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# INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

## RHODESGRASS

UPOV Code: CHLRS\_GAY

*Chloris gayana* Kunth

### GUIDELINES

#### FOR THE CONDUCT OF TESTS

#### FOR DISTINCTNESS, UNIFORMITY AND STABILITY

Alternative Names: \*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Chloris gayana</i> Kunth	Rhodesgrass	Herbe de Rhodes	Rhodesgras	Grama de Rhodes, Hierba de Rhodes, Pasto de Rhodes

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](http://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 *Chloris gayana* Kunth.

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:

500g.

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*

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.

3.4 *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 / 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 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 second column of 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 The assessment of uniformity should be according to the recommendations for cross-pollinated varieties in the General Introduction. For the characteristics Plant: ploidy (characteristic 1) and Inflorescence: color of spikes (characteristic 22), a population standard of 2% and an acceptance probability of 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: ploidy (characteristic 1)
- (b) Plant: growth habit (characteristic 2)
- (c) Inflorescence: attitude of spikes (characteristic 21)
- (d) Time of flowering (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*

- |                |  |                     |
|----------------|--|---------------------|
| (*)            | 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, MS, VG, VS |  | – see Chapter 4.1.5 |
| (a)-(b)        | See Explanations on the Table of Characteristics in Chapter 8.1  |                     |
| (+)            | See Explanations on the Table of Characteristics in Chapter 8.2. |                     |

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>1.</b>	<b>MG</b>	<b>Plant: ploidy</b>	<b>Plante : ploïdie</b>	<b>Pflanze: Ploidie</b>	<b>Planta: ploidía</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QL</b>		diploid	diploïde	diploid	diploide	Finecut, Gulfcut, Nemkat, Pioneer, Reclaimer, Salcut, Topcut	2
		tetraploid	tétraploïde	tetraploid	tetraploide	Boma, Callide, Elmba, Mariner, Sabre, Toro	4
<b>2.</b>	<b>VS</b>	<b>Plant: growth habit</b>	<b>Plante : port</b>	<b>Pflanze: Wuchsform</b>	<b>Planta: porte</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QN</b>		erect	dressé	aufrecht	erecto	Gulfcut	1
		semi-erect	demi-dressé	halbaufrecht	semierecto	Reclaimer	3
		intermediate	intermédiaire	mittel	intermedio	KG2	5
		semi-prostrate	demi-étalé	halb liegend	semipostrado	KP4	7
		prostrate	étalé	liegend	postrado	KP8	9
<b>3.</b>	<b>VS</b>	<b>Stolon: number of branches</b>	<b>Stolon : nombre de rameaux</b>	<b>Ausläufer: Anzahl Verzweigungen</b>	<b>Estolón: número de ramificaciones</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	few	petit	wenige	bajo	Asatsuyu	3
		medium	moyen	mittel	medio	Pioneer	5
		many	grand	viele	alto	KG2, KP8	7
<b>4.</b>	<b>MS</b>	<b>Stolon: length of internode</b>	<b>Stolon : longueur de l'entre-nœud</b>	<b>Ausläufer: Internodienlänge</b>	<b>Estolón: longitud del entrenudo</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	short	court	kurz	corto	KG2, KP8	3
	<b>(b)</b>	medium	moyen	mittel	medio	KP4	5
		long	long	lang	largo	Mariner, Sabre	7
<b>5.</b>	<b>MS</b>	<b>Stolon: width of internode</b>	<b>Stolon : largeur de l'entre-nœud</b>	<b>Ausläufer: Internodienbreite</b>	<b>Estolón: anchura del entrenudo</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	narrow	étroit	schmal	estrecho	KP4	3
		medium	moyen	mittel	medio	Samford, Topcut	5
		broad	large	breit	ancho	Callide, Sabre, Toro	7
<b>6.</b>	<b>MS</b>	<b>Stolon: length of leaf sheath</b>	<b>Stolon : longueur de la gaine</b>	<b>Ausläufer: Länge der Blattscheide</b>	<b>Estolón: longitud de la vaina de la hoja</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	short	courte	kurz	corta	KG2, KP4	3
		medium	moyenne	mittel	media		5
		long	longue	lang	larga	Mariner, Samford	7
<b>7.</b>	<b>MS</b>	<b>Stolon: length of leaf blade</b>	<b>Stolon : longueur du limbe</b>	<b>Ausläufer: Länge der Blattspreite</b>	<b>Estolón: longitud del limbo</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	short	court	kurz	corto	KG2, KP4	3
		medium	moyen	mittel	medio	Mariner, Samford	5
		long	long	lang	largo	Toro, Sabre	7



		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>8.</b>	<b>MS</b>	<b>Stolon: width of leaf blade</b>	<b>Stolon : largeur du limbe</b>	<b>Ausläufer: Breite der Blattspreite</b>	<b>Estolón: anchura del limbo</b>		
<b>(+)</b>							
<b>QN</b>	<b>(a)</b>	narrow	étroit	schmal	estrecho	KP4	3
		medium	moyen	mittel	medio	Mariner	5
		broad	large	breit	ancho	Sabre, Toro	7
<b>9.</b>	<b>MS</b>	<b>Culm: length</b>	<b>Tige : longueur</b>	<b>Halm: Länge</b>	<b>Culmo: longitud</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QN</b>	<b>(b)</b>	short	courte	kurz	corto	KG2	3
		medium	moyenne	mittel	medio	KP4, Salcut	5
		long	longue	lang	largo	Callide, Mariner	7
<b>10.</b>	<b>MS</b>	<b>Culm: thickness</b>	<b>Tige : épaisseur</b>	<b>Halm: Dicke</b>	<b>Culmo: grosor</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QN</b>	<b>(b)</b>	narrow	étroite	schmal	estrecho	Salcut, Topcut	3
		medium	moyenne	mittel	medio	Mariner, Samford	5
		broad	large	breit	ancho	Callide, Toro	7
<b>11.</b>	<b>VG</b>	<b>Leaf: intensity of green color</b>	<b>Feuille : intensité de la couleur verte</b>	<b>Blatt: Intensität der Grünfärbung</b>	<b>Hoja: intensidad del color verde</b>		
<b>QN</b>	<b>(b)</b>	light	claire	hell	claro	Salcut	1
		medium	moyenne	mittel	medio	Reclaimer	2
		dark	foncée	dunkel	oscuro	Topcut	3
<b>12.</b>	<b>MS</b>	<b>Penultimate leaf: length of sheath</b>	<b>Avant-dernière feuille : longueur de la gaine</b>	<b>Vorletztes Blatt: Länge der Scheide</b>	<b>Penúltima hoja: longitud de la vaina</b>		
<b>QN</b>	<b>(b)</b>	short	courte	kurz	corta	KP8	3
		medium	moyenne	mittel	media	KG2, KP4	5
		long	longue	lang	larga		7
<b>13.</b>	<b>MS</b>	<b>Penultimate leaf: length of blade</b>	<b>Avant-dernière feuille : longueur du limbe</b>	<b>Vorletztes Blatt: Länge der Spreite</b>	<b>Penúltima hoja: longitud del limbo</b>		
<b>QN</b>	<b>(b)</b>	short	court	kurz	corto	KP8	3
		medium	moyen	mittel	medio	KG2, KP4	5
		long	long	lang	largo		7
<b>14.</b>	<b>MS</b>	<b>Penultimate leaf: width of blade</b>	<b>Avant-dernière feuille : largeur du limbe</b>	<b>Vorletztes Blatt: Breite der Spreite</b>	<b>Penúltima hoja: anchura del limbo</b>		
<b>QN</b>	<b>(b)</b>	narrow	étroit	schmal	estrecho	KG2, KP4	3
		medium	moyen	mittel	medio	KP8	5
		broad	large	breit	ancho	Sabre	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>15.</b>	<b>MS</b>	<b>Flag leaf: length of sheath</b>	<b>Dernière feuille : longueur de la gaine</b>	<b>Fahnenblatt: Länge der Scheide</b>	<b>Última hoja: longitud de la vaina</b>		
<b>QN</b>	<b>(b)</b>	short	courte	kurz	corta	KP8	3
		medium	moyenne	mittel	media	KG2, KP4	5
		long	longue	lang	larga		7
<b>16.</b>	<b>MS</b>	<b>Flag leaf: length of blade</b>	<b>Dernière feuille : longueur du limbe</b>	<b>Fahnenblatt: Länge der Spreite</b>	<b>Última hoja: longitud del limbo</b>		
<b>QN</b>	<b>(b)</b>	short	court	kurz	corto	KP4	3
		medium	moyen	mittel	medio	Mariner	5
		long	long	lang	largo	Sabre, Toro	7
<b>17.</b>	<b>MS</b>	<b>Flag leaf: width of blade</b>	<b>Dernière feuille : largeur du limbe</b>	<b>Fahnenblatt: Breite der Spreite</b>	<b>Última hoja: anchura del limbo</b>		
<b>QN</b>	<b>(b)</b>	narrow	étroit	schmal	estrecho	KP4	3
		medium	moyen	mittel	medio	KP8	5
		broad	large	breit	ancho	Sabre	7
<b>18.</b>	<b>MS</b>	<b>Peduncle: length</b>	<b>Pédoncule : longueur</b>	<b>Blütenstandstiel: Länge</b>	<b>Pedúnculo: longitud</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QN</b>	<b>(b)</b>	short	court	kurz	corto		3
		medium	moyen	mittel	medio	KG2	5
		long	long	lang	largo	Finecut, KP4, KP8, Salcut	7
<b>19.</b>	<b>MS</b>	<b>Peduncle: thickness</b>	<b>Pédoncule : épaisseur</b>	<b>Blütenstandstiel: Dicke</b>	<b>Pedúnculo: grosor</b>		
<b>(+)</b>							
<b>QN</b>	<b>(b)</b>	narrow	étroit	schmal	estrecho	Salcut, Topcut	3
		medium	moyen	mittel	medio	KG2, KP4, KP8	5
		broad	large	breit	ancho	Callide, Toro	7
<b>20.</b>	<b>MS</b>	<b>Inflorescence: number of spikes</b>	<b>Inflorescence : nombre d'épis</b>	<b>Blütenstand: Zahl der Ähren</b>	<b>Inflorescencia: número de espigas</b>		
<b>QN</b>	<b>(b)</b>	few	petit	wenige	bajo	KP8	3
		medium	moyen	mittel	medio	KG2, KP4	5
		many	grand	viele	alto	Mariner	7
<b>21.</b>	<b>VG</b>	<b>Inflorescence: attitude of spikes</b>	<b>Inflorescence : port des épis</b>	<b>Blütenstand: Ährenhaltung</b>	<b>Inflorescencia: porte de las espigas</b>		
<b>(*)</b>							
<b>(+)</b>							
<b>QN</b>	<b>(b)</b>	upright	dressé	aufrecht	erguido	KG2, KP4	1
		spreading	étalé	breitwüchsig	extendido	Samford	2
		drooping	retombant	überhängend	colgante	Mariner	3
		weeping	pleureur	lang überhängend	llorón		4

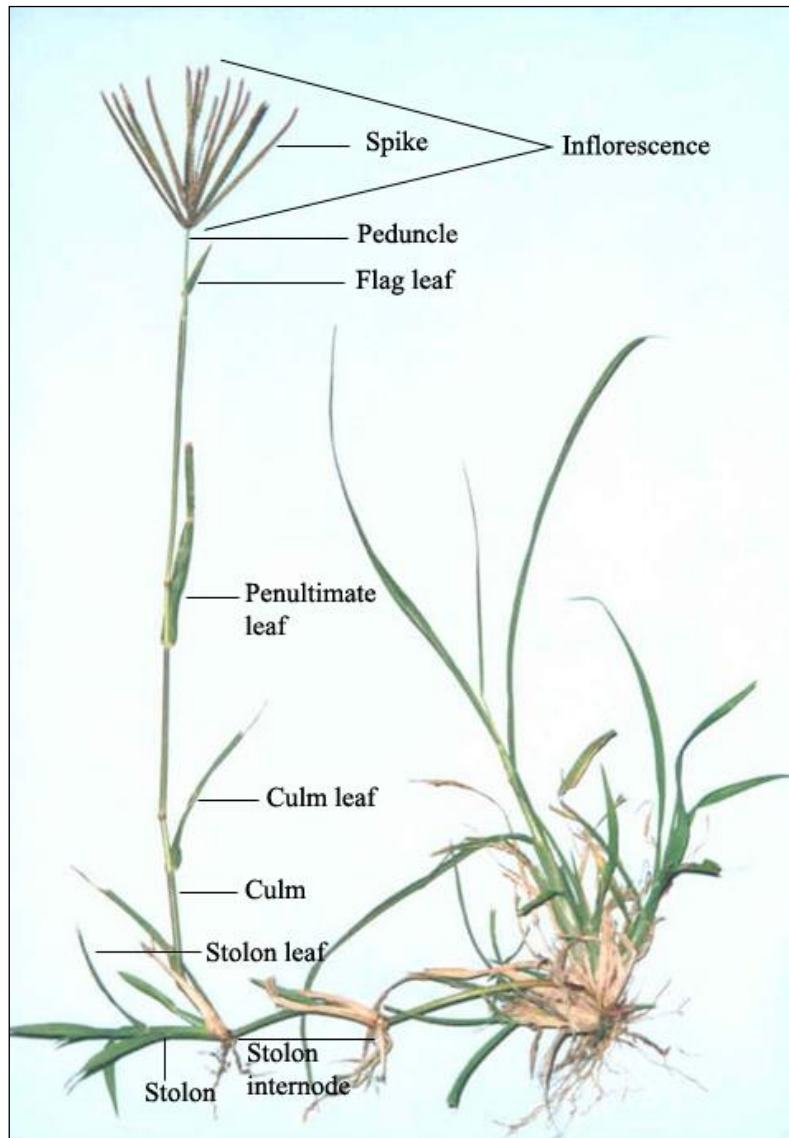
		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
<b>22.</b>	<b>VG</b>	<b>Inflorescence: color of spikes</b>	<b>Inflorescence : couleur des épis</b>	<b>Blütenstand: Farbe der Ähren</b>	<b>Inflorescencia: color de las espigas</b>		
<b>PQ</b>	<b>(b)</b>	light yellow	jaune clair	hellgelb	amarillo claro	Asatsuyu	1
		light brown	brun clair	hellbraun	marrón claro	KG2	2
		medium brown	brun moyen	mittelbraun	marrón medio	KP8	3
		dark brown	brun foncé	dunkelbraun	marrón oscuro	KP4	4
		black	noir	schwarz	negro		5
<b>23.</b>	<b>MS</b>	<b>Inflorescence: length of spikes</b>	<b>Inflorescence : longueur des épis</b>	<b>Blütenstand: Ährenlänge</b>	<b>Inflorescencia: longitud de las espigas</b>		
<b>QN</b>	<b>(b)</b>	short	court	kurz	corta	KG2, KP4	3
		medium	moyen	mittel	media	Callide, Samford	5
		long	long	lang	larga	Mariner, Toro	7
<b>24.</b>	<b>VS</b>	<b>Awn: length</b>	<b>Barbe : longueur</b>	<b>Granne: Länge</b>	<b>Arista: longitud</b>		
<b>QN</b>		short	courte	kurz	corta	Salcut, Topcut	3
		medium	moyenne	mittel	media	KG2, KP4, KP8	5
		long	longue	lang	larga	Callide	7
<b>25.</b>	<b>MG</b>	<b>Time of flowering</b>	<b>Époque de floraison</b>	<b>Zeitpunkt der Blüte</b>	<b>Época de floración</b>		
<b>QN</b>		very early	très précoce	sehr früh	muy temprana	Finecut, Gulfcut, Reclaimer, Topcut	1
		early	précoce	früh	temprana	Nemkat	3
		medium	moyenne	mittel	media	KG2, KP4, KP8	5
		late	tardive	spät	tardía	Callide, Samford	7
		very late	très tardive	sehr spät	muy tardía	Mariner, Toro	9

8. Explanations on the Table of Characteristics

8.1 *Explanations covering several characteristics*

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

- (a) Observations on the stolon should be made on the fourth visible stolon node from the distal part of the stolon.
- (b) A Rhodesgrass plant showing the position of different plant parts:



(Image courtesy: NSW Trade and Investment - Primary Industries)

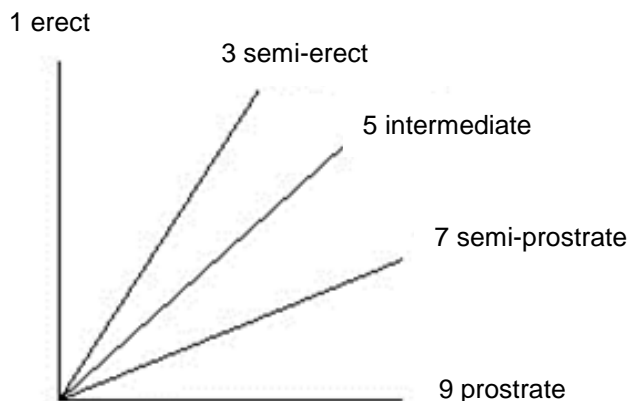
## 8.2 Explanations for individual characteristics

### Ad. 1: Plant: ploidy

The ploidy of the plants is determined by cytological techniques using root-tip method. The root tips are collected from the actively growing plants. Root tips are pre-fixed in a freshly-made aqueous solution of  $\alpha$ -bromonaphthalene for 4 hours. After 4 hours the root tips are fixed for at least 1 hour in a freshly-made 3:1 mixture of absolute ethanol and acetic acid. Then hydrolysed in 1 N hydrochloric acid at 60°C for 10 minutes. After hydrolysis root tips are stained in leuco-basic fuchsin (Darlington and La Cour 1962) for at least 30 minutes. Extreme tip of the root is removed and mounted on a slide in aceto-orcin (Darlington and La Cour 1962). Tap out under a coverslip before squashing with the thumb. View under high power oil immersion. Count the chromosomes from at least two mitotic divisions per plant. The diploid plants have 20 chromosomes ( $2n=20$ ) and the tetraploid plants have 40 chromosomes ( $2n=40$ ).

### Ad. 2: Plant: growth habit

Plant growth habit is assessed at the vegetative stage just before flowering or during the early flowering stage. It should be assessed visually from the attitude of the leaves and the development of lateral stolons. The angle formed by the outer leaves with an imaginary middle axis should be used. The following 1-9 scale is used to describe the states.



### Ad. 3: Stolon: number of branches

The number of stolon branches is observed by counting the number of branches from the distal part of the stolon up to the fourth visible stolon node.

### Ad. 6: Stolon: length of leaf sheath

### Ad. 7: Stolon: length of leaf blade

### Ad. 8: Stolon: width of leaf blade

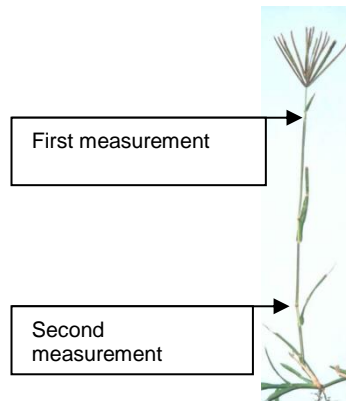
Observations on the stolon leaf should be made on the fourth visible stolon leaf from the distal part of the stolon.

### Ad. 9: Culm: length

The length is measured from the bottom of the culm to the base of the inflorescence.

Ad. 10: Culm: thickness

The first culm thickness measurement is taken at the first internode below the flag leaf and the second culm thickness measurement is taken at the second internode from the bottom of the culm. The average thickness is taken from these two measurements.



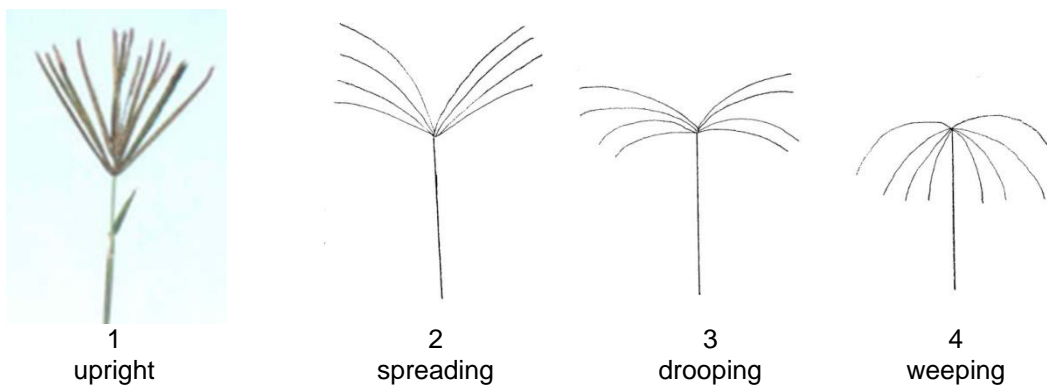
Ad. 18: Peduncle: length

The peduncle length is measured from the top most node to the bottom of the spikes.

Ad. 19: Peduncle: thickness

The peduncle thickness is measured 1-2 cm below the spikes.

Ad. 21: Inflorescence: attitude of spikes



Ad. 23: Inflorescence: length of spikes

The longest spike to be measured.

Ad. 25: Time of flowering

The time of flowering is when 50% of plants have fully emerged spikes.

9. Literature

Bogdan, A.V., 1961: Intra variety variation in Rhodes grass (*Chloris gayana* Kunth.) in Kenya. Journal of British Grassland Society 16, pp. 238-239

Darlington, C.D., La Cour, L.F., 1962: The Handling of Chromosomes (Fourth Revised Edition). George Allen and Unwin Limited, London, GB

Hutton, E.M., 1961: Inter-variety variation in Rhodes grass (*Chloris gayana* Kunth.). Journal of British Grassland Society 16, pp. 23-29

Kokubu, T., Taira, M., 1982: Some morphological characters and reproductive method of diploid and tetraploid varieties in Rhodes grass *Chloris gayana* Kunth. Memoirs of the Faculty of Agriculture, Kagoshima University, 18, JP, pp. 61-68

Lamp, C.A., *et. al.* 1990: Grasses of Temperate Australia, A Field Guide. Inkata Press, Melbourne, AU

Loch, D.S., Harvey, G.L., 1999: *Chloris gayana* in Australia. In: Loch, D.S. and Ferguson, J.E. (eds) Forage Seed Production Volume 2: Tropical and Subtropical Species. CAB International, Oxford, GB, pp. 341-349

Loch, D.S., Rethman, N.F.G., van Niekerk, W.A., 2004: Rhodesgrass. In: Moser, L.E., Burson, B.L., Sollenberger, L.E., (eds) Warm-Season (C4) Grasses. Agronomy Monograph No. 45, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Madison, WI, US, pp. 833-872.

NSW Trade and Investment -Primary Industries, Rhodes grass image from Agnote DPI-298 (3rd Ed).Orange, NSW.

Oram, R.N., 1990: Register of Australian Herbage Plant Cultivars. 3<sup>rd</sup> edition, Australian Herbage Plant Registration Authority, CSIRO Division of Plant Industry, Melbourne, AU

10. Technical Questionnaire

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

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  
(please state parent varieties)

(.....)  
female parent

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

(.....)  
female parent

(c) unknown cross

x

[ ]

(.....)  
male parent

[ ]

(.....)  
male parent

[ ]

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

4.2.1 Seed-propagated varieties

(a) Self-pollination

(b) Cross-pollination

(i) population

(ii) synthetic variety

(c) Other  
(please provide details)

[ ]

[ ]

[ ]

[ ]

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
<p>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).</p>			
Characteristics	Example Varieties	Note	
<b>5.1 Plant: ploidy</b> <b>(1)</b>			
diploid	Finecut, Gulfcut, Nemkat, Pioneer, Reclaimer, Salcut, Topcut	2 [ ]	
tetraploid	Boma, Callide, Elmba, Mariner, Sabre, Toro	4 [ ]	
<b>5.2 Plant: growth habit</b> <b>(2)</b>			
erect	Gulfcut	1 [ ]	
erect to semi erect		2 [ ]	
semi erect	Reclaimer	3 [ ]	
semi erect to intermediate		4 [ ]	
intermediate	KG2	5 [ ]	
intermediate to semi-prostrate		6 [ ]	
semi-prostrate	KP4	7 [ ]	
semi-prostrate to prostrate		8 [ ]	
prostrate	KP8	9 [ ]	
<b>5.3 Inflorescence: attitude of spikes</b> <b>(21)</b>			
upright	KG2, KP4	1 [ ]	
spreading	Samford	2 [ ]	
drooping	Mariner	3 [ ]	
weeping		4 [ ]	
<b>5.4 Time of flowering</b> <b>(25)</b>			
very early	Finecut, Gulfcut, Reclaimer, Topcut	1 [ ]	
very early to early		2 [ ]	
early	Nemkat	3 [ ]	
early to medium		4 [ ]	
medium	KG2, KP4, KP8	5 [ ]	
medium to late		6 [ ]	
late	Callide, Samford	7 [ ]	
late to very late		8 [ ]	
very late	Mariner, Toro	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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>	<i>Awn: length</i>	<i>short</i>	<i>long</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

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.

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# 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:
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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]