



TG/173/2(proj.)

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**E**

INTERNATIONAL UNION  
FOR THE PROTECTION  
OF NEW VARIETIES OF  
PLANTS

UNION INTERNATIONALE  
POUR LA PROTECTION  
DES OBTENTIONS  
VÉGÉTALES

INTERNATIONALER  
VERBAND ZUM SCHUTZ  
VON PFLANZEN-  
ZÜCHTUNGEN

UNIÓN INTERNACIONAL  
PARA LA PROTECCIÓN  
DE LAS OBTENCIONES  
VEGETALES

**DRAFT**

## **GUIDELINES**

### **FOR THE CONDUCT OF TESTS**

#### **FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

**WITLOOF, CHICORY**

*(Cichorium intybus L.  
partim)*

These Guidelines should be read in conjunction with document TG/1/2, which contains explanatory notes on the general principles on which the Guidelines have been established.

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
I. Subject of these Guidelines .....	3
II. Material Required .....	3
III. Conduct of Tests .....	3
IV. Methods and Observations .....	3
V. Grouping of Varieties .....	4
VI. Characteristics and Symbols .....	4
VII. Table of Characteristics .....	5
VIII. Explanations on the Table of Characteristics .....	14
IX. Literature .....	16
X. Technical Questionnaire .....	17

## I. Subject of these Guidelines

These Test Guidelines apply to all varieties of *Cichorium intybus* L. partim of the family *Compositae*, excluding industrial chicory (TG/172/2(proj.)) and leaf chicory (TG/154/3).

## II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the plant material required for testing the variety is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must make sure that all customs formalities are complied with. The minimum quantity of seed to be supplied by the applicant in one or several samples should be:

50 g.

The seed should at least meet the minimum requirements for germination capacity, moisture content and purity for marketing seed in the country in which the application is made. The germination capacity should be as high as possible.

2. The plant material must not have undergone any treatment unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

## III. Conduct of Tests

1. The minimum duration of tests should normally be two similar growing periods.

2. The tests should normally be conducted at one place. If any important characteristics of the variety cannot be seen at that place, the variety may be tested at an additional place.

3. The tests should be carried out under conditions ensuring normal growth. The size of the plots should be such that plants or parts of plants may be removed for measurement and counting without prejudice to the observations which must be made up to the end of the growing period. Each test should include a total of 100 plants which should be divided between two or more replicates. The same number should be used for forcing. Separate plots for observation and for measuring can only be used if they have been subject to similar environmental conditions.

4. Additional tests for special purposes may be established.

## IV. Methods and Observations

1. Unless otherwise indicated, all observations determined by measurement, weighting or counting should be made on 60 plants or parts taken from each of 60 plants.

2. All observations on the leaf should be made on the full-grown leaf.

3. All observations on the head should be made at the time of harvesting of the heads before exposure to daylight.

#### V. Grouping of Varieties

1. The collection of varieties to be grown should be divided into groups to facilitate the assessment of distinctness. Characteristics which are suitable for grouping purposes are those which are known from experience not to vary, or to vary only slightly, within a variety. Their various states of expression should be fairly evenly distributed throughout the collection.

2. It is recommended that the competent authorities use the following characteristics for grouping varieties:

- (a) Leaf: length (characteristic 7)
- (b) Leaf: intensity of green color (characteristic 11)
- (c) Head: length (characteristic 28)
- (d) Head: shape in longitudinal section (characteristic 31)

#### VI. Characteristics and Symbols

1. To assess distinctness, uniformity and stability, the characteristics and their states as given in the Table of Characteristics should be used.

2. Notes (numbers), for the purposes of electronic data processing, are given opposite the states of the different characteristics.

#### 3. Legend

(\*) Characteristics that should be used on all varieties in every growing period over which the examinations are made and always be included in the variety descriptions, except when the state of expression of a preceding characteristic or regional environmental conditions render this impossible.

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

VII. Table of Characteristics/Tableau des caractères/Merkmaletabelle/Tabla de caracteres

English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
<b>1. Seed: color (+)</b>	<b>Graine: couleur</b>	<b>Samen: Farbe</b>	<b>Semilla: color</b>		
only white	seulement blanche	nur weiß	sólo blanco	Conrad, Toner	1
only black	seulement noire	nur schwarz	sólo negro	Arnova, Panache	2
white or black	blanche ou noire	weiß oder schwarz	blanco o negro	Bea, Magnum, Zoom	3
<b>2. Cotyledon: shape</b>	<b>Cotylédon: forme globale</b>	<b>Keimblatt: Form</b>	<b>Cotiledón: forma</b>		
rounded	arrondie	abgerundet	redondeada	Bea, Flash, Toner	1
elliptic	elliptique	elliptisch	elíptica	Aline, Daliva	2
<b>3. Cotyledon: shape of tip</b>	<b>Cotylédon: forme apicale</b>	<b>Keimblatt: Form der Spitze</b>	<b>Cotiledón: forma del ápice</b>		
truncate	tronquée	stumpf	truncada	Aline, Conrad, Jaz	1
rounded	arrondie	abgerundet	redondeada	Bergère, Videna	2
<b>4. Plant: height at vegetative stage (*)(+)</b>	<b>Plante: hauteur au stade végétatif</b>	<b>Pflanze: Höhe im vegetativen Stadium</b>	<b>Planta: altura en estado vegetativo</b>		
short	courte	niedrig	baja		3
medium	moyenne	mittel	media	Flash, Marriott	5
tall	haute	hoch	alta	Dirv	7
<b>5. Leaf: attitude (*)</b>	<b>Feuille: port</b>	<b>Blatt: Haltung</b>	<b>Hoja: porte</b>		
erect	dressé	aufrecht	erecto	Dirv	1
semi-erect	demi-dressé	halbaufrecht	semierecto	Flash, Turbo	3
horizontal	horizontal	waagrecht	horizontal		5
<b>6. Leaf: attitude of tip</b>	<b>Feuille: port du sommet</b>	<b>Blatt: Haltung der Spitze</b>	<b>Hoja: porte del extremo</b>		
erect	dressé	aufrecht	erecto		1
semi-erect	demi-dressé	halbaufrecht	semierecto	Turbo	3
horizontal	horizontal	waagrecht	horizontal		5

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>7. 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	courte	kurz	corta	Carla, Conrad	3
medium	moyenne	mittel	media	Elsa, Flash, Marriott	5
long	longue	lang	larga	Turbo	7
very long	très longue	sehr lang	muy larga	Vilmorin No 5	9
<b>8. Leaf: width</b> (*	<b>Feuille: largeur</b>	<b>Blatt: Breite</b>	<b>Hoja: anchura</b>		
very narrow	très étroite	sehr schmal	muy estrecha		1
narrow	étroite	schmal	estrecha	Carla	3
medium	moyenne	mittel	media	Bea, Flash, Zoom	5
broad	large	breit	ancha	Nica, Quartz	7
very broad	très large	sehr breit	muy ancha		9
<b>9. Leaf: ratio length/width</b>	<b>Feuille: rapport longueur/largeur</b>	<b>Blatt: Verhältnis Länge/Breite</b>	<b>Hoja: relación largo/anchura</b>		
very small	très petit	sehr klein	muy pequeña		1
small	petit	klein	pequeña	Vitessa	3
medium	moyen	mittel	media	Bea	5
large	grand	groß	grande	Senator	7
very large	très grand	sehr groß	muy grande		9
<b>10. Leaf: color</b> (*	<b>Feuille: couleur</b>	<b>Blatt: Farbe</b>	<b>Hoja: color</b>		
only green	seulement verte	nur grün	sólo verde		1
only red	seulement rouge	nur rot	sólo rojo		2
green and red	verte et rouge	grün und rot	verde y rojo		3

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>11. Leaf: intensity of green color (*)</b>	<b>Feuille: intensité de la couleur verte</b>	<b>Blatt: Intensität der Grünfärbung</b>	<b>Hoja: intensidad del color verde</b>		
light	claire	hell	claro	Jaz	3
medium	moyenne	mittel	medio	Bea, Toner	5
dark	foncée	dunkel	oscuro	Conrad, Magic, Zoom	7
<b>12. Leaf: glossiness</b>	<b>Feuille: brillance</b>	<b>Blatt: Glanz</b>	<b>Hoja: brillo</b>		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil		1
weak	faible	gering	débil	Flash, Rinof	3
medium	moyenne	mittel	medio	Toner	5
strong	forte	stark	fuerte	Dirv, Magic, Quartz	7
very strong	très forte	sehr stark	muy fuerte		9
<b>13. Leaf: shape in cross section (*)</b>	<b>Feuille: forme en section transversale</b>	<b>Blatt: Form im Querschnitt</b>	<b>Hoja: forma en sección transversal</b>		
concave	concave	konkav	cóncava		3
flat	plane	eben	plana	Zoom	5
convex	convexe	konvex	convexa	Dirv	7
<b>14. Leaf: blistering (*)</b>	<b>Feuille: cloûre</b>	<b>Blatt: Blasigkeit</b>	<b>Hoja: abullonado</b>		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Rinof	1
weak	faible	gering	débil	Flash, Quartz	3
medium	moyenne	mittel	media		5
strong	forte	stark	fuerte	Monitor, Zoom	7
very strong	très forte	sehr stark	muy fuerte		9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>15. Leaf: anthocyanin coloration of midrib (*)</b>	<b>Feuille: pigmentation anthocyanique de la nervure médiane</b>	<b>Blatt: Anthocyanfärbung der Mittelrippe</b>	<b>Hoja: pigmentación antocianica del nervio central</b>		
absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Dirv, Jaz, Spectra	1
weak	faible	gering	débil	Flash	3
medium	moyenne	mittel	media	Carla, Sigma, Zoom	5
strong	forte	stark	fuerte	Victoria	7
very strong	très forte	sehr stark	muy fuerte		9
<b>16. Leaf: incisions of basal part</b>	<b>Feuille : incisions de la partie basale</b>	<b>Blatt: Randeinschnitte des basalen Teiles</b>	<b>Hoja: incisiones del borde de la parte basal</b>		
absent or very weak	absentes ou très faibles	fehlend oder sehr gering	ausente o muy débil		1
weak	faibles	gering	débil	Monitor	3
medium	moyennes	mittel	media	Bea	5
strong	fortes	stark	fuerte	Victoria	7
very strong	très fortes	sehr stark	muy fuerte		9
<b>17. Leaf: incisions of margin of upper third (*)</b>	<b>Feuille: incisions du bord du tiers supérieur</b>	<b>Blatt: Randeinschnitte des oberen Drittels</b>	<b>Hoja: incisiones del margen del tercio superior</b>		
absent or very weak	nulles ou très faibles	fehlend oder sehr gering	ausente o muy débil		1
weak	faibles	gering	débil	Flash, Toner	3
medium	moyennes	mittel	media	Zoom	5
strong	fortes	stark	fuerte	Victoria	7
very strong	très fortes	sehr stark	muy fuerte		9



English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>18. Leaf: depth of incisions of margin of upper third</b>	<b>Feuille: profondeur des incisions du bord du tiers supérieur</b>	<b>Blatt: Tiefe der Randeinschnitte des oberen Drittels</b>	<b>Hoja: profundidad de las incisiones del margen del tercio superior</b>		
shallow	peu profonde	flach	poco profunda	Flash, Zoom	3
medium	moyenne	mittel	media		5
deep	profonde	tief	profunda		7
<b>19. Leaf: undulation of margin</b>	<b>Feuille: ondulation du bord</b>	<b>Blatt: Wellung des Randes</b>	<b>Hoja: ondulación del borde</b>		
weak	faible	gering	débil	Venus	3
medium	moyenne	mittel	media	Atlas	5
strong	forte	stark	fuerte	Sigma	7
<b>20 (+) Leaf: shape of tip</b>	<b>Feuille: forme du sommet</b>	<b>Blatt: Form der Spitze</b>	<b>Hoja: forma del extremo</b>		
rounded	arrondie	abgerundet	redondeada	Rumba	1
weakly pointed	légèrement pointue	leicht spitz	ligeramente puntiaguda	Mona	2
strongly pointed	fortement pointue	sehr spitz	muy puntiaguda	Magic	3
<b>21. Root: size</b>	<b>Racine: taille</b>	<b>Rübe: Größe</b>	<b>Raíz: tamaño</b>		
small	petite	klein	pequeño		3
medium	moyenne	mittel	mediano	Bea	5
large	grande	groß	grande	Focus	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>22. Bolting tendency (from an early sowing)</b>	<b>Tendance à la montaison (en semis précoce)</b>	<b>Neigung zum Schossen (bei Frühkultur)</b>	<b>Tendencia a la floración (en siembra temprana)</b>		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Carla	1
weak	faible	gering	débil	Bea	3
medium	moyenne	mittel	media	Flash	5
strong	forte	stark	fuerte	Quartz	7
very strong	très forte	sehr stark	muy fuerte	Vilmorin No. 5	9
<b>23. Flowering stem: height</b>	<b>Tige florale: hauteur</b>	<b>Blütenstandstiel: Höhe</b>	<b>Tallo floral: altura</b>		
short	basse	niedrig	baja		3
medium	moyenne	mittel	media	Samba	5
tall	haute	hoch	alta	Final	7
<b>24. Flowering stem: branching</b>	<b>Tige florale: ramification</b>	<b>Blütenstandstiel: Verzweigung</b>	<b>Tallo floral: ramificación</b>		
weak	faible	gering	débil		3
medium	moyenne	mittel	media	Jaz	5
strong	forte	stark	fuerte	Final	7
<b>25. Flowering stem: size of stipule</b>	<b>Tige florale: taille de la stipule</b>	<b>Blütenstandstiel: Größe des Neben- blättes</b>	<b>Tallo floral: tamaño de la estípula</b>		
small	petite	klein	pequeño	Magnum	3
medium	moyenne	mittel	mediano	Bea	5
large	grande	groß	grande	Maraichere	7
<b>26. Flowering stem: dentation of stipule</b>	<b>Tige florale: denticulation de la stipule</b>	<b>Blütenstandstiel: Zählung des Nebenblattes</b>	<b>Tallo floral: dentado de la estípula</b>		
small	petite	klein	pequeño	Flash	3
medium	moyenne	mittel	mediano	Terosa	5
large	grande	groß	grande		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>27. Flower: color</b>	<b>Fleur: couleur</b>	<b>Blüte: Farbe</b>	<b>Flor: color</b>		
white	blanche	weiß	blanco		1
pink	rose	rosa	rosa		2
blue	bleu	blau	azul	Bea	3
<b>28. Head: length (*)</b>	<b>Chicon: longueur</b>	<b>Kopf: Länge</b>	<b>Cogollo: longitud</b>		
very short	très courte	sehr kurz	muy corta	Carla	1
short	courte	kurz	corta	Mona	3
medium	moyenne	mittel	media	Bea, Monitor	5
long	longue	lang	larga	Faro, Focus, Revor	7
very long	très longue	sehr lang	muy larga	Normale	9
<b>29. Head: maximum diameter (*)</b>	<b>Chicon: diamètre maximal</b>	<b>Kopf: maximaler Durchmesser</b>	<b>Cogollo: diámetro máximo</b>		
small	petit	klein	pequeño	Carla	3
medium	moyen	mittel	medio	Bea	5
large	grand	groß	grande	Mona	7
<b>30. Head: ratio length/diameter</b>	<b>Chicon: rapport longueur/diamètre</b>	<b>Kopf: Verhältnis Länge/Durchmesser</b>	<b>Cogollo: relación largo/diámetro</b>		
small	petit	klein	pequeño	Mona	3
medium	moyen	mittel	medio	Bea	5
large	grand	groß	grande	Focus	7
<b>31. Head: shape in longitudinal section (*)</b>	<b>Chicon: forme en section longitudinale</b>	<b>Kopf: Form im Längsschnitt</b>	<b>Cogollo: forma en sección longitudinal</b>		
narrow elliptic	elliptique étroite	schmal elliptisch	elíptica estrecha		1
elliptic	elliptique	elliptisch	elíptica	Dirv, Rinof	2
broad elliptic	elliptique large	breit elliptisch	elíptica ancha		3
ovate	ovale	eiförmig	oval	Histerra, Zoom	4

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>32. (*)</b>	<b>Head: shape of apex</b>	<b>Chicon: forme du sommet</b>	<b>Kopf: Form der Spitze</b>	<b>Cogollo: forma del ápice</b>	
rounded	arrondie	abgerundet	redondeada	Mona	1
weakly pointed	légèrement pointue	leicht spitz	ligeramente puntiaguda	Toner	2
strongly pointed	fortement pointue	sehr spitz	muy puntiaguda	Zoom	3
<b>33.</b>	<b>Head: color of midrib</b>	<b>Chicon: couleur de la nervure médiane</b>	<b>Kopf: Farbe der Mittelrippe</b>	<b>Cogollo: color del nervio central</b>	
white	blanche	weiß	blanco	Zoom	1
whitish	blanchâtre	weißlich	blanquecino	Caressa	2
<b>34. (*)</b>	<b>Head: color of leaf blade</b>	<b>Chicon: couleur du limbe</b>	<b>Kopf: Farbe der Blattspreite</b>	<b>Cogollo: color del limbo</b>	
green	vert	grün	verde		1
yellow	jaune	gelb	amarillo		2
red	rouge	rot	rojo		3
<b>35. (*)</b>	<b>Head: intensity of color of leaf blade</b>	<b>Chicon: intensité de la couleur du limbe</b>	<b>Kopf: Intensität der Farbe der Blattspreite</b>	<b>Cogollo: intensidad del color del limbo</b>	
light	claire	hell	clara		3
medium	moyenne	mittel	media		5
dark	foncée	dunkel	oscura		7
<b>36.</b>	<b>Head: blistering of leaf blade</b>	<b>Chicon: cloûre du limbe</b>	<b>Kopf: Blasigkeit der Blattspreite</b>	<b>Cogollo: abullonado del limbo</b>	
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil		1
weak	faible	gering	débil	Tabor	3
medium	moyenne	mittel	media	Ivora, Zoom	5
strong	forte	stark	fuerte	Roelof	7
very strong	très forte	sehr stark	muy fuerte		9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>37. Head: closure of apex (*)</b>	<b>Chicon: fermeture du sommet</b>	<b>Kopf: Schließen der Spitze</b>	<b>Cogollo: cierre del ápice</b>		
fully open	complètement ouvert	vollkommen offen	completamente abierto		1
half open	demi-ouvert	halb offen	semi-abierto		2
closed	fermé	geschlossen	cerrado		3
<b>38. Head: firmness</b>	<b>Chicon: fermeté</b>	<b>Kopf: Festigkeit</b>	<b>Cogollo: firmeza</b>		
loose	lâche	locker	blanda		3
medium	moyenne	mittel	media	Bea	5
firm	ferme	fest	firme	Zoom	7

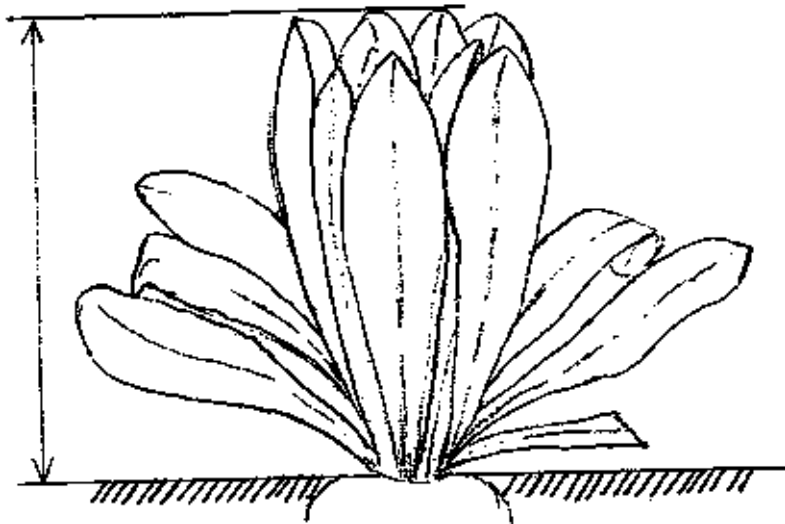
### VIII. Explanations on the Table of Characteristics

#### Ad. 1: Seed color

The seed color is the expression of the seed color genotype of the mother plant. F1 hybrids in witloof, chicory are mainly produced by certation (= competition in growth speed of pollentubes of allo-pollen and auto-pollen; allo-pollentubes win this competition), resulting in cross-fertilisation.

Hybrid seed is generally harvested on both parent lines. Depending on the seed color genotypes of parent lines, the produced hybrid seed is either black, white or a mixture of black and white seed. If the seed color genotypes of parent lines are different, the F1 hybrid seeds will be a mixture of black seeds and white seeds (Note 3).

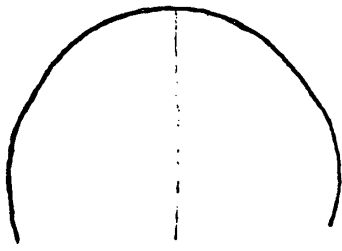
#### Ad. 4: Plant: height at vegetative stage



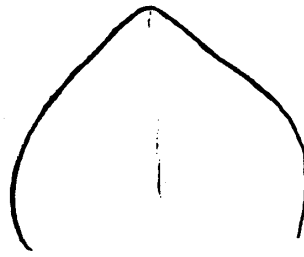
#### Ad. 7: Leaf: length



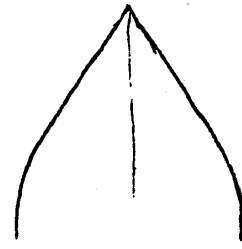
Ad. 20: Leaf: shape of tip



1  
rounded



2  
weakly pointed



3  
strongly pointed

IX. Literature

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

Leteinturier, J. E. A., 1983 :“L'endive (chicorée witloof),” 3e ed., CTIEF, Paris, France

Annon, C. R., 1970: “La chicorée de Bruxelles,” Symposium International à Gembloux (B), 17 et 18 février (Eucarpia), Ed. Min. de l’Agriculture, Recherche Agronomique, Bruxelles



X. Technical Questionnaire

		Reference Number (not to be filled in by the applicant)
<b>TECHNICAL QUESTIONNAIRE</b> to be completed in connection with an application for plant breeders' rights		
1. Species	<i>Cichorium intybus</i> L. partim  WITLOOF, CHICORY	
2. Applicant (Name and address)		
3. Proposed denomination or breeder's reference		
4. Information on origin, maintenance and reproduction of the variety		
4.1 Origin and breeding method		
(a) Population		[ ]
(b) Hybrid		[ ]
(c) Other (please indicate)		
.....		[ ]

4.2 Other information

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in the Test Guidelines; please mark the state of expression which best corresponds).

Characteristics	Example Varieties	Note
<b>5.1 Leaf: length (7)</b>		
very short		1[ ]
short	Carla, Conrad	3[ ]
medium	Elsa, Flash, Marriott	5[ ]
long	Turbo	7[ ]
very long	Vilmorin No.5	9[ ]
<b>5.2 Leaf: intensity of green color (11)</b>		
light	Jaz	3[ ]
medium	Bea, Toner	5[ ]
dark	Conrad, Magic, Zoom	7[ ]
<b>5.3 Head: length (28)</b>		
very short	Carla	1[ ]
short	Mona	3[ ]
medium	Bea, Monitor	5[ ]
long	Faro, Focus, Revor	7[ ]
very long	Normale	9[ ]

Characteristics	Example Varieties	Note
<b>5.4 Head: shape in longitudinal section (31)</b>		
narrow elliptic		1[ ]
elliptic	Dirv, Rinof	2[ ]
broad elliptic		3[ ]
ovate	Histerra, Zoom	4[ ]

6. Similar varieties and differences between these varieties

Denomination of similar variety	Characteristic in which the similar variety is different <sup>o)</sup>	State of expression of similar variety	State of expression of candidate variety

<sup>o)</sup> In the case of identical states of expressions of both varieties, please indicate the size of the difference.

7. Additional information which may help to distinguish the variety

7.1 Resistance to pests and diseases

7.2 Special conditions for the examination of the variety

- Period of forcing (Please state month)

.....

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 that question is yes, please attach a copy of such an authorization.