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DRAFT

FENNEL

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FOENI_VUL

Foeniculum vulgare Mill.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by experts from the Netherlands
to be considered by the
Technical Committee
at its fifty-fifth session, to be held in Geneva,
from 2019-10-28 to 2019-10-29*

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Foeniculum vulgare</i> Mill.	Fennel, Florence fennel, Sweet fennel	Fenouil, Fenouil doux	Fenchel, Gemüsefenchel, Gewürzfenchel	Hinojo

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.

* 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), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Foeniculum vulgare* Mill..

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 seed.

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

4,000 seeds

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*

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 60 plants, which should be divided between at least 2 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*

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 or 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 of plants 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 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 These Test Guidelines have been developed for the examination of seed-propagated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.
- 4.2.3 The assessment of uniformity for open pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.
- 4.2.4 For the assessment of uniformity of hybrid varieties, a population standard of 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 3 off-types are allowed.

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 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) Plant: grumolo formation (characteristic 1)
 - (b) Foliage: color (characteristic 5)
 - (c) Only varieties with grumolo: Plant: bolting (characteristic 20)
 - (d) Male sterility (characteristic 25)
- 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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	2	3	4	5	6	7	
		Name of characteristics in English	Nom du caractère en français	Name des Merkmals auf Deutsch	Nombre del carácter en español		
		states of expression	types d'expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression

QL Qualitative characteristic – see Chapter 6.3

QN Quantitative characteristic – see Chapter 6.3

PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)

MG, MS, VG, VS – see Chapter 4.1.5

5 (+) See Explanations on the Table of Characteristics in Chapter 8.2

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

7 Not applicable

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. (*)	QL	VG	(+)	(a)				
	Plant: grumolo formation		Plante : formation de grumolo		Pflanze: Knollenbildung	Planta: formación de cabeza		
	absent		absente		fehlend	ausente	Berfena, Duitse	1
	present		présente		vorhanden	presente	Fino	9
2.	QN	MS/VG						
	Only varieties with grumolo formation: absent: Young plant: length of petiole of first leaf		Seulement variétés avec formation de grumolo : absente : Jeune plante : longueur du pétiole de la première feuille		Nur Sorten mit Knollenbildung: fehlend: Junge Pflanze: Länge des Blattstiels des ersten Blattes	Solo variedades con formación de cabeza: ausente: Planta joven: longitud del pecíolo de la primera hoja		
	short		court		kurz	corto	Foenimed	3
	medium		moyen		mittel	medio		5
	long		long		lang	largo	Berfena, Magnafena	7
3. (*)	QN	MG/VG	(+)	(a)				
	Only varieties with grumolo formation: present: Plant: height		Seulement variétés avec formation de grumolo : présente : Plante : hauteur		Nur Sorten mit Knollenbildung: vorhanden: Pflanze: Höhe	Solo variedades con formación de cabeza: presente: Planta: altura		
	short		courte		niedrig	baja	Tenace	3
	medium		moyenne		mittel	media	Fino	5
	tall		haute		hoch	alta	Rondo	7
4.	QN	VG	(+)	(a)				
	Foliage: attitude		Feuillage : port		Laub: Haltung	Follaje: porte		
	erect		dressé		aufrecht	erecto	Apollo, Orion	1
	semi-erect		demi-dressé		halbaufrecht	semierecto	Fino, Gemini	3
	horizontal		horizontal		waagrecht	horizontal	Pontino, Romy	5
5. (*)	QL	VG		(a)				
	Foliage: color		Feuillage : couleur		Laub: Farbe	Follaje: color		
	green		vert		grün	verde	Fino	1
	brownish		brunâtre		bräunlich	amarronado	Bronsvenkel	2

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
6.	(*)	QN	VG	(a)			
		<u>Only varieties with green foliage:</u> Foliage: intensity of green color	<u>Seulement variétés avec feuillage vert :</u> Feuillage : intensité de la couleur verte	<u>Nur Sorten mit grünem Laub:</u> Laub: Intensität der Grünfärbung	<u>Solo variedades con follaje verde:</u> Follaje: intensidad del color verde		
		very light	très claire	sehr hell	muy claro	Guttoso	1
		light	claire	hell	claro	Pontino, Preludio	3
		medium	moyenne	mittel	medio	Capriccio, Virgo	5
		dark	foncée	dunkel	oscuro	Boelli, Dragon, Pegaso	7
		very dark	très foncée	sehr dunkel	muy oscuro	Idillio, Victorio	9
7.		QN	VG	(+)	(a)		
		Foliage: density	Feuillage : densité	Laub: Dichte	Follaje: densidad		
		sparse	lâche	locker	laxo	Bola	3
		medium	moyenne	mittel	medio	Fino, Rondo	5
		dense	dense	dicht	denso	Carmo, Pontino	7
8.		QN	MS/VG	(a)			
		Leaf: length	Feuille : longueur	Blatt: Länge	Hoja: longitud		
		short	courte	kurz	corta	Tenace	3
		medium	moyenne	mittel	media	Fino	5
		long	longue	lang	larga	Antares, Orion	7
9.		QN	VG	(+)	(a)		
		Leaf: curvature of tip	Feuille : courbure de l'extrémité	Blatt: Biegung der Spitze	Hoja: curvatura del ápice		
		absent or very weak	absente ou très faible	fehlend oder sehr gering	nula o muy leve	Rondo	1
		weak	faible	gering	leve	Fino, Virgo	2
		medium	moyenne	mittel	media	Antares, Serpico, Tiziano	3
		strong	forte	stark	marcada	Idillio	4
		very strong	très forte	sehr stark	muy marcada	Bellotto	5
10.		QN	VG	(+)	(a)		
		<u>Only varieties with grumolo:</u> Petiole: width	<u>Seulement variétés avec grumolo :</u> Pétiole : largeur	<u>Nur Sorten mit Knolle:</u> Blattstiel: Breite	<u>Solo variedades con cabeza:</u> Pecíolo: anchura		
		narrow	étroit	schmal	estrecho	Boelli, Masaccio	1
		medium	moyen	mittel	medio	Carmo	2
		broad	large	breit	ancho	Virgo	3

	English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	QN	VG	(a)					
	<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> : Zeitpunkt der Reife der Knolle	<u>Solo variedades con cabeza</u> : Época de madurez de la cabeza		
	early		précoce		früh	temprana		3
	medium		moyenne		mittel	media	Orion	5
	late		tardive		spät	tardía	Apollo, Caravaggio	7
12.	QN	MS/VG	(+)	(a)				
	<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	baja	Orion	3
	medium		moyen		mittel	media	Fino	5
	tall		haut		hoch	alta		7
13.	QN	MS/VG	(+)	(a)				
	<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	Caravaggio	3
	medium		moyen		mittel	media	Fino	5
	broad		large		breit	ancha	Preludio	7
14. (*)	QN	MS/VG	(+)	(a)				
	<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		
	low		bas		klein	baja	Orion	3
	medium		moyen		mittel	media	Fino	5
	high		élevé		groß	alta		7
15.	QN	MS/VG	(+)	(a)				
	<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	Caravaggio	3
	medium		moyen		mittel	media	Fino	5
	thick		épais		dick	gruesa	Apollo, Mars	7

	English		français		deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
16. (*)	QN	VG	(+)	(a)				
	Only varieties with grumolo: Grumolo: shape in cross section		Seulement variétés avec grumolo : Grumolo : forme en section transversale		Nur Sorten mit Knolle: Knolle: Form im Querschnitt	Solo variedades con cabeza: Cabeza: forma en sección transversal		
	round		arrondie		rund	redonda	Apollo	1
	broad elliptic		elliptique large		breit elliptisch	elíptica ancha	Fino, Orbit	2
	elliptic		elliptique		elliptisch	elíptica	Caravaggio	3
17. (*)	PQ	VG		(a)				
	Only varieties with grumolo: Grumolo: external color		Seulement variétés avec grumolo : Grumolo : couleur externe		Nur Sorten mit Knolle: Knolle: äußere Farbe	Solo variedades con cabeza: Cabeza: color externo		
	whitish		blanchâtre		weißlich	blanquecino	Rondo	1
	light green		vert clair		hellgrün	verde claro	Carmo, Donatello	2
	medium green		vert moyen		mittelgrün	verde medio	Conero	3
	dark green		vert foncé		dunkelgrün	verde oscuro	Capo Rizzuto	4
18.	QN	VG	(+)	(a)				
	Only varieties with grumolo: Sheath: ribbing		Seulement variétés avec grumolo : Gaine : cannelures		Nur Sorten mit Knolle: Scheide: Rippung	Solo variedades con cabeza: Vaina: acostillado		
	weak		faibles		gering	leve	Bellotto	3
	medium		moyennes		mittel	medio	Fino	5
	strong		fortes		stark	marcado	Caravaggio	7
19.	QN	VG		(a)				
	Only varieties with grumolo: Sheath: overlapping of sheaths		Seulement variétés avec grumolo : Gaine : chevauchement		Nur Sorten mit Knolle: Scheide: Überlappen der Blattscheiden	Solo variedades con cabeza: Vaina: solapamiento de las vainas		
	weak		faible		gering	leve	Cristal	3
	medium		moyen		mittel	medio	Fino	5
	strong		fort		stark	marcado	Apollo	7
20. (*)	QN	MS/VG						
	Only varieties with grumolo: Plant: bolting		Seulement variétés avec grumolo : Plante : montaison		Nur Sorten mit Knolle: Pflanze: Schoßen	Solo variedades con cabeza: Planta: subida a flor		
	absent or very weak		nulle ou très faible		fehlend oder sehr gering	nula o muy leve	Antares	1
	weak		faible		gering	leve	Preludio, Rondo	3
	medium		moyenne		mittel	media	Carmo	5
	strong		forte		stark	intensa	Cristal	7
	very strong		très forte		sehr stark	muy intensa	Di Firenze	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
21. (*)	QN	MS/VG				
	<u>Only varieties without grumolo</u>: Time of appearance of main umbel	<u>Seulement variétés avec grumolo</u> : époque d'apparition de l'ombelle principale	<u>Nur Sorten ohne Knolle</u>: Zeitpunkt des Erscheinens der Hauptdolde	<u>Solo variedades sin cabeza</u>: Época de aparición de la umbela principal		
	early	précoce	früh	temprana	Berfena	3
	medium	moyenne	mittel	media	Foenimed	5
	late	tardive	spät	tardía	Budakalászi, Soroksári	7
22.	QN	MG/VG				
	<u>Only varieties without grumolo</u>: Time of beginning of flowering	<u>Seulement variétés avec 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 inicio de la floración		
	early	précoce	früh	temprana	Berfena	3
	medium	moyenne	mittel	media	Budakalászi	5
	late	tardive	spät	tardía		7
23.	QN	MS/VG	(+)			
	<u>Only varieties without grumolo</u>: Main stem: height	<u>Seulement variétés avec grumolo</u> : Tige principale : hauteur	<u>Nur Sorten ohne Knolle</u>: Haupttrieb: Höhe	<u>Solo variedades sin cabeza</u>: Tallo principal: altura		
	short	courte	niedrig	bajo	Foenimed	3
	medium	moyenne	mittel	medio		5
	tall	haute	hoch	alto		7
24.	QN	MS/VG				
	<u>Only varieties without grumolo</u>: Main umbel: diameter	<u>Seulement variétés avec grumolo</u> : Ombelle principale : diamètre	<u>Nur Sorten ohne Knolle</u>: Hauptdolde: Durchmesser	<u>Solo variedades sin cabeza</u>: Umbela principal: diámetro		
	small	petit	klein	pequeño	Foenimed	3
	medium	moyen	mittel	medio	Budakalászi	5
	large	grand	groß	grande		7
25. (*)	QL	VS	(+)			
	Male sterility	Stérilité mâle	Männliche Sterilität	Androesterilidad		
	absent	absente	fehlend	ausente	Fino	1
	present	présente	vorhanden	presente	Carmo, Rondo	9

	English		français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
26.	QN	MG					
	<u>Only varieties without grumolo: Seed: 1000 seed weight</u>		<u>Seulement variétés avec grumolo: Semence : poids de 1000 grains</u>	<u>Nur Sorten ohne Knolle: Samen: Gewicht von 1000 Samen</u>	<u>Solo variedades sin cabeza: Semilla: peso de 1.000 semillas</u>		
	low		faible	niedrig	bajo	Foenimed	3
	medium		moyen	mittel	medio	Soroksári	5
	high		élevé	hoch	alto	Berfena, Magnafena	7

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

(a) Observations should be made at harvest maturity.

8.2 *Explanations for individual characteristics*

Ad. 1: Plant: grumolo formation



1
absent



9
present

Ad. 3: Only varieties with grumolo formation: present: Plant: height

Observations should be made at harvest maturity.

Ad. 4: Foliage: attitude



1
erect



3
semi-erect



5
horizontal

Ad. 7: Foliage: density



3
sparse



5
medium



7
dense

Ad. 9: Leaf: curvature of tip



1
absent or very weak



5
very strong

Ad. 10: Only varieties with grumolo: Petiole: width



1
narrow

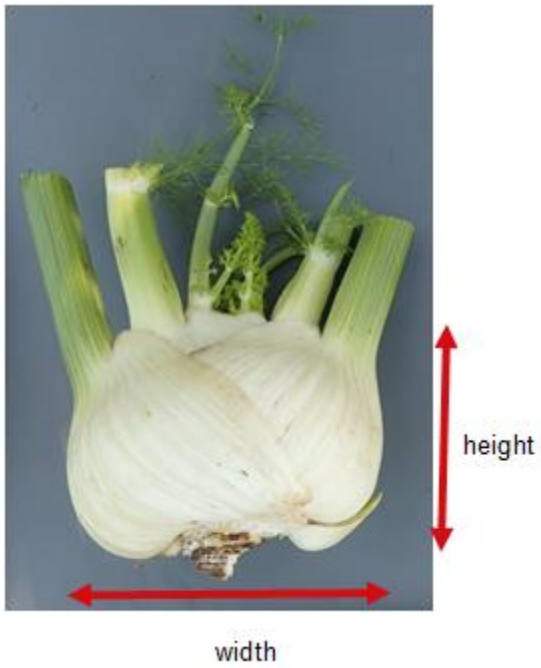


2
medium



3
broad

Ad. 12: Only varieties with grumolo: Grumolo: height



Ad. 13: Only varieties with grumolo: Grumolo: width

See Ad. 12

Ad. 14: Only varieties with grumolo: Grumolo: ratio height/width



3
low

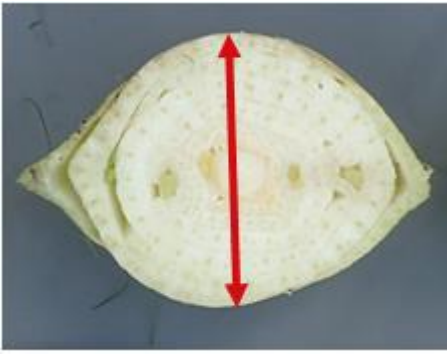


5
medium



7
high

Ad. 15: Only varieties with grumolo: Grumolo: thickness



Ad. 16: Only varieties with grumolo: Grumolo: shape in cross section

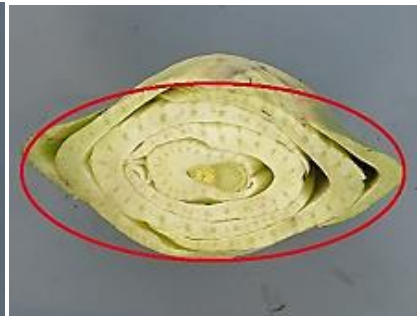
Observations should be made at the broadest part.



1
round



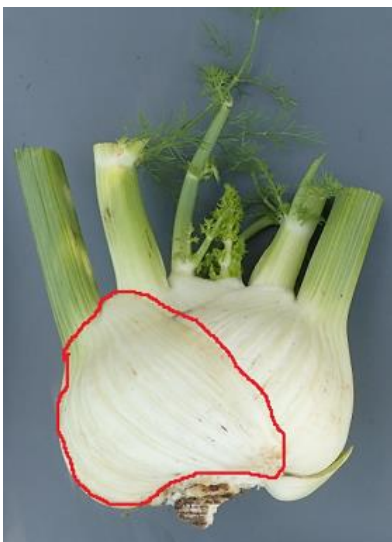
2
broad elliptic



3
elliptic

Ad. 18: Only varieties with grumolo: Sheath: ribbing

The sheath is the basal part of the petiole which forms with the other petioles the grumolo.



Ad. 23: Only varieties without grumolo: Main stem: height

Observations should be made at the time of flowering.

Ad. 25: 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.

9. Literature

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

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

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

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights		
1. Subject of the Technical Questionnaire		
1.1	Botanical name	<input type="text" value="Foeniculum vulgare Mill."/>
1.2	Common name	<input type="text" value="Fennel, Florence fennel, Sweet fennel"/>
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

Variety resulting from:

4.1.1 Crossing

(a) controlled cross

(b) partially known cross

(c) unknown cross

4.1.2 Other
(Please provide details)

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)	Self-pollination	[]
(b)	Cross-pollination	[]
(c)	Hybrid	[]
(d)	Other (please provide details)	[]
4.2.2	Other (Please provide details)	[]
	<input type="text"/>	

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
5.1 Plant: grumolo formation (1)		
absent	Berfena, Duitse	1 []
present	Fino	9 []
5.2 <u>Only varieties with grumolo formation: present:</u> Plant: height (3)		
very short		1 []
very short to short		2 []
short	Tenace	3 []
short to medium		4 []
medium	Fino	5 []
medium to tall		6 []
tall	Rondo	7 []
tall to very tall		8 []
very tall		9 []
5.3 Foliage: color (5)		
green	Fino	1 []
brownish	Bronsvenkel	2 []
5.4 <u>Only varieties with green foliage:</u> Foliage: intensity of green color (6)		
very light	Guttoso	1 []
very light to light		2 []
light	Pontino, Preludio	3 []
light to medium		4 []
medium	Capriccio, Virgo	5 []
medium to dark		6 []
dark	Boelli, Dragon, Pegaso	7 []
dark to very dark		8 []
very dark	Idillio, Victorio	9 []

Characteristics	Example Varieties	Note
5.5	<u>Only varieties with grumolo:</u> Grumolo: ratio height/width	
(14)		
very low		1 []
very low to low		2 []
low	Orion	3 []
low to medium		4 []
medium	Fino	5 []
medium to high		6 []
high		7 []
high to very high		8 []
very high		9 []
5.6	<u>Only varieties with grumolo:</u> Grumolo: shape in cross section	
(16)		
round	Apollo	1 []
broad elliptic	Fino, Orbit	2 []
elliptic	Caravaggio	3 []
5.7	<u>Only varieties with grumolo:</u> Grumolo: external color	
(17)		
whitish	Rondo	1 []
light green	Carmo, Donatello	2 []
medium green	Conero	3 []
dark green	Capo Rizzuto	4 []
5.8	<u>Only varieties with grumolo:</u> Plant: bolting	
(20)		
absent or very weak	Antares	1 []
very weak to weak		2 []
weak	Preludio, Rondo	3 []
weak to medium		4 []
medium	Carmo	5 []
medium to strong		6 []
strong	Cristal	7 []
strong to very strong		8 []
very strong	Di Firenze	9 []

Characteristics	Example Varieties	Note
5.9 <u>Only varieties without grumolo:</u> Time of appearance of main umbel (21)		
very early		1 []
very early to early		2 []
early	Berfena	3 []
early to medium		4 []
medium	Foenimed	5 []
medium to late		6 []
late	Budakalászi, Soroksári	7 []
late to very late		8 []
very late		9 []
5.10 Male sterility (25)		
absent	Fino	1 []
present	Carmo, Rondo	9 []

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 similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Only varieties with grumolo: Grumolo: shape in cross section</i>	<i>broad elliptic</i>	<i>rounded</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

Use/Growing season:

Spring

Summer

Autumn

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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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.

9. Information on plant material to be examined or submitted for examination

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.

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:

(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 []

Please provide details for where you have indicated "yes".

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature Date

[End of document]