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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

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DRAFT

CHIVES

UPOV Code: ALLIU_SCH

Allium schoenoprasum L.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from the Netherlands**to be considered by the**Technical Committee at its fiftieth session,
to be held in Geneva from April 7 to 9, 2014**Disclaimer: this document does not represent UPOV policies or guidance*Alternative Names:^{*}

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Allium schoenoprasum</i> L.	Chives	Ciboulette	Schnittlauch	Cebollino

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.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Allium schoenoprasum* 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:

7,000 seeds.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should, be stated by the applicant.

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.2 *Testing Place*

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 "Examining Distinctness".

3.3 *Conditions for Conducting the Examination*

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

3.4 *Test Design*

3.4.1 Each test should be designed to result in a total of at least 60 plants, which should be divided between at least 2 replicates.

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

3.5 *Additional Tests*

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 *Distinctness*

4.1.1 General Recommendations

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

Further guidance is provided in documents TGP/9 “Examining Distinctness” and TGP/8 “Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability”.

4.1.2 Consistent Differences

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

4.1.3 Clear Differences

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

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 30 plants or parts taken from each of 30 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of Observation

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

MG: single measurement of a group of plants or parts of plants

MS: measurement of a number of individual plants or parts of plants

VG: visual assessment by a single observation of a group of plants or parts of plants

VS: visual assessment by observation of individual plants or parts of plants

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

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

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

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not

possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

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

4.2 *Uniformity*

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

4.2.2 The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid 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: height (characteristic 1)
- (b) Leaf: diameter (characteristic 7)
- (c) Male sterility (characteristic 14)

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*

(*) Asterisk characteristic – see Chapter 6.1.2

QL Qualitative characteristic – see Chapter 6.3

QN Quantitative characteristic – see Chapter 6.3

PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

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

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

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

	English	français	deutsch	español	Example Varieties Exemples Beispielsorten Variedades ejemplo	Note/ Nota
1.	MG/ VG	Plant: height	Plante : hauteur	Pflanze: Höhe	Planta: altura	
QN	(a)	short	basse	niedrig	baja	3
		medium	moyenne	mittel	media	Divonne
		tall	haute	hoch	alta	Biggy, Jowisz
2.	VG	Foliage: attitude	Feuillage : port	Blattwerk: Haltung	Follaje: porte	
(*) (+)						
QN	(a)	erect	dressé	aufrecht	erecto	Biggy, Marlau
		erect to semi erect	dressé à demi-dressé	aufrecht bis halb aufrecht	erecto a semierecto	Jeilo
		semi erect	demi-dressé	halb aufrecht	semierecto	Divonne
3.	VG	Leaf: curvature	Feuille : courbure	Blatt: Biegung	Hoja: curvatura	
(+)						
QN		absent or very weak	nulle ou très faible	fehlend oder sehr gering	ausente o muy débil	Erecta
		weak	faible	gering	débil	
		medium	moyenne	mittel	media	Polyfine
		strong	forte	stark	fuerte	Grande
		very strong	très forte	sehr stark	muy fuerte	Jemná
4.	VG	Leaf: waxiness	Feuille : pruine	Blatt: Wachsschicht	Hoja: cerosidad	
(*)						
QN	(a)	weak	faible	gering	débil	Staro
		medium	moyenne	mittel	media	Jeilo, Polystar
		strong	forte	stark	fuerte	Erecta
5.	VG	Leaf: intensity of green color	Feuille : intensité de la couleur verte	Blatt: Intensität der Grünfärbung	Hoja: intensidad del color verde	
(*)						
QN	(a)	very light	très claire	sehr hell	muy claro	1
		light	claire	hell	claro	2
		medium	moyenne	mittel	medio	Divonne
		dark	foncée	dunkel	oscuro	Polyfine
		very dark	très foncée	sehr dunkel	muy oscuro	Marlau
6.	VG/ MS	Leaf: length	Feuille : longueur	Blatt: Länge	Hoja: longitud	
(+)						
QN	(a)	short	courte	kurz	corta	3
		medium	moyenne	mittel	media	Divonne, Naomi
		long	longue	lang	larga	Jowisz

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
7.	VG/ MS	Leaf: diameter	Feuille : diamètre	Blatt: Durchmesser	Hoja: diámetro		
QN	(a)	small	petit	klein	pequeño	Twiggy	3
		medium	moyen	mittel	medio	Marlau	5
		large	grand	groß	grande	Staro	7
8.	MG	Time of sprouting	Époque de démarrage	Zeitpunkt des Austriebs	Época de brotación		
(+)							
QN	(b)	early	précoce	früh	temprana	Polyvit 3	3
		medium	moyenne	mittel	media	Polyvert	5
		late	tardive	spät	tardía	Erecta	7
9.	VG	Bud: shape	Bourgeon : forme	Knospe: Form	Yema: forma		
(+)							
PQ	(b)	elliptic	elliptique	elliptisch	elíptica	Erecta	1
		round	arrondie	rund	redondeada	Prazská	2
		broad ovate	ovale large	breit eiförmig	ovada ancha	Jemná, Staro	3
10.	VG/ MS	Bud: size	Bourgeon : taille	Knospe: Größe	Yema: tamaño		
(+)							
QN	(b)	small	petit	klein	pequeña	Twiggy	1
		medium	moyen	mittel	media	Divonne	3
		large	grand	groß	grande	Staro	5
11.	MG	Time of beginning of flowering	Époque de début de floraison	Zeitpunkt des Blühbeginns	Época de comienzo de la floración		
(+)							
QN	(b)	early	précoce	früh	temprana	Athlet	1
		medium	moyenne	mittel	media	Divonne	3
		late	tardive	spät	tardía	Erecta	5
12.	VG/ MS	Inflorescence: diameter	Inflorescence : diamètre	Blütenstand: Durchmesser	Inflorescencia: diámetro		
(+)							
QN	(b)	small	petit	klein	pequeño	Polyfine	1
		medium	moyen	mittel	medio	Polyvert	2
		large	grand	groß	grande	Bohemia	3
13.	VG	Flower: color	Fleur : couleur	Blüte: Farbe	Flor: color		
PQ	(b)	light pink	rose clair	hellrosa	rosa claro	Jemná	1
		pink	rose	rosa	rosa	Erecta	2
		violet	violet	violett	violeta	Jeilo	3
14.	VS	Male sterility	Stérilité mâle	Männliche Sterilität	Androesterilidad		
(*)							
(+)							
QN	(b)	absent to very low	nulle à très faible	fehlend bis sehr gering	ausente a muy baja	Twiggy	1
		low	faible	gering	baja	Toplau	2
		very high	très élevée	sehr hoch	muy alta	Marlau	3

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:

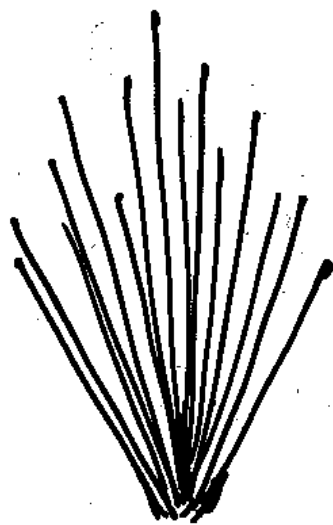
- (a) Observations should be made in the first year at the time of fully developed plants, before leaves start to desiccate.
- (b) Observations should be made in the second year. Observations of the inflorescence and flower should be made at full flowering stage.

8.2 *Explanations for individual characteristics*

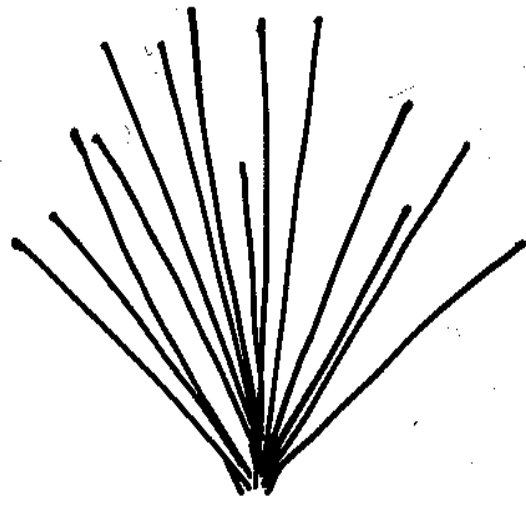
Ad 2: Foliage: attitude



1
erect



2
erect to semi erect



3
semi erect

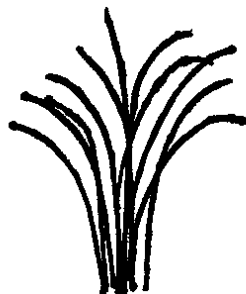
Ad. 3: Leaf: curvature



1
absent or very weak



3
weak



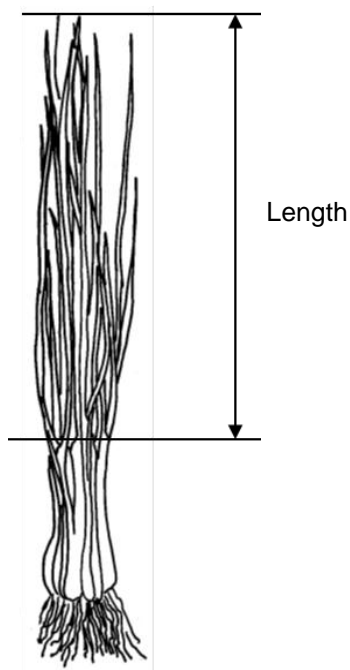
5
medium



7
strong

Ad 6: Leaf: length

The length of the leaves is defined by the length from the end of the pseudostem to the top of the leaves, in a straight line.



Ad. 8: Time of sprouting

The time of sprouting is when 10% of one-year-old plants show new sprouts at the beginning of the next year after sowing.

Ad. 9: Bud: shape

Observations should be made when 10% of the plants have a bud and directly after bud emergence.

Ad. 10: Bud: size

Observations should be made on fully developed inflorescences, when the spathe is fresh and before the start of desiccation.

Ad. 11: Time of beginning of flowering

The time of flowering is when 10% of the plants show flowers.

Ad. 12: Inflorescence: diameter

Observations should be made at the broadest part of fully flowering inflorescences.

Ad. 14: Male sterility

Should be observed at the time of just fully opened flowers, in the second year. In dry weather, when flowers are completely open, male sterility should be assessed by checking if pollen is released from the anthers. This characteristic has to be observed plant by plant; the expression represents the percentage of male sterile plants.

State	Note	% male sterility
absent to very low	1	< 10%
low	2	11-80%
very high	3	> 80%

9. Literature

Brewster, J. L. and Rabinowitch, H. D., 1990: "Onions and Allied Crops: Volume III, Biochemistry, Food Science and Minor Crops", CRC Press, Inc. Boca Raton, Florida.

Brewster, J. L., 1994: "Crop Production Science in Horticulture 3: Onions and other vegetable *Alliums*", CAB International.

Jones, H. A. and Mann, L. K., 1963: "Onions and Their Allies: Botany, Cultivation and Utilisation", Leonard Hill (Books) London Interscience Publishers INC., New York.

Kallos, G. and Bergh, B.O., 1993: "Genetic Improvement of Vegetable Crops."

Konvička, O., 1998: "Česnek, Základy biologie a pěstování, obsahové látky a léčivé účinky", Těšínská tiskárna a.s. Český Těšín.

Vogel, G., 1996: "Handbuch des Speziellen Gemüsebaues", Ulmer Verlag Stuttgart.

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	<input type="text" value="Allium schoenoprasum L."/>	
1.2 Common name	<input type="text" value="Chives"/>	
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

4.1.2 Mutation
(please state parent variety)

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

4.1.4 Other
(please provide details)

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination

(b) Cross-pollination

(i) population

(ii) synthetic variety

(c) Hybrid

(d) Other
(please provide details)

4.2.2 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:
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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
5.1 Plant: height (1)		
very short		1[]
very short to short		2[]
short		3[]
short to medium		4[]
medium	Divonne	5[]
medium to tall		6[]
tall	Biggy, Jowisz	7[]
tall to very tall		8[]
very tall		9[]
5.2 Foliage: attitude (2)		
erect	Biggy, Marlau	1[]
erect to semi erect	Jeilo	2[]
semi erect	Divonne	3[]
5.3 Leaf: waxiness (4)		
weak	Staro	1[]
weak to medium		2[]
medium	Jeilo, Polystar	3[]
medium to strong		4[]
strong	Erecta	5[]
5.4 Leaf: intensity of green color (5)		
very light		1[]
light		2[]
medium	Divonne	3[]
dark	Polyfine	4[]
very dark	Marlau	5[]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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Characteristics	Example Varieties	Note
5.5 Leaf: diameter (7)		
very small		1[]
very small to small		2[]
small	Twiggy	3[]
small to medium		4[]
medium	Marlau	5[]
medium to large		6[]
large	Staro	7[]
large to very large		8[]
very large		9[]
5.6 Male sterility (14)		
absent to very low	Twiggy	1[]
low	Toplau	2[]
very high	Marlau	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>Leaf: diameter</i>	<i>small</i>	<i>medium</i>

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
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#7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [] No []

(If yes, please provide details)

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

Yes [] No []

(If yes, please provide details)

7.3 Other information

Use: 1 fresh market []
2 forcing []
3 industry []
4 other []

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:
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9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

- | | | |
|---|---------|--------|
| (a) Microorganisms (e.g. virus, bacteria, phytoplasma) | Yes [] | No [] |
| (b) Chemical treatment (e.g. growth retardant, pesticide) | Yes [] | No [] |
| (c) Tissue culture | Yes [] | No [] |
| (d) Other factors | Yes [] | No [] |

Please provide details for where you have indicated "yes".

.....

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant's name

Signature

Date

[End of document]