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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

MEDICS

UPOV Code: MEDIC
(excluding: MEDIC_SAT)

Medicago L. (excluding *Medicago sativa* L. & *Medicago* ×*varia* Martyn)

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GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from South Africa

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*
Medicago L. (excluding *Medicago sativa* L. & *Medicago* ×*varia* Martyn)	Medics			

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.

Other associated UPOV documents: TG/6/5 Lucerne (*Medicago sativa* L. and *Medicago*×*varia* Martyn*)*

* 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 *Medicago* L. excluding *Medicago sativa* L. & *Medicago* ×*varia* Martyn.

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:

500 g

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

2.6 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

3.3.1 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.

3.3.2 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 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

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 spaced and 10 meters of row plot. The spaced plants should be arranged in 3, 4, 5 or 6 replicates, i.e. plots of 20, 15, 12 or 10 plants. The row plots should be arranged with at least 3 replicates and the density of sowing should be such that approximately 200 plants per 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 should be made on 60 plants or parts taken from each of 60 plants.

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) Leaflet: presence of marks (characteristic 1)
(b) Leaflet: type of marks on upper side (characteristic 2)
(c) Time of flowering (characteristic 6)
(d) Leaflet: pubescence on upper side (characteristic 16)
(e) Leaflet: pubescence on lower side (characteristic 18)
(f) Pod: shape (characteristic 29)
(g) Pod: texture of whorl edges (characteristic 33)

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:

(M.f.): *Medicago falcata*
(M.l.): *Medicago littoralis*
(M.p.): *Medicago polymorpha*
(M.s.): *Medicago scutellata*
(M.to.): *Medicago tornata*
(M.tr.): *Medicago truncatula*

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 – see Chapter 3.3.2
VS Visual assessment by observation of individual plants or parts of plants – see Chapter 3.3.2

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

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

(M.f.):	*Medicago falcata*	See Chapter 6.4
(M.l.):	*Medicago littoralis*	See Chapter 6.4
(M.p.):	*Medicago polymorpha*	See Chapter 6.4
(M.s.):	*Medicago scutellata*	See Chapter 6.4
(M.to.):	*Medicago tornata*	See Chapter 6.4
(M.tr.):	*Medicago truncatula*	See Chapter 6.4

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

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1. **(*)**	**VS A**	**Leaflet: presence of marks**	**Foliole: présence de marques**	**Blattfieder: Vorhandensein von Zeichnungen**	**Foliolo: presencia de marcas**		
QL	**(a)**	absent on both sides	absentes sur les deux faces	an beiden Seiten fehlend	ausente en ambas caras	Serena (M.p.), Toreador (M.l.), Tornafield (M.to.)	1
		present on upper side only	présentes sur la face supérieure seulement	nur an der Oberseite vorhanden	presente en el haz únicamente	Jester (M.tr.), Kelson (M.s.), Santiago (M.p.)	2
		present on lower side only	présentes sur la face inférieure seulement	nur an der Unterseite vorhanden	presente en el envés únicamente	Cyprus (M.tr.)	3
		present on both sides	présentes sur les deux faces	an beiden Seiten vorhanden	presente en ambas caras	Bokveld (M.p.), Herald (M.l.), Mogul (M.tr.), Rivoli (M.to.)	4
2. **(*)** **(+)**	**VS A**	**Leaflet: type of marks on upper side**	**Foliole: type de marques sur la face supérieure**	**Blattfieder: Typ der Zeichnungen an der Oberseite**	**Foliolo: tipo de marcas en el haz**		
	(a)	faded blotch	tache délavée	verwaschener Fleck	mancha difuminada	Parabinga (M.tr.)	1
		clear blotch	tache nette	deutlicher Fleck	mancha clara	Herald (M.to.), Jester (M.tr.), Polyanna (M.p.)	2
		spot	macule	Punkt	puntos		3
		fleck	panachure	Fleck	motas	Bokveld (M.p.), Borung (M.tr.)	4
		crescent	croissant	Halbmond	luna creciente	Santiago (M.p.)	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
3. (*) (+)	**VS A**	**Leaflet: position of marks on upper side**	**Foliole: position des marques sur la face supérieure**	**Blattfieder: Position der Zeichnungen an der Oberseite**	**Foliolo: ubicación de las marcas en el haz**		
PQ	**(a)**	at base	à la base	an der Basis	en la base	Polyanna (M.p.)	1
		towards base	vers la base	zur Basis hin	hacia la base	Santiago (M.p.)	2
		central	centrale	in der Mitte	en el centro	Herald (M.l.), Sephi (M.tr.)	3
		towards apex	vers le sommet	zur Spitze hin	hacia el ápice	Parabinga (M.tr.)	4
		at apex	au sommet	an der Spitze	en el ápice		5
		over whole surface	sur toute la surface	an der ganzen Oberfläche	en toda la superficie	Bokveld (M.p.), Borung (M.tr.)	6
4.	**VS A**	**Only varieties with spot or fleck type of marks on upper side (see char. 2): Leaflet: number of marks on upper side**	**Seulement les variétés à macule ou panachure sur la face supérieure (voir car. 2): Foliole: nombre de marques sur la face supérieure**	**Nur Sorten mit Punkt- oder Flecktyp der Zeichnungen an der Oberseite (vergleiche Merkmal 2): Blattfieder: Anzahl Zeichnungen an der Oberseite**	**Sólo las variedades con el tipo de marcas de puntos o motas en el haz (véase el carácter 2): Foliolo: número de marcas en el haz**		
		few	petit	gering	pocas	Bokveld (M.p.), Paraggio (M.tr.)	3
		medium	moyen	mittel	media	Borung (M.tr.)	5
		many	grand	groß	muchas		7
5.	**VS A**	**Only varieties with marks on lower side (see char. 1): Leaflet: number of marks on lower side**	**Seulement les variétés à marques sur la face inférieure (voir car. 1): Foliole: nombre de marques sur la face inférieure**	**Nur Sorten mit Zeichnungen an der Unterseite (vergleiche Merkmal 1): Blattfieder: Anzahl Zeichnungen der der Unterseite**	**Sólo las variedades con marcas en el envés (véase el carácter 1): Foliolo: número de marcas en el envés**		
		few	petit	gering	pocas	Rivoli (M.to.), Sephi (M.tr.)	3
		medium	moyen	mittel	media	Parabinga (M.tr.)	5
		many	grand	groß	muchas	Bokveld (M.p.), Borung (M.tr.)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6. (*) (+)	**MG B MS A**	**Time of flowering**	**Époque de floraison**	**Zeitpunkt der Blüte**	**Época de floración**		
		very early	très précoce	sehr früh	muy temprana	Caliph (M.tr.), Serena (M.p.)	1
		early	précoce	früh	temprana	Borung (M.tr.), Santiago (M.p.), Toreador (M.l.)	3
		medium	moyenne	mittel	media	Cavalier (M.p.), Rivoli (M.to.)	5
		late	tardive	spät	tardía	Circle Valley (M.p.), Jemalong (M.tr.)	7
		very late	très tardive	sehr spät	muy tardía		9
7.	**MS A**	**Plant: length of longest stem**	**Plante: longueur de la plus longue tige**	**Pflanze: Länge des längsten Stiels**	**Planta: longitud del tallo más largo**		
		short	courte	kurz	corta	Harbinger (M.l.), Jester (M.tr.), Scimitar (M.p.)	3
		medium	moyenne	mittel	media	Borung (M.tr.), Circle Valley (M.p.)	5
		long	longue	lang	larga	Cavalier (M.p.), Paraggio (M.tr.), Tornafield (M.to.)	7
8.	**MS A**	**Plant: length of internode**	**Plante: longueur de l'entre-nœud**	**Pflanze: Länge des Internodiums**	**Planta: longitud del entrenudo**		
		short	court	kurz	corta	Harbinger (M.l.), Santiago (M.p.), Sephi (M.tr.)	3
		medium	moyen	mittel	media	Parabinga (M.tr.), Rivoli (M.to.)	5
		long	long	lang	larga	Paraggio (M.tr.), Tornafield (M.to.)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
9.	**VS A**	**Runner: pubescence**	**Stolon: pilosité**	**Ausläufer: Behaarung**	**Estolón: pubescencia**		
		absent or very sparse	absente ou très faible	fehlend oder sehr locker	ausente o muy laxa	Paraggio (M.tr.), Santiago (M.p.)	1
		sparse	faible	locker	laxa	Jester (M.tr.)	3
		medium	moyenne	mittel	media	Parabinga (M.tr.)	5
		dense	dense	dicht	densa	Sephi (M.tr.)	7
10.	**MS A**	**Leaflet: length**	**Foliole: longueur**	**Blattfieder: Länge**	**Foliolo: longitud**		
QN	**(c)**	very short	très courte	sehr kurz	muy corta	Herald (M.l.), Sephi (M.tr.)	1
		short	courte	kurz	corta	Jemalong (M.tr.), Santiago (M.p.), Toreador (M.l.)	3
		medium	moyenne	mittel	media	Cavalier (M.p.), Cyprus (M.tr.), Kelson (M.s.)	5
		long	longue	lang	larga	Paraggio (M.tr.)	7
		very long	très longue	sehr lang	muy larga	Jester (M.tr.), Tornafield (M.to.)	9
11.	**MS A**	**Leaflet: width**	**Foliole: largeur**	**Blattfieder: Breite**	**Foliolo: anchura**		
QN	**(c)**	very narrow	très étroite	sehr schmal	muy estrecha	Sephi (M.tr.), Toreador (M.l.)	1
		narrow	étroite	schmal	estrecha	Jemalong (M.tr.), Rivoli (M.to.), Santiago (M.p.)	3
		medium	moyenne	mittel	media	Cavalier (M.p.), Cyprus (M.tr.), Kelson (M.s.)	5
		broad	large	breit	ancha	Jester (M.tr.)	7
		very broad	très large	sehr breit	muy ancha	Mogul (M.tr.), Tornafield (M.to.)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12.	**MS A**	**Leaflet: ratio length/width**	**Foliole: rapport longueur/largeur**	**Blattfieder: Verhältnis Länge/Breite**	**Foliolo: relación longitud/anchura**		
QN	**(c)**	small	petit		pequeña	Mogul (M.tr.), Tornafield (M.to.)	3
		medium	moyen	mittel	media	Cyprus (M.tr.), Cavalier (M.p.)	5
		large	grand	groß	grande	Jester (M.tr.), Rivoli (M.to.), Toreador (M.l.)	7
13. **(+)**	**VS A**	**Leaflet: shape of base**	**Foliole: forme de la base**	**Blattfieder: Form der Basis**	**Foliolo: forma de la base**		
PQ	**(c)**	narrow acute	aiguë étroite	schmalspitz	aguda estrecha	Harbinger (M.l.), Paraggio (M.tr.)	1
		broad acute	aiguë large	breitspitz	aguda ancha	Cavalier (M.p.), Mogul (M.tr.)	2
		obtuse	obtuse	stumpf	obtusa	Pavlovskaya 7 (M.f.)	3
14. **(+)**	**VS A**	**Leaflet: shape of apex**	**Foliole: forme du sommet**	**Blattfieder: Form der Spitze**	**Foliolo: forma del ápice**		
PQ	**(c)**	acute	aigu	spitz	aguda	Tornafield (M.to.)	1
		obtuse	obtus	stumpf	obtusa	Herald (M.l.)	2
		rounded	arrondi	abgerunde	redondeada	Borung (M.tr.), Pavlovskaya 7 (M.f.), Polyanna (M.p.)	3
		truncate	tronqué	gerade	truncada		4
		obcordate	obcordé	verkehrt herzförmig	obcordiforme	Scimitar (M.p.)	5

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.	**VS A**	**Leaflet: serration of margin**	**Foliole: incisions du bord**	**Blattfieder: Einsägung des Randes**	**Foliolo: serrado del margen**		
QN	**(c)**	absent or very fine	absentes ou très fines	fehlend oder sehr fein	ausente o muy fino	Pavlovskaya 7 (M.f.), Scimitar (M.p.)	1
		fine	fines	fein	fino	Cavalier (M.p.)	3
		medium	moyennes	mittel	medio	Sephi (M.tr.)	5
		coarse	grossières	grob	profundo	Herald (M.l.), Kelson (M.s.), Parabinga (M.tr.), Rivoli (M.to.)	7
16. (*)	**VS A**	**Leaflet: pubescence on upper side**	**Foliole: pilosité de la face supérieure**	**Blattfieder: Behaarung an der Oberseite**	**Foliolo: pubescencia en el haz**		
QL	**(c)**	absent	absente	fehlend	ausente	Circle Valley (M.p.), Pavlovskaya 7 (M.f.), Rivoli (M.to.)	1
		present	présente	vorhanden	presente	Harbinger (M.l.), Kelson (M.s.), Mogul (M.tr.)	9
17.	**VS A**	**Leaflet: density of pubescence on upper side**	**Foliole: densité de la pilosité sur la face supérieure**	**Blattfieder: Dichte der Behaarung an der Oberseite**	**Foliolo: densidad de la pubescencia en el haz**		
QN	**(c)**	sparse	faible	locker	laxa	Kelson (M.s.)	3
		medium	moyenne	mittel	media	Paraggio (M.tr.)	5
		dense	dense	dicht	densa	Caliph (M.tr.)	7
18. (*)	**VS A**	**Leaflet: pubescence on lower side**	**Foliole: pilosité de la face inférieure**	**Blattfieder: Behaarung an der Unterseite**	**Foliolo: pubescencia en el envés**		
QL	**(c)**	absent	absente	fehlend	ausente	Circle Valley (M.p.), Pavlovskaya 7 (M.f.)	1
		present	présente	vorhanden	presente	Harbinger (M.l.), Kelson (M.s.), Mogul (M.tr.), Rivoli (M.to.)	9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
19.	**VS A**	**Leaflet: density of pubescence on lower side**	**Foliole: densité de la pilosité sur la face inférieure**	**Blattfieder: Dichte der Behaarng an der Unterseite**	**Foliolo: densidad de la pubescencia en el envés**		
QN	**(c)**	sparse	faible	locker	laxa	Kelson (M.s.), Rivoli (M.to.)	3
		medium	moyenne	mittel	media	Paraggio (M.tr.)	5
		dense	dense	dicht	densa	Caliph (M.tr.)	7
20.	**MS A**	**Petiole: length**	**Pétiole: longueur**	**Blattstiel: Länge**	**Pecíolo: longitud**		
QN	**(c)**	short	court	kurz	corto	Borung (M.tr.), Circle Valley (M.p.), Herald (M.l.), Kelson (M.s.), Rivoli (M.to.)	3
		medium	moyen	mittel	medio	Paraggio (M.tr.)	5
		long	long	lang	largo	Tornafield (M.to.)	7
21.	**VS A**	**Petiole: thickness**	**Pétiole: épaisseur**	**Blattstiel: Dicke**	**Pecíolo: grosor**		
QN	**(c)**	thin	mince	dünn	delgado	Herald (M.l.), Pavlovskaya 7 (M.f.)	3
		medium	moyen	mittel	medio	Paraggio (M.tr.), Kelson (M.s.), Santiago (M.p.)	5
		thick	épais	dick	grueso	Cavalier (M.p.), Mogul (M.tr.)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
22.	**VS A**	**Stipule: size**	**Stipule: taille**	**Nebenblatt: Größe**	**Estípula: tamaño**		
QN	**(b)**	small	petite	klein	pequeña	Harbinger (M.l.), Serena (M.p.)	3
		medium	moyenne	mittel	media	Paraggio (M.tr.), Polyanna (M.p.)	5
		large	grande	groß	grande	Bokveld (M.p.), Kelson (M.s.)	7
23.	**VS A**	**Stipule: length of teeth**	**Stipule: longueur des dents**	**Nebenblatt: Länge der Zähne**	**Estípula: longitud de los dientes**		
QN	**(b)**	short	courtes	kurz	cortos	Kelson (M.s.)	3
		medium	moyennes	mittel	medio	Paraggio (M.tr.), Serena (M.p.)	5
		long	longues	lang	largos	Jester (M.tr.), Santiago (M.p.)	7
24.	**VS A**	**Inflorescence: predominant number of florets**	**Inflorescence: nombre prédominant de fleurons**	**Blütenstand: vorwiegende Anzahl Blüten**	**Inflorescencia: número predominante de flósculos**		
QN	**(d)**	two	deux	zwei	dos	Sephi (M.tr.)	1
		three	trois	drei	tres	Parabinga (M.tr.), Santiago (M.p.)	2
		four	quatre	vier	cuatro	Harbinger (M.l.), Scimitar (M.p.)	3
		five	cinq	fünf	cinco	Toreador (M.l.)	4
		six or more	six ou plus	sechs oder mehr	seis o más	Pavlovskaya 7 (M.f), Rivoli (M.to.)	5
25.	**VS A**	**Flower: intensity of yellow color of petal**	**Fleur: intensité de la couleur jaune du pétale**	**Blüte: Intensität der Gelbfärbung des Blütenblattes**	**Flor: intensidad del color amarillo del pétalo**		
QN	**(d)**	light	clair	hell	claro		3
		medium	moyen	mittel	medio	Mogul (M.tr.), Santiago (M.p.)	5
		dark	foncé	dunkel	oscuro	Rivoli (M.to.)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26. **(+)**	**VS A**	**Flower: marks on calyx**	**Fleur: marques sur le calice**	**Blüte: Zeichnungen am Kelch**	**Flor: marcas en el cáliz**		
QL	**(d)**	absent	absentes	fehlend	ausente	Borung (M.tr.), Kelson (M.s.), Santiago (M.p.)	1
		present	présentes	vorhanden	presente	Bokveld (M.p.), Rivoli (M.to.)	9
27. **(+)**	**VG B**	**Time of physiological ripening of pods**	**Époque de maturation physiologique des gousses**	**Zeitpunkt des physiologischen Reifens der Hülsen**	**Época de maduración fisiológica de las vainas**		
QN	**VS A**	early	précoce	früh	temprana	Caliph (M.tr.), Santiago (M.p.)	3
		medium	moyenne	mittel	media	Cavalier (M.p.), Paraggio (M.tr.), Toreador (M.l.)	5
		late	tardive	spät	tardía	Herald (M.l.), Jester (M.tr.)	7
28.	**MS A**	**Pod: length**	**Gousse: longueur**	**Hülse: Länge**	**Vaina: longitud**		
QN	**(e)**	short	courte	kurz	corta	Borung (M.tr.), Circle Valley (M.p.), Harbinger (M.l.), Tornafield (M.to.)	3
		medium	moyenne	mittel	media	Caliph (M.tr.), Scimitar (M.p.), Toreador (M.l.)	5
		long	longue	lang	larga	Cavalier (M.p.), Herald (M.l.), Jemalong (M.tr.), Rivoli (M.to.)	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
29. (*) (+)	**VS A**	**Pod: shape**	**Gousse: forme**	**Hülse: Form**	**Vaina: forma**		
PQ	**(e)**	disk-shaped	discoïdale	scheibenförmig	forma de disco	Toreador (M.l.), Tornafield (M.to.)	1
		globular	sphérique	kugelförmig	globulosa	Herald (M.l.), Kelson (M.s.), Rivoli (M.to.), Sephi (M.tr.)	2
		ovoid	ovoïde	eiförmig	ovoide	Cyprus (M.tr.), Harbinger (M.l.)	3
		cylindrical	cylindrique	zylindrisch	cilíndrica	Paraggio (M.tr.)	4
		sickle-shaped	en forme de faucille		falciforme	Pavlovskaya 7 (M.f.)	5
30.	**VS A**	**Pod: compactness of whorls**	**Gousse: densité des verticilles**	**Hülse: Dichte der Quirle**	**Vaina: compactibilidad de los verticilos**		
QN	**(e)**	loose	lâche	locker	ligera	Circle Valley (M.p.), Jester (M.tr.), Toreador (M.l.)	3
		medium	moyenne	mittel	media	Herald (M.l.), Santiago (M.p.), Tornafield (M.to.)	5
		compact	compacte	dicht	compacta	Harbinger (M.l.), Paraggio (M.tr.), Rivoli (M.to.), Scimitar (M.p.)	7
31. (+)	**VS A**	**Pod: direction of whorls**	**Gousse: orientation des verticilles**	**Hülse: Richtung der Quirle**	**Vaina: dirección de los verticilos**		
QL	**(e)**	anti-clockwise	dans le sens inverse des aiguilles d'une montre	Gegenuhrzeigersinn	en sentido contrario a las agujas del reloj	Cavalier (M.p.), Jemalong (M.tr.), Kelson (M.s.), Tornafield (M.to.)	1
		clockwise	dans le sens des aiguilles d'une montre	Uhrzeigersinn	en el sentido de las agujas del reloj	Cyprus (M.tr.), Herald (M.l.), Rivoli (M.to.)	2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
32. **(+)**	**VS A**	**Pod: number of whorls**	**Gousse: nombre de verticilles**	**Hülse: Anzahl Quirle**	**Vaina: número de verticilos**		
PQ	**(e)**	less than three	moins de trois	weniger als drei	menos de tres	Tornafield (M.to.)	1
		three to five	trois à cinq	drei bis fünf	de tres a cinco	Cavalier (M.p.), Harbinger (M.l.), Paraggio (M.tr.)	2
		more than five	plus de cinq	mehr als fünf	más de cinco	Jemalong (M.tr.), Kelson (M.s.), Rivoli (M.to.)	3
33. **(*)** **(+)**	**VS A**	**Pod: texture of whorl edges**	**Gousse: texture des bords du verticille**	**Hülse: Textur der Quirlränder**	**Vaina: textura de los bordes del verticilo**		
QL	**(e)**	smooth	lisses	glatt	lisa	Kelson (M.s.), Toreador (M.l.), Tornafield (M.to.)	1
		tubercled	tuberculés	knotig	tuberculada	Herald (M.l.)	2
		spined	épineux	stachelig	espinosa	Harbinger (M.l.), Paraggio (M.tr.)	3
34.	**VS A**	**Only varieties with spined texture of whorl edges: Pod: length of spines**	**Seulement les variétés à bords du verticille épineux: Gousse: longueur des épines**	**Nur Sorten mit stacheliger Textur der Quirlränder: Hülse: Länge der Stacheln**	**Sólo las variedades con bordes del verticilo de textura espinosa: Vaina: longitud de las espinas**		
QN	**(e)**	short	courtes	kurz	corta	Herald (M.l.), Paraggio (M.tr.)	3
		medium	moyennes	mittel	media	Jester (M.tr.)	5
		long	longues	lang	larga	Sephi (M.tr.)	7
35. **(+)**	**VS A**	**Only varieties with spined texture of whorl edges: Pod: attitude of spines**	**Seulement les variétés à bords du verticille épineux: Gousse: port des épines**	**Nur Sorten mit stacheliger Textur der Quirlränder: Hülse: Haltung der Stacheln**	**Sólo las variedades con bordes del verticilo de textura espinosa: Vaina: porte de las espinas**		
QN	**(e)**	erect	dressées	aufrecht	erecto		1
		oblique	obliques	schräg abstehend	oblicuo	Paraggio (M.tr.)	2
		adpressed	appliquées	anliegend	alineado	Herald (M.l.), Sephi (M.tr.)	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
36. **(+)**	**VS A**	**Only varieties with spined texture of whorl edges: Pod: presence of apical hook on spines**	**Seulement les variétés à bords du verticille épineux: Gousse: présence d'un crochet apical sur les épines**	**Nur Sorten mit stacheliger Textur der Quirlränder: Hülse: Vorhandensein des apikalen Hakens an den Stacheln**	**Sólo las variedades con bordes del verticilo de textura espinosa: Vaina: presencia de curvatura apical en las espinas**		
QL	**(e)**	absent	absent	fehlend	ausente	Herald (M.l.), Paraggio (M.tr.)	1
		present	présent	vorhanden	presente		9
37.	**MG**	**Seed: 1000 seed weight**	**Semence: poids pour 1000 semences**	**Samen: Tausendkornmasse**	**Semilla: peso de 1000 semillas**		
QN		low	faible	niedrig	pequeño	Bokveld (M.p.), Caliph (M.tr.)	3
		medium	moyen	mittel	medio	Polyanna (M.p.), Sephi (M.tr.)	5
		high	élevé	hoch	grande	Paraggio (M.tr.), Santiago (M.p.)	7

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 leaf marks should be made on the third leaf from the growth point at the time of beginning of flowering (10% of plants with at least one flower) of the earliest variety in the trial. Most of the marks tend to fade or disappear after flowering when temperatures rise.

(b) Observations to be made at the time of flowering on the middle third of the longest stem.

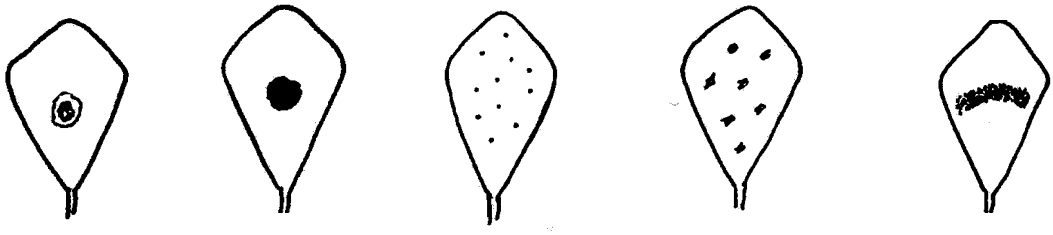
(c) Unless otherwise indicated, observations on the leaflet and petiole should be made on the central leaflet of fully developed leaves on the middle third of the longest stem at the time of flowering (when 50% of the plants have at least 3 open flowers).

(d) Observations on the flower should be made at the time of flowering.

(e) Observations on the pod which should be made on fully mature senesced plants.

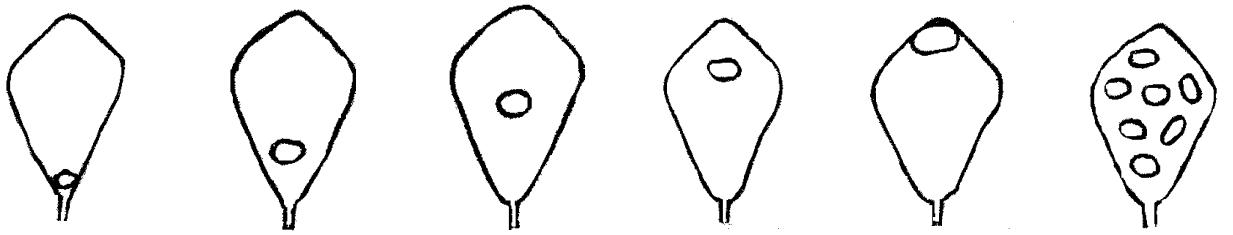
8.2 Explanations for individual characteristics

Ad. 2: Leaflet: type of marks on upper side



1	2	3	4	5
faded blotch	clear blotch	spot	fleck	crescent

Ad. 3. Leaflet: position of marks on upper side

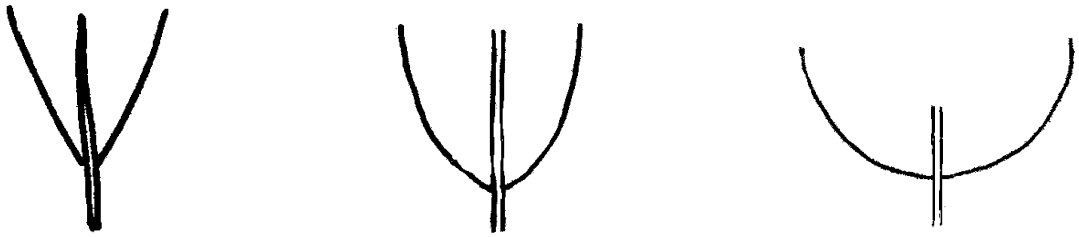


1 at base | 2 towards base | 3 central | 4 towards apex | 5 at apex | 6 over whole surface

Ad. 6: Time of flowering

Time of flowering is reached when 50% of the plants have at least 3 open flowers.

Ad. 13: Leaflet: shape of base

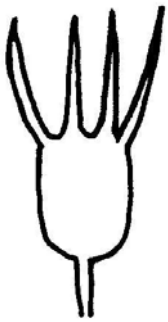


1 narrow acute | 2 broad acute | 3 obtuse

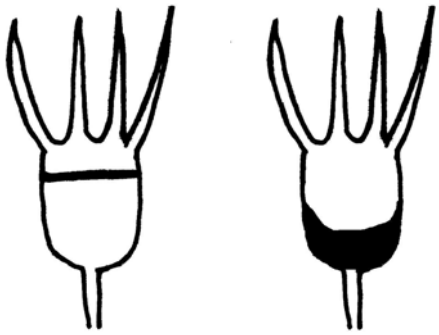
Ad. 14: Leaflet: shape of apex

1 acute | 2 obtuse | 3 rounded | 4 truncate | 5 obcordate

Ad. 26: Flower: marks on calyx



1
absent



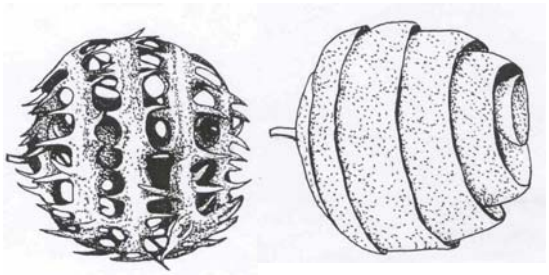
9
present

Ad. 27: Time of physiological ripening of pods

Time of physiological ripening is when pods have reached full maturity and 50% of the plant has started to dry.

Ad. 29: Pod: shape

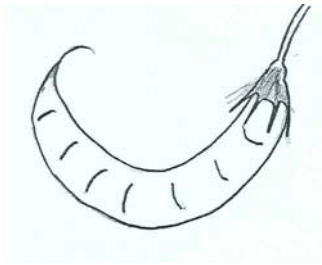
1
disk-shaped



2
globular

3
ovoid

4
cylindrical



5
sickle-shaped

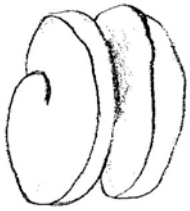
Ad. 31: Pod: direction of whorls

Pods should be viewed from the proximal end.

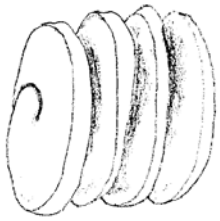
1
anti-clockwise

2
clockwise

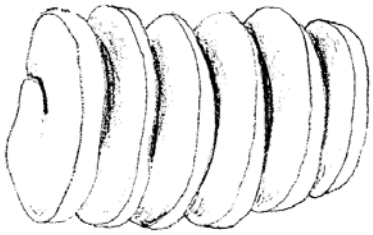
Ad. 32: Pod: number of whorls



1
less than three

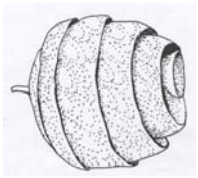


2
three to five



3
more than five

Ad. 33: Pod: texture of whorl edges

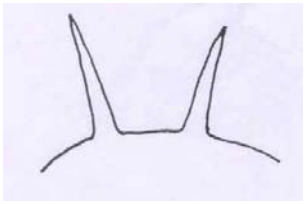


1
smooth

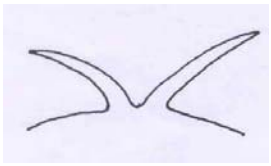
2
tubercled

3
spined

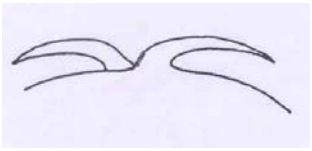
Ad. 35: Only varieties with spined texture of whorl edges: Pod: attitude of spines



1
erect

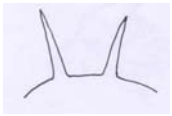


2
oblique

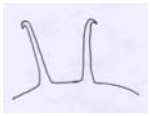


3
adpressed

Ad. 36: Only varieties with spined texture of whorl edges: Pod: presence of apical hook on spines



1
absent



9
present

9. Literature

IBPGR. Rome. 1991. Descriptors for annual *Medicago.*

Lesins, K.A. & Lesins, I. 1979. Genus Medicago (Leguminosae) A Taxogenetic study.

Small, E.; Jomphe, M. 1989. A synopsis of the Genus *Medicago* (Leguminosae). Canadian Journal of Botany 67: 3260-3294

Stirton, C.H. 1982. The genus *Medicago* (Leguminosae) in southern Africa. Bothalia 14(1): 27-35.

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	*Medicago* L. (excluding *Medicago sativa* L. & *Medicago* ×*varia* Martyn)
1.2	Common Name	Medics
1.3	Species (please complete)	

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

4.1.3 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)	**Leaflet: presence of marks**		
	absent on both sides	Serena (M.p.), Toreador (M.l.), Tornafield (M.to.)	1[ ]
	present on upper side only	Jester (M.tr.), Kelson (M.s.), Santiago (M.p.)	2[ ]
	present on lower side only	Cyprus (M.tr.)	3[ ]
	present on both sides	Bokveld (M.p.), Herald (M.l.), Mogul (M.tr.), Rivoli (M.to.)	4[ ]
5.2 (2)	**Leaflet: type of marks on upper side**		
	faded blotch	Parabinga (M.tr.)	1[ ]
	clear blotch	Herald (M.to.), Jester (M.tr.), Polyanna (M.p.)	2[ ]
	spot		3[ ]
	fleck	Bokveld (M.p.) Borung (M.tr.)	4[ ]
	crescent	Santiago (M.p.)	5[ ]

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

	Characteristics	Example Varieties	Note
5.3 (6)	**Time of flowering**		
	very early	Caliph (M.tr.), Serena (M.p.)	1[ ]
	early	Borung (M.tr.), Santiago (M.p.), Toreador (M.l.)	3[ ]
	medium	Cavalier (M.p.), Rivoli (M.to.)	5[ ]
	late	Circle Valley (M.p.), Jemalong (M.tr.)	7[ ]
	very late		9[ ]
5.4 (16)	**Leaflet: pubescence on <u>upper</u> side**		
	absent	Circle Valley (M.p.), Pavlovskaya 7 (M.f.), Rivoli (M.to.)	1[ ]
	present	Harbinger (M.l.), Kelson (M.s.), Mogul (M.tr.)	9[ ]
5.5 (18)	**Leaflet: pubescence on <u>lower</u> side**		
	absent	Circle Valley (M.p.), Pavlovskaya 7 (M.f.)	1[ ]
	present	Harbinger (M.l.), Kelson (M.s.), Mogul (M.tr.), Rivoli (M.to.)	9[ ]

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

	Characteristics	Example Varieties	Note
5.6 (29)	**Pod: shape**		
	disk-shaped	Toreador (M.l.), Tornafield (M.to.)	1[ ]
	globular	Herald (M.l.), Kelson (M.s.), Rivoli (M.to.), Sephi (M.tr.)	2[ ]
	ovoid	Cyprus (M.tr.), Harbinger (M.l.)	3[ ]
	cylindrical	Paraggio (M.tr.)	4[ ]
	sickle-shaped	Pavlovskaya 7 (M.f.)	5[ ]
5.7 (33)	**Pod: texture of whorl edges**		
	smooth	Kelson (M.s.), Toreador (M.l.), Tornafield (M.to.)	1[ ]
	tubercled	Herald (M.l.)	2[ ]
	spined	Harbinger (M.l.), Paraggio (M.tr.)	3[ ]

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	*Pod: shape*	*globular*	*ovoid*

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]