



## **PROTOCOL FOR TESTS ON DISTINCTNESS, UNIFORMITY AND STABILITY**

***Cichorium endivia L.***

**ENDIVE**

UPOV Code: CICHO\_END

**Adopted on 19/03/2014**

**Entry into force on 19/03/2014**

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## **1. SUBJECT OF THE PROTOCOL AND REPORTING**

### **1.1 Scope of the technical protocol**

This Technical Protocol applies to all varieties of *Cichorium endivia* L.

The protocol describes the technical procedures to be followed in order to meet the requirements of Council Regulation 2100/94 on Community Plant Variety Rights. The technical procedures have been agreed by the Administrative Council and are based on documents agreed by the International Union for the Protection of New Varieties of Plants (UPOV), such as the General Introduction to DUS (UPOV Document TG/1/3 [http://www.upov.int/en/publications/intro\\_dus.htm](http://www.upov.int/en/publications/intro_dus.htm)), its associated TGP documents (<http://www.upov.int/en/publications/tgp/>) and the relevant UPOV Test Guideline TG/118/5 dated 20/03/2013 (<http://www.upov.int/edocs/tgdocs/en/tg118.pdf>) for the conduct of tests for Distinctness, Uniformity and Stability.

### **1.2 Entry into Force**

The present protocol enters into force on **19.03.2014**. Any on-going DUS examination of candidate varieties started before the aforesaid date will not be affected by the approval of the Technical Protocol. Technical examinations of candidate varieties are carried out according to the TP in force when the DUS test starts. The starting date of a DUS examination is considered to be the due date for submitting of plant material for the first test period.

In cases where the Office requests to take-over a DUS report for which the technical examination has either been finalized or which is in the process to be carried out at the moment of this request, such report can only be accepted if the technical examination has been carried out according to the CPVO TP which was in force at the moment when the technical examination started.

### **1.3 Reporting between Examination Office and CPVO and Liaison with Applicant**

#### **1.3.1 Reporting between Examination Office and CPVO**

The Examination Office shall deliver to the CPVO a preliminary report ("the preliminary report") no later than two weeks after the date of the request for technical examination by the CPVO.

The Examination Office shall also deliver to the CPVO a report relating to each growing period ("the interim report") and, when the Examination Office considers the results of the technical examination to be adequate to evaluate the variety or the CPVO so requests, a report relating to the examination ("the final report").

The final report shall state the opinion of the Examination Office on the distinctness, uniformity and stability of the variety. Where it considers those criteria to be satisfied, or where the CPVO so requests, a description of the variety shall be added to the report. If a report is negative the Examination Office shall set out the detailed reasons for its findings.

The interim and the final reports shall be delivered to the CPVO as soon as possible and no later than on the deadlines as laid down in the designation agreement.

#### **1.3.2 Informing on problems in the DUS test**

If problems arise during the course of the test the CPVO should be informed immediately so that the information can be passed on to the applicant. Subject to prior permanent agreement, the applicant may be directly informed at the same time as the CPVO particularly if a visit to the trial is advisable.

#### **1.3.3 Sample keeping in case of problems**

If the technical examination has resulted in a negative report, the CPVO shall inform the Examination Office as soon as possible in case that a representative sample of any relevant testing material shall be kept.

## **2. MATERIAL REQUIRED**

### **2.1 Plant material requirements**

Information with respect to the agreed closing dates and submission requirements of plant material for the technical examination of varieties can be found on <http://www.cpvo.europa.eu/main/en/home/documents-and-publications/s2-gazette> in the special issue S2 of the Official Gazette of the Office. General requirements on submission of samples are also to be found following the same link.

## **2.2 Informing the applicant of plant material requirements**

The CPVO informs the applicant that

- he is responsible for ensuring compliance with any customs and plant health requirements.
- the plant material supplied should be visibly healthy, not lacking in vigour, nor affected by any important pest or disease.
- 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.

## **2.3 Informing about problems on the submission of material**

The Examination Office shall report to the CPVO immediately in cases where the test material of the candidate variety has not arrived in time or in cases where the material submitted does not fulfil the conditions laid down in the request for material issued by the CPVO.

In cases where the examination office encounters difficulties to obtain plant material of reference varieties the CPVO should be informed.

## **3. METHOD OF EXAMINATION**

### **3.1 Number of growing cycles**

#### **Two independent growing cycles**

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

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"

[http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_9\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_9_1.pdf).

### **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**

#### **Single plots**

3.4.1 Each test should be designed to result in a total of at least 60 plants which should be divided between at least two replicates.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle."

### **3.5 Additional tests**

In accordance with Article 83(3) of Council Regulation No. 2100/94 an applicant may claim either in the Technical Questionnaire or during the test that a candidate has a characteristic which would be helpful in establishing distinctness. If such a claim is made and is supported by reliable technical data, an additional test may be undertaken providing that a technically acceptable test procedure can be devised.

Additional tests will be undertaken, with the agreement of the President of CPVO, where distinctness is unlikely to be shown using the characters listed in the protocol.

### **3.6 Constitution and maintenance of a variety collection**

The process for the constitution and the maintenance of a variety collection can be summarized as follows:

Step 1: Making an inventory of the varieties of common knowledge

Step 2: Establishing a collection ("variety collection") of varieties of common knowledge which are relevant for the examination of distinctness of candidate varieties

Step 3: Selecting the varieties from the variety collection which need to be included in the growing trial or other tests for the examination of distinctness of a particular candidate variety.

3.6.1 Forms of variety collection

**(a) Fruit species and seed propagated agricultural and vegetable species**

The variety collection shall comprise variety descriptions and living plant material, thus a living reference collection. The variety description shall be produced by the examination office unless special cooperation exists between examination offices and the CPVO. The descriptive and pictorial information produced by the examination office shall be held and maintained in a form of a database

**(b) Vegetatively propagated agricultural and vegetable species**

The variety collection shall comprise variety descriptions; no living reference collection is required. The variety description shall be produced by the examination office unless special cooperation exists between examination offices and the CPVO. The descriptive and pictorial information produced by the examination office shall be held and maintained in a form of a database

3.6.2 Living Plant Material

**Fruit species and seed propagated agricultural and vegetable species**

The examination office shall collect and maintain living plant material of varieties of the species concerned in the variety collection.

**Vegetatively propagated agricultural and vegetable species and ornamental species**

The examination office shall obtain living plant material of reference varieties as and when those varieties need to be included in growing trials or other tests.

3.6.3 Range of the variety collection

The living variety collection shall cover at least those varieties that are suitable to climatic conditions of a respective examination office.

3.6.4 Making an inventory of varieties of common knowledge for inclusion in the variety collection

The inventory shall take into account the list of protected varieties and the official, or other, registers of varieties, in particular:

The inventory shall include varieties protected under National PBR (UPOV contracting parties) and Community PBR, varieties registered in the Common Catalogue, the OECD list, the Conservation variety list and varieties in trade or in commercial registers for those species not covered by a National or the Common Catalogue.

3.6.5 Maintenance and renewal/update of a living variety collection

**(a) Seed propagated species**

The examination office shall maintain seeds in conditions which will ensure germination and viability, periodical checks, and renewal as required. For the renewal of existing living material the identity of replacement living plant material shall be verified by conducting side-by-side plot comparisons between the material in the collection and the new material.

**(b) Vegetatively propagated species**

The examination office shall maintain the variety collection under appropriate growing conditions (e.g. glasshouse, orchard, in vitro), where it shall be ensured that the plants are adequately irrigated, fertilised, pruned and protected from harmful pests and diseases. For the renewal of existing living material the identity of replacement living plant material shall be verified by conducting side-by-side plot comparisons between the material in the collection and the new material or by checking the identity of the new material against the variety description.

**4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY**

The prescribed procedure is to assess distinctness, uniformity and stability in a growing trial.

## 4.1 Distinctness

### 4.1.1 General recommendations

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 9 'Examining Distinctness' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_9\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_9_1.pdf)) prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in this Technical Protocol.

Further guidance is provided in documents TGP/9 "Examining Distinctness" and TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability".

### 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 Technical Protocols are familiar with the recommendations contained in the UPOV-General Introduction to DUS prior to making decisions regarding distinctness.

### 4.1.4 Number of plants/parts of plants to be examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test, disregarding any off-type plants.

### 4.1.5 Method of observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the third 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. colour 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**

It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 10 'Examining Uniformity' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_10\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_10_1.pdf)) prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in this Technical Protocol:

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

## **4.3 Stability**

4.3.1 It is of particular importance for users of this Technical Protocol to consult the UPOV-General Introduction to DUS (link in chapter 1 of this document) and TGP 11 'Examining Stability' ([http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp\\_11\\_1.pdf](http://www.upov.int/export/sites/upov/en/publications/tgp/documents/tgp_11_1.pdf) )

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

**5.4** The following have been agreed as useful grouping characteristics.

- a) Leaf: colour (characteristic 10)
- b) Flower: colour (characteristic 25)
- c) Time of bolting (characteristic 27)

**5.5** If other characteristics than those from the TP are used for the selection of varieties to be included into the growing trial, the examination office shall inform the CPVO and seek the prior consent of the CPVO before using these characteristics.

Table 1

Plant: growth type	Growth sub-type	Plant: diameter (char. 1)	Plant: shape of upper part in longitudinal section (char 3.)	Plain type only: leaf depth of lobing (char. 11)	Cut type only: Leaf: venation (char. 12)	Cut type only: Leaf: length of lobes (char. 13)	Plain type only: Leaf: creasing (char. 17)	Cut type varieties only: Leaf: ratio length of part of leaf without lobes/total length of leaf (char. 18)	Leaf: width of midrib at base (char. 19)
Plain <sup>1</sup>	Grosse Bouclée 2 (Nummer Vijf 2)	medium (notes 5-7)	rounded	shallow (notes 2-4)			medium (notes 4-6)		medium (notes 4-6)
Plain <sup>1</sup>	Breedblad Volhart Winter (À cœur plein)	medium (notes 4-6)	truncate	shallow (notes 2-4)			strong (notes 6-8)		broad (notes 6-8)
Plain <sup>1</sup>	Géante maraîchère	large (notes 5-8)	truncate	absent or very shallow (note 1)			weak (notes 1-3)		broad (notes 6-8)
Plain <sup>1</sup>	Cornet	medium (notes 5-7)	pointed	absent or very shallow (notes 1 or 2)			strong (notes 5-7)		broad (notes 6-8)
Plain <sup>1</sup>	Ambio	medium (notes 4-6)	truncate	deep (to parted) (notes 7-9)			very strong (notes 8 or 9)		broad (notes 6-8)
Cut <sup>2</sup>	Wallonne	very large (notes 7-9)	truncate		not flabellate	short (notes 3 or 4)		medium (notes 4-6)	broad (notes 6-8)
Cut <sup>2</sup>	De Louviers	small (notes 1-5)	rounded		flabellate	long (notes 7-9)		small (notes 1-3)	very narrow (notes 1-3)
Cut <sup>2</sup>	D' été à cœur jaune	medium (notes 4-6)	rounded		semi flabellate	medium (notes 4-6)		medium (notes 4-6)	medium (notes 4-6)

<sup>1</sup> The leaves of Plain growth types (*C. endivia* var. *latifolia*) are entire to almost parted, with an undulating and serrate to dentate margin;

<sup>2</sup> The leaves of Cut growth types (*C. endivia* var. *crispa*) are very deeply parted, with a crispate and dentate to lacinate margin.

The range of notes in the sub-type is indicated between brackets.

Section 8.1 provides illustrations for the growth sub-types.



## 6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS

### 6.1 Characteristics to be used

The characteristics to be used in DUS tests and preparation of descriptions shall be those referred to in the table of characteristics. All the characteristics shall be used, providing that observation of a characteristic is not rendered impossible by the expression of any other characteristic, or the expression of a characteristic is prevented by the environmental conditions under which the test is conducted or by specific legislation on plant health. In the latter case, the CPVO should be informed.

The Administrative Council empowers the President, in accordance with Article 23 of Commission Regulation N°874/2009, to insert additional characteristics and their expressions in respect of a variety.

#### Technical Protocols with asterisked characteristics (only for certain vegetable species)

In the case of disease resistance characteristics, only those resistances marked with an asterisk (\*) in the CPVO column are compulsory.

#### States of expression and corresponding notes

In the case of qualitative and pseudo-qualitative characteristics, 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 Example Varieties

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

### 6.3 Legend

#### For the CPVO N° Column

G Grouping characteristic – see Chapter 5

MG, MS, VG, VS – see Chapter 4.1.5

QL Qualitative characteristic

QN Quantitative characteristic

PQ Pseudo-qualitative characteristic

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

(+) See Explanations on the Table of Characteristics in Chapter 8.

#### For the UPOV N° column:

The numbering of the characteristics is provided as a reference to the ad hoc UPOV guideline.

(\*) UPOV Asterisked characteristic – Characteristics that are important for the international harmonization of variety descriptions.

## 7. TABLE OF CHARACTERISTICS

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>1.</b>	<b>1.</b> (* )	<b>VG</b>	<b>Plant: diameter</b>		
<b>QN</b>		<b>(a)</b>	very small	Belusa	1
			small	De Louviers	3
			medium	Blonde à cœur plein, D'été à cœur jaune, Golda	5
			large	Grosse Pancalière	7
			very large	Superfiorentina, Wallonne	9
<b>2.</b>	<b>2.</b>	<b>VG</b>	<b>Plant: growth habit</b>		
<b>(+)</b>		<b>(a)</b>	upright	Gloire de l'Exposition	1
<b>QN</b>			semi-upright	Blonde à cœur plein, D'été à cœur jaune	2
			horizontal	Argentée Mirabel, De Ruffec	3
<b>3.</b>	<b>3.</b> (* )	<b>VG</b>	<b>Plant: shape of upper part in longitudinal section</b>		
<b>(+)</b>		<b>(a)</b>	truncate	Aery, Gloire de l'Exposition	1
<b>PQ</b>			rounded	Ameris, Dafne, Grosse Bouclée 2	2
			pointed	Cornet de la Loire	3
<b>4.</b>	<b>4.</b>	<b>VG</b>	<b>Heart: tendency to bleach</b>		
<b>(+)</b>		<b>(a)</b>	absent or very weak	Géante maraîchère	1
<b>QN</b>			moderate	Amos, D'été à cœur jaune	2
			strong	Starly	3
<b>5.</b>	<b>5.</b>	<b>VG</b>	<b>Leaf: inflexion of upper part</b>		
<b>(+)</b>		<b>(b)</b>	weak	Cornet de la Loire	1
<b>QN</b>			medium	Blonde à cœur plein	2
			strong	D'hiver de Provence	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
6. QN	6.	VG (b)	<b>Leaf: length</b>		
			very short	Nairobi	1
			short	Gloire de l'Exposition	3
			medium	D'hiver de Provence, Grosse Bouclée 2	5
			long	D'été à cœur jaune, Tebas	7
			very long	Atleta	9
7. QN	7.	VG (b)	<b><u>Plain type varieties only:</u> Leaf: width</b>		
			narrow	Pacos	3
			medium	Grosse Bouclée 2	5
			broad	Géante maraîchère	7
8. QN	8.	VG (b)	<b><u>Cut type varieties only:</u> Leaf: width</b>		
			narrow	Wallonne	3
			medium	D'hiver de Provence	5
			broad	D'été à cœur jaune	7
9. (+) QN	9.	VG (b)	<b><u>Plain type varieties only:</u> Leaf: shape</b>		
			narrow obovate	Escariol grüner, Pacos	1
			medium obovate	Andes	3
			broad obovate	Diva, Géante maraîchère, Kalinka	5

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>10.</b>	<b>10.</b> (*)	<b>VG</b>	<b>Leaf: colour</b>		
<b>PQ</b>		<b>(b)</b>	light yellowish green	Belusa	1
			medium yellowish green	Blonde à cœur plein, Magaly, Tarquinis	2
			dark yellowish green	Kampero	3
			very light green	Gloire de l'exposition	4
			light green	Cathie, Milady, Solera	5
			medium green	Géante maraîchère, Nuance, Sally	6
			dark green	Atleta, Minerva, Wallonne	7
			very dark green	D'hiver de Provence, Isola	8
			light greyish green	Barundi, De Louviers, Lassie	9
			medium greyish green	Argentée Mirabel, Constance, Woodie	10
<b>G</b>			dark greyish green	De Namur, Snoopie	11
<b>11.</b>	<b>11.</b>	<b>VG</b>	<b><u>Plain type varieties only:</u> Leaf: depth of lobing</b>		
<b>(+)</b>		<b>(b)</b>	absent or very shallow	Géante maraîchère	1
<b>QN</b>			shallow	Blonde à Coeur plein, Grosse Bouclée 2	3
			medium	Maruschka	5
			deep	Ambio	7
			very deep	Friscaro	9
<b>12.</b>	<b>12.</b>	<b>VG</b>	<b><u>Cut type varieties only:</u> Leaf: venation</b>		
<b>(+)</b>		<b>(b)</b>	not flabellate	Wallonne	1
<b>QN</b>			semi flabellate	D'été à coeur jaune	2
			flabellate	De Louviers, Gloire de l'exposition	3

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>13.</b>	<b>13.</b>	<b>VG</b>	<b><u>Cut type varieties only:</u> Leaf: length of lobes</b>		
(+)		(b)	short	Wallonne	3
<b>QN</b>			medium	D'été à coeur jaune	5
			long	Très fine Maraîchère	7
			very long		9
<b>14.</b>	<b>14.</b>	<b>VG</b>	<b><u>Plain type varieties only:</u> Leaf: dentation of margin</b>		
(+)		(b)	absent or weak	Grosse Bouclée 2	1
<b>QN</b>			medium	Géante maraîchère	2
			strong	Cornet	3
<b>15.</b>	<b>15.</b>	<b>VG</b>	<b><u>Cut type varieties only:</u> Leaf: length of dentation of margin</b>		
(+)		(b)	short	Atleta	3
<b>QN</b>			medium	Très fine Maraîchère	5
			long	De Ruffec	7
<b>16.</b>	<b>16.</b>	<b>VG</b>	<b><u>Plain type varieties only:</u> Leaf: undulation of margin</b>		
(+)		(b)	weak	Ophely	3
<b>QN</b>			medium	Grosse Bouclée 2	5
			strong	Gigance	7
<b>17.</b>	<b>17.</b>	<b>VG</b>	<b><u>Plain type varieties only:</u> Leaf: creasing</b>		
<b>QN</b>		(b)	weak	Géante Maraîchère	3
			medium	Grosse Bouclée 2	5
			strong	Blonde à cœur plein	7

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>18.</b>	<b>18.</b> <b>(*)</b>	<b>VG</b>	<b><u>Cut type varieties only:</u> Leaf: ratio length of part of leaf without lobes/total length of leaf</b>		
<b>(+)</b>		<b>(b)</b>	very low	D'Olivet	1
<b>QN</b>			low	De Louviers	3
			medium	Wallonne	5
			high		7
			very high	Toujours Blanche	9
<b>19.</b>	<b>19.</b> <b>(*)</b>	<b>VG</b>	<b>Leaf: width of midrib at base</b>		
<b>QN</b>		<b>(b)</b>	very narrow	Fresseta	1
			narrow	Mercedes	3
			medium	D'été à cœur jaune, Grosse Bouclée 2	5
			broad	Blonde à cœur plein, Wallonne	7
<b>20.</b>	<b>20.</b> <b>(*)</b>		<b><u>Cut type varieties only:</u> Leaf: anthocyanin coloration at base</b>		
<b>QN</b>		<b>(b)</b>	absent or weak	D'été à cœur jaune	1
			medium		2
			strong	De Meaux	3
<b>21.</b>	<b>21.</b>	<b>VG</b>	<b>Stem: height</b>		
<b>(+)</b>		<b>(c)</b>	short	De Louviers	3
<b>QN</b>			medium	D'été à cœur jaune	5
			tall	Cornet de la Loire, D'Hiver de Provence	7
<b>22.</b>	<b>22.</b>	<b>VG</b>	<b>Stem: fasciation</b>		
<b>(+)</b>		<b>(c)</b>	absent	Cornet d'Anjou, D'Hiver de Provence, De Ruffec	1
<b>QL</b>			present	Golda, Grosse Bouclée 2	9

CPVO N°	UPOV N°	Stage, Method	Characteristics	Examples	Note
<b>23.</b>	<b>23.</b>	<b>VG</b>	<b>Stem: attitude of branches</b>		
<b>QN</b>		<b>(c)</b>	erect	Grosse Bouclée 2	1
			semi-erect		3
			horizontal	Ariga	5
<b>24.</b>	<b>24.</b>	<b>VG</b>	<b><u>Plain type varieties only:</u> Stem: shape of stipules</b>		
<b>QN</b>		<b>(c)</b>	narrow elliptic		1
			broad elliptic	Blonde à cœur plein	2
			circular	Solera	3
<b>25.</b>	<b>25. (*)</b>	<b>VG</b>	<b>Flower: colour</b>		
<b>(+)</b>			white	De Louviers, Grosse pommant seule	1
<b>PQ</b>			light pink	Lisuna	2
			dark pink	Ascari	3
			blue	Grosse Bouclée 2	4
<b>G</b>			violet blue	Alaska, Ariga, Sally, Wallonne	5
<b>26.</b>	<b>26.</b>	<b>MG</b>	<b>Time of harvest maturity</b>		
<b>(+)</b>			early	Sally	3
<b>QN</b>			medium		5
			late	Wallonne	7
			very late	Cornet d'Anjou	9
<b>27.</b>	<b>27. (*)</b>	<b>MG</b>	<b>Time of bolting</b>		
<b>QN</b>			very early	Noveli	1
			early	De Meaux, Grosse pommant seule	3
			medium	Sally	5
			late	Blonde à cœur plein	7
<b>G</b>			very late	Excel	9

## 8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS

### 8.1 *Endive Growth Sub-Types (under Section 5.3)*



Grosse bouclée 2 (Nummer Vijf 2)



Breedblad Volhart Winter (A Coeur plein)





Géante maraîchère



Cornet





Ambio



Wallonne





De Louviers



D'été à coeur jaune

## 8.2 Explanations covering several characteristics

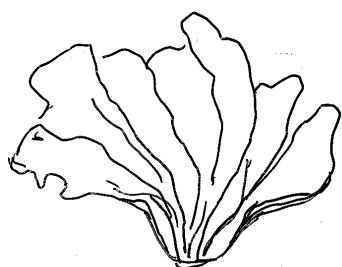
Characteristics should be observed under natural conditions without forcing measures.

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

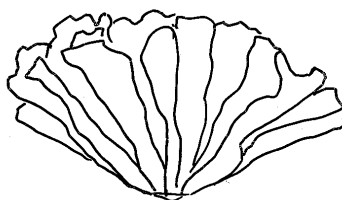
- a) Plant: Observations on the plant should be made just before harvest maturity.
- b) Leaf: Observations on the leaf should be made just before harvest maturity on leaves excluding the outer and centre leaves.
- c) Stem: Observations on the stem should be made on a flowering stem.
- d) Flower: The colour should be observed on just opened flowers, because the colour of the flowers changes with ageing.

## 8.3 Explanations for individual characteristics

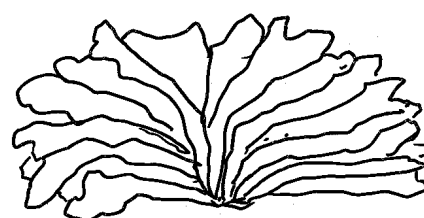
Ad. 2: Plant: growth habit



1  
upright



2  
semi-upright



3  
horizontal

Ad. 3: Plant: shape of upper part in longitudinal section



1  
truncate



2  
rounded



3  
pointed

Ad. 4: Heart: tendency of bleach



1  
absent or weak



2  
moderate



3  
strong

Ad. 5: Leaf: inflexing of upper part



1  
weak



2  
medium



3  
strong

Ad.9: Plain type varieties only: Leaf: shape



1  
narrow obovate



3  
medium obovate



5  
broad obovate

Ad.11: Plain type varieties only: Leaf: depth of lobing



1  
absent of very shallow



3  
shallow



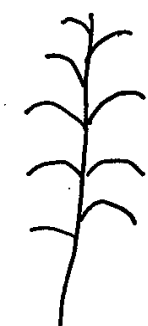
5  
medium



7  
deep



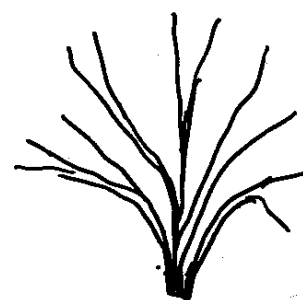
Ad.12: Cut type varieties only: Leaf: venation



1  
not flabellate



2  
semi flabellate



3  
flabellate

Ad.13: Cut type varieties only: Leaf: length of lobes

The length of the lobes is to be observed from the attachment to the tip, following the curving of the lobes. In this illustration the length of the lobe is indicated by a dotted line.



Ad.14: Plain type varieties only: Leaf: dentation of margin



1  
absent or weak



2  
medium



3  
strong

Ad.15: Cut type varieties only: Leaf: length of dentation of margin



3  
short



5  
medium



7  
long

Ad.16: Plain type varieties only: Leaf: undulation of margin



3  
weak

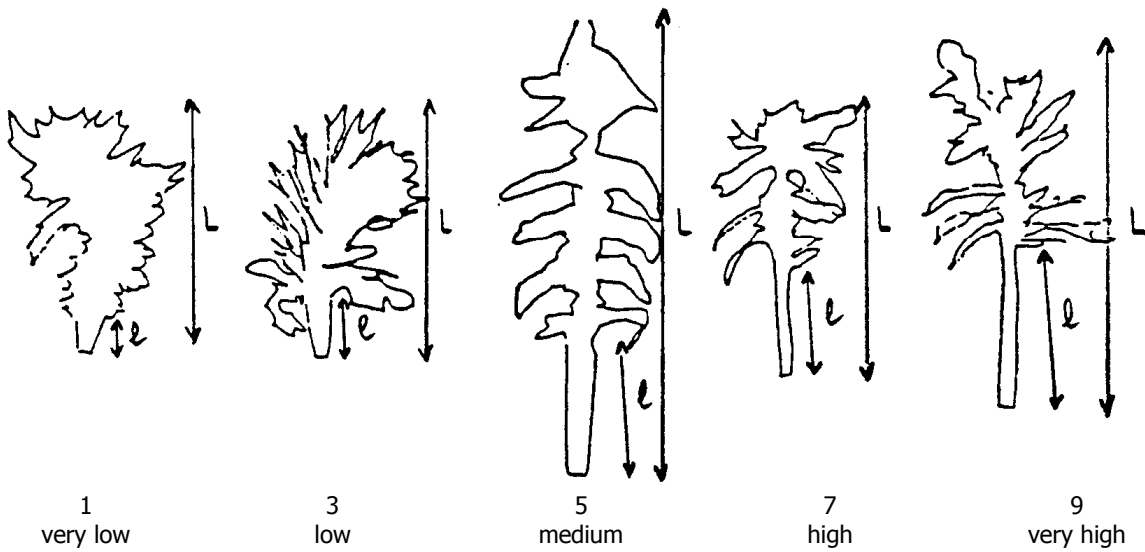


7  
strong

Ad.18: Cut type varieties only: Leaf: ratio length of part of leaf without lobes/total length of leaf

L = total length of leaf

l = length of part of leaf without lobes





Ad. 21: Stem: height

To be observed for each variety individually when the first flowers are open.



Ad. 22: Stem: fasciation



1  
absent



9  
present

Ad. 25: Flower: colour



1  
white

2  
light pink  
RHS 75D

3  
dark pink  
RHS 70D

4  
blue  
RHS 97A

5  
violet blue  
RHS 92B

The reference to the RHS Colour Chart is indicative.

Ad. 26: Time of harvest maturity

Harvest maturity is reached before the beginning of bolting. For those varieties that do not bolt, harvest maturity is when they have reached their full size.

**9. LITERATURE**

No specific literature.

## **10. TECHNICAL QUESTIONNAIRE**

The Technical Questionnaire is available on the CPVO website under the following reference: CPVO-TQ/118/3