



TG/172/2(proj.)

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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

INDUSTRIAL 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.

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I. Subject of these Guidelines

These Test Guidelines apply to all varieties of *Cichorium intybus* L. partim of the family *Compositae*, excluding witloof (TG/173/2(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:

100 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. 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 before deterioration, this means 2 to 3 weeks before harvesting the roots.

3. All observations on the root should be made immediately after harvesting; assessment of inulin content within a week from harvesting the roots.

V. Grouping of Varieties

If necessary, 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.

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/Merkmalstabelle/Tabla de caracteres

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (* (+)	Plant: height (at end of first growing season)	Plante: hauteur (à la fin du premier cycle)	Pflanze: Höhe (am Ende der ersten Wachstumsperiode)	Planta: altura (al final del primer período de crecimiento)	
	short	courte	niedrig	baja	3
	medium	moyenne	mittel	media	Orchies 5
	tall	haute	hoch	alta	Katrien, Luxor 7
2. (* (*)	Foliage: attitude	Feuillage: port	Laub: Haltung	Follaje: porte	
	erect	dressé	aufrecht	erecto	Luxor, Madona, Rubis 1
	semi-erect	demi-dressé	halbaufrecht	semierecto	Fruitosa, Orchies 3
	horizontal	horizontal	waagrecht	horizontal	5
3. (* (+)	Leaf: length	Feuille: longueur	Blatt: Länge	Hoja: longitud	
	short	courte	kurz	corta	3
	medium	moyenne	mittel	media	Orchies 5
	long	longue	lang	larga	Jade, Luxor 7
4. (* (*)	Leaf: width	Feuille: largeur	Blatt: Breite	Hoja: anchura	
	narrow	étroite	schmal	estrecha	Eva, Luxor, Vanessa 3
	medium	moyenne	mittel	media	Rubis 5
	broad	large	breit	ancha	Jade 7
5. (* (*)	Leaf: intensity of green color	Feuille: intensité de la couleur verte	Blatt: Intensität der Grünfärbung	Hoja: intensidad del color verde	
	light	claire	hell	claro	Eva 3
	medium	moyenne	mittel	medio	Katrien 5
	dark	foncée	dunkel	oscuro	Madona, Rubis 7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6. Leaf: glossiness	Feuille: brillance	Blatt: Glanz	Hoja: brillo		
absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil		1
weak	faible	gering	débil	Luxor	3
medium	moyenne	mittel	medio	Rubis	5
strong	forte	stark	fuerte		7
7. Leaf: shape in cross section	Feuille: forme en section transversale	Blatt: Form im Querschnitt	Hoja: forma en sección transversal		
concave	concave	konkav	cóncava		3
flat	plane	eben	plana	Luxor, Madona	5
convex	convexe	konvex	convexa		7
8. (*) Leaf: blistering	Feuille: cloûre	Blatt: Blasigkeit	Hoja: abullonado		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Jade	1
weak	faible	gering	débil	Luxor	3
medium	moyenne	mittel	medio	Bergues	5
strong	forte	stark	fuerte	Cassel	7
very strong	très forte	sehr stark	muy fuerte		9
9. Leaf: anthocyanin coloration of midrib	Feuille: pigmentation anthocyanique de la nervure médiane	Blatt: Anthocyanfärbung der Mittelrippe	Hoja: pigmentación antociánica del nervio central		
absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Bergues	1
weak	faible	gering	débil	Luxor, Rubis	3
medium	moyenne	mittel	media		5
strong	forte	stark	fuerte		7
very strong	très forte	sehr stark	muy fuerte		9

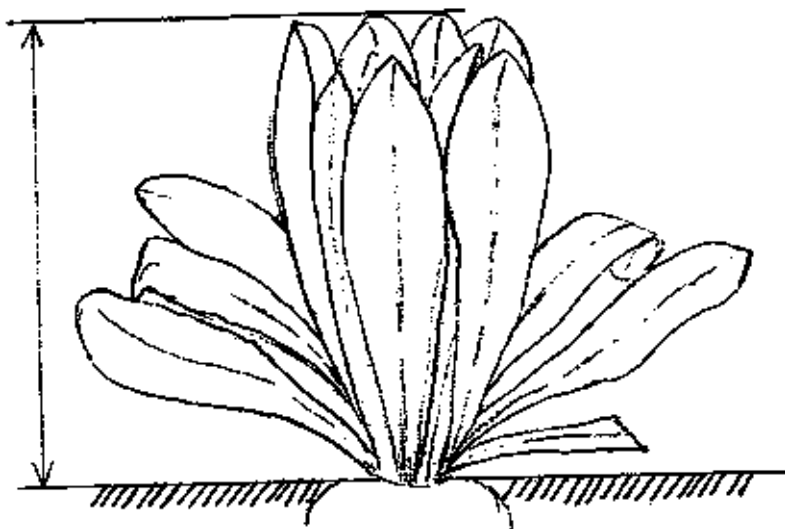
English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
10. Leaf: undulation of margin	Feuille: ondulation du bord	Blatt: Wellung des Randes	Hoja: ondulación del borde		
weak	faible	gering	débil	Madona, Rubis	3
medium	moyenne	mittel	media	Marlene	5
strong	forte	stark	fuerte		7
11. Leaf: number of incisions of margin	Feuille: nombre d'incisions du bord	Blatt: Anzahl der Randeinschnitte	Hoja: número de las incisiones del borde		
absent or very few	nul ou très petit	fehlend oder sehr gering	ausente o muy baja	Luxor	1
few	petit	gering	bajo	Marlene, Rubis	3
medium	moyen	mittel	medio	Katrien	5
many	grand	groß	alto		7
12. Leaf: depth of incisions of margin	Feuille: profondeur des incisions du bord	Blatt: Tiefe der Randeinschnitte	Hoja: profundidad de las incisiones del borde		
shallow	peu profonde	flach	poco profunda	Bergues	3
medium	moyenne	mittel	media		5
deep	profonde	tief	profunda	Capucijnerbaard	7
13. (*) Root: length	Racine: longueur	Rübe: Länge	Raíz: longitud		
short	courte	kurz	corta		3
medium	moyenne	mittel	media	Madona, Marlene	5
long	longue	lang	larga	Magdeburger Spitzkopf	7
14. (*) Root: maximum width	Racine: largeur maximale	Rübe: maximale Breite	Raíz: anchura máxima		
narrow	étroite	schmal	estrecha	Magdeburger Spitzkopf	3
medium	moyenne	mittel	media	Luxor, Rubis	5
broad	large	breit	ancha		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. Root: shape of shoulder (* (+)	Racine: forme de l'épaulement	Rübe: Form des Kopfes	Raíz: forma del hombro		
clearly flat	nettement plat	deutlich flach	claramente plana	Luxor	1
flat to rounded	plat à arrondi	flach bis abgerundet	plana a redondeada	Madona, Rubis	2
clearly rounded	nettement arrondi	deutlich abgerundet	claramente redondeada		3
rounded to conical	arrondi à conique	abgerundet bis konisch	redondeada a cónica	Magdeburger Spitzkopf	4
16. Root: inulin content (+)	Racine: teneur en inuline	Rübe: Inulingehalt	Raíz: contenido de inulina		
very low	très faible	sehr niedrig	muy bajo	Sabau 3	1
low	faible	niedrig	bajo	Luxor, Orchis	3
medium	moyenne	mittel	medio	Brinco, Markise, Vanessa	5
high	forte	hoch	alto	Dageraad, Fredonia, Katrien, Marlene	7
very high	très forte	sehr hoch	muy alto	Eva	9
17. Bolting tendency (from an early sowing)	Tendance à la montaison (en semis précoce)	Neigung zum Schossen (bei Frühlkultur)	Tendencia a la floración (en siembra temprana)		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Katrien, Orchies	1
weak	faible	gering	débil	Bergues, Marlene	3
medium	moyenne	mittel	media	Madona	5
strong	forte	stark	fuerte	Vanessa	7
very strong	très forte	sehr stark	muy fuerte	Inula	9
18. Flowering stem: height	Tige florifère: hauteur	Blütenstandstiel: Höhe	Tallo floral: altura		
short	basse	niedrig	baja		3
medium	moyenne	mittel	media		5
tall	haute	hoch	alta		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19. Flowering stem: branching	Tige florifère: ramification	Blütenstandstiel: Verzweigung	Tallo floral: ramificación		
weak	faible	gering	débil		3
medium	moyenne	mittel	media		5
strong	forte	stark	fuerte		7
20. Flower: color	Fleur: couleur	Blüte: Farbe	Flor: color		
white	blanche	weiß	blanco		1
pink	rose	rosa	rosa		2
blue	bleue	blau	azul	Luxor	3

VIII. Explanations on the Table of Characteristics

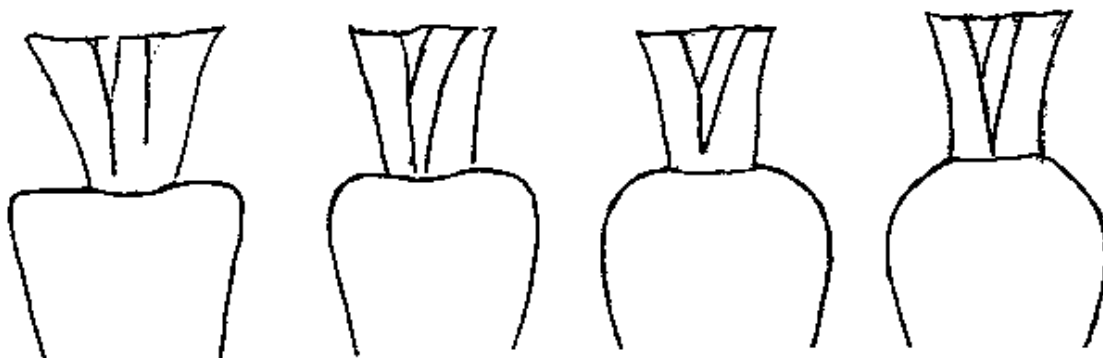
Ad. 1: Plant: height



Ad. 3: Leaf: length



Ad. 15: Root: shape of shoulder



1
clearly flat

2
flat to rounded

3
clearly rounded

4
rounded to conical

Ad. 16: Inulin content

Measurement

Observation: gross weight, net weight (after cleaning of individual roots)

Pulp (like for sugarbeet) has to be prepared. After homogenisation by mixing samples are taken. The juice is filtered under pressure. This juice is analyzed using a refractometer performing a 'brix-determination.'

This 'brix-value', based on the correlation between 'brix' and the inulin-content, is used to calculate the 'inulin-figure'.

IX. Literature

Frese, L., Dambroth, M. and Bramm, A., 1991: Breeding Potential of Root Chicory (*Cichorium intybus* L. var. *sativum*) Plant Breeding 106, 107-113.

X. Technical Questionnaire

	Reference Number (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>	
1. Species	<p style="text-align: center;"><i>Cichorium intybus</i> L. partim INDUSTRIAL CHICORY</p>
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)	Synthetic Variety		[]
(d)	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
5.1	Leaf: length		
(3)			
	short		3[]
	medium	Orchies	5[]
	long	Jade, Luxor	7[]
5.2	Leaf: intensity of green color		
(5)			
	light	Eva	3[]
	medium	Katrien	5[]
	dark	Madona, Rubis	7[]
5.3	Root: length		
(13)			
	short		3[]
	medium	Madona, Mariene	5[]
	long	Magdeburger Spitzkopt	7[]

6. Similar varieties and differences between these varieties

Denomination of similar variety	Characteristic in which the similar variety is different ^{o)}	State of expression of similar variety	State of expression of candidate variety
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^{o)} 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

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.

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