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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

RED FESCUE, SHEEP'S FESCUE, HAIR FESCUE, RELIANT HARD FESCUE, SHADE FESCUE, PSEUDOVINA *

UPOV codes:
FESTU_RUB; FESTU_OVI; FESTU_FIL; FESTU_BRE; FESTU_HET; FESTU_PSO

Festuca rubra L., *Festuca ovina* L., *Festuca filiformis* Pourr., *Festuca brevipila* R. Tracey, *Festuca heterophylla* Lam., *Festuca pseudovina* Hack. ex Wiesb.

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

prepared by an expert from the Netherlands

to be considered by the Technical Committee at its forty-second session, to be held in Geneva, Switzerland, from April 3 to 5, 2006

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Festuca rubra L.	Red Fescue Creeping Fescue	Fétuque rouge	Rotschwingel	Cañuela roja, Festuca roja
Festuca ovina L.	Sheep's Fescue, Hard Fescue	Fétuque ovine, Fétuque des moutons, Fétuque durette, Poil de chien	Schafschwingel	Cañuela de oveja, Cañuela ovina, Festuca ovina
Festuca filiformis Pourr. *Festuca ovina* subsp. *tenuifolia* (Sibth.) Celak., *Festuca tenuifolia* Sibth.	Fine-leaf sheep fescue, Hair fescue, Slender fescue		Feinblättriger Schwingel, Haar-Schaf-Schwingel	
Festuca brevipila R. Tracey, *Festuca ovina* L. ssp. *duriuscula*, *Festuca trachyphylla* Hack krajina	Reliant hard fescue		Härtlicher Schwingel	
Festuca heterophylla Lam.	Shade Fescue	Fétuque hétérophylle	Borstenschwingel, Verschiedenblättriger Schwingel	
Festuca pseudovina Hack. ex Wiesb.	Pseudovina			

* 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.]

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.

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

Other associated UPOV documents: TG/39: Meadow Fescue, Tall Fescue

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Festuca rubra* L., *Festuca ovina* L., *Festuca filiformis* Pourr., *Festuca brevipila* R. Tracey, *Festuca heterophylla* Lam. and *Festuca pseudovina* Hack. ex Wiesb.

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:

1200 grams.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority.

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

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

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.

3.3.1 Stage of development for the assessment

The optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described at the end of Chapter 8.

3.3.2 Type of observation – visual or measurement

The recommended method of observing the characteristic is indicated by the following key in the second column of the Table 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

3.3.3 Type of plot for observation

The recommended type of plot in which to observe the characteristic is indicated by the following key in the second column of the Table of Characteristics:

A: spaced plants
B: row plot
C: special test

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 spaced plants which should be divided between at least 2 replicates. In addition, the test may include 8 meters of row plot which should be divided between at least 2 replicates. The density of the seed should be such that around 200 plants / meter can be expected

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 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations or measurements on single plants should be made on 60 plants or parts taken from each of 60 plants and any other observations or measurements should be made on all plants in the test. In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 1.

3.6 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.

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

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 tested, either by growing a further generation, or by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the previous 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: ploidy (characteristic 1)
(b) Plant: development of rhizomes (characteristic 9)
(c) Plant: time of inflorescence emergence (characteristic 10)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction.

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

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.

6.3 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

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

6.4.2 The species of the example varieties are indicated as follows:

(Fo): *Festuca ovina*
(Fr): *Festuca rubra*

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3
QN: Quantitative characteristic – see Chapter 6.3
PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG: single measurement of a group of plants or parts of plants – see Chapter 3.3.2
MS: measurement of a number of individual plants or parts of plants – see Chapter 3.3.2
VG: visual assessment by a single observation of a group of plants or parts of plants – Chapter 3.3.2
VS: visual assessment by observation of individual plants or parts of plants – see Chapter 3.3.2

A: spaced plants - see Chapter 3.3.3
B: row plot - see Chapter 3.3.3
C: special test - see Chapter 3.3.3

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

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

(10) – (68+) See Explanations on the Table of Characteristics in Chapter 8.3

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. (*) (+)	**10-29 C**	**Plant: ploidy**	**Plante: ploïdie**	**Pflanze: Ploidie**	**Planta: ploidía**		
QL		diploid	diploïde	diploid	diploide	Barok (Fo)	2
		tetraploid	tétraploïde	tetraploid	tetraploide		4
		hexaploid	hexaploïde	hexaploid	hexaploide	Biljart (Fo), Darwin (Fr)	6
		octoploid	octoploïde	oktoploid	octoploide	Cindy (Fr)	8
2.	**23–25 VG A**	**Leaf sheath: anthocyanin coloration**	**Gaine de la feuille: pigmentation anthocyanique**	**Blattscheide: Anthocyanfärbung**	**Vaina de la hoja: pigmentación antociánica**		
QN		absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Olivia (Fr)	1
		weak	faible	gering	débil	Barreppo (Fo), Cindy (Fr), Mocassin (Fr)	3
		medium	moyenne	mittel	media	Frida (Fr)	5
		strong	forte	stark	fuerte	N.F.G. Theodor Roemer (Fr), Symphony (Fr)	7
		very strong	très forte	sehr stark	muy fuerte	Gardez (Fr)	9
3.	**29 VS A VG B**	**Plant: natural height**	**Plante: hauteur naturelle**	**Pflanze: Wuchshöhe**	**Planta: altura**		
QN	**(a)**	very short	très basse	sehr niedrig	muy baja	Blues (Fo), Clio (Fo)	1
		short	basse	niedrig	baja	Cindy (Fr), Mentor (Fo)	3
		medium	moyenne	mittel	media	Barcrown (Fr)	5
		tall	haute	hoch	alta	Lirosy (Fr)	7
		very tall	très haute	sehr hoch	muy alta	Bargeret (Fr)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4.	**29 VS A VG B**	**Plant: growth habit**	**Plante: port**	**Pflanze: Wuchsform**	**Planta: porte**		
QN	**(a)**	erect	dressé	aufrecht	erecto		1
	(b)	semi erect	demi-dressé	halbaufrecht	semierecto	Jupiter (Fr)	3
		medium	intermédiaire	mittel	medio	Barcrown (Fr), Trophy (Fr)	5
		semi prostrate	demi-étalé	halbliegend	semipostrado	Cindy (Fr), Pintor (Fo)	7
		prostrate	étalé	liegend	postrado		9
5. (+)	**29 VS A VG B**	**Leaf: length**	**Feuille: longueur**	**Blatt: Länge**	**Hoja: longitud**		
QN	**(a)**	very short	très courte	sehr kurz	muy corta		1
		short	courte	kurz	corta	Count (Fr), Pintor (Fo)	3
		medium	moyenne	mittel	media	Casanova (Fr), Medal (Fo)	5
		long	longue	lang	larga	Cindy (Fr)	7
		very long	très longue	sehr lang	muy larga	Gondolin (Fr)	9
6.	**29 VS A VG B**	**<u>Only Red Fescue varieties</u>: Leaf: width**	**<u>Seulement les variétés de fétuque rouge</u>: Feuille: largeur**	**<u>Nur Sorten von Rotschwingel:</u> Blatt: Breite**	**<u>Únicamente variedades de festuca roja: Hoja: anchura</u>**		
QN	**(a)**	very narrow	très étroite	sehr schmal	muy estrecha		1
		narrow	étroite	schmal	estrecha	Frida (Fr)	3
		medium	moyenne	mittel	media	Casanova (Fr)	5
		wide	large	breit	ancha	N.F.G. Theodor Roemer (Fr)	7
		very wide	très large	sehr breit	muy ancha		9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7.	**29 VS A VG B**	**Leaf: intensity of green color**	**Feuille: intensité de la couleur verte**	**Blatt: Intensität der Grünfärbung**	**Hoja: intensidad del color verde**		
QN	**(a)**	very light	très claire	sehr hell	muy claro		1
		light	claire	hell	claro	Calliope (Fr)	3
		medium	moyenne	mittel	medio	Barcrown (Fr), Cindy (Fr), Quatro (Fo)	5
		dark	foncée	dunkel	oscuro	Diego (Fr), Manoir (Fr), Medal (Fo)	7
		very dark	très foncée	sehr dunkel	muy oscuro	Darwin (Fr), Hardtop (Fo), Tarnat (Fr)	9
8.	**29 VG B**	**Leaf: glaucosity**	**Feuille: glaucescence**	**Blatt: Bereifung**	**Hoja: glauescencia**		
QL	**(a)**	absent	absente	fehlend	ausente	Trophy (Fr)	1
		present	présente	vorhanden	presente	Merlin (Fr)	9
9. (*) (+)	**29-31 VS A**	**Plant: development of rhizomes**	**Plante: développement des rhizomes**	**Pflanze: Entwicklung von Rhizomen**	**Planta: desarrollo de rizomas**		
QN	**(a)**	absent or weak	nul ou faible	fehlend oder gering	ausente o débil	Trophy (Fr)	1
		medium	moyen	mittel	medio		2
		strong	fort	stark	fuerte	Barpusta (Fr)	3
10. (*) (+)	**MS A MG B**	**Plant: time of inflorescence emergence**	**Plante: époque d'épiaison**	**Pflanze:Zeitpunkt des Ährenschiebens**	**Planta: época de emergencia de la inflorescencia**		
QN		very early	très précoce	sehr früh	muy temprana		1
		early	précoce	früh	temprana	Biljart (Fo), Darwin (Fr)	3
		medium	moyenne	mittel	media	Clio (Fo), Trophy (Fr)	5
		late	tardive	spät	tardía	Frida (Fr), Mocassin (Fr)	7
		very late	très tardive	sehr spät	muy tardía	Kiruna (Fr), Silk (Fr)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
11.	**MS A MG B**	**Plant: natural height at time of inflorescence emergence (excluding the flag leaf blade)**	**Plante: hauteur naturelle à l'épiaison (limbe de la dernière feuille exclu)**	**Pflanze: Wuchshöhe zum Zeitpunkt des Ährenschiebens (ohne Fahnenblatt-spreite)**	**Planta: altura en la época de emergencia de la inflorescencia (excluido el limbo de la hoja bandera)**		
QN		short	basse	niedrig	baja	Trophy (Fr)	3
		medium	moyenne	mittel	media	Mocassin (Fr)	5
		long	haute	hoch	alta	Barpusta (Fr), N.F.G. Theodor Roemer (Fr)	7
12. (*) (+)	**52-56 MS A**	**Flag leaf: length**	**Dernière feuille: longueur**	**Fahnenblatt: Länge**	**Hoja bandera: longitud**		
QN		very short	très courte	serh kurz	muy corta	Melord (Fo)	1
		short	courte	kurz	corta	Barreppo (Fo), Dawson (Fr)	3
		medium	moyenne	mittel	media	Cindy (Fr), Darwin (Fr), Kiruna (Fr)	5
		long	longue	lang	larga	Barpusta (Fr), Gondolin (Fr)	7
		very long	très longue	sehr lang	muy larga		9
13. (*) (+)	**52-56 MS A**	**Only Red Fescue varieties: Flag leaf: width**	**Seulement les variétés de fétuque rouge: Dernière feuille: largeur**	**Nur Sorten von Rotschwingel: Fahnenblatt: Breite**	**Únicamente variedades de festuca roja: Hoja bandera: anchura**		
QN		narrow	étroite	schmal	estrecha	Frida (Fr)	3
		medium	moyenne	mittel	media	Cindy (Fr), Koket (Fr)	5
		wide	large	breit	ancha	Barpusta (Fr), Condor (Fr)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14. (*)	**52-56 MS A**	**Only Red Fescue varieties: Flag leaf: length/width ratio**	**Seulement les variétés de fétuque rouge: dernière feuille: rapport longueur/largeur**	**Nur Sorten von Rotschwingel: Fahnenblatt: Verhältnis Länge/Breite**	**Únicamente variedades de festuca roja: Hoja bandera: relación longitud/anchura**		
QN		small	petit	klein	pequeña	Symphony (Fr)	3
		medium	moyen	mittel	media	Barcrown (Fr)	5
		large	grand	groß	grande	Kiruna (Fr)	7
15. (*) (+)	**60-68 MS A**	**Plant: length of longest stem (inflorescence included)**	**Plante: longueur de la tige la plus longue (inflorescence incluse)**	**Pflanze: Länge des längsten Halms (einschließlich Blütenstand)**	**Planta: longitud del tallo más largo (incluida la inflorescencia)**		
QN		very short	très courte	sehr kurz	muy corta	Liramon (Fo)	1
		short	courte	kurz	corta	Livina (Fo), Waldorf (Fr)	3
		medium	moyenne	mittel	media	Spartan (Fo), Trophy (Fr)	5
		long	longue	lang	larga	Casanova (Fr)	7
		very long	très longue	sehr lang	muy larga	Gondolin (Fr)	9
16. (*) (+)	**60-68 MS A**	**Plant: length of upper internode**	**Plante: longueur du dernier entre-nœud**	**Pflanze: Länge des oberen Internodiums**	**Planta: longitud del entrenudo superior**		
QN		very short	très court	sehr kurz	muy corta		1
		short	court	kurz	corta	Manoir (Fr)	3
		medium	moyen	mittel	media	Barcrown (Fr), Frida (Fr)	5
		long	long	lang	larga	Casanova (Fr)	7
		very long	très long	sehr lang	muy larga		9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17. (*) (+)	**60-68 MS A**	**Inflorescence: length**	**Inflorescence: longueur**	**Blütenstand: Länge**	**Inflorescencia: longitud**		
QN		very short	très courte	sehr kurz	muy corta	Lifair (Fr), Quatro (Fo)	1
		short	courte	kurz	corta	Biljart (Fo), Pintor (Fo)	3
		medium	moyenne	mittel	media	Cindy (Fr), Kiruna (Fr)	5
		long	longue	lang	larga	Gondolin (Fr)	7
		very long	très longue	sehr lang	muy larga		9
18.	**60-68 VG B**	**Inflorescence: anthocyanin coloration of the panicle**	**Inflorescence: pigmentation anthocyanique de la panicule**	**Blütenstand: Anthocyanfärbung der Rispe**	**Inflorescencia: pigmentación antociánica de la panícula**		
QN		absent or weak	nulle ou faible	fehlend oder gering	ausente o débil		1
		weak	faible	gering	débil	Cindy (Fr), Crystal (Fo)	3
		medium	moyenne	mittel	media	Diego (Fr), Spartan (Fo)	5
		strong	forte	stark	fuerte	Medal (Fo), N.F.G. Theodor Roemer (Fr)	7
		very strong	très forte	sehr stark	muy fuerte	Polaris (Fr)	9

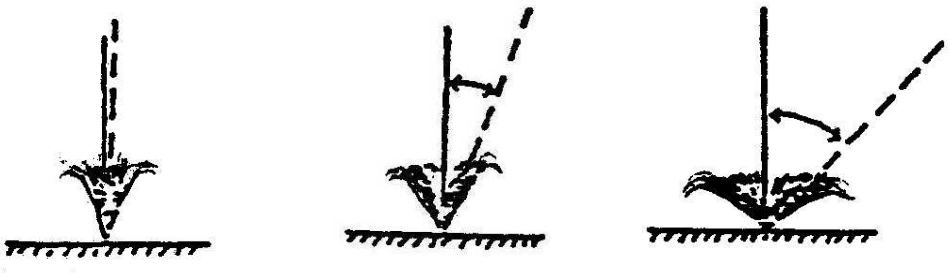
8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

(a) The optimal stage to observe these characteristics is at DC 29, which is usually in the year of planting before vernalization. The development of rhizomes can be observed until the beginning of stem elongation (DC 31).

(b) Plant: growth habit

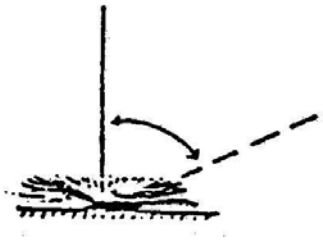
The observations should be made visually from the attitude of the leaves of the plant as a whole. The angle formed by the imaginary line through the region of greatest leaf density and the vertical should be used.



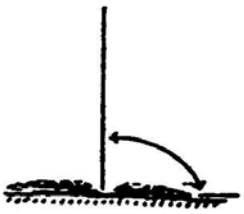
1
erect

3
semi-erect

5
medium



7
semi-prostrate



9
prostrate

8.2 Explanations for individual characteristics

Ad. 1: Plant: ploidy

The ploidy of the plant should be determined by standard cytological methods.

Ad. 5: Leaf length

Total leaf length is the length including the leaf blade and leaf sheath.

Ad. 9: Plant: development of rhizomes

Rhizomes can be observed at the bottom of the stem. Absent or weak development of rhizomes is when there is no rhizome development or rhizome primordia can be observed with a magnifying glass. Medium development of rhizomes is when few and short rhizomes are observed. Strong development of rhizomes is when abundant and long rhizomes are observed.

Ad. 10: Plant: time of inflorescence emergence

Spaced plants or row plots should be observed at least twice a week.

A: Plots with spaced plants

The date of heading of each single plant should be assessed. A single plant is considered to have headed when the tip of three heads (just after DC 50) can be seen protruding from the flag leaf sheath. From the single plant data a mean date per plot and a mean date per variety is obtained.

B: Row plots

At each observation date the average plot stage should be expressed in one of the following growth stages:

DC 50 First spikelet of inflorescence just visible
DC 52 ¼ of the inflorescence emerged (across all stems)
DC 54 ½ of the inflorescence emerged (across all stems)
DC 56 ¾ of the inflorescence emerged (across all stems)
DC 58 Emergence of inflorescence completed

The time of inflorescence emergence is the date at which the average plot stage DC 54 has been reached. This date should – if necessary – be obtained by interpolation.

Ad. 12: Flag leaf: length
Ad. 13: Only Red Fescue varieties: Flag leaf: width

Flag leaf is the first leaf below the inflorescence.
Time: within a period of two to three weeks after heading (DC 52-56).
Measurements should be made on the same leaf.
Length should be measured to an accuracy of at least 1mm, from the tip of the leaf blade to the leaf sheath.
Width should be measured to an accuracy of at least 0.5mm, at the widest point of the leaf blade.

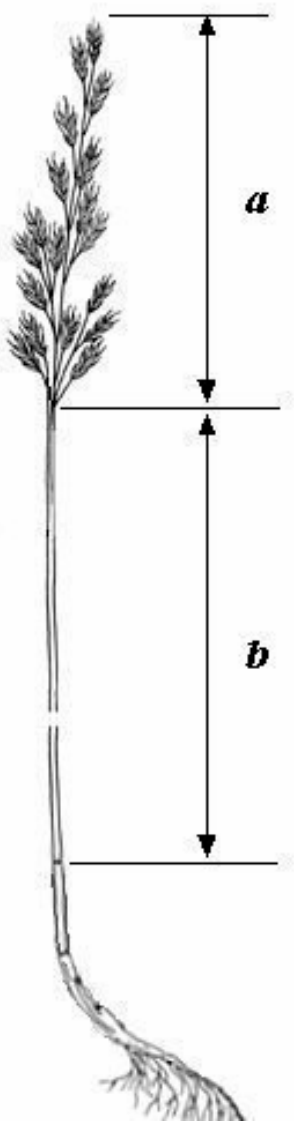
Ad. 15: Plant: length of longest stem (inflorescence included)

Length of the longest stem (inflorescence included) is measured from ground level.

Ad. 16: Plant: length of upper internode
Ad. 17: Inflorescence: length

Char. 16: b = The part of the stem above the upper node up to the beginning of the inflorescence is the upper internode

Char. 17: a = Length of the inflorescence (of the longest stem)



8.3 Growth stages for grasses

All characteristics should be recorded at the appropriate time for the plant concerned. Growth stages of grasses are indicated by decimal codes which are derived from the decimal code for the growth stages of cereals (Zadoks, et al., 1974). This decimal code is in close conformity with the BBCH-code (Meier, 1997).

Seedling growth (seedling: one shoot)

DC 10 First leaf through coleoptile
DC 15 Five leaves unfolded
DC 19 Nine or more leaves unfolded

Tillering

DC 20 Main shoot only (beginning of tillering)
DC 23 Main shoot and 3 tillers
DC 25 Main shoot and 5 tillers
DC 29 Main shoot and 9 or more tillers

Stem elongation

DC 30 Pseudo-stem erection (formed by sheaths of leaves).
DC 31 First node detectable (early stem extension across all stems)
DC 35 Fifth node detectable (50 % extension across all stems)
DC 39 Flag leaf ligula/collar just visible (pre-boot stage)

Booting

DC 41 Flag leaf sheath extending (little enlargement of the inflorescence, early boot-stage)
DC 45 Boots swollen (late-boot stage)
DC 47 First leaf sheath opening
DC 49 first awns visible (in awned forms only)

Inflorescence emergence (mostly non-synchronous)

DC 50 First spikelet of inflorescence just visible
DC 52 25 % of the inflorescence emerged (across all stems)
DC 54 50 % of the inflorescence emerged (across all stems)
DC 56 75 % of the inflorescence emerged (across all stems)
DC 58 Emergence of inflorescence completed

Anthesis (mostly non-synchronous)

DC 60 Beginning of anthesis
DC 64 Anthesis half-way
DC 68 Anthesis complete

9. Literature

Camlin, M.S., Watson, S., Waters, B.G. and Weatherup, S.T.C. (2001), The potential for management of reference collections in herbage variety registration trials using a cyclic planting system for reference varieties. Plant Varieties and Seeds, 14, pages 1-14.

Duyvendak, R., B. Luesink and H. Vos, 1981. Delimitation of taxa and cultivars of red fescue (Festuca rubra L. sensu lato). Rasen, Turf, Gazon 3: 54 – 62.

Meier, U., 1997. Growth stages of mono- and dicotyledonous plants: BBCH-Monograph Blackwell Science, Berlin, Vienna, a.o., pp 622.

Patterson, H.D. and Weatherup S.T.C. (1984), Statistical Criteria for Distinctness between Varieties of Herbage Crops, Journal of Agricultural Science, Cambridge, 102, pages 59-68

Squire A.M., (1962) A rapid technique for counting chromosomes in grass breeding studies. Journal of the British Grassland Society, 21(4), 305-306.

Weatherup, S.T.C. (1980), Statistical Procedures for Distinctness, Uniformity and Stability Trials, Journal of Agricultural Science, Cambridge, 94, page 31-46

Zadoks, J.C., T.T. Chang and C.F. Konzak, 1974. A decimal code for the growth stages of cereals. Weed Research 14: 415 – 421.

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

1.1.1	Botanical Name	*Festuca rubra* L.	[ ]
1.1.2	Common Name	Red Fescue Creeping Fescue	
1.2.1	Botanical Name	*Festuca ovina* L.	[ ]
1.2.2	Common Name	Sheep's Fescue, Hard Fescue	
1.3.1	Botanical Name	*Festuca filiformis* Pourr. *(Festuca ovina* subsp. *tenuifolia* (Sibth.) Celak.*,* *Festuca tenuifolia* Sibth.)	[ ]
1.3.2	Common Name	Fine-leaf sheep fescue, Hair fescue, Slender fescue	
1.4.1	Botanical Name	*Festuca brevipila* R. Tracey, (*Festuca ovina* L. ssp. *duriuscula*, *Festuca trachyphylla* hack krajina)	[ ]
1.4.2	Common Name	Reliant hard fescue	
1.5.1	Botanical Name	*Festuca heterophylla* Lam.	[ ]
1.5.2	Common Name	Shade Fescue	
1.6.1	Botanical Name	*Festuca pseudovina* Hack. ex Wiesb.	[ ]
1.6.2	Common name	Pseudovina	

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

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]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 [ ]
(please state parent varieties)

(b) partially known cross [ ]
(please state known parent variety(ies))

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

4.2 Method of propagating the variety

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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

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 (1)	**Plant: ploidy**		
	diploid	Barok (Fo)	2[ ]
	tetraploid		4[ ]
	hexaploid	Biljart (Fo), Darwin (Fr)	6[ ]
	octoploid	Cindy (Fr)	8[ ]
5.2 (9)	**Plant: development of rhizomes**		
	absent or weak	Trophy (Fr)	1[ ]
	medium		2[ ]
	strong	Barpusta (Fr)	3[ ]
5.3 (10)	**Plant: time of inflorescence emergence**		
	very early		1[ ]
	early	Biljart (Fo), Darwin (Fr)	3[ ]
	medium	Clio (Fo), Trophy (Fr)	5[ ]
	late	Frida (Fr) Mocassin (Fr)	7[ ]
	very late	Kiruna (Fr), Silk (Fr)	9[ ]

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

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
Example	*Plant: time of inflorescence emergence*	*early (3)*	*late (7)*

Comments:

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

[#]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

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.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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

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]