



These Test Guidelines have been superseded by a later version. The latest adopted version of Test Guidelines can be found at http://www.upov.int/test_guidelines/en/list.jsp

Ces principes directeurs d'examen ont été remplacés par une version ultérieure. La version adoptée la plus récente des principes directeurs d'examen figure à l'adresse suivante : http://www.upov.int/test_guidelines/fr/list.jsp

Diese Prüfungsrichtlinien wurden durch eine neuere Fassung ersetzt. Die neueste angenommene Fassung von Prüfungsrichtlinien ist unter http://www.upov.int/test_guidelines/de/list.jsp zu finden.

Las presentes directrices de examen han sido reemplazadas por una versión posterior. La versión de las directrices de examen de más reciente aprobación está disponible en http://www.upov.int/test_guidelines/es/list.jsp.



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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

LEAF CHICORY

UPOV Code(s):

CICHO_INT_FOL

Cichorium intybus L. var. *foliosum* Hegi

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative names:*

Botanical name	English	French	German	Spanish
<i>Cichorium intybus</i> L. var. <i>foliosum</i> Hegi	Salad Chicory	Chicorée à large feuille	Blattzichorie	Achicoria de ensalada

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.

Other associated UPOV documents: industrial chicory (TG/172) and witloof chicory (TG/173)

* 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 *Cichorium intybus* L. var. *foliosum* Hegi.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seeds.

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

10,000 seeds or 20 grams of seed

In the case of seed, the seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

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*

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*

Each test should be designed to result in a total of at least 100 plants, which should be divided between at least 2 replicates.

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 60 plants or parts of plants taken from each of 60 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 These Test Guidelines have been developed for the examination of cross-pollinated varieties, hybrids and seed propagated inbred lines. 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 The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.
- 4.2.4 For the assessment of uniformity of inbred lines and hybrids, a population standard of 3% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 100 plants, 6 off-types are allowed. In addition, the same population standard and acceptance probability should apply to clear cases of out-crossed plants in inbred lines as well as plants obviously resulting from the selfing of a parent line in hybrids.

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) Leaf: anthocyanin coloration (characteristic 7)
 - (b) Leaf: color (characteristic 8)
 - (c) Plant: head formation (characteristic 16)
 - (d) Head: shape in longitudinal section (characteristic 21)

In a first step, the collection should be divided according to types as described in the Table 1. In cases of doubt to which type a variety belongs to, it should be tested under consideration of all relevant types.

- 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".

Table 1: Classification of types according to characteristics

Plant: type	Plant: diameter (char. 2)	Leaf: length (char. 4)	Leaf: width (char. 5)	Leaf: color (char. 8)	Leaf: anthocyanin distribution (char. 9)	Plant: head formation (char. 16)	<u>Only for varieties with head formation:</u> Time of head formation (char. 17)	Head: shape in longitudinal section (char. 21)	Head: color of cover leaves (char. 25)	Plant: formation of stem (char. 27)
Chioggia	medium to large (notes 5-7)	very short to medium (notes 1- 5)	medium to broad (notes 5-7)	dark green (note 4)	diffused only	closed	very early to very late (notes 1-9)	circular to oblate (notes 3-4)	medium to dark red (notes 7-8)	absent
Verona	small to medium (notes 3-5)	medium (note 5)	medium to broad (notes 5-7)	medium green (note 3)			very early to very late (notes 1-9)	ovate (note 2)	medium red (note 7)	absent
Rossa di Treviso precoce	medium (note 7)	long (note 7)	narrow (note 5)	medium red (note 6)			very early to late (notes 1-7)	elliptic (note 1)	medium red (note 7)	absent
Pan di Zuccherò/ Pain de Sucre	large (note 7)	medium to long (notes 5-7)	very broad (note 9)	light green to medium green (notes 2-3)	absent		medium (note 5)	elliptic (note1)	light green (note 3)	absent
Bianca di Milano	medium (note 5)	medium (note 5)	broad (note 7)	yellowish green to light green (notes 1-2)			early (note 3)	ovate (note 2)	light green (note 3)	absent
Bianca invernale	large (note 7)	medium to long (notes 5-7)	medium to broad (notes 5-7)	yellowish green to light green (notes 1-2)			late (note 7)	ovate (note 2)	light green to medium green (notes 3-4)	absent
Variegata di Castelfranco	medium to large (notes 5-7)	medium (note 5)	broad (note 7)	light green (note 2)	in patches only		medium to late (notes 5-7)	ovate (note 2)	yellowish green (note 2)	absent
Variegata di Lusìa	large (note 7)	medium to large (notes 5-7)	broad (note 7)	light green (note 2)			early to late (notes 3-7)	oblate (note 4)	yellowish green (note 2)	absent
Variegata di Chioggia	medium to large (notes 5-7)	medium (note 5)	broad (note 7)	medium green (note 3)	diffused and in patches		late to very late (notes 7-9)	circular (note 3)	whitish green (note 1)	absent
A grumolo verde	small (note 3)	short (note 3)	narrow to medium (notes 3-5)	light green to dark green (notes 2- 4)	absent	open				absent
Améliorée Blonde or Verte	medium (note 5)	short to medium (notes 3-5)	medium (note 5)	light green to dark green (notes 1-4)	absent					absent
Rosa isontina	medium (note 5)	short (note 3)	medium (note 5)	dark red (note 7)	diffused only					absent

Plant: type	Plant: diameter (char. 2)	Leaf: length (char. 4)	Leaf: width (char. 5)	Leaf: color (char. 8)	Leaf: anthocyanin distribution (char. 9)	Plant: head formation (char. 16)	<u>Only for varieties with head formation:</u> Time of head formation (char. 17)	Head: shape in longitudinal section (char. 21)	Head: color of cover leaves (char. 25)	Plant: formation of stem (char. 27)
Rossa di Treviso 2	large (note 7)	long (note 7)	narrow (note 3)	medium green (note 3)	diffused only	absent				absent
Catalogna	medium to very large (notes 5-9)	long to very long (notes 7-9)	narrow (note 3)	light to medium green (notes 2-3)	absent					absent
Catalogna Puntarelle	small to medium (notes 3-5)	long (note 7)	very narrow (note 1)	medium to dark green (notes 3-4)						present
Barbe de Capucin	medium (note 5)	long (note 7)	very narrow to narrow (notes 1-3)	medium to dark green (notes 3-4)						absent

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:

<i>State</i>	<i>Note</i>
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:

<i>State</i>	<i>Note</i>
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

		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 not applicable

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

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	QL	VG	(+)				
	Young plant: anthocyanin coloration		Jeune plante : pigmentation anthocyanique	Junge Pflanze: Anthocyanfärbung	Planta joven: pigmentación antociánica		
	absent		absente	fehlend	ausente	Améliorée blonde, Pan di zucchero	1
	present		présente	vorhanden	presente	Palla rossa 2, Rossa di Treviso precoce	9
2. (*)	QN	MS/VG	(a)				
	Plant: diameter		Plante : diamètre	Pflanze: Durchmesser	Planta: diámetro		
	very small		très petit	sehr klein	muy pequeño	Triestina da taglio	1
	small		petit	klein	pequeño	A grumolo verde, Firestorm	3
	medium		moyen	mittel	medio	Granato, Rossa di Treviso precoce	5
	large		grand	groß	grande	Pan di zucchero	7
	very large		très grand	sehr groß	muy grande	Catalogna puntarelle a foglia frastagliata, Tobago	9
3. (*)	QN	VG	(a), (b)				
	Leaf: attitude		Feuille : port	Blatt: Stellung	Hoja: porte		
	erect		dressé	aufrecht	erecto	Spadona, Clio	1
	semi-erect		demi-dressé	halbaufrecht	semierecto	Palla rossa 2	3
	horizontal		horizontal	waagerecht	horizontal	Selvatica da campo	5
4. (*)	QN	MS/VG	(a), (b)				
	Leaf: length		Feuille : longueur	Blatt: Länge	Hoja: longitud		
	very short		très courte	sehr kurz	muy corta		1
	short		courte	kurz	corta	A grumolo verde	3
	medium		moyenne	mittel	media	Rossa di Verona precoce	5
	long		longue	lang	larga	Pan di zucchero	7
	very long		très longue	sehr lang	muy larga	Catalogna a foglie frastagliate	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5. (*)	QN	MS/VG	(a), (b)				
	Leaf: width	Feuille : largeur	Blatt: Breite	Hoja: anchura			
	very narrow	très étroite	sehr schmal	muy estrecha	Catalogna puntarelle a foglia stretta	1	
	narrow	étroite	schmal	estrecha	Rossa di Treviso 2	3	
	medium	moyenne	mittel	media	Rossa di Treviso precoce	5	
	broad	large	breit	ancha	Variegata di Castelfranco	7	
	very broad	très large	sehr breit	muy ancha	Palla rossa 5	9	
6. (*)	PQ	VG	(+)	(b)			
	Leaf: shape	Feuille : forme	Blatt: Form	Hoja: forma			
	broad oblate	aplatie large	breit breitrund	achatada ancha		1	
	circular	circulaire	kreisförmig	circular	Palla rossa 4	2	
	broad elliptic	elliptique large	breit elliptisch	elíptica ancha	Pan di zucchero, Rossa di Verona tardiva	3	
	medium elliptic	elliptique moyenne	mittel elliptisch	elíptica media	Rossa di Treviso precoce	4	
	narrow elliptic	elliptique étroite	schmal elliptisch	elíptica estrecha	Rossa di Treviso 2	5	
	oblanceolate	oblanceolée	verkehrt lanzettlich	oblanceolada	Catalogna del Veneto, Clio	6	
7. (*)	QL	VG	(a), (b)				
	Leaf: anthocyanin coloration	Feuille : pigmentation anthocyanique	Blatt: Anthocyanfärbung	Hoja: pigmentación antocianica			
	absent	absente	fehlend	ausente	Pan di zucchero	1	
	present	présente	vorhanden	presente	Palla rossa 2	9	
8. (*)	PQ	VG	(+)	(a), (b)			
	Leaf: color	Feuille : couleur	Blatt: Farbe	Hoja: color			
	yellowish green	vert jaunâtre	gelblichgrün	verde amarillento	Bianca di Milano	1	
	light green	vert clair	hellgrün	verde claro	A grumolo bionda, Rosa	2	
	medium green	vert moyen	mittelgrün	verde medio	A grumolo verde	3	
	dark green	vert foncé	dunkelgrün	verde oscuro	A grumolo verde scuro	4	
	light red	rouge clair	hellrot	rojo claro		5	
	medium red	rouge moyen	mittelrot	rojo medio	Rossa di Treviso precoce	6	
	dark red	rouge foncé	dunkelrot	rojo oscuro	Rosa isontina	7	

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9. (*)	PQ	VG	(+)	(a), (b)				
	Leaf: anthocyanin distribution		Feuille : distribution de la pigmentation anthocyanique		Blatt: Verteilung des Anthocyans	Hoja: distribución de la antocianina		
	diffused only		diffuse seulement		nur diffus	solamente difusa	Palla rossa 2	1
	in patches only		en taches seulement		nur in Flecken	solamente en manchas	Variegata di Castelfranco, Variegata di Lusia	2
	diffused and in patches		diffuse et en taches		diffus und in Flecken	difusa y en manchas	Variegata di Chioggia	3
10.	PQ	VG		(a), (b)				
	Leaf: color of midrib		Feuille : couleur de la nervure médiane		Blatt: Farbe der Mittelrippe	Hoja: color del nervio central		
	whitish		blanchâtre		weißlich	blanquecino	Bianca invernale, Bianca di Milano, Pan di zucchero	1
	green		verte		grün	verde	A grumolo verde, Katrina	2
	red		rouge		rot	rojo	Medusa	3
11.	QN	VG		(a), (b)				
	Leaf: profile of upper side		Feuille : profil de la face supérieure		Blatt: Profil der Oberseite	Hoja: perfil del haz		
	strongly concave		fortement concave		stark konkav	muy cóncavo		1
	weakly concave		faiblement concave		leicht konkav	débilmente cóncavo	Grumolo verde scuro	2
	flat		plan		flach	plano	Rossa di Treviso 2	3
	weakly convex		faiblement convexe		leicht konvex	débilmente convexo		4
	strongly convex		fortement convexe		stark konvex	fuertemente convexo	Granato	5
12.	QN	VG		(a), (b)				
	Leaf: glossiness		Feuille : brillance		Blatt: Glanz	Hoja: brillo		
	absent or weak		nulle ou faible		fehlend oder gering	ausente o débil	Jupiter, Rosa	1
	medium		moyenne		mittel	medio	Variegata di Chioggia	3
	strong		forte		stark	fuerte		5
13. (*)	QN	VG		(a), (b)				
	Leaf: blistering		Feuille : cloûre		Blatt: Blasigkeit	Hoja: abullonado		
	absent or very weak		nulle ou très faible		fehlend oder sehr gering	ausente o muy débil	Variegata di Castelfranco	1
	weak		faible		gering	débil	Pan di zucchero, Rossa di Verona precoce	2
	medium		moyenne		mittel	medio	Bianca di Milano, Uranus	3
	strong		forte		stark	fuerte	Mantovana	4
	very strong		très forte		sehr stark	muy fuerte		5

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14.	QN	VG	(a), (b)				
	Leaf: undulation of margin	Feuille : ondulation du bord	Blatt: Randwellung	Hoja: ondulación del margen			
	absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	A grumolo verde scuro, Rossa di Treviso 2		1
	weak	faible	gering	débil	Zuccherina di Trieste		2
	medium	moyenne	mittel	media	Bianca di Milano		3
	strong	forte	stark	fuerte	Barbe de Capucin		4
	very strong	très forte	sehr stark	muy fuerte			5
15. (*)	QN	VG	(a), (b)				
	Leaf: incisions of margin	Feuille : incisions du bord	Blatt: Randeinschnitte	Hoja: incisiones del margen			
	absent or very shallow	absentes ou très peu profondes	fehlend oder sehr flach	ausentes o muy poco profundas	Rossa di Treviso 2		1
	shallow	peu profondes	flach	poco profundas	A grumolo bionda		3
	medium	moyennes	mittel	medias	24 ore		5
	deep	profondes	tief	profundas	Catalogna gigante di Chioggia, Katrina		7
	very deep	très profondes	sehr tief	muy profundas	Catalogna puntarelle di Gaeta, Catalogna puntarelle di Galatina		9
16. (*)	PQ	VG	(a)				
	Plant: head formation	Plante : formation d'une pomme	Pflanze: Kopfbildung	Planta: formación del repollo			
	absent	absente	fehlend	ausente	Clio, Catalogna puntarelle a foglia stretta		1
	open	ouverte	offen	abierto	A grumolo verde, Corma		2
	closed	fermée	geschlossen	cerrado	Bianca invernale, Palla rossa 2, Pan di zucchero, Rossa di Treviso precoce		3

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota	
17. (*)	QN	MG	(+)	(a)					
	Only for varieties with head formation: Time of head formation		Seulement pour les variétés qui forment une pomme : Époque de formation de la pomme		Nur für Sorten mit Kopfbildung: Zeit der Kopfbildung	Solo para variedades que forman repollo: Época de formación del repollo			
	very early		très précoce		sehr früh		muy temprana	Palla rossa 2, Rossa di Verona precoce	1
	early		précoce		früh		temprana	Palla rossa 3	3
	medium		moyenne		mittel		media	Palla rossa 4, Pan di zucchero	5
	late		tardive		spät		tardía	Palla rossa 5, Rossa di Verona tardiva, TT506	7
	very late		très tardive		sehr spät		muy tardía	Palla rossa 6, Tobago, Variegata di Chioggia	9
18. (*)	QN	VG		(a)					
	Head: density		Pomme : densité		Kopf: Dichte	Repollo: densidad			
	loose		lâche		locker		laxo	Améliorée blonde, Grumolo verde scuro	3
	medium		moyenne		mittel		medio	A grumolo bionda, Bianca di Bergamo, Pan di zucchero	5
	dense		dense		dicht		denso	Palla rossa 2, Variegata di Chioggia	7
19. (*)	QN	MS/VG		(a)					
	Head: length		Pomme : longueur		Kopf: Länge	Repollo: longitud			
	short		courte		kurz		corto	A grumolo verde	3
	medium		moyenne		mittel		medio	Bianca di Milano, Jupiter, Palla rossa 4	5
	long		longue		lang		largo	Rossa di Treviso precoce	7
20. (*)	QN	VG		(a)					
	Head: diameter		Pomme : diamètre		Kopf: Durchmesser	Repollo: diámetro			
	very small		très petit		sehr klein		muy pequeño	A grumolo verde scuro	1
	small		petit		klein		pequeño	Rossa di Treviso precoce	3
	medium		moyen		mittel		medio	Mantovana, Rossa di Verona precoce	5
	large		grand		groß		grande	Bianca di Milano	7
	very large		très grand		sehr groß		muy grande	Averto, Gloria	9

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. (*)	PQ	VG	(+)	(a)				
	Head: shape in longitudinal section	Pomme : forme en section longitudinale	Kopf: Form im Längsschnitt	Repollo: forma en sección longitudinal				
	ovate	ovale	eiförmig	oval	Rossa di Verona precoce	1		
	oblate	aplatie	breitrund	achatado	Palla rossa 5	2		
	circular	circulaire	kreisförmig	circular	Variegata di Chioggia	3		
	elliptic	elliptique	elliptisch	elíptico	Pan di zucchero, Rossa di Treviso precoce	4		
22. (*)	QN	VG	(+)	(a)				
	Head: shape of upper part	Pomme : forme de la partie supérieure	Kopf: Form des oberen Teils	Repollo: forma de la parte superior				
	flattened	aplatie	abgeflacht	aplanada	Variegata di Lusia	1		
	rounded	arrondie	abgerundet	redondeada	Lava, Palla rossa 2, Variegata di Chioggia	2		
	pointed	pointue	spitz	puntiaguda	Granato, Pan di zucchero, Rossa di Verona precoce	3		
23.	QN	VG	(+)	(a)				
	Only varieties with Plant: head formation: closed: Head: degree of overlapping of upper part of leaves	Seulement variétés avec Plante : formation d'une pomme : fermée : Pomme : degré de chevauchement de la partie supérieure des feuilles	Nur Sorten mit Pflanze: Kopfbildung: geschlossen: Kopf: Stärke des Überlappens des oberen Teils der Blätter	Solamente variedades con Planta: formación del repollo: cerrado: Repollo: grado de solapamiento de la parte superior de las hojas				
	very weak	très faible	sehr gering	muy débil	Pan di zucchero	1		
	weak	faible	gering	débil	Bianca invernale	3		
	medium	moyen	mittel	medio	Nerone, Rossini	5		
	strong	fort	stark	fuerte	Rossa di Verona precoce	7		
	very strong	très fort	sehr stark	muy fuerte	Tobago	9		
24. (*)	QL	VG		(a)				
	Head: anthocyanin coloration of cover leaves	Pomme : pigmentation anthocyanique des feuilles de couverture	Kopf: Anthocyanfärbung der Deckblätter	Repollo: pigmentación antocianica de las hojas de cobertura				
	absent	absente	fehlend	ausente	Pan di zucchero	1		
	present	présente	vorhanden	presente	Variegata di Chioggia, Variegata di Lusia	9		

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. (*)	PQ	VG	(a)				
	Head: color of cover leaves	Pomme : couleur des feuilles de couverture	Kopf: Farbe der Deckblätter	Repollo: color de las hojas de cobertura			
	whitish green	vert blanchâtre	weißlichgrün	verde blanquecino	Variegata di Chioggia	1	
	yellowish green	vert jaunâtre	gelblichgrün	verde amarillento	Bianca invernale, Variegata di Lusina	2	
	light green	vert clair	hellgrün	verde claro	A grumolo bionda, Pan di zucchero	3	
	medium green	vert moyen	mittelgrün	verde medio	A grumolo verde	4	
	dark green	vert foncé	dunkelgrün	verde oscuro	A grumolo verde scuro, Catalogna puntarelle a foglia frastagliata	5	
	light red	rouge clair	hellrot	rojo claro	Rosa	6	
	medium red	rouge moyen	mittelrot	rojo medio	Rossa di Verona precoce	7	
	dark red	rouge foncé	dunkelrot	rojo oscuro	Nerone, Rosa isontina	8	
26. (*)	PQ	VG	(a)				
	Head: distribution of anthocyanin coloration of cover leaves	Pomme : distribution de la pigmentation anthocyanique des feuilles de couverture	Kopf: Verteilung der Anthocyanfärbung der Deckblätter	Repollo: distribución de la pigmentación antocianica en las hojas de cobertura			
	entire	partout	überall	entera	Rosa isontina	1	
	diffused only	diffuse seulement	nur diffus	solamente difusa	Palla rossa 2	2	
	in patches only	en taches seulement	nur in Flecken	solamente en manchas	Variegata di Castelfranco	3	
	diffused and in patches	diffuse et en taches	diffus und in Flecken	difusa y en manchas	Variegata di Chioggia	4	
	densely speckled	en petites taches denses	dicht gefleckt	densamente manchada	Tauro	5	
27. (*)	QL	VG	(a)				
	Plant : formation of stem	Plante : formation de la tige	Pflanze: Stengelbildung	Planta: formación de tallo			
	absent	absente	fehlend	ausente	Palla rossa 2	1	
	present	présente	vorhanden	presente	Catalogna puntarelle a foglia frastagliata	9	
28.	QN	VG	(a)				
	Stem: degree of fasciation	Tige : degré de fasciation	Stengel: Grad der Verbänderung	Tallo: grado de fasciación			
	weak	faible	gering	baja	Catalogna puntarelle a foglia stretta	3	
	medium	moyen	mittel	media	Catalogna puntarelle a foglia frastagliata	5	
	strong	fort	stark	alta	Catalogna puntarelle di Galatina	7	

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29.	QL VG					
	Flower: color	Fleur : couleur	Blüte: Farbe	Flor: color		
	white	blanc	weiß	blanco	Koryvos	1
	blue	bleu	blau	azul	Barbe de Capucin	2
30.	QN MG/VG					
	Time of beginning of bolting	Époque de début de montaison	Zeitpunkt des Beginns des Schossens	Fecha del comienzo de la subida del tallo floral		
	very early	très précoce	sehr früh	muy temprana	Catalogna pugliese, Koryvos	1
	early	précoce	früh	temprana	Poncho	3
	medium	moyenne	mittel	media		5
	late	tardive	spät	tardía	Rosa isontina, TT506	7
	very late	très tardive	sehr spät	muy tardía	TT706	9

8. Explanations on the Table of Characteristics

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) Plant and head: Observations on the plant should be made just at harvest maturity stage that is specific to the plant types: Chioggia, Verona, Pain de sucre / Pan di Zuccherò, Variegata and Rossa di Treviso (early type) are harvested when a head has been formed; Catalogna puntarelle is harvested when stems (puntarelle shoots) are formed and the leaves development is complete. All over types: when the leaves are at the stage of complete growth.
- (b) Observations should be made on leaves excluding the outer and center leaves and midrib.

8.2 Explanations for individual characteristics

Ad. 1: Young plant: anthocyanin coloration

Observations should be made at 5-6 leaf stage.

Ad. 6: Leaf: shape

		← broadest part →	
		at middle	above middle
width (ratio length/width)			
narrow (high)	 5 narrow elliptic	 6 oblanceolate	
	 4 medium elliptic		
medium (medium)	 3 broad elliptic		
	 2 circular		
	 1 broad oblate		

Ad. 8: Leaf: color

To observe the total area excluding midrib.

Ad. 9: Leaf: anthocyanin distribution



1
diffused only



2
in patches only


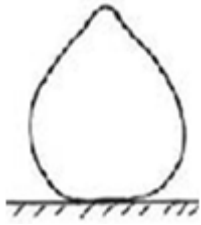
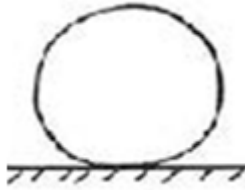



3
diffused and in patches

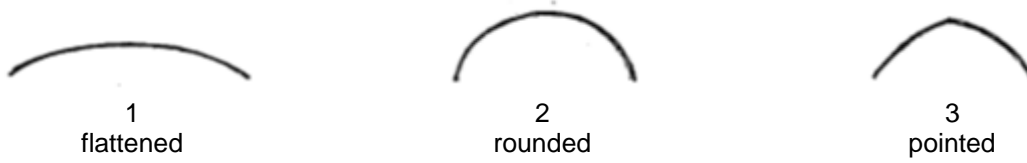
Ad. 17: Only for varieties with head formation: Time of head formation

The time of head formation is assessed by counting the number of days between the transplanting into the field and the complete head formation. The translation of these numbers to a state of expression of scale should be based on example varieties.

Ad. 21: Head: shape in longitudinal section

	← broadest part →	
	below middle	at middle
width (ratio length/width)		
narrow (high)		 4 elliptic
medium (medium)	 1 ovate	 3 circular
broad (low)		 2 oblate

Ad. 22: Head: shape of upper part



Ad. 23: Only varieties with Plant: head formation: closed: Head: degree of overlapping of upper part of leaves

Observations should be made on leaves at the heart of the plant to form a head.

8.3 *Leaf chicory types*

1. Chioggia



in development



at maturity

2. Verona



in development



at maturity

3. Rossa di Treviso precoce



in development



at maturity

4. Pan di zucchero/Pain de sucre



5. Bianca di Milano



6. Bianca invernale



7. Variegata di Castelfranco



in development



at maturity

8. Variegata di Lusina



in development



at maturity

9. Variegata di Chioggia



10. A grumolo verde



11. Améliorée blonde or verte



Améliorée blonde



Améliorée verte

12. Rosa isontina



13. Rossa di Treviso 2



in development



at maturity

14. Catalogna



Catalogna del Veneto



Spadona



Clio

15. Catalogna Puntarelle



Catalogna puntarelle a foglia frastagliata



Catalogna puntarelle di Galatina

16. Barbe de Capucin



9. Literature

Adinolfi, A., Bianchi, M. and Frusciante, E., 1995: Caratterizzazione morfo-fisiologica delle varietà di cicoria a foglia verde iscritte al Registro Nazionale. Quaderno ENSE n.45, Ente Nazionale Sementi Elette (E.N.S.E.), Milan, IT

Ronchi, R. 1999: Il Milleortaggi. Guida agli ortaggi d'Italia. Etichettare. Eu - Gruppo Edizioni il Millepiante. Editrice Maxi. Pistoia, IT www.maxi.it

Ryder, E., 1979: Leafy Salad Vegetable. AVI Publishing Company, Westport, Connecticut, US

Visentin, E., Cavion, L., Cazzola, V., 2013: Cicoria rossa: evoluzione tra rinnovamento e tradizione. Dal Seme. n. 2: pp. 41to pp. 50

Visentin, E., Cavion, L., Cazzola, V., 2016: Cicoria rossa in Veneto: l'andamento climatico condiziona la potenzialità produttiva. Dal Seme. n. 1: pp. 55 to pp. 64

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	<input type="text" value="Cichorium intybus L. var. foliosum Hegi"/>
1.2	Common name	<input type="text" value="Leaf Chicory"/>
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 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)

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

- (a) Self-pollination
- (b) Cross-pollination
- (i) Synthetic variety
- (ii) Population
- (c) Hybrid
- (d) Other (please provide details)

4.2.2 Other
(Please provide details)

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
5.1 Plant: diameter (2)		
very small	Triestina da taglio	1 []
very small to small		2 []
small	A grumolo verde, Firestorm	3 []
small to medium		4 []
medium	Granato, Rossa di Treviso precoce	5 []
medium to large		6 []
large	Pan di zucchero	7 []
large to very large		8 []
very large	Catalogna puntarelle a foglia frastagliata, Tobago	9 []
5.2 Leaf: length (4)		
very short		1 []
very short to short		2 []
short	A grumolo verde	3 []
short to medium		4 []
medium	Rossa di Verona precoce	5 []
medium to long		6 []
long	Pan di zucchero	7 []
long to very long		8 []
very long	Catalogna a foglie frastagliate	9 []
5.3 Leaf: width (5)		
very narrow	Catalogna puntarelle a foglia stretta	1 []
very narrow to narrow		2 []
narrow	Rossa di Treviso 2	3 []
narrow to medium		4 []
medium	Rossa di Treviso precoce	5 []
medium to broad		6 []
broad	Variegata di Castelfranco	7 []
broad to very broad		8 []
very broad	Palla rossa 5	9 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.4 Leaf: anthocyanin coloration (7)		
absent	Pan di zucchero	1 []
present	Palla rossa 2	9 []
5.5 Leaf: color (8)		
yellowish green	Bianca di Milano	1 []
light green	A grumolo bionda, Rosa	2 []
medium green	A grumolo verde	3 []
dark green	A grumolo verde scuro	4 []
light red		5 []
medium red	Rossa di Treviso precoce	6 []
dark red	Rosa isontina	7 []
5.6 Leaf: anthocyanin distribution (9)		
diffused only	Palla rossa 2	1 []
in patches only	Variegata di Castelfranco, Variegata di Lusia	2 []
diffused and in patches	Variegata di Chioggia	3 []
5.7 Leaf: incisions of margin (15)		
absent or very shallow	Rossa di Treviso 2	1 []
very shallow to shallow		2 []
shallow	A grumolo bionda	3 []
shallow to medium		4 []
medium	24 ore	5 []
medium to deep		6 []
deep	Catalogna gigante di Chioggia, Katrina	7 []
deep to very deep		8 []
very deep	Catalogna puntarelle di Gaeta, Catalogna puntarelle di Galatina	9 []
5.8 Plant: head formation (16)		
absent	Catalogna puntarelle a foglia stretta, Clio	1 []
open	A grumolo verde, Corma	2 []
closed	Bianca invernale, Palla rossa 2, Pan di zucchero, Rossa di Treviso precoce	3 []

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.9 (17) <u>Only for varieties with head formation:</u> Time of head formation		
very early	Palla rossa 2, Rossa di Verona precoce	1 []
very early to early		2 []
early	Palla rossa 3	3 []
early to medium		4 []
medium	Palla rossa 4, Pan di zucchero	5 []
medium to late		6 []
late	Palla rossa 5, Rossa di Verona tardiva, TT506	7 []
late to very late		8 []
very late	Palla rossa 6, Tobago, Variegata di Chioggia	9 []
5.10 (21) Head: shape in longitudinal section		
ovate	Rossa di Verona precoce	1 []
oblate	Palla rossa 5	2 []
circular	Variegata di Chioggia	3 []
elliptic	Pan di zucchero, Rossa di Treviso precoce	4 []
5.11 (25) Head: color of cover leaves		
whitish green	Variegata di Chioggia	1 []
yellowish green	Bianca invernale, Variegata di Lusia	2 []
light green	A grumolo bionda, Pan di zucchero	3 []
medium green	A grumolo verde	4 []
dark green	A grumolo verde scuro, Catalogna puntarelle a foglia frastagliata	5 []
light red	Rosa	6 []
medium red	Rossa di Verona precoce	7 []
dark red	Nerone, Rosa isontina	8 []
5.12 (26) Head: distribution of anthocyanin coloration of cover leaves		
entire	Rosa isontina	1 []
diffused only	Palla rossa 2	2 []
in patches only	Variegata di Castelfranco	3 []
diffused and in patches	Variegata di Chioggia	4 []
densely speckled	Tauro	5 []
5.13 (27) Plant : formation of stem		
absent	Palla rossa 2	1 []
present	Catalogna puntarelle a foglia frastagliata	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 similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Head: shape in longitudinal section</i>	<i>ovate</i>	<i>circular</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

Type (see 5.3 and 8.3 in the Test Guidelines for Leaf Chicory (document TG/154/4) for explanations):

Type	Example varieties	
Chioggia	Rossa di Chioggia 2, Rossa di Chioggia 4, Rossa di Chioggia 6, TT 4050, TT 506, TT 706	<input type="checkbox"/>
Verona	Rossa di Verona precoce, Rossa di Verona tardiva	<input type="checkbox"/>
Rossa di Treviso precoce	Rossa di Treviso precoce, Nerone, Trevi, TT 206	<input type="checkbox"/>
Pan di Zucchero/ Pain de Sucre	Pan di Zucchero, Pandea	<input type="checkbox"/>
Bianca di Milano	Bianca di Milano	<input type="checkbox"/>
Bianca invernale	Bianca invernale	<input type="checkbox"/>
Variegata di Castelfranco	Variegata di Castelfranco, Variegata di Maserà	<input type="checkbox"/>
Variegata di Lusia	Variegata di Lusia	<input type="checkbox"/>
Variegata di Chioggia	Variegata di Chioggia, Variegata di Adria	<input type="checkbox"/>
A grumolo verde	A grumolo bionda, A grumolo verde, A grumolo verde scuro	<input type="checkbox"/>
Améliorée Blonde or Verte	Améliorée Blonde, Améliorée Verte	<input type="checkbox"/>
Rosa isontina	Rosa isontina	<input type="checkbox"/>
Rossa di Treviso 2	Rossa di Treviso 2, Rossa di Treviso 3	<input type="checkbox"/>
Catalogna	Catalogna del Veneto, Catalogna gigante di Chioggia, Spadona, Clio	<input type="checkbox"/>
Catalogna Puntarelle	Catalogna Puntarelle di Galatina, Catalogna puntarelle a foglie frastagliate, Catalogna puntarelle a foglia stretta	<input type="checkbox"/>
Barbe de Capucin	Barbe de Capucin	<input type="checkbox"/>

A representative color photograph of the variety displaying its main distinguishing feature(s), should accompany the Technical Questionnaire. The photograph will provide a visual illustration of the candidate variety which supplements the information provided in the Technical Questionnaire.

The key points to consider when taking a photograph of the candidate variety are:

- Indication of the date and geographic location
- Correct labeling (breeder's reference)
- Good quality printed photograph (minimum 10 cm x 15 cm) and/or sufficient resolution electronic format version (minimum 960 x 1280 pixels)

Further guidance on providing photographs with the Technical Questionnaire is available in document TGP/7 "Development of Test Guidelines", Guidance Note 35 (<http://www.upov.int/tgp/en/>).

[The link provided may be deleted by members of the Union when developing authorities' own test guidelines.]

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]