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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

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

prepared by experts from Italy
to be considered by the
Enlarged Editorial Committee
at its meeting, to be held in Geneva,
from 2017-01-11 to 2017-01-12

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Cichorium intybus L. var. *foliosum* Hegi	Salad Chicory	Chicorée à large feuille	Salatzichorie	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/172/4) and witloof chicory (TG/173/4)

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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

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

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

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

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

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 The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 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 17)
(d) Head: shape in longitudinal section (characteristic 22)

Firstly, the collection should be divided according to the growth types in Table 1. In case of doubt to which growth sub-types a variety belongs, it should be tested in all relevant growth sub-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

Plant: head formation (char.17)	Leaf: type of anthocyanin distribution (char.9)	Plant: growth sub-type	Plant: diameter (char. 2)	Leaf: length (char. 4)	Leaf: width (char. 5)	Leaf: color (excluding midrib) (char. 8)	Time of Head formation (char. 18)	Head: shape in longitudinal section (char. 22)	Head: color of outer leaves (char. 26)	Plant: formation of stem (char. 28)
Closed head	Diffused only	**Chioggia**	Medium to large (notes 5-7)	Very short to medium (notes 1- 5)	Medium to broad (notes 5-7)	Dark green (note 4)	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
	Absent	**Pan di Zucchero/ Pain de Sucre**	Large (note 7)	Medium to long (notes 5-7)	Very broad (note 9)	Light green to medium green (notes 2-3)	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
	In patch only	**Variegata di Castelfranco**	Medium to large (notes 5-7)	Medium (note 5)	Broad (note 7)	Light green (note 2)	Medium to late (notes 5-7)	Ovate (note 2)	Yellowish green (note 2)	Absent
		Variegata di Lusia	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
	Diffused and in patch	**Variegata di Chioggia**	Medium to large (notes 5-7)	Medium (note 5)	Broad (note 7)	Medium green (note 3)	Late to very late (notes 7-9)	Circular (note 3)	Whitish green (note 1)	Absent
Open head	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
	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
	Diffused only	**Rosa isontina**	Medium (note 5)	Short (note 3)	Medium (note 5)	Dark red (note 7)				Absent

No head	**Diffused only**	**Rossa di Treviso 2**	Large (note 7)	Long (note 7)	Narrow (note 3)	Medium green (note 3)				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
		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:

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

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

7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8

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 at 5-6 leaf stage					
		absent				Améliorée blonde, Pan di zucchero	1
		present				Palla rossa 2, Rossa di Treviso precoce	9
2.	**(*)**	**QN** **MS/VG**	**(a)**				
		Plant: diameter					
		very small				Triestina da taglio	1
		small				A grumolo verde, Firestorm	3
		medium				Granato, Rossa di Treviso precoce	5
		large				Pan di zucchero	7
		very large				Catalogna puntarelle a foglia frastagliata, Tobago	9
3.	**(*)**	**QN** **VG**	**(b)**				
		Leaf: attitude					
		erect				Clio, Spadona	1
		semi-erect				Palla rossa 2	3
		horizontal				Selvatica da campo	5
4.	**(*)**	**QN** **MS/VG**	**(a), (b)**				
		Leaf: length					
		very short					1
		short				A grumolo verde	3
		medium				Rossa di Verona precoce	5
		long				Pan di zucchero	7
		very long				Catalogna a foglie frastagliate	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	**(*)**	**PQ VG**	**(+) (a), (b)**				
		Leaf: shape					
		broad oblate					1
		circular				Palla rossa 4	2
		broad elliptic				Pan di zucchero, Rossa di Verona tardiva	3
		medium elliptic				Rossa di Treviso precoce	4
		narrow elliptic				Rossa di Treviso 2	5
		lanceolate				Catalogna del Veneto, Clio	6
6.	**(*)**	**QN MS/VG**	**(a), (b)**				
		Leaf: width					
		very narrow				Catalogna puntarelle a foglia stretta	1
		narrow				Rossa di Treviso 2	3
		medium				Rossa di Treviso precoce	5
		broad				Variegata di Castelfranco	7
		very broad				Palla rossa 5	9
7.	**(*)**	**QL VG**	**(a), (b)**				
		Leaf: anthocyanin coloration					
		absent				Pan di zucchero	1
		present				Palla rossa 2	9
8.	**(*)**	**PQ VG**	**(+) (a), (b)**				
		Leaf: color					
		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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	**(*)**	**PQ VG**	**(+) (a), (b)**				
		Leaf: type of anthocyanin distribution					
		diffused only				Palla rossa 2	1
		in patches only				Variegata di Castelfranco, Variegata di Lusia	2
		diffused and in patches				Variegata di Chioggia	3
10.		**PQ VG**	**(a), (b)**				
		Leaf: color of midrib					
		whitish				Bianca di Milano, Bianca invernale, Pan di zucchero	1
		green				A grumolo verde, Katrina	2
		red				Medusa	3
11.		**QN VG**	**(a), (b)**				
		Leaf: profile of upper surface					
		strongly concave					1
		weakly concave				Grumolo verde scuro	2
		flat				Rossa di Treviso 2	3
		weakly convex					4
		strongly convex				Granato	5
12.		**QN VG**	**(a), (b)**				
		Leaf: glossiness					
		absent or weak				Jupiter, Rosa	1
		medium				Variegata di Chioggia	3
		strong					5

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
13. **(*)**	**QN** **VG**	**(a), (b)**				
	Leaf: blistering					
	absent or very weak				Variegata di Castelfranco	1
	weak				Pan di zucchero, Rossa di Verona precoce	2
	medium				Bianca di Milano, Uranus	3
	strong				Mantovana	4
	very strong					5
14.	**QN** **VG**	**(a), (b)**				
	Leaf: undulation of margin					
	absent or very weak				A grumolo verde scuro, Rossa di Treviso 2	1
	weak				Zuccherina di Trieste	2
	medium				Bianca di Milano	3
	strong				Barbe de Capucin	4
	very strong					5
15. **(*)**	**QN** **VG**	**(a), (b)**				
	Leaf: incisions of margin					
	absent or very shallow				Rossa di Treviso 2	1
	shallow				A grumolo bionda	3
	medium				24 ore	5
	deep				Catalogna gigante di Chioggia, Katrina	7
	very deep				Catalogna puntarelle di Gaeta, Catalogna puntarelle di Galatina	9
16.	**PQ** **VG**	**(+)** **(a), (b)**				
	Leaf: type of incisions of margin					
	sinuate				Variegata di Lusia, Zuccherina di Trieste	1
	dentate				Catalogna gigante di Chioggia, Koryvos, Pan di zucchero, Variegata di Castelfranco	2
	serrate				Barbe de Capucin, Catalogna a foglie frastagliate	3

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
17.	**(*)**	**PQ**	**VG**		**(a)**				
		Plant: head formation							
		no head						Catalogna puntarelle a foglia stretta, Clio	1
		open head						A grumolo verde, Corma	2
		closed head						Bianca invernale, Palla rossa 2, Pan di zucchero, Rossa di Treviso precoce	3
18.	**(*)**	**QN**	**MG**	**(+)**	**(a)**				
		Time of head formation							
		very early						Palla rossa 2, Rossa di Verona precoce	1
		early						Palla rossa 3	3
		medium						Palla rossa 4, Pan di zucchero	5
		late						Palla rossa 5, Rossa di Verona tardiva, TT506	7
		very late						Palla rossa 6, Tobago, Variegata di Chioggia	9
19.	**(*)**	**QN**	**VG**		**(a)**				
		Head: density							
		loose						Améliorée blonde, Grumolo verde scuro	3
		medium						A grumolo bionda, Bianca di Bergamo, Pan di zucchero	5
		dense						Palla rossa 2, Variegata di Chioggia	7
20.	**(*)**	**QN**	**MS/VG**		**(a)**				
		Head: length							
		short						A grumolo verde	3
		medium						Bianca di Milano, Jupiter, Palla rossa 4	5
		long						Rossa di Treviso precoce	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21.	**(*)**	**QN VG**	**(a)**				
		Head: diameter					
		very small				A grumolo verde scuro	1
		small				Rossa di Treviso precoce	3
		medium				Mantovana, Rossa di Verona precoce	5
		large				Bianca di Milano	7
		very large				Averto, Gloria	9
22.	**(*)**	**PQ VG**	**(+) (a)**				
		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
23.	**(*)**	**QN VG**	**(+) (a)**				
		Head: shape of upper part					
		flattened				Variegata di Lusia	1
		rounded				Lava, Palla rossa 2, Variegata di Chioggia	2
		pointed				Granato, Pan di zucchero, Rossa di Verona precoce	3
24.		**QN VG**	**(+) (a)**				
		<u>Only variety with closed head</u>: degree of overlapping of upper part of leaves					
		very weak				Pan di zucchero	1
		weak				Bianca invernale	3
		medium				Nerone, Rossini	5
		strong				Rossa di Verona precoce	7
		very strong				Tobago	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25.	**(*)**	**QL** **VG**	**(a)**				
		Head: anthocyanin coloration of cover leaves					
		absent				Pan di zucchero	1
		present				Variegata di Chioggia, Variegata di Lusia	9
26.	**(*)**	**PQ** **VG**	**(a)**				
		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
27.	**(*)**	**PQ** **VG**	**(a)**				
		Head: type of anthocyanin distribution 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
28.	**(*)**	**QL** **VG**	**(a), (c)**				
		Plant : formation of stem					
		absent				Palla rossa 2	1
		present				Catalogna puntarelle a foglia frastagliata	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29.	**QN VG**	**(a), (c)**				
	Stem: degree of fasciation					
	weak				Catalogna puntarelle a foglia stretta	3
	medium				Catalogna puntarelle a foglia frastagliata	5
	strong				Catalogna puntarelle di Galatina	7
30.	**QL VG**					
	Flower: color					
	white				Koryvos	1
	blue				Barbe de Capucin	2
31.	**QN MG/VG**					
	Time of beginning of bolting					
	very early				Catalogna pugliese, Koryvos	1
	early				Poncho	3
	medium					5
	late				Rosa isontina, TT506	7
	very late				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 growth types: Chioggia, Verona, Pain de sucre / Pan di Zucchero, 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) Leaf: Observations on the leaf should be made just at harvest maturity on leaves excluding the outer and center leaves and midrib.

(c) Stem: Observations on the stem should be made at harvest maturity. Catalogna puntarelle sub grow types produce early stems (edible shoots) at harvest maturity.

8.2 Explanations for individual characteristics

Ad. 5: Leaf: shape

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

Ad. 8: Leaf: color

Observations should be made excluding the midrib.

Ad. 9: Leaf: type of anthocyanin distribution

1
diffused only

2
in patches only

3
diffused and in patches

Ad. 16: Leaf: type of incisions of margin

1
sinuate

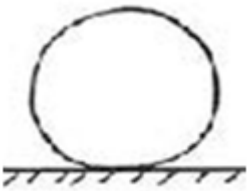
2
dentate

3
serrate

Ad. 18: Time of head formation

Time of head formation is assessed by counting the number of days between the transplanting into the field and the harvest maturity period (when the observation on head should be made). The translation of this number to a level of expression of the scale is based on the example varieties.

Ad. 22: 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. 23: Head: shape of upper part


1
flattened


2
rounded


3
pointed

Ad. 24: Only variety with 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 growth sub- types (under section 5.3)*

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 Lusia

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. & Frusciante, E., 1995: Caratterizzazione Morfo-Fisiologica Delle Varietà di Cicoria a Foglia Verde Iscritte al Registro Nazionale. Ente Nazionale Sementi Elette (E.N.S.E.), Milan, Quaderno n. Dell' E.N.S.E., No. 45.

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

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	*Cichorium intybus* L. var. *foliosum* Hegi
1.2	Common name	Salad Chicory

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)	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:

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 (2)	**Plant: diameter**		
	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 (4)	**Leaf: length**		
	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 (6)	**Leaf: width**		
	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:

	Characteristics	Example Varieties	Note
5.4 (7)	**Leaf: anthocyanin coloration**		
	absent	Pan di zucchero	1 [ ]
	present	Palla rossa 2	9 [ ]
5.5 (8)	**Leaf: color**		
	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 (9)	**Leaf: type of anthocyanin distribution**		
	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 (15)	**Leaf: incisions of margin**		
	absent or very shallow	Rossa di Treviso 2	1 [ ]
	very shallow ot shallow		2 [ ]
	shallow	A grumolo bionda	3 [ ]
	medium	24 ore	5 [ ]
	shallow to medium		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 (17)	**Plant: head formation**		
	no head	Catalogna puntarelle a foglia stretta, Clio	1 [ ]
	open head	A grumolo verde, Corma	2 [ ]
	closed head	Bianca invernale, Palla rossa 2, Pan di zucchero, Rossa di Treviso precoce	3 [ ]

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

	Characteristics	Example Varieties	Note
5.9 (18)	**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 [ ]
	early to medium		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 (22)	**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 (26)	**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 (27)	**Head: type of anthocyanin distribution 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 (28)	**Plant : formation of stem**		
	absent	Palla rossa 2	1 [ ]
	present	Catalogna puntarelle a foglia frastagliata	9 [ ]

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			

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

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.]

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:

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]