh	temprana	Anicia	3
		medium	moyenne	mittel	media	Petrovskaya 4/105	5
		late	tardive	spät	tardía		7
		very late	très tardive	sehr spät	muy tardía	Lentillon rosé d'hiver	9

8. <u>Explanations on the Table of Characteristics</u>

8.1 Explanations covering several characteristics

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

- (a) Flower: observations should be done when at least 50% of the plants are flowering and on flowers fully developed.
- (b) Pod before dry harvest maturity: observations should be done when the pod is not completely dry.
- (c) Pod at dry harvest maturity: observations should be done when the pod is completely dry but before that the pod breaks alone.
- 8.2 Explanations for individual characteristics
- Ad. 2: Plant: habit

1 erect





Ad. 3: Plant: anthocyanin coloration:

The anthocyanin coloration is generally observed at the basis of the ramification.



Ad. 4: Plant: height

The height of the plants should be assessed when all normally developed plants have opened at least one flower.

Ad. 5: Plant: intensity of ramification

The intensity of ramification of the plants should be assessed when all normally developed plants have opened at least one flower.



weak



medium



strong

Ad. 7: Leaflet: shape



Ad. 9: Raceme: number of flowers per node

The number of flower per node of raceme should be assessed at flowering stage with a focus on the first floral floors.

Ad. 14: Pod: number of ovules

The number of ovules per pod can be observed

- before seed development, when the pod is flat by counting each ovule
- at dry harvest maturity, when the pod is completely dry (but before the pod breaks alone), by counting developed seeds and non-developed ovules

Ad. 16: Pod: width

The observations should be made on well developed green pods; the width is assessed from suture to suture on unopened pods.

Ad. 17: Dry seed: width Ad. 18: Dry seed: shape in longitudinal section Ad. 19: Dry seed: main color Ad. 20: Dry seed: pattern of secondary color Ad. 21: Dry seed: weight

Dry seed is the seed coming from the pod completely dry, at dry harvest maturity, just before the pod breaks alone.

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Ad. 18: Dry seed: shape in longitudinal section



Ad. 19: Dry seed: main color

The main color is the color with the largest surface area. In cases where area of the main and secondary color are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main color.

Ad. 20: Dry seed: pattern of secondary color



Ad. 21: Dry seed: weight

Seed weight should be measured on at least two samples of 100 seeds. Immature and infected seeds should be excluded.

Ad. 22: Time of flowering

The observations are made on 20 plants per variety per replication. The beginning of the time of flowering matches with the observation of the first opened flower. When 80% is flowered it is considered as the end of the flowering. The note is given on the basis of the example varieties

9. <u>Literature</u>

Bejiga, G., 2006: Lens culinaris Medik. In: Brink, M., Belay, G. (Editeurs). PROTA 1: Cereals and pulses/Céréales et légumes secs. [CD-Rom]. PROTA, Wageningen, NL

Muehlbauer, F. J., McPhee, K. E., 2005: Lentil (Lens culinaris Medik.). Genetic resources and chromosome engineering and crop improvement. Grain legumes, 1, 219 to 230 pp.

Serpeille A., 2002: Les lentilles: Biologie et aspects techniques. Monographie générale. FNAMS, Bourges, FR

Webb, C., Hawtin, G. (Editors), 1981: Lentils. Commonwealth Agricultural Bureaux, Farnham Royal, Slough SL 2 3BN, GB, ISBN 0 85198 475 4

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10. <u>Technical Questionnaire</u>

TECH	INICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
			Application date: (not to be filled in by the applicant)
	to be completed in co	ECHNICAL QUESTIONNAI	RE for plant breeders' rights
1.	Subject of the Technical Questionna	ire	
	1.1 Botanical name	ens culinaris Medik.	
	1.2 Common name	entil	
2.	Applicant		
	Name		
	Address		
	Telephone No.		
	Fax No.		
	E-mail address		
	Breeder (if different from applicant)		
3.	Proposed denomination and breede	r's reference	
	Proposed denomination (if available)		
	Breeder's reference		

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TEC	HNICA	L QUE	STIONI	NAIRE	Page {x} of {y}	Reference Number:	
[#] 4. Information on the breeding scheme and propagation of the variety						y	
	4.1.	Breed	ling sch	neme			
		Varie	ty resul	Iting from:			
		4.1.1	Cross	sing			
			(a)	controlled cross		[]
			(b)	partially known cr	OSS	Γ]
			(c)	unknown cross		[]
	4.2	Metho	od of pr	opagating the varie	ty		
		4.2.1	Seed	-propagated varietie	es		
			(a) (b)	Self-pollination Cross-pollination (i) population (ii) synthetic val	riety	[] [] []	
			(c) (d)	Hybrid Other (please provide d	etails)	[]	

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

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TECH	NICAL 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 (1)	Cotyledon: color							
	green		Petrovskaya zelenozjornaya	1[]				
	greenish yellow		Anicia, Petrovskaya 4/105	2[]				
	orange		Lentillon rosé d'hiver Rosana	3[]				
5.2 (3)	Plant: anthocyanin coloration							
	absent		Gilda	1[]				
	present		Anicia, Lentillon rosé d'hiver	9[]				
5.3 (11)	Flower: color of standard							
	white		Anicia	1[]				
	pink			2[]				
	blue		Azer	3[]				
5.4 (19)	Dry seed : main color							
	greenish yellow		Petrovskaya 4/105	1[]				
	green		Anicia, Petrovskaya zelenozjornaya	2[]				
	pink			3[]				
	black			4[]				
5.5 (21)	Dry seed: weight							
	very low		Lentillon rosé d'hiver	1[]				
	very low to low			2[]				
	low		Anicia	3[]				
	low to medium			4[]				
	medium		Petrovskaya 4/105	5[]				
	medium to high			6[]				
	high			7[]				
	high to very high			8[]				

very high

Vehovskaya

9[]

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TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:	
	Characteristics		Example Varieties	Note
5.6 (22)	Time of flowering			
	very early			1[]
	very early to early			2[]
	early		Anicia	3[]
	early to medium			4[]
	medium		Petrovskaya 4/105	5[]
	medium to late			6[]
	late			7[]
	late to very late			8[]
	very late		Lentillon rosé d'hiver	9[]

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TECHNICAL QUESTIONNAIRE	Page {x} of {y	age {x} of {y} Reference Num		ber:		
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 Characteris variety(ies) similar to your your candidate candidate variety from the sim	tic(s) in which e variety differs ilar 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 Cotylec	Example Cotyledon: color		orange	green		
Comments:						

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TECL					f (L)	Deference Number			
			Page {x} of {y}		Reference Number.				
[#] 7.	Additional information which may help in the examination of the variety								
7.1	In add help to	dition to the information provided in sections 5 and 6, are there any additional characteristics which may to distinguish the variety?							
	Yes	[]		No []					
	(If yes	please pr	rovide details)						
7.2	Are there any special conditions for growing the variety or conducting the examination?								
	Yes	[]		No []					
	(If yes	(If yes, please provide details)							
7.3	Other	ther information							
8.	Authorization for release								
	(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?								
		Yes	[]	No	[]				
	(b)	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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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 treatm	nent (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						
	Signat	ure		Date			

[End of document]