



TG/183/3

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

GUIDELINES
FOR THE CONDUCT OF TESTS
FOR DISTINCTNESS, UNIFORMITY AND STABILITY

FENNEL

*(Foeniculum vulgare
Miller)*

GENEVA
2001

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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 *Foeniculum vulgare* Miller including varieties with grumolo (*Foeniculum vulgare* ssp. *vulgare* var. *azoricum* (Miller) Thell.) and medicinal/aromatic varieties (*Foeniculum vulgare* ssp. *vulgare* var. *dulce* (DC.) Battand. et Trabut).

II. Material Required

1. The competent authorities decide when, where and in what quantity and quality the seed 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:

35 g or 4000 seeds.

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.

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 independent growing cycles.
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 60 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, weighing or counting should be made on 20 plants or parts taken from each of 20 plants.

2. For the assessment of uniformity of single-cross hybrid varieties, a population standard of 2% with an acceptance probability of at least 95% should be applied. In the case of a population size of 60 plants, the maximum number of off-types allowed would be 3.

3. For the assessment of uniformity of open-pollinated varieties the relative uniformity standard should be applied

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) Plant: grumolo formation (characteristic 10)
- (b) Only varieties with grumolo: bolting tendency (characteristic 21)

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. Young plant: length of cotyledons	Plantule: longueur des cotylédons	Keimpflanze: Länge des Keimblatts	Plántula: longitud de los cotiledones		
short	courts	kurz	cortos		3
medium	moyens	mittel	medios		5
long	longs	lang	largos		7
2. Young plant: length of petiole of first leaf	Jeune plante: longueur du pétiole de la première feuille	Jungpflanze: Länge des Stieles des ersten Blattes	Planta joven: longitud del pecíolo de la primera hoja		
short	court	kurz	corto		3
medium	moyen	mittel	medio		5
long	long	lang	largo		7
3. <u>Only varieties with grumolo</u>: Plant: height at harvest maturity	<u>Seulement variétés avec grumolo</u>: Plante: hauteur à maturité de récolte	<u>Nur Sorten mit Knolle</u>: Pflanze: Höhe bei Erntereife	<u>Solo variedades con cabeza</u>: Planta: altura en la madurez de cosecha		
short	courte	niedrig	corta	Mini-ro	3
medium	moyenne	mittel	media	Fino	5
tall	haute	hoch	alta	Genio	7
4. Foliage: attitude	Feuillage: port	Laub: Haltung	Follaje: porte		
erect	dressé	aufrecht	erecto	Genio	1
semi-erect	demi-dressé	halbaufrecht	semierecto	Fino	3
horizontal	horizontal	waagrecht	horizontal		5
5. Foliage: density	Feuillage: densité	Laub: Dichte	Follaje: densidad		
sparse	lâche	locker	laxo	Albaro	3
medium	moyenne	mittel	medio	Fino	5
dense	dense	dicht	denso	Carmo, Genio, Sirio	7

English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
6. Foliage: intensity of green color (*)	Feuillage: intensité de la couleur verte	Laub: Intensität der Grünfärbung	Follaje: intensidad del color verde		
very light	très claire	sehr hell	muy claro	Pontino	1
light	claire	hell	claro	Latina	3
medium	moyenne	mittel	medio	Fino	5
dark	foncée	dunkel	oscuro	Rondo	7
very dark	très foncée	sehr dunkel	muy oscuro	Amigo	9
7. Main stem: height at flowering	Tige principale: hauteur à l'époque de floraison	Stengel: Höhe zum Zeitpunkt der Blüte	Tallo principal: altura en el momento de la floración		
short	courte	niedrig	corto		3
medium	moyenne	mittel	medio	Genio	5
tall	haute	hoch	alto		7
8. Leaf: length	Feuille: longueur	Blatt: Länge	Hoja: longitud		
short	courte	kurz	corta	Miniro	3
medium	moyenne	mittel	media	Fino	5
long	longue	lang	larga	Orion	7
9. Leaf: curvature of tip	Feuille: courbure de l'extrémité	Blatt: Krümmung der Spitze	Hoja: curvatura del ápice		
absent	absente	fehlend	ausente	Rondo	1
weakly expressed	faiblement exprimée	gering ausgeprägt	débilmente expresada	Fino	2
strongly expressed	fortement exprimée	stark ausgeprägt	fuertemente expresada	Atos	3
10. Plant: grumolo (*) formation	Plante: formation de grumolo	Pflanze: Knollenbildung	Planta: formación de cabeza		
absent	absente	fehlend	ausente		1
present	présente	vorhanden	presente	Fino	9

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11. <u>Only varieties with grumolo:</u> Grumolo: height	<u>Seulement variétés avec grumolo:</u> Grumolo: hauteur	<u>Nur Sorten mit Knolle:</u> Knolle: Höhe	<u>Solo variedades con cabeza:</u> Cabeza: altura		
short	court	niedrig	corta	Miniro	3
medium	moyen	mittel	media	Fino	5
tall	haut	hoch	alta	Sirio	7
12. <u>Only varieties with grumolo:</u> Grumolo: width	<u>Seulement variétés avec grumolo:</u> Grumolo: largeur	<u>Nur Sorten mit Knolle:</u> Knolle: Breite	<u>Solo variedades con cabeza:</u> Cabeza: anchura		
narrow	étroit	schmal	estrecha		3
medium	moyen	mittel	media	Fino	5
broad	large	breit	ancha		7
13. <u>Only varieties with grumolo:</u> Grumolo: ratio height/width	<u>Seulement variétés avec grumolo:</u> Grumolo: rapport hauteur/largeur	<u>Nur Sorten mit Knolle:</u> Knolle: Verhältnis Höhe/Breite	<u>Solo variedades con cabeza:</u> Cabeza: relación altura/anchura		
small	petit	klein	pequeña		3
medium	moyen	mittel	media	Fino	5
large	grand	groß	grande		7
14. <u>Only varieties with grumolo:</u> Grumolo: thickness	<u>Seulement variétés avec grumolo:</u> Grumolo: épaisseur	<u>Nur Sorten mit Knolle:</u> Knolle: Dicke	<u>Solo variedades con cabeza:</u> Cabeza: grosor		
thin	mince	dünn	delgada		3
medium	moyen	mittel	media	Fino	5
thick	épais	dick	gruesa	Mars	7
15. <u>Only varieties with grumolo:</u> Grumolo: shape in cross section	<u>Seulement variétés avec grumolo:</u> Grumolo: forme en section transversale	<u>Nur Sorten mit Knolle:</u> Knolle: Form im Querschnitt	<u>Solo variedades con cabeza:</u> Cabeza: forma en sección transversal		
round	arrondie	abgerundet	redonda	Miniro	1
elliptic	elliptique	elliptisch	elíptica	Finale, Tardo	2

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. <u>Only varieties with grumolo:</u> Grumolo: external color	<u>Seulement variétés avec grumolo:</u> Grumolo: couleur externe	<u>Nur Sorten mit Knolle:</u> Knolle: Außenfarbe	<u>Solo variedades con cabeza:</u> Cabeza: color externo		
whitish	blanchâtre	weißlich	blanquecino	Fino	1
greenish	verdâtre	grünlich	verdoso	Carmo, Sirio	2
17. <u>Only varieties with grumolo:</u> Grumolo: intensity of green color	<u>Seulement variétés avec grumolo:</u> Grumolo: intensité de la couleur verte	<u>Nur Sorten mit Knolle:</u> Knolle: Intensität der Grünfärbung	<u>Solo variedades con cabeza:</u> Cabeza: intensidad del color verde		
light	claire	hell	claro	Carmo	3
medium	moyenne	mittel	medio	Trevi	5
dark	foncée	dunkel	oscuro		7
18. <u>Only varieties with grumolo:</u> Sheath: ribbing	<u>Seulement variétés avec grumolo:</u> Gaine: cannelures	<u>Nur Sorten mit Knolle:</u> Blattscheide: Rippung	<u>Solo variedades con cabeza:</u> Vaina: acostillado		
weak	faibles	gering	débil	Atos	3
medium	moyennes	mittel	medio	Fino	5
strong	fortes	stark	fuerte	Rudy, Sirio	7
19. <u>Only varieties with grumolo:</u> Sheath: overlapping of sheaths	<u>Seulement variétés avec grumolo:</u> Gaine: chevauchement	<u>Nur Sorten mit Knolle:</u> Blattscheide: Überlappung	<u>Solo variedades con cabeza:</u> Vaina: superposición		
weak	faible	gering	débil	Cristal	3
medium	moyen	mittel	media	Fino, Genio	5
strong	fort	stark	fuerte	Rudy	7
20. <u>Only varieties with grumolo:</u> Time of grumolo maturity	<u>Seulement variétés avec grumolo:</u> Époque de maturité du grumolo	<u>Nur Sorten mit Knolle:</u> Erntereife der Knolle	<u>Solo variedades con cabeza:</u> Época de madurez de la cabeza		
early	précoce	früh	precoz	Miniuro	3
medium	moyenne	mittel	media	Fino	5
late	tardive	spät	tardía	Genio	7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. <u>Only varieties with</u> (*) <u>grumolo:</u> <u>bolting tendency</u>	<u>Seulement variétés</u> <u>avec grumolo:</u> <u>tendance à la</u> <u>montaison</u>	<u>Nur Sorten mit</u> <u>Knolle:</u> Neigung zum <u>Schossen</u>	<u>Solo variedades con</u> <u>cabeza:</u> tendencia a <u>la floración</u>		
absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Fino, Goal, Pollux	1
weak	faible	gering	débil	Tardo	3
medium	moyenne	mittel	media	Clio	5
strong	forte	stark	fuerte	Cristal, Sirio	7
very strong	très forte	sehr stark	muy fuerte	Di Firenze	9
22. <u>Male sterility</u> (+)	<u>Stérilité mâle</u>	<u>Männliche Sterilität</u>	<u>Androsterilidad</u>		
absent	absente	fehlend	ausente	Fino	1
present	présente	vorhanden	presente	Carmo, Rudy	9
23. <u>Only varieties</u> <u>without grumolo:</u> <u>Main umbel:</u> <u>diameter</u>	<u>Seulement variétés</u> <u>sans grumolo:</u> <u>Ombelle principale:</u> <u>diamètre</u>	<u>Nur Sorten ohne</u> <u>Knolle:</u> Hauptdolde: <u>Durchmesser</u>	<u>Solo variedades sin</u> <u>cabeza:</u> Umbela <u>principal:</u> diámetro		
small	petit	klein	pequeño		3
medium	moyen	mittel	medio	Budakalászi	5
large	grand	groß	grande		7
24. <u>Only varieties</u> (*) <u>without grumolo:</u> <u>time of appearance</u> <u>of main umbel</u>	<u>Seulement variétés</u> <u>sans grumolo:</u> époque <u>d'apparition de</u> <u>l'ombelle principale</u>	<u>Nur Sorten ohne</u> <u>Knolle:</u> Zeitpunkt des <u>Erscheinens der</u> <u>Hauptdolde</u>	<u>Solo variedades sin</u> <u>cabeza:</u> época de <u>aparición de la</u> <u>umbela principal</u>		
early	précoce	früh	precoz	Berfena	3
medium	moyenne	mittel	media		5
late	tardive	spät	tardía		7

English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
25. <u>Only varieties without grumolo:</u> time of beginning of flowering	<u>Seulement variétés sans grumolo:</u> époque du début de la floraison	<u>Nur Sorten ohne Knolle:</u> Zeitpunkt des Blühbeginns	<u>Solo variedades sin cabeza:</u> época de comienzo de la floración		
early	précoce	früh	precoz	Berfena	3
medium	moyenne	mittel	media	Budakalászi	5
late	tardive	spät	tardía		7
26. <u>Only varieties without grumolo:</u> Seed: thousand seed weight	<u>Seulement variétés sans grumolo:</u> Semence: poids de 1000 grains	<u>Nur Sorten ohne Knolle:</u> Samen: Tausendkorngewicht	<u>Solo variedades sin cabeza:</u> Semilla: peso de 1000 semillas		
low	faible	niedrig	bajo		3
medium	moyen	mittel	medio		5
high	élevé	hoch	alto		7
27. <u>Only varieties without grumolo:</u> time of harvest maturity of seed	<u>Seulement variétés sans grumolo:</u> époque de maturité des semences	<u>Nur Sorten ohne Knolle:</u> Zeitpunkt der Samenreife	<u>Solo variedades sin cabeza:</u> época de madurez de las semillas		
early	précoce	früh	precoz		3
medium	moyenne	mittel	media		5
late	tardive	spät	tardía		7

VIII. Explanations on the Table of Characteristics

Ad. 22: Male Sterility

- Male fertile varieties show umbels with flowers with well-developed anthers.
- Male sterile varieties show umbels with flowers without anthers or with very deformed, degenerated anthers.

IX. Literature

Dachler, M., Pelzmann, H. (1999): Arznei- und Gewürzpflanzen. Anbau, Ernte, Aufbereitung. 2nd edition. Österreichischer Agrarverlag, Klosterneuburg.

Heeger, E. F., Brückner, K. (1950): Heil- und Gewürzpflanzen. Arten- und Sortenkunde. Deutscher Bauernverlag, Berlin.

Mansfeld, R. (1986): Verzeichnis landwirtschaftlicher und gärtnerischer Kulturpflanzen, Band 2, 2nd edition, Springer Verlag.

X. Technical Questionnaire

	<p>Reference Number (not to be filled in by the applicant)</p>
<p style="text-align: center;">TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights</p>	
1. Species	<p style="text-align: center;"><i>Foeniculum vulgare</i> Miller FENNEL</p>
2. Applicant (Name and address)	
3. Proposed denomination or breeder's reference	

4. Information on origin, maintenance and reproduction of the variety

4.2 Other information

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

Characteristics	Example Varieties	Note
5.1 Foliage: intensity of green color (6)		
very light	Pontino	1[]
light	Latina	3[]
medium	Fino	5[]
dark	Rondo	7[]
very dark	Amigo	9[]
5.2 Plant: grumolo formation (10)		
absent		1[]
present	Fino	9[]
5.3 Only varieties with grumolo: Grumolo: external color (16)		
whitish	Fino	1[]
greenish	Carmo, Sirio	2[]
5.4 Only varieties with grumolo: bolting tendency (21)		
absent or very weak	Fino, Goal, Pollux	1[]
weak	Tardo	3[]
medium	Clio	5[]
strong	Cristal, Sirio	7[]
very strong	Di Firenze	9[]
5.5 Only varieties without grumolo: time of appearance of main umbel (24)		
early		3[]
medium		5[]
late		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
---------------------------------	--	--	--

^{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

7.2.1 Use/Growing season:

- spring []
- summer []
- autumn []

7.2.2 Other conditions

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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