

UPOV

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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

MEDICS

(Medicago L. (excluding M. sativa L.))

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*to be considered by the
Technical Working Party for Agricultural Crops at its thirty-second session
to be held in Tsukuba, Japan, from September 8 to 12, 2003*

Alternative Names:*

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Medicago L. (excluding M. sativa L.)</i>	Medics			

ASSOCIATED DOCUMENTS

These guidelines should be read in conjunction with document TG/1/3, “General Introduction to the Examination of Distinctness, Uniformity and Stability and the Development of Harmonized Descriptions of New Varieties of Plants” (hereinafter referred to as 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.

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Medicago* L., excluding *Medicago sativa* L.

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:

1,5 kg

2.4 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.

2.5 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

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 *Duration of Tests*

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

3.2 *Testing Place*

The tests should normally be conducted at one place. If any characteristics of the variety, which are relevant for the examination of DUS, cannot be observed at that place, the variety may be tested at an additional place.

3.3 *Conditions for Conducting the Examination*

The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.1 Type of observation – visual or measurement.

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

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

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 10 meters of row plot, which should be divided between 3 replicates. The density of the seed should be such that about 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 determined by measuring 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 minimum duration of tests recommended in section 3.1 reflects, in general, the need to ensure that any differences in a characteristic are sufficiently consistent.

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 for cross-pollinated varieties 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 is 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) Leaflet: pubescence (characteristic 18)
- (d) Burr: texture of coil edges (characteristic 31)

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*

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

6.5 *Legend*

(*) Asterisked characteristic – see Section 6.1.2

(QL) Qualitative characteristic – see Section 6.3

(QN) Quantitative characteristic – see Section 6.3

(PQ) Pseudo-qualitative characteristic – see Section 6.3

(a) – (f) See Explanations on the Table of Characteristics in Chapter 8, Section 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8, Section 8.2

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

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	VG	Leaflet: presence of marks					
(*)							
	(a)						
QL		absent on both sides					1
		present on upper side only					2
		present on lower side only					3
		present on both sides					4
2.	VG	Leaflet: type of marks on <u>upper side</u>					
(*)							
(+)	(a)						
QL		faded blotch					1
		clear blotch					2
		spot					3
		fleck					4
		crescent					5
		flush					6
3.	VG	Leaflet: position of marks on <u>upper side</u>					
(*)							
(+)	(a)						
PQ		at base					1
		towards base					2
		central					3
		towards apex					4
		at apex					5
		at random					6
		whole surface					7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
4.	VG (a)	Leaflet: color of marks on <u>upper side</u>						
PQ		white					1	
		pale green					2	
		red					3	
		purple					4	
		brown					5	
		black					6	
5.	VG (a)	<u>Varieties with spots or flecks only</u>: Leaflet: number of spots or flecks on <u>upper side</u>						
QN		very few					1	
		few					3	
		medium					5	
		many					7	
6.	VG (a)	<u>Varieties with marks present on the lower side or on both sides only</u>. Leaflet: number of marks on <u>lower side</u>						
QN		very few					1	
		few					3	
		medium					5	
		many					7	

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
7.	VG	Time of flowering					
(*)							
(+)							
QN		early					3
		medium					5
		late					7
		very late					9
8.	VG	Plant: vigor					
(b)							
QN		weak					3
		medium					5
		strong					7
9.	VG	Plant: growth habit					
(b)							
PQ		semi-spreading					3
		spreading					5
		prostrate					7
		decumbent					9
10.	VG	Plant: pubescence on runner					
(b)							
QN		sparse					3
		medium					5
		dense					7
11.	MS	Leaflet: length					
(c)							
QN		very short					1
		short					3
		medium					5
		long					7
		very long					9

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
12.	MS	Leaflet: width						
	(c)							
QN		very narrow					1	
		narrow					3	
		medium					5	
		broad					7	
		very broad					9	
13.		Leaflet: ratio length/width						
	(+)							
QN		small					3	
		medium					5	
		large					7	
14.	VG	Leaflet: position of maximum width						
	(c)							
QL		below middle					1	
		in middle					2	
		above middle					3	
15.	VG	Leaflet: shape of base						
	(c)							
PQ		acute					1	
		obtuse					2	
		truncate					3	

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
16.	VG	Leaflet: shape of apex					
(+)	(c)						
PQ		acute					1
		right angle					2
		obtuse					3
		truncate					4
		obcordate					5
17.	VG	Leaflet: serration of margin					
	(c)						
QN		absent or very fine					1
		fine					3
		medium					5
		coarse					7
18.	VG	Leaflet: pubescence					
(*)	(c)						
QL		absent on both sides					1
		present on upper side only					2
		present on lower side only					3
		present on both sides					4
19.	MS	Petiole: length					
	(c)						
QN		short					3
		medium					5
		long					7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
20.	VG (c)	Petiole: thickness					
QN		thin					3
		medium					5
		thick					7
21.	VG (d)	Stipule: size					
QN		very small					1
		small					3
		medium					5
		large					7
		very large					9
22.	VG (d)	Stipule: length of teeth					
QN		short					3
		medium					5
		long					7
23.	VG (e) (+)	Flower: mark on calyx tube					
QL		absent					1
		present					9
24.	VG (e)	Flower: color of mark on calyx tube					
QL		green					1
		blackish					2

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
25.	VG	Time of physiological ripening of burrs					
(+)							
QN		early					3
		medium					5
		late					7
26.	MS (f)	Burr: length					
QN		short					3
		medium					5
		long					7
27.	VG (*) (f) (+)	Burr: shape					
PQ		disk-shaped					1
		globular					2
		ovoid					3
		cylindrical					4
28.	VG (f)	Burr: compactness of coils					
QN		loose					3
		medium					5
		compact					7
29.	VG (f) (+)	Burr: direction of coiling					
QL		anti-clockwise					1
		clockwise					2

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
30.	VG (f)	Burr: number of spirals						
QN		less than three					1	
		three to five					2	
		more than five					3	
31.	VG (*) (f) (+)	Burr: texture of coil edges						
QL (f)		spineless					1	
		tubercled					2	
		spined					3	
32.	VG (f)	Burr: length of spines						
QN		short					3	
		medium					5	
		long					7	
33.	VG (f) (+)	Burr: attitude of spines						
PQ		erect					1	
		oblique					2	
		adpressed					3	
34.	VG (f) (+)	Burr: presence of apical hook on spines						
QL		absent					1	
		present					9	

8. Explanations on the Table of Characteristics

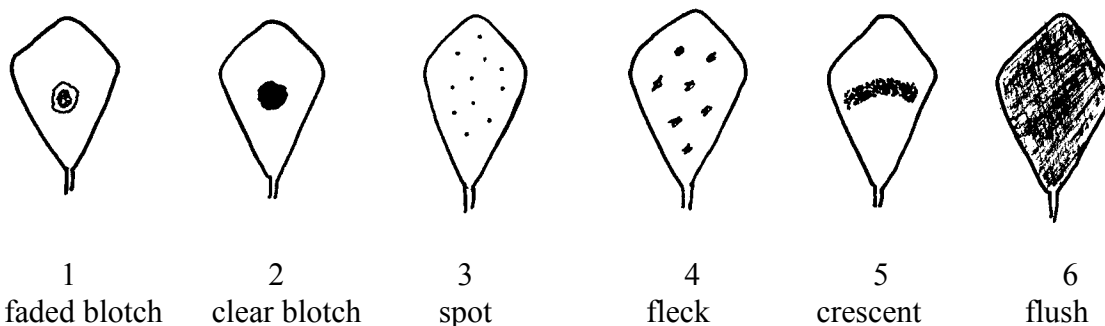
8.1 *Explanations covering several characteristics*

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

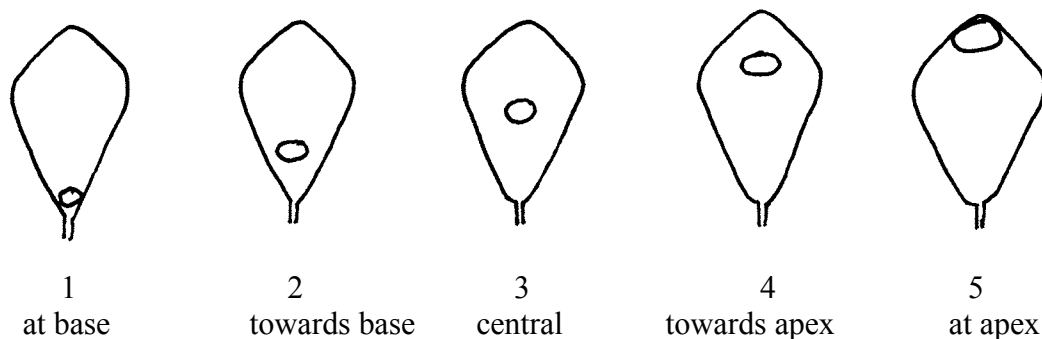
- (a) Observations on leaf marks should be made on the 3rd leaf from the growth point at the time of beginning of flowering (10% of plants with at least one flower). Most of the marks tend to fade or disappear after flowering when temperatures rise.
- (b) Observations on the plant should be made at the time of flowering.
- (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 a representative runner at time of flowering.
- (d) Observations on the stipule should be made on stipules on the middle third of a representative runner at time of flowering.
- (e) Observations on the flower should be made at the time of flowering.
- (f) Observations on the burr should be made on fully mature senesced plants.

8.2 *Explanations for individual characteristics*

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



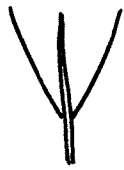
Ad. 3: Leaflet: position of marks on upper side



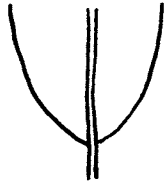
Ad. 7: Time of flowering

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

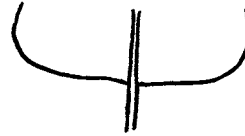
Ad. 15: Leaflet: shape of base



1
acute



2
obtuse



3
truncate

Ad. 16: Leaflet: shape of apex



1
acute



2
right angle



3
obtuse

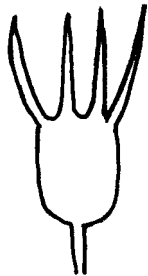


4
truncate



5
obcordate

Ad. 23: Flower: mark on calyx tube



1
absent

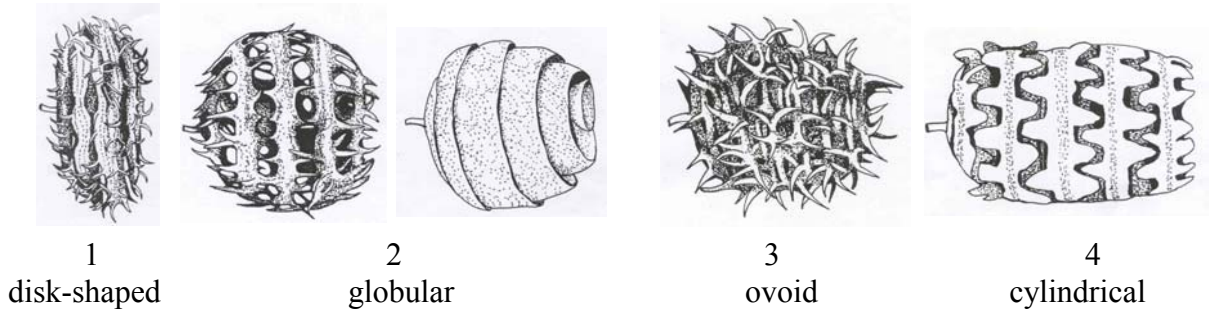


9
present

Ad. 25: Time of physiological ripening of burrs

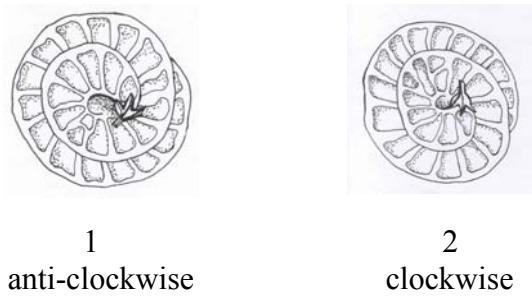
Time of physiological ripening is when burrs have reached full maturity and 50% of the plant has started to dry.

Ad. 27: Burr: shape

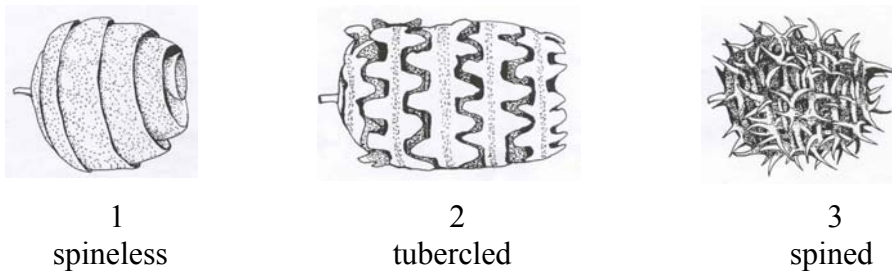


Ad. 29: Burr: direction of coiling

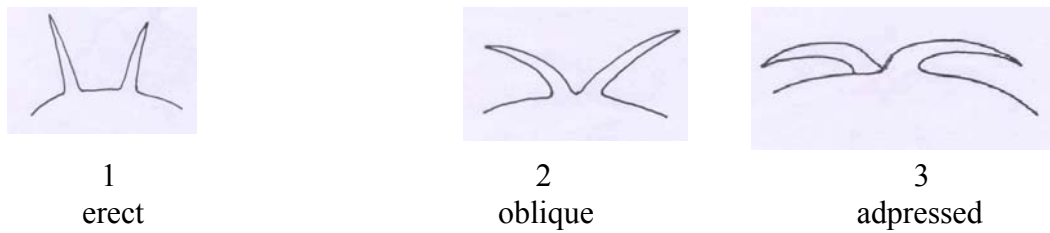
Burrs should be observed in the basal view



Ad. 31: Burr: texture of coil edges



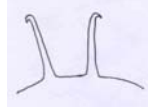
Ad. 33: Burr: attitude of spines



Ad. 34: Burr: 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:
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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

1. Subject of the Technical Questionnaire

1.1 *Latin Name*

1.2 *Common Name*

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:
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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) totally unknown cross []

4.1.2 Discovery []
 (please state where, when and how developed)

4.1.3 Other []
 (please provide details)]

4.2 Method of propagating the variety

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		1
	present on upper side only		2
	present on lower side only		3
	present on both sides		4

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.2	Leaflet: type of marks on <u>upper side</u>		
(2)			
	faded blotch		1
	clear blotch		2
	spot		3
	fleck		4
	crescent		5
	flush		6
5.3	Time of flowering		
(7)			
	very early		1
	early		3
	medium		5
	late		7
	very late		9
5.4	Leaflet: pubescence		
(18)			
	absent on both sides		1
	present on upper side only		2
	present on lower side only		3
	present on both sides		4
5.5	Burr: shape		
(27)			
	disk-shaped		1
	globular		2
	ovoid		3
	cylindrical		4

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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	Characteristics	Example Varieties	Note
5.6	Burr: texture of coil edges		
(31)			
	spineless		1
	tubercled		2
	spined		3

6. Similar varieties and differences from these varieties

Please use the table, and space provided for comments, below 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>	

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Comments:

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 Special conditions for the examination of the variety

7.2.1 Are there any special conditions for growing the variety or conducting the examination?

Yes [] No []

7.2.2 If yes, please give 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.

9. Information on plant material to be examined.

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 or pesticide) | Yes [] | No [] |
| (c) Tissue culture | Yes [] | No [] |
| (d) Other factors | Yes [] | No [] |

Please provide details of 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]