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

Geneva

DRAFT

### Leaf Chicory

UPOV Code: CICHO\_INT\_FOL

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

### GUIDELINES

#### FOR THE CONDUCT OF TESTS

#### FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by (an) expert(s) from France and Italy*

*to be considered by the*

*Technical Working Party for Vegetables  
 at its forty-ninth session  
 to be held in Angers, France,  
 from 2015-06-15  
 to 2015-06-19*

Alternative Names: <sup>*</sup>				
<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Cichorium intybus</i> L. var. <i>foliosum</i> Hegi	Salad Chicory	Chicorée amère	Salatzichorie	Achicoria amarga

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)

<sup>\*</sup> These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website ([www.upov.int](http://www.upov.int)), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *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 or plants.

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

10 000 seeds  
or  
120 plants of normal transplantation size in the case of vegetatively propagated varieties

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. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.1.2 The 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.

3.4 *Test Design*

3.4.1 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 / Parts of Plants to be Examined

4.1.4.1 In the case of vegetatively propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 40 plants or parts taken from each of 40 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.4.2 In the case of seed-propagated varieties, unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 40 plants or parts taken from each of 40 plants and any other observations made on all plants in the test, disregarding any off-type plants.

###### 4.1.5 Method of Observation

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

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

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

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

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

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

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

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

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual

plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

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

## 4.2 *Uniformity*

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 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 vegetatively propagated varieties, 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.

4.2.4 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 or plant 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 : main color (excluding midrib) (characteristic 7)
- (b) Leaf: anthocyanin coloration (characteristic 8)
- (c) Plant : head formation (characteristic 17)
- (d) Head : shape in longitudinal section (characteristic 23)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 "Examining Distinctness".

## 6. Introduction to the Table of Characteristics

### 6.1 *Categories of Characteristics*

#### 6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

#### 6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by \*) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

### 6.2 *States of Expression and Corresponding Notes*

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

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

State	Note
small	3
medium	5
large	7

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

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

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

### 6.3 *Types of Expression*

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

### 6.4 *Example Varieties*

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 Qualitative characteristic – see Chapter 6.3

QN Quantitative characteristic – see Chapter 6.3

PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a)-(f) See Explanations on the Table of Characteristics in Chapter 8.

(+) 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. (*) PQ VG (a)					
<b>Young plant: anthocyanin coloration at 5-6 leaf stage</b>					
absent				Améliorée blonde, Pan di zucchero	1
present				Palla rossa 2, Rossa di Treviso precoce	9
2. (*) QN MS VG (a) (b) (c)					
<b>Plant: diameter</b>	<b>Plante : diamètre</b>	<b>Pflanze: Durchmesser</b>	<b>Planta: diámetro</b>		
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 a foglie frastagliate, Tobago	9
3. (*) QN VG (a) (c) (d)					
<b>Leaf: attitude</b>	<b>Feuille : port</b>	<b>Blatt: Haltung</b>	<b>Hoja: porte</b>		
erect	dressé	aufrecht	erecto	Clio, Spadona	1
semi-erect	demi-dressé	halbaufrecht	semierecto	Palla rossa 2	3
horizontal	horizontal	waagrecht	horizontal	Selvatica da campo	5
4. (*) QN MS VG (a) (c) (d)					
<b>Leaf: length</b>	<b>Feuille: longueur</b>	<b>Blatt: Länge</b>	<b>Hoja: longitud</b>		
very short	très courte	sehr kurz	muy corta		1
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
<hr/>					
5. (*) QN MG VG (a) (c) (d)					
<b>Leaf: width</b>	<b>Feuille : largeur</b>	<b>Blatt: Breite</b>	<b>Hoja: anchura</b>		
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
<hr/>					
6. (*) QN VG (a) (c) (d)					
<b>Leaf: shape</b>					
narrow elliptic				Rossa di Treviso 2	1
medium elliptic				Rossa di Treviso precoce	2
broad elliptic				Pan di zucchero, Rossa di Verona tardiva	3
round				Palla rossa 4	4
<hr/>					
7. (*) PQ VG (+) (a) (c) (d)					
<b>Leaf: main color (excluding midrib)</b>					
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
<hr/>					

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
8. (*) QL VG (a) (c) (d) <b>Leaf: anthocyanin coloration</b>					
absent	<b>Feuille: pigmentation anthocyanique</b>	<b>Blatt: Anthocyanfärbung</b>	<b>Hoja: coloración antocianica</b>	Pan di zucchero	1
present				Palla rossa 2	9
<hr/>					
9. (*) PQ VG (+) (a) (c) (d) <b>Leaf: type of anthocyanin distribution (as for 4)</b>					
diffused only				Palla rossa 2	1
in patches only				Variegata di Castelfranco,	2
				Variegata di Lusia	
diffused and in patches				Variegata di Chioggia	3
<hr/>					
10. QN VG (a) (c) (d) <b>Leaf: profile of upper surface</b>					
strongly concave					1
weakly concave				A grumolo verde scuro	2
flat				Rossa di Treviso 2	3
weakly convex					4
strongly convex				Granato	5
<hr/>					
11. (*) PQ VG (a) (c) (d) <b>Leaf: color of midrib</b>					
whitish				Bianca di Milano, Bianca invernale,	1
green				Pan di zucchero A grumolo verde,	2
red				Katrina Medusa	3

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
12. QN VG (a) (c) (d)					
<b>Leaf: glossiness</b>	<b>Feuille: brillance</b>	<b>Blatt: Glanz</b>	<b>Hoja: brillo</b>		
weak				Jupiter	3
medium				Chiogga	5
strong					7
<hr/>					
13. (*) QN VG (a) (c) (d)					
<b>Leaf: blistering</b>	<b>Feuille : cloqure</b>	<b>Blatt: Blasigkeit</b>	<b>Hoja: abullonado</b>		
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
<hr/>					
14. QN VG (a) (c) (d)					
<b>Leaf: undulation of margin</b>	<b>Feuille : ondulation du bord</b>	<b>Blatt: Randwellung</b>	<b>Hoja: ondulación del borde</b>		
absent or very weak				Grumolo verde scuro, Rossa di Treviso 2	1
weak				Zuccherina di Trieste	2
medium				Bianca di Milano	3
strong					4
very strong					5
<hr/>					
15. QN VG (a) (c) (d)					
<b>Leaf: incision of margin</b>					
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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
16. PQ VG (a) (c) (d) <b>Leaf: type of incision of margin</b>					
sinuate				Variegata di Lusìa, 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
<hr/>					
17. (*) PQ VG (a) (b) (c) <b>Plant: head formation</b>					
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
<hr/>					
18. QN VG (a) (b) (c) <b>Only variety with closed head: degree of overlapping of upper part of leaves</b>					
absent or very weak				Pan di zucchero	1
weak				Bianca invernale	3
medium				Nerone, Rossini	5
strong				Rossa di Verona precoce	7
very strong				Tobago	9
<hr/>					
19. QN MG (+) (a) (b) (c) <b>Only varieties with head formation present: Time of head formation</b>					
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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
20. (*) QN VG (a) (b) (e) <b>Head: density</b>					
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
<hr/>					
21. (*) QN VG (+) (a) (c) (e) <b>Head: length</b>					
short					3
medium				Bianca di Milano, Jupiter, Palla rossa 4	5
long				Rossa di Treviso precoce	7
<hr/>					
22. (*) QN VG (a) (c) (e) <b>Head: diameter</b>					
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
<hr/>					
23. (*) PQ VG (+) (a) (c) (e) <b>Head: shape in longitudinal section</b>					
oblate				Pan di zucchero, Rossa di Treviso precoce	1
circular				Rossa di Verona precoce	2
ovate				Variegata di Chioggia	3
elliptic				Palla rossa 5	4
<hr/>					

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
24. (*) QN VG (+) (a) (c) (e) <b>Head: shape of top</b>					
flattened				Variegata di Lusia	1
rounded				Lava, Palla rossa 2, Variegata di Chioggia	2
pointed				Granato, Pan di zucchero, Rossa di Verona precoce	3
<hr/>					
25. (*) PQ VG (+) (a) (c) (e) <b>Head: main color of outer leaves</b>					
yellowish green				Bianca invernale, Variegata di Lusia	1
light green				A grumolo bionda, Pan di zucchero	2
medium green				A grumolo verde	3
dark green				A grumolo verde scuro, Catalogna puntarelle a foglia frastagliata	4
light red				Rosa	5
medium red				Rossa di Verona precoce	6
dark red				Nerone, Rosa isontina	7
<hr/>					
26. (*) QL VG (a) (c) (e) <b>Head: anthocyanin coloration of outer leaves</b>					
absent				Pan di zucchero	1
present					9
<hr/>					
27. (*) PQ VG (a) (c) (e) <b>Head: type of anthocyanin distribution of outer leaves</b>					
entire					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

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<hr/>					
28. (*) QL VG (a) (b) (c) <b>Plant: early formation of stem</b>					
absent				Palla rossa 2	1
present				Catalogna puntarelle a foglia frastagliata	9
<hr/>					
29. QN VG (a) (f) <b>Stem: degree of fasciation</b>					
weak				Catalogna puntarelle a foglia stretta	3
medium				Catalogna puntarelle a foglia frastagliata	5
strong				Catalogna puntarelle di Galatina	7
<hr/>					
30. QL VG (a) <b>Flower: color</b>					
white				Koryvos	1
blue				Barbe de Capucin	9
<hr/>					
31. QN MG MS (a) <b>Time of beginning of bolting</b>					
very early				Catalogna pugliese, Koryvos	1
early				Poncho	3
medium					5
late					7
very late					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: head type (char.17)	Leaf: anthocyanin distribution type (Char.11 )	Plant: growth sub-type	Plant: diameter (char. 2)	Leaf: length (char. 4)	Leaf: width (char. 5)	Leaf: main color (excluding midrib) (char. 7)	Only varieties with: Head formation: present: Time of Head formation (char. 18)	Head: shape in longitudinal section (char. 22)	Head: main color of outer leaves (char. 24)	Plant: stem: formation at harvest maturity (char. 27)
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 or transverse elliptic (notes 3-4)	Medium to dark red (notes 6-7)	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 6)	Absent
		Rossa di Treviso precoce	Medium (note 7)	Long (note 7)	Narrow (note 3)	Medium green (note 3)	Very early to late (notes 1-7)	Elliptic (note 1)	Medium red (note 6)	Absent
	Absent	Pan di Zuchero/Pain de Sucre	Large (note 7)	Medium to long (notes 5-7)	Very broad (note 9)	Light to medium green (notes 2-3)	Medium (note 5)	Elliptic (note1)	Light green (note 2)	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 2)	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 to medium green (notes 2-3)	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 (note 1)	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)	Transverse elliptic (note 4)	Yellowish (note 1)	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	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



(1) **Chioggia**



in development



at maturity

(2) **Verona**



in development



at maturity

(3) **Treviso**

Sub-type of Treviso :

-Rossa di Treviso precoce : early type are varieties with head formation suitable for field harvesting



in development



at maturity

- Rossa di Treviso tardivo : late type are varieties with head formation in the field but suitable for forcing



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 Lusìa



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)Rosa di Treviso 2**

**(14)Catalogna**



Catalogna del Veneto



Spadona



Clio

**(15)Catalogna Puntarelle**



Catalogna puntarelle a foglia frastagliata



Catalogna puntarelle di Galatina

**(16)Barbe de Capucin**



(b) Plant: Observations on the plant should be made just at harvest maturity

(c) Harvest Maturity stage is specific to the plant growth types:

- Chioggia, Verone, 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 choots) are formed and the leaves development is complete;
- All over types: when the leaves are at the stage of complete growth.

(d) Leaf: Observations on the leaf should be made just at harvest maturity on leaves excluding the outer and center leaves

(e) Head: Observations on the head should be made just at harvest maturity

(f) Stem: All observations on the stem should be made on a flowering stem

## 8.2 Explanations for individual characteristics

### Ad. 7: Leaf: main color (excluding midrib)

The main color of the leaf is the color with the largest surface area. In case where the area of the main and secondary color are too similar to reliably decide which color has the largest area, [the darkest color]/[the color]...[location]... is considered to be the main color

### Ad. 9: Leaf: type of anthocyanin distribution (as for 4)



1 - diffused only



2 - in patches only



3 - diffused and in patches

### Ad. 19: Only varieties with head formation present: Time of head formation

Time of head formation is assessed by counting the number of day 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. 21: Head: length



3 - short

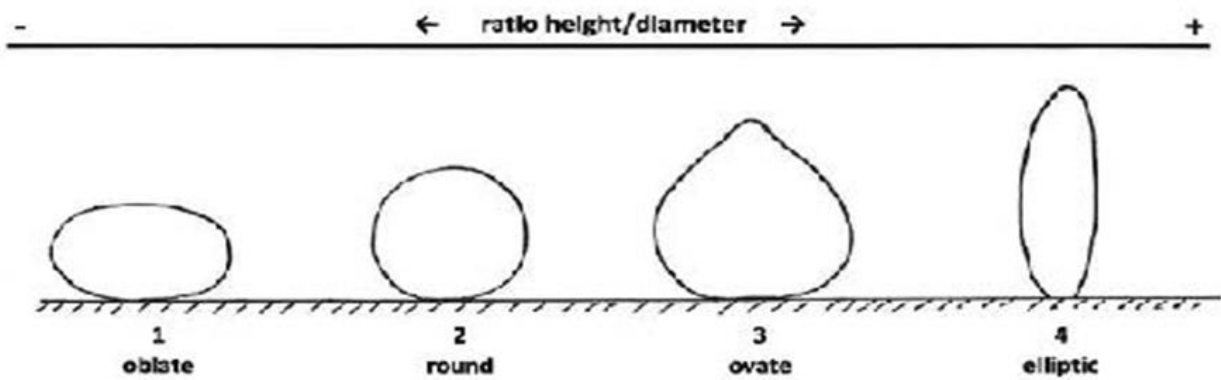


5 - medium



7 - long

Ad. 23: Head: shape in longitudinal section





Ad. 24: Head: shape of top



1 - flattened



2 - rounded



3 - pointed

Ad. 25: Head: main color of outer leaves

The main color of outer leaves is the color with the largest surface area. In case where the area of the main and secondary color are too similar to reliably decide which color has the largest area, [the darkest color]/[the color]...[location]... is considered to be the main color

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:
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	Application date: (not to be filled in by the applicant)
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TECHNICAL QUESTIONNAIRE  
 to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire			
1.1.1	Botanical Name	Cichorium intybus L. var. foliosum Hegi	
1.1.2	Common Name	Salad Chicory	
1.1.3			

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"/>

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

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) Cross-pollination [ ]

(b) Hybrid [ ]

(c) Other [ ]  
(please provide details)

.....

: :

: :

.....

4.2.2 Vegetative propagation

(a) tuber [ ]

(b) cuttings [ ]

(c) in vitro propagation [ ]

(d) Other (state method) [ ]

.....

: :

: :

.....

4.2.3 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
<b>5.1 Leaf : main color (excluding midrib) (7)</b>		
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[ ]
<b>5.2 Leaf: anthocyanin coloration (8)</b>		
absent	Pan di zucchero	1[ ]
present	Palla rossa 2	9[ ]
<b>5.3 Plant : head formation (17)</b>		
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[ ]
<b>5.4 Head : shape in longitudinal section (23)</b>		
oblate	Pan di zucchero, Rossa di Treviso precoce	1[ ]
circular	Rossa di Verona precoce	2[ ]
ovate	Variegata di Chioggia	3[ ]
elliptic	Palla rossa 5	4[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>			
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

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.



TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:												
<p>9. Information on plant material to be examined or submitted for examination</p> <p>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.</p> <p>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:</p> <table data-bbox="239 560 1356 761"><tbody><tr><td>(a) Microorganisms (e.g. virus, bacteria, phytoplasma)</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(b) Chemical treatment (e.g. growth retardant, pesticide)</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(c) Tissue culture</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(d) Other factors</td><td>Yes [ ]</td><td>No [ ]</td></tr></tbody></table> <p>Please provide details for where you have indicated "yes".</p> <p>.....</p>			(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 [ ]
(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 [ ]												
<p>10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:</p> <table data-bbox="223 1052 1404 1254"><tbody><tr><td data-bbox="223 1052 494 1142">Applicant's name</td><td colspan="2" data-bbox="494 1052 1404 1142"><input type="text"/></td></tr><tr><td data-bbox="223 1142 494 1254">Signature</td><td data-bbox="494 1142 973 1254"><input type="text"/></td><td data-bbox="973 1142 1404 1254">Date <input type="text"/></td></tr></tbody></table>			Applicant's name	<input type="text"/>		Signature	<input type="text"/>	Date <input type="text"/>						
Applicant's name	<input type="text"/>													
Signature	<input type="text"/>	Date <input type="text"/>												

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