E

TG/5/8(proj.5)
ORIGINAL: English
DATE: 2019-11-28

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

RED CLOVER*

UPOV Code(s):

TRFOL_PRA

Trifolium pratense L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from South Africa
to be considered by the
Enlarged Editorial Committee
at its meeting, to be held in Geneva
on March 24, 2020

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Trifolium pratense L.	Red Clover	Trèfle violet	Rotklee	Trébol rojo, Trébol violeta

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

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

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Trifolium pratense* 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 seeds.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

500 g of seed

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

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

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

3.1.3 The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test.

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

A: spaced plants
B: row plots
C: special tests

3.4 Test Design

3.4.1 Spaced plants: Each test should be designed to result in at least 60 plants, which should be divided between at least 3 replicates.

3.4.2 Row plots: Each test should be designed to result in at least 3000 plants, which should be divided between at least 2 replicates.

3.4.3 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 60 plants or parts of plants taken from each of 60 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 1.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

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

Type of observation: visual (V) or measurement (M)

"Visual" observation (V) is an observation made on the basis of the expert's judgment. For the purposes of this document, "visual" observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, "G" provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 These Test Guidelines have been developed for the examination of cross-pollinated varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed

4.2.3 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 further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: ploidy (characteristic 1)
(b) Time of flowering (characteristic 15)
(c) Stem: length (characteristic 16)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	*Note*
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	*Note*
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

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

6.5 Legend

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1 2	**3 4**	**5 6**	**7**			
	Name of characteristics in English	**Nom du caractère en français**	**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
	states of expression	types d’expression	Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

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

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

7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8.3

Type of plot

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

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**(*)**	**QL MG|C**	**(+)**				
		Plant: ploidy	**Plante : ploïdie**	**Pflanze: Ploidie**	**Planta: ploidía**		
		diploid	diploïde	diploid	diploide	Start	2
		tetraploid	tétraploïde	tetraploid	tetraploide	Titus	4
2.		**QN MS|C**	**(+)**	**11**			
		Cotyledon: length	**Cotylédon : longueur**	**Keimblatt: Länge**	**Cotiledón: longitud**		
		short	courte	kurz	corta		1
		medium	moyenne	mittel	media	Agil, Temara	3
		long	longue	lang	larga	Atlantis, Maro	5
3.		**QN MS|C**	**(+)**	**11**			
		Cotyledon: width	**Cotylédon : largeur**	**Keimblatt: Breite**	**Cotiledón: anchura**		
		narrow	étroite	schmal	estrecha	Vltavín, Lemmon	1
		medium	moyenne	mittel	media	Renegade, Temara	3
		broad	large	breit	ancha	Maro	5
4.	**(*)**	**QN VG|C**		**13-19**			
		Petiole: density of hairs	**Pétiole : densité de la pilosité**	**Blattstiel: Dichte der Behaarung**	**Pecíolo: densidad de la vellosidad**		
		sparse	lâche	locker	escasa	Lucrum	1
		medium	moyenne	mittel	media	Formica	3
		dense	dense	dicht	densa	Grasslands Pawera	5
5.		**QN MG|B/VG|B**		**29**			
		Plant: natural height <u>without</u> vernalization	**Plante : hauteur naturelle <u>sans</u> vernalisation**	**Pflanze: Natürliche Höhe <u>ohne</u> Vernalisation**	**Planta: altura natural <u>sin</u> vernalización**		
		short	basse	niedrig	baja		3
		medium	moyenne	mittel	media	Lucrum	5
		tall	haute	hoch	alta	Formica	7
6.		**QN VG|B**		**29**			
		Leaf: intensity of green color <u>without</u> vernalization	**Feuille : intensité de la couleur verte <u>sans</u> vernalisation**	**Blatt: Intensität der Grünfärbung <u>ohne</u> Vernalisation**	**Hoja: intensidad del color verde <u>sin</u> vernalización**		
		light	claire	hell	clara	Kenland	3
		medium	moyenne	mittel	media	Rotra	5
		dark	foncée	dunkel	oscura	Tedi	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	**(*)**	**QN VS|A**	**(+)**	**29**			
		Plant: growth habit	**Plante : port**	**Pflanze: Wuchsform**	**Planta: hábito de crecimiento**		
		erect	dressé	aufrecht	erecto		1
		semi-erect	demi-dressé	halbaufrecht	semierecto		3
		intermediate	moyen	mittel	intermedio		5
		semi-prostrate	demi-étalé	halbliegend	semipostrado	Rotra, Formica	7
		prostrate	étalé	liegend	postrado	Montana	9
8.		**QN VG|B/VS|A**	**(+)**				
		Plant: tendency to flower <u>without</u> vernalization	**Plante : tendance à la floraison <u>sans</u> vernalisation**	**Pflanze: Neigung zur Blüte <u>ohne</u> Vernalisation**	**Planta: tendencia a la floración <u>sin</u> vernalización**		
		very weak	très faible	sehr gering	muy débil		1
		weak	faible	gering	débil	Rajah	3
		medium	moyenne	mittel	media	Podjavorina, Cyklon	5
		strong	forte	stark	fuerte	Formica	7
9.	**(*)**	**QN VG|B/VS|A**	**(+)**	**29**			
		Leaf: marking	**Feuille : ornementation**	**Blatt: Zeichnung**	**Hoja: mancha ornementación**		
		absent or very weak	nulle ou très faible	fehlend oder gering	ausente o muy débil		1
		weak	faible	gering	débil		3
		medium	moyenne	mittel	media	Lucrum	5
		strong	forte	stark	fuerte	Astur, Temara	7
		very strong	très forte	sehr stark	muy fuerte		9
10.	**(*)**	**QN MG|B/MS|A/VG|B**		**31-39**			
		Plant: natural height <u>after</u> vernalization	**Plante : hauteur naturelle <u>après</u> vernalisation**	**Pflanze: Natürliche Höhe <u>nach</u> Vernalisation**	**Planta: altura natural <u>después de la</u> vernalización**		
		short	basse	niedrig	baja		3
		medium	moyenne	mittel	media	Lucrum	5
		tall	haute	hoch	alta	Manuela, Tedi	7

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
11.	**(*)**	**QN** **VG|B**		**31-39**			
		Leaf: intensity of green color <u>after</u> vernalization	**Feuille : intensité de la couleur verte <u>après</u> vernalisation**	**Blatt: Intensität der Grünfärbung <u>nach</u> Vernalisation**	**Hoja: intensidad del color verde <u>después de la</u> vernalización**		
		light	claire	hell	clara	Renegade	3
		medium	moyenne	mittel	media	Montana, Freedom	5
		dark	foncée	dunkel	oscura	Astur, Grasslands Turoa, Lucrum	7
12.		**QN** **MS|A**	**(+)** **(b)**	**31-69**			
		Leaf: length of petiole	**Feuille : longueur du pétiole**	**Blatt: Länge des Blattstiels**	**Hoja: longitud del pecíolo**		
		very short	très courte	sehr kurz	muy corta		1
		short	courte	kurz	corta		2
		medium	moyenne	mittel	media	Metis	3
		long	longue	lang	larga	Formica	4
		very long	très longue	sehr lang	muy larga		5
13.	**(*)**	**QN** **MS|A**	**(b)**	**31-69**			
		Median leaflet: length	**Foliole médiane : longueur**	**Mittleres Fiederblatt: Länge**	**Folíolo central: longitud**		
		short	courte	kurz	corta	Tuscan	3
		medium	moyenne	mittel	media	Astur, Vltavín	5
		long	longue	lang	larga		7
14.	**(*)**	**QN** **MS|A**	**(b)**	**31-69**			
		Median leaflet: width	**Foliole médiane : largeur**	**Mittleres Fiederblatt: Breite**	**Folíolo central: anchura**		
		narrow	étroite	schmal	estrecha		3
		medium	moyenne	mittel	media	Merviot, Lemmon	5
		broad	large	breit	ancha	Ostro, Rotra	7
15.	**(*)**	**QN** **MS|A**	**(+)**				
		Time of flowering	**Époque de floraison**	**Zeitpunkt der Blüte**	**Época de floración**		
		very early	très précoce	sehr früh	muy temprana		1
		early	précoce	früh	temprana	Astur, Formica	3
		medium	moyenne	mittel	intermedia	Margot, Agil	5
		late	tardive	spät	tardía	Lucrum	7
		very late	très tardive	sehr spät	muy tardía	Rajah	9

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
16. (*)	**QN MS|A**	**(+) (a)**	**39-69**			
	Stem: length	**Tige : longueur**	**Stängel: Länge**	**Tallo: longitud**		
	very short	très courte	sehr kurz	muy corta		1
	short	courte	kurz	corta	Aberchianti	3
	medium	moyenne	mittel	media	Slavin, Tempus	5
	long	longue	lang	larga		7
	very long	très longue	sehr lang	muy larga	Jogeva 205	9
17.	**QN MS|A**	**(+) (a)**	**39-69**			
	Stem: thickness	**Tige : épaisseur**	**Stängel: Dicke**	**Tallo: grosor**		
	thin	mince	dünn	delgado		1
	medium	moyenne	mittel	mediano	Astur, Noe	3
	thick	épaisse	dick	grueso		5
18. (*)	**QN MS|A**	**(a)**	**39-69**			
	Stem: number of internodes	**Tige : nombre d'entre-nœuds**	**Stängel: Anzahl Internodien**	**Tallo: número de entrenudos**		
	few	petit	wenige	bajo		3
	medium	moyen	mittel	medio	Polana, Tedi	5
	many	élevé	viele	alto	Lucrum, Titus	7
	very many	très élevé	sehr viele	muy alto	Jogeva 205	9
19.	**QN MG|B/VG|B**	**(+)**				
	Plant: natural height in aftermath	**Plante : hauteur naturelle de la repousse après la coupe**	**Pflanze: natürliche Höhe nach dem Schnitt**	**Planta: altura natural del rebrote después del corte**		
	short	basse	niedrig	baja	Ilte	3
	medium	moyenne	mittel	media	Tornado, Lemmon	5
	tall	haute	hoch	alta	Tempus, Formica	7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

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

(a) Observations should be done on the longest stem excluding side branches.

(b) To be assessed on the longest stem on the third leaf back from the growing tip.

8.2 Explanations for individual characteristics

Ad. 1: Plant: ploidy

Ploidy should be assessed by standard cytological methods.

Ad. 2: Cotyledon: length

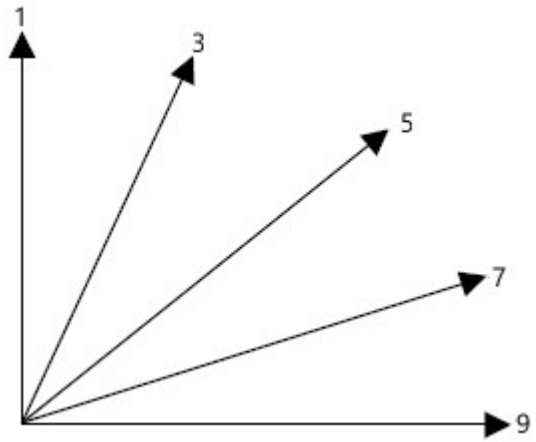
Observations should be made 12-14 days after sowing in the greenhouse, when the first leaf is fully developed. If the two cotyledons differ in size, the biggest one should be measured.

Ad. 3: Cotyledon: width

Observations should be made 12-14 days after sowing in the greenhouse, when the first leaf is fully developed. If the two cotyledons differ in size, the biggest one should be measured.

Ad. 7: Plant: growth habit

A visual estimate is taken of the angle that the outer shoots make with the horizontal axis.



1 = erect
3 = semi-erect
5 = intermediate
7 = semi-prostrate
9 = prostrate

Ad. 8: Plant: tendency to flower without vernalization

The number of plants showing inflorescences should be recorded for each variety. To be assessed on one occasion on the whole trial when the varieties are judged to have reached their full expression of this characteristic.

Ad. 9: Leaf: marking

Leaf marking refers to the conspicuousness of the leaf marking.

Ad. 12: Leaf: length of petiole

Length of the petiole should be measured from the base of the median trifoliate leaflet to the point of attachment to the stem.

Ad. 15: Time of flowering

Time of flowering is reached when 3 inflorescences per plant are showing color.

Ad. 16: Stem: length

Stem length should be measured from the base to the terminal inflorescence.

Ad. 17: Stem: thickness

The thickness should be measured 2 to 4 cm above tillering node.

Ad. 19: Plant: natural height in aftermath

Observations should be made within 4 to 6 weeks after the summer cut.

8.3 Phenological growth stages based on the general BBCH-scale (Meier, 2001) adjusted for Red Clover

Principal growth stage 0: Germination
00: Dry seed

Principal growth stage 1: Leaf development
11: First leaf unfolded
13: 3 leaves unfolded

Principle growth stage 2: Formation of side shoots/tillering
29: 9 or more shoots visible

Principle growth stage 3: Stem elongation
31: Stem 10% of final length
39: Maximum stem length reached

Principle growth stage 6: Flowering
69: End of flowering

9. Literature

Meier, U., 2001: Growth stages of mono- and dicotyledonous plants. BBCH-Monograph, German Federal Biological Research Centre for Agriculture and Forestry.

Mousset-Déclas, C., 1992: Le Trèfle Violet. In “Amélioration des espèces végétales cultivées, objectif et critères de sélection,” ed. Gallais et Bannerot, INRA ed., pp.339-348.

Mousset-Déclas, C., 1995: Les trèfles ou le genre Trifolium. In “Ressources génétiques des plantes fourragères et à gazon. Prosperi, Guy, Balfourier Coord. Coéd. BRG-INRA, pp. 177-211.

Taylor, N.L., 1985: “Clover science and technology,” Agronomy nr. 25 in the series American Society of Agronomy, Inc., Crop Science Society.

Taylor, N.L. and Quesenberry, K.H., 1996: Red Clover Science, Kluwer Academic Publishers, 228 pp.

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	*Trifolium pratense* L.
1.2	Common name	Red Clover

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)
(……..……..…) x (……..……..…)

female parent male parent

(b) partially known cross [ ]

(please state known parent varieties)
(……..……..…) x (……..……..…)

female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

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

4.1.4 Other [ ]
(Please provide details)

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:

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Cross-pollination [ ]
(b) Other (please provide details) [ ]

4.2.2 Vegetative propagation

(a) Cuttings [ ]
(b) *In vitro* propagation [ ]
(c) Other (state method) [ ]

4.2.3 Other [ ]
(Please provide details)

In the case of hybrid varieties the production scheme for the hybrid should be provided on a separate sheet. This should provide details of all the parent lines required for propagating the hybrid e.g.

Single Hybrid

(……)	x	(……)
female parent		male parent

Three-Way Hybrid

(……)	x	(……)
female line		male line

(……)	x	(……)
single hybrid used as female parent		male parent

and should identify in particular:

(a) any male sterile lines
(b) maintenance system of male sterile lines.

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: ploidy**		
	diploid	Start	2 [ ]
	tetraploid	Titus	4 [ ]
5.2 (13)	**Median leaflet: length**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	Tuscan	3 [ ]
	short to medium		4 [ ]
	medium	Astur, Vltavín	5 [ ]
	medium to long		6 [ ]
	long		7 [ ]
	long to very long		8 [ ]
	very long		9 [ ]
5.3 (14)	**Median leaflet: width**		
	very narrow		1 [ ]
	very narrow to narrow		2 [ ]
	narrow		3 [ ]
	narrow to medium		4 [ ]
	medium	Lemmon, Merviot	5 [ ]
	medium to broad		6 [ ]
	broad	Ostro, Rotra	7 [ ]
	broad to very broad		8 [ ]
	very broad		9 [ ]

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

	Characteristics	Example Varieties	Note
5.4 (15)	**Time of flowering**		
	very early		1 [ ]
	very early to early		2 [ ]
	early	Astur, Formica	3 [ ]
	early to medium		4 [ ]
	medium	Agil, Margot	5 [ ]
	medium to late		6 [ ]
	late	Lucrum	7 [ ]
	late to very late		8 [ ]
	very late	Rajah	9 [ ]
5.5 (16)	**Stem: length**		
	very short		1 [ ]
	very short to short		2 [ ]
	short	Aberchianti	3 [ ]
	short to medium		4 [ ]
	medium	Slavin, Tempus	5 [ ]
	medium to long		6 [ ]
	long		7 [ ]
	long to very long		8 [ ]
	very long	Jogeva 205	9 [ ]

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

6. Similar varieties and differences from these varieties

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

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Time of flowering*	*very early*	*early*

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

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:

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 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]