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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

MEDICS *

UPOV Code: MEDIC_
(excluding: MEDIC_SAT)*(Medicago L. (excluding M. sativa L. &
Medicago x varia Martyn))*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from South Africa**to be considered by the**Technical Working Party for Agricultural Crops at its thirty-fourth session
to be held in Christchurch, New Zealand, from October 31 to November 4, 2005*

Alternative Names: *

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Medicago L. (excluding M. sativa L. & Medicago x varia Martyn)</i>	Medic

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 x 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 x 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:

1,0 kg

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 7)
- (d) Leaflet: pubescence (characteristic 18)
- (e) Pod: shape (characteristic 34)
- (f) Pod: texture of whorl edges (characteristic 38)

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) – (f) 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					
QL	(a)	absent on both sides			Serena (M.p.); Toreador (M.l.) Tornafeld (M.to.)	1
		present on upper side only			Santiago (M.p.) Jester (M.tr.) Kelson (M.s.)	2
		present on lower side only			Cyprus (M.tr.)	3
		present on both sides			Bokveld (M.p.) Mogul (M.tr.) Herald (M.l.) Rivoli (M.to.)	4
2.	VS					
(*)	A					
(+)						
PQ	(a)	faded blotch			Parabinga (M.tr.)	1
		clear blotch			Polyanna (M.p.) Jester (M.tr.) Herald (M.to.)	2
		spot				3
		fleck			Bokveld (M.p.) Borung (M.tr.)	4
		crescent			Santiago (M.p.)	5
		flush				6
					ZA: to delete state 6	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
3.	VS	Leaflet: position of marks on upper side					
(*)	A						
(+)							
PQ	(a)	at base			Polyanna (M.p.)	1	
		towards base			Santiago (M.p.)	2	
		central			Sephi (M.tr.) Herald (M.l.)	3	
		towards apex			Parabinga (M.tr.)	4	
		at apex				5	
		random			Bokveld (M.p.) Borong (M.tr.)	6	
		over whole surface	ZA: to delete state 7 as it is too similar to state 6			7	
4.	VS	Leaflet: color of marks on upper side					
	A						
PQ	(a)	white	ZA: to delete the characteristic as only purple marks have been observed			1	
		red				4	
		red				4	
		pink				5	
		purple				6	
		brown				7	
		black				8	
5.	VS	<u>Only varieties with spot or fleck type of marks on upper side (Char. 2): Leaflet: number of marks on upper side</u>					
	A						
QN	(a)	few			Bokveld (M.p.) Paraggio (M.tr.)	3	
		medium			Borong (M.tr.)	5	
		many				7	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
6.	VS	<u>Only varieties with marks on lower side</u>					
	A	(Char. 1): Leaflet: number of marks on lower side					
QN	(a)	few			Sephi (M.tr.) Rivoli (M.to.)	3	
		medium			Parabinga (M.tr.)	5	
		many			Bokveld (M.p.) Borong (M.tr.)	7	
7.	MG	Time of flowering					
	(*)	B					
	(+)	MS					
		A					
QN		very early			Serena (M.p.) Caliph (M.tr.)	1	
		early			Santiago (M.p.) Borong (M.tr.) Toreador (M.I.)	3	
		medium			Cavalier (M.p.) Rivoli (M.to.)	5	
		late			Circle Valley (M.p.) Jemalong (M.tr.)	7	
		very late				9	
8.	MS	Plant: length of longest stem					
	A						
QN	(b)	short			Scimitar (M.p.) Jester (M.tr.) Harbinger (M.I.)	3	
		medium			Circle Valley (M.p.) Borong (M.tr.)	5	
		long			Cavalier (M.p.) Paraggio (M.tr.) Tornafield (M.to.)	7	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
9.	MS	Plant: length of internode				
	A					
QN	(b)	short			Santiago (M.p.) Sephi (M.tr.) Harbinger (M.l.)	3
		medium			Parabinga (M.tr.) Rivoli (M.to.)	5
		long			Paraggio (M.tr.) Tornafield (M.to.)	7
10.	VS	Runner: pubescence				
	A					
QN	(b)	absent or very sparse			Santiago (M.p.) Paraggio (M.tr.)	1
		sparse			Jester (M.tr.)	3
		medium			Parabinga (M.tr.)	5
		dense			Sephi (M.tr.)	7
11.	MS	Leaflet: length				
	A					
QN	(c)	very short			Sephi (M.tr.) Herald (M.l.)	1
		short			Santiago (M.p.) Jemalong (M.tr.) Toreador (M.l.)	3
		medium			Cavalier (M.p.) Cyprus (M.tr.) Kelson (M.s.)	5
		long			Paraggio (M.tr.)	7
		very long			Jester (M.tr.) Tornafield (M.to.)	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
12.	MS	Leaflet: width					
	A						
QN	(c)	very narrow			Sephi (M.tr.) Toreador (M.l.)	1	
		narrow			Santiago (M.p.) Jemalong (M.tr.) Rivoli (M.to.)	3	
		medium			Cavalier (M.p.) Cyprus (M.tr.) Kelson (M.s.)	5	
		broad			Jester (M.tr.)	7	
		very broad			Mogul (M.tr.) Tornafeld (M.to.)	9	
13.	VS	Leaflet: length in relation to width					
	A						
QN	(c)	shorter	ZA: to delete characteristic 13 as only one variety is "equal (2)" and the rest are all "longer (3)"			1	
		equal				2	
		longer				3	
14.	VS	Leaflet: position of maximum width					
	A						
QN	(c)	towards base	ZA: to delete characteristic 14 as seems to be related to the shape of apex (Characteristic 16). If remaining, then the deletion of state 1 is proposed			1	
		in middle				Parabinga (M.tr.) Rivoli (M.to.)	2
		towards apex				Scimitar (M.p.) Jemalong (M.tr.)	3
15.	VS	Leaflet: shape of base					
	A						
(+)							
PQ	(c)	narrow acute			Paraggio (M.tr.) Harbinger (M.l.)	1	
		broad acute			Cavalier (M.p.) Mogul (M.tr.)	2	
		obtuse			Pavlovskaya 7 (M.f.)	3	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	VS	Leaflet: shape of				
(+)	A	apex				
PQ	(c)	narrow acute			Tornafield (M.to.)	1
		broad acute			Herald (M.l.)	2
		obtuse			Polyanna (M.p.) Borong (M.tr.) Pavlovskaya 7 (M.f.)	3
		truncate				4
		obcordate			Scimitar (M.p.)	5
17.	VS	Leaflet: serration of				
	A	margin				
QN	(c)	absent or very fine			Scimitar (M.p.) Pavlovskaya 7 (M.f.)	1
		fine			Cavalier (M.p.)	3
		medium			Sephi (M.tr.)	5
		coarse			Parabinga (M.tr.) Herald (M.l.) Rivoli (M.to.) Kelson (M.s.)	7
18.	VS	Leaflet: pubescence				
(*)	A					
QL	(c)	absent on both sides			Circle Valley (M.p.) Pavlovskaya 7 (M.f.)	1
		present on upper side only				2
		present on lower side only			Rivoli (M.to.)	3
		present on both sides			Mogul (M.tr.) Harbinger (M.l.) Kelson (M.s.)	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
19.	VS	Leaflet hair on					
	A	<u>upper</u> side: density					
QN	(c)	sparse			Kelson (M.s.)	3	
		medium			Paraggio (M.tr.)	5	
		dense			Caliph (M.tr.)	7	
20.	VS	Leaflet hair on					
	A	<u>upper</u> side: attitude					
QL	(c)	prostrate	ZA: to delete characteristic 20 as it is not consistent				1
		prostrate and erect				2	
		erect				3	
21.	VS	Leaflet hair on					
	A	<u>lower</u> side: density					
QN	(c)	sparse			Rivoli (M.to.) Kelson (M.s.)	3	
		medium			Paraggio (M.tr.)	5	
		dense			Caliph (M.tr.)	7	
22.	VS	Leaflet hair on					
	A	<u>lower</u> side: attitude					
QL	(c)	prostrate	ZA: to delete characteristic 22 as it is not consistent				1
		prostrate and erect				2	
		erect				3	
23.	MS	Petiole: length					
	A						
QN	(c)	short			Circle Valley (M.p.) Borong (M.tr.) Herald (M.l.) Rivoli (M.to.) Kelson (M.s.)	3	
		medium			Paraggio (M.tr.)	5	
		long			Tornafeld (M.to.)	7	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24.	VS					
	A					
QN	(c)	thin			Herald (M.l.) Pavlovskaya 7 (M.f.)	3
		medium			Santiago (M.p.) Paraggio (M.tr.) Kelson (M.s.)	5
		thick			Cavalier (M.p.) Mogul (M.tr.)	7
25.	VS					
	A					
QN	(b)	small			Serena (M.p.) Harbinger (M.l.)	3
		medium			Polyanna (M.p.) Paraggio (M.tr.)	5
		large			Bokveld (M.p.) Kelson (M.s.)	7
26.	VS					
	A					
QN	(b)	short			Kelson (M.s.)	3
		medium			Serena (M.p.) Paraggio (M.tr.)	5
		long			Santiago (M.p.) Jester (M.tr.)	7
27.	VS					
	A					
		Inflorescence: predominant number of florets				
PQ	(d)	less than two				1
		two to four			Parabinga (M.tr.) Santiago (M.p.)	2
		four to six			Herald (M.l.)	3
		more than six			Rivoli (M.to.)	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
28.	VS	Flower: main color					
(+)	A	of petal					
PQ	(d)	white	ZA: for characteristic 28, only yellow petals have been observed			1	
		yellow				2	
		violet				3	
29.	VS	Flower: intensity of					
(+)	A	main color of petal					
QN	(d)	light				3	
		medium			Santiago (M.p.) Mogul (M.tr.)	5	
		dark			Rivoli (M.to.)	7	
30.	VS	Flower: band on					
(+)	A	calyx tube					
QL	(d)	absent			Santiago (M.p.) Borong (M.tr.) Kelson (M.s.)	1	
		present			Bokveld (M.p.) Rivoli (M.to.)	9	
31.	VS	Flower: color of					
	A	band on calyx tube					
QL	(d)	green			Bokveld (M.p.)	1	
		blackish			Polyanna (M.p.) Rivoli (M.to.)	2	
32.	VG	Time of					
(+)	B	physiological					
	VS	ripening of pods					
	A						
QN		early				3	
		medium				5	
		late				7	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
33.	MS					
	A					
	Pod: length)				
QN	(e)	short				3
		medium				5
		long				7
34.	VS	Pod: shape				
(*)	A					
(+)						
PQ	(e)	disk-shaped				1
		globular				2
		ovoid				3
		cylindrical				4
		sickle-shaped				5
ZA: waiting for the example variety from Russian Federation to flower and to produce pods to illustrate state Sickle-shaped (5)						
35.	VS	Pod: compactness of whorls				
	A					
QN	(e)	loose				3
		medium				5
		compact				7
36.	VS	Pod: direction of whorls				
(+)	A					
QL	(e)	anti-clockwise				1
		clockwise				2
37.	VS	Pod: number of whorls				
(+)	A					
PQ	(e)	less than three				1
		three to five				2
		more than five				3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
38.	VS	Pod: texture of				
(*)	A	whorl edges				
(+)						
QL	(e)	smooth				1
		tubercled				2
		spined				3
39.	VS	Pod: length of spines				
	A					
QN	(e)	short				3
		medium				5
		long				7
40.	VS	Pod: attitude of				
	A	spines				
(+)						
PQ	(e)	erect				1
QN		oblique				2
		adpressed				3
41.	VS	Pod: presence of				
	A	apical hook on				
(+)		spines				
QL	(e)	absent				1
		present				9
42.	MG	Seed: 1000 seed				
		weight				
QN		low				3
		medium				5
		high				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 3rd 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.

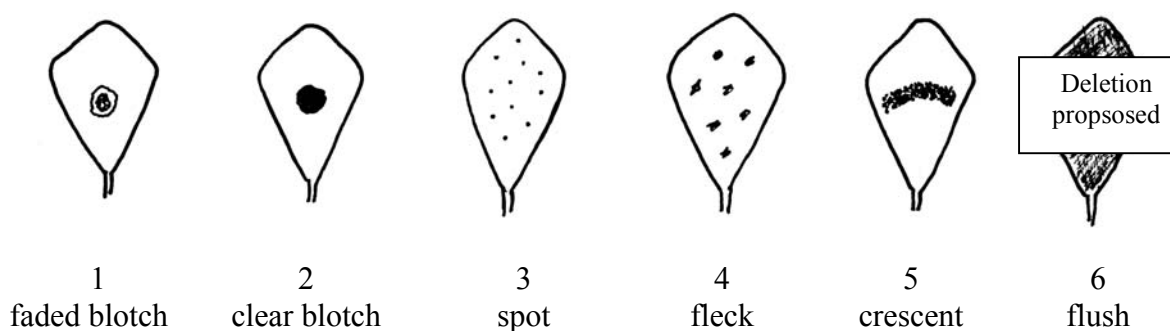
(c) Unless otherwise indicated, observations on the leaflet and petiole should be made on the central leaflet of fully developed leaves on the middle third of the longest stem at the time of flowering (when 50% of the plants have at least 3 open flowers).

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

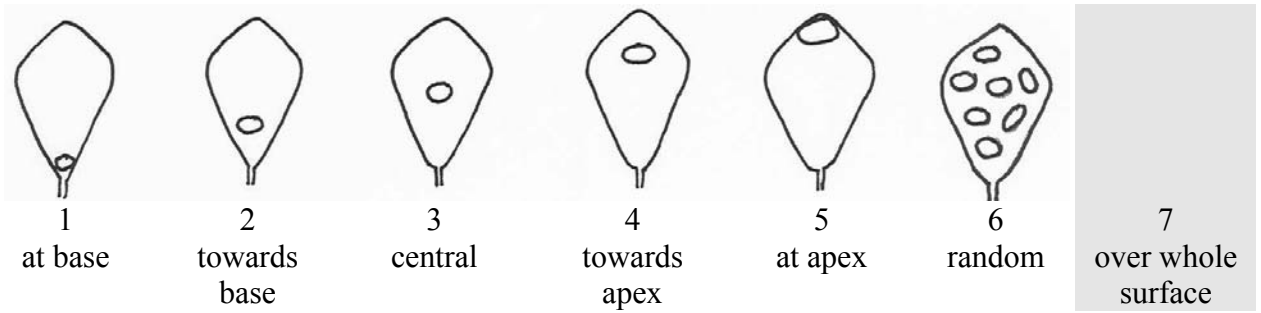
(e) Observations on the pod which should be made on fully mature senesced plants.

8.2 *Explanations for individual characteristics*

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



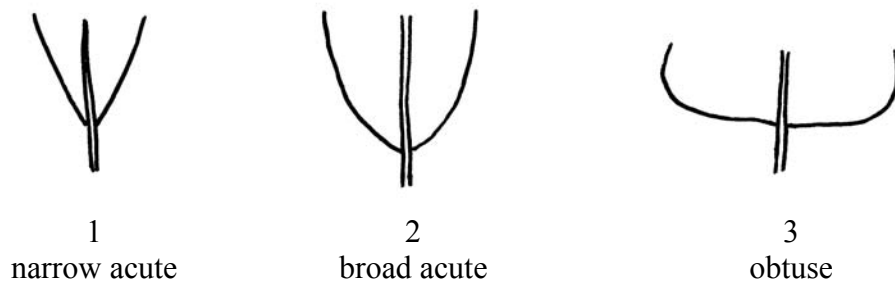
Ad. 3: Leaflet: position of marks on upper side



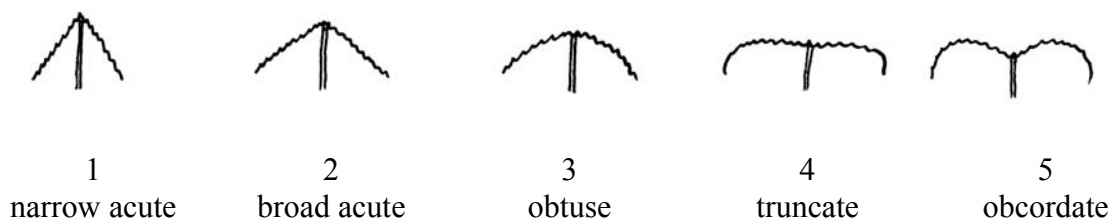
Ad. 7: Time of flowering

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

Ad. 15: Leaflet: shape of base



Ad. 16: Leaflet: shape of apex

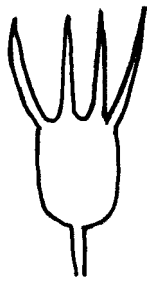


Ad. 28: Flower: main color

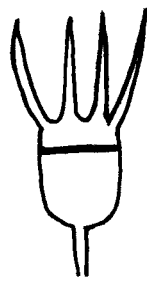
Ad. 29: Flower: intensity of main color of petal

The color of the largest area of the flower is to be considered as the main color.

Ad. 30: Flower: band on calyx tube



1
absent



9
present

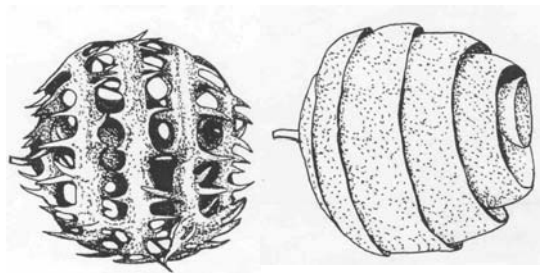
Ad. 32: Time of physiological ripening of pods

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

Ad. 34: Pod: shape



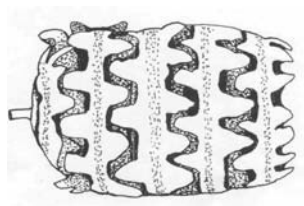
1
disk-shaped



2
globular



3
ovoid



4
cylindrical

EXAMPLE
VARIETIES TO BE
OBSERVED

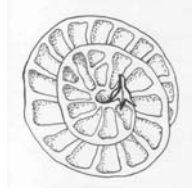
5
sickle-shaped

Ad. 36: Pod: direction of whorls

Pods should be viewed from the proximal end

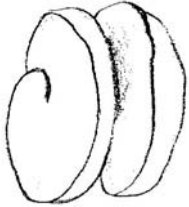


1
anti-clockwise

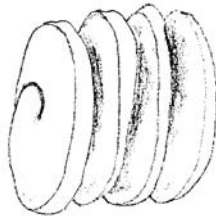


2
clockwise

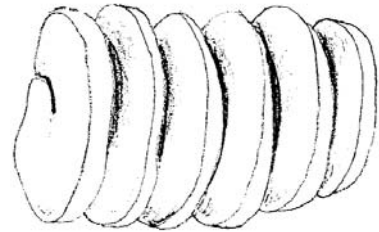
Ad 37: Pod: number of whorls



1
less than three

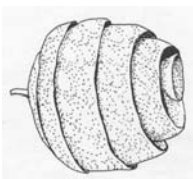


2
three to five



3
five or more

Ad. 38: Pod: texture of whorl edges



1
smooth

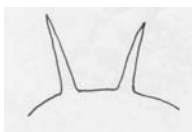


2
tubercled

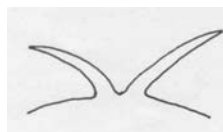


3
spined

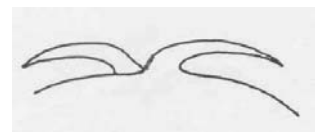
Ad. 40: Pod: attitude of spines



1
erect



2
oblique

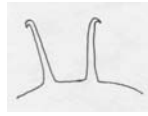


3
adpressed

Ad. 41: 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		
1.1.1 Botanical name	<input type="text" value="Medicago L. (excluding M. sativa L. & Medicago x varia Martyn)"/>	
1.1.2 Common Name	<input type="text" value="MEDIC"/>	
1.2 Species (please complete)	<input type="text"/>	
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)	[]
(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:
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5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

Characteristics	Example Varieties	Note
1. Leaflet: presence of marks (1)		
absent on both sides	Serena (M.p.); Toreador (M.l.) Tornafeld (M.to.)	1
present on upper side only	Santiago (M.p.) Jester (M.tr.) Kelson (M.s.)	2
present on lower side only	Cyprus (M.tr.)	3
present on both sides	Bokveld (M.p.) Mogul (M.tr.) Herald (M.l.) Rivoli (M.to.)	4
5.2 Leaflet: type of marks on upper side (2)		
faded blotch	Parabinga (M.tr.)	1
clear blotch	Polyanna (M.p.) Jester (M.tr.) Herald (M.to.)	2
spot		3
fleck	Bokveld (M.p.) Borong (M.tr.)	4
crescent	Santiago (M.p.)	5
flush		6

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
5.3 Time of flowering (7)			
very early	Serena (M.p.) Caliph (M.tr.)	1	
early	Santiago (M.p.) Borong (M.tr.) 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 Leaflet: pubescence (18)			
absent on both sides	Circle Valley (M.p.) Pavlovskaya 7 (M.f.)	1	
present on upper side only		2	
present on lower side only	Rivoli (M.to.)	3	
present on both sides	Mogul (M.tr.) Harbinger (M.l.) Kelson (M.s.)	4	
5.5 Pod: shape (34)			
disk-shaped		1	
globular		2	
ovoid		3	
cylindrical		4	
sickle-shaped		5	
5.6 Pod: texture of whorl edges (38)			
smooth		1	
tubercled		2	
spined		3	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>		<i>(example to be inserted) (example to be inserted)</i>	
<p>Comments:</p>			

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.

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”.

.....

“9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes []

(please provide details as specified by the Authority)

No []”

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]