

UPOV

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## INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

ECHINACEA

UPOV Code: ECNCE

*Echinacea* Moench

## GUIDELINES

## FOR THE CONDUCT OF TESTS

## FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*prepared by an expert from Poland**to be considered by**the Technical Working Party for Vegetables**at its forty-fourth session, to be held in Veliko Tarnovo, Bulgaria, from July 5 to 9, 2010*

Alternative Names:\*

<i>Botanical name</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
Echinacea Moench	Echinacea, Cone Flower	Échinacée	Igelkopf, Scheinsonnenhut	.....

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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**shadowed:** Standard text in accordance with document TGP/7/2

## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Echinacea* Moench.

## 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 young plants of commercial standard or seed.

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

10 young plants or 300 g of seed

**In the case of seed**, 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 a single growing cycle.

### 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 Observation of color by eye

Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background.

### 3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 10 plants for vegetatively propagated varieties or 60 plants for seed-propagated varieties, 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.

#### 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

Vegetatively propagated varieties: Unless otherwise indicated, all observations for the purpose of distinctness should be made on 10 plants or parts taken from each of 10 plants disregarding any off-type plants.

Seed-propagated varieties: Unless otherwise indicated, all observations for the purpose of distinctness should be made on 30 plants or parts taken from each of 30 plants 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:

### (a) *Cross-pollinated varieties*

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.

### (b) *Vegetatively propagated varieties*

4.2.3 For the assessment of uniformity of vegetatively propagated varieties, a population standard of 1% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 10 plants, 1 off-type is] allowed.

## 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 or plant 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) Flower: type (characteristic 28)
- (b) Ray floret: main color of upper side (characteristic 37)

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*

(\*) 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, 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
<b>1.</b>	<b>Plant: growth habit</b>					
(+)						
	upright					1
	semi-upright				Ida	2
	horizontal					3
	spreading					4
<b>2.</b>	<b>Plant: number of stems</b>					
	few					3
	medium					5
	many					7
<b>3.</b>	<b>Plant: height</b>					
(+)						
	short					3
	medium					5
	tall				Ida, Indian	7
<b>4.</b>	<b>Plant: branching habit</b>					
	basal branching only					1
	main stem with lateral branching					2
	basal branches with lateral branching					3
<b>5.</b>	<b>Plant: number of inflorescences</b>					
	few					3
	medium					5
	many				Ida	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>6.</b>	<b>Stem: thickness</b>					
(a)	thin					3
	medium					5
	thick					7
<b>7.</b>	<b>Stem: number of leaves</b>					
	few					3
	medium					5
	many				Ida	7
<b>8.</b>	<b>Stem: shape</b>					
(a)	round					1
	edged					2
	striate/ ribbed					3
	uneven					4
<b>9.</b>	<b>Stem: color</b>					
(a)	yellow green					1
	light green					2
	medium green					3
	dark green					4
	blue green					5
	grey green					6
<b>10.</b>	<b>Stem: pubescence</b>					
(a)	sparse					3
	medium					5
	dense					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>11.</b>	<b>Stem: anthocyanin coloration</b>					
(a)	weak					3
	medium				Ida	5
	strong				Indian	7
<b>12.</b>	<b>Leaf: arrangement</b>					
	opposite					1
	alternate					2
<b>13.</b>	<b>Leaf: length</b>					
(+)						
(a)	short					3
	medium				Ida	5
	long					7
<b>14.</b>	<b>Leaf blade: width</b>					
(+)						
(a)	narrow					3
	medium				Ida	5
	broad					7
<b>15.</b>	<b>Leaf blade: shape</b>					
(a)	linear					1
	ovate					2
	elliptic					3
	lanceolate					4
	obovate					5
	oblance-olate					6

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>16.</b>	<b>Leaf blade: apex</b>					
(a)	acute					1
	acuminate					2
	aristate					3
	cuspidate					4
	mucronate					5
	obtuse					6
<b>17.</b>	<b>Leaf blade: base</b>					
(a)	cuneate					1
	attenuate					2
	rounded					3
	cordate					4
	truncate					5
	sessile					6
<b>18.</b>	<b>Leaf blade: margin</b>					
(a)	entire					1
	rigid/irregular					2
	dentate					3
	serrate					4
	cuspidate					5
<b>19.</b>	<b>Leaf blade: undulation of margin</b>					
(a)	weak					3
	medium					5
	strong					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>20.</b>	<b>Leaf blade: color of upper side</b>					
(a)	yellow green					1
	light green					2
	medium green					3
	dark green				Ida	4
	blue green					5
	grey green					6
<b>21.</b>	<b>Leaf blade: pubescence</b>					
(a)	weak					3
	medium					5
	strong					7
<b>22.</b>	<b>Leaf blade: glossiness of upper side</b>					
(a)	absent or very weak					1
	weak					3
	medium					5
	strong					7
<b>23.</b>	<b>Leaf blade: anthocyanin coloration on upper side</b>					
(a)	absent or very weak					1
	weak					3
	medium					5
	strong					7
<b>24.</b>	<b>Leaf: petiole</b>					
(a)	absent					1
	present					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>25.</b>	<b>Petiole: length</b>					
	(a) short					3
	medium				Ida	5
	long					7
<b>26.</b>	<b>Calyx: intensity of green color</b>					
	light					3
	medium					5
	dark					7
<b>27.</b>	<b>Calyx: reflexing of sepals</b>					
	absent					1
	present					9
<b>28.</b>	<b>G Flower: type</b>					
	single					1
	semi double					2
	double					3
<b>29.</b>	<b>Flower: type of disc (excluding double varieties)</b>					
	daisy					1
	anemone					2
<b>30.</b>	<b>Flower: diameter</b>					
	(b) small					3
	medium					5
	large					7
<b>31.</b>	<b>Flower: height</b>					
	(b) short					3
	medium					5
	tall					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>32.</b>	<b>Ray floret: length</b>					
(b)	short					3
	medium					5
	long					7
<b>33.</b>	<b>Ray floret: width</b>					
(b)	narrow					3
	medium					5
	broad					7
<b>34.</b>	<b>Ray floret: attitude</b>					
(b)	upwards					1
	horizontal					2
	downwards					3
<b>35.</b>	<b>Ray floret: longitudinal axis</b>					
(b)	incurving					1
	straight					2
	reflexing					3
<b>36.</b>	<b>Ray floret: shape of apex</b>					
(b)	acute					1
	rounded					2
	emarginate					3
	dentate					4
	lacinate					5
	aristate					6
	cuspidate					7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>37.</b>	<b>G</b>					
					<b>Ray floret: main color of upper side</b>	
(b)	white					1
	pink					2
	purple					3
<b>38.</b>					<b>Disc: diameter</b>	
(b)	small					3
	medium					5
	large					7
<b>39.</b>					<b>Disc: height of cone</b>	
(b)	short					3
	medium					5
	tall					7
<b>40.</b>					<b>Disc: color <u>before dehiscence</u></b>	
(b)	RHS Colour Chart (indicate reference number)					
<b>41.</b>					<b>Disc florets: density</b>	
(b)	sparse					3
	medium					5
	dense					7
<b>42.</b>					<b>Disc florets: shape</b>	
(b)	to provide					
<b>43.</b>					<b>Disc florets: color</b>	
(b)	brownish					1
	blackish					2



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>44.</b>	<b>Disc florets: length</b>					
(b)	short					3
	medium					5
	long					7
<b>45.</b>	<b>Disc florets: width</b>					
(b)	narrow					3
	medium					5
	broad					7
<b>46.</b>	<b>Flower: time of beginning of flowering</b>					
(b)	early				Ida	3
	medium				Indian	5
	late					7
<b>47.</b>	<b>Flower: time of full flowering</b>					
(b)	early				Ida	3
	medium				Indian	5
	late					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) Stem, leaf and petiole characteristics should be observed on the middle third of the stem.
- (b) Ray floret, disc florets and flower characteristics should be observed on the main inflorescence at the time of full flowering.

### 8.2 *Explanations for individual characteristics*

#### Ad. 1: Plant: type

To observe before appearance of flower stem.

#### Ad. 3: Plant: height

To observe at flowering time.

#### Ad. 13: Leaf: length

To observe whole leaf including petiole.

#### Ad. 14: Leaf blade: width

To observe in the widest part.

## 9. Literature

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- Seidler-Łożykowska, K., Kaźmierczak, K. 2004: Breeding program on purple coneflower (*Echinacea purpurea* Moench) III. Comparative experiment, Herba Polonica 50 (2): 17-20

10 Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<p>TECHNICAL QUESTIONNAIRE</p> <p>to be completed in connection with an application for plant breeders' rights</p> <p>“In the case of hybrid varieties which are the subject of an application for plant breeders' rights, and where the parent lines are to be submitted as a part of the examination of the hybrid variety, this Technical Questionnaire should be completed for each of the parent lines, in addition to being completed for the hybrid variety.”</p>		
1. Subject of the Technical Questionnaire		
1.1 Botanical name	<input type="text" value="Echinacea Moench"/>	
1.2 Common name	<input type="text" value="Echinacea, Cone Flower"/>	
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"/>	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
<b>3. Proposed denomination and breeder's reference</b>		
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)

(.....)	x	(.....)
female parent		male parent

(b) partially known cross [ ]  
(please state known parent variety(ies))

(.....)	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

### *Example 1*

#### 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 Vegetatively propagated varieties

[... ..]

4.2.3 Other [ ]

(please provide details)"

--

### *Example 2*

#### 4.2.1 Vegetative propagation

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

--

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
4.2.2 Seed		[ ]
4.2.3 Other		[ ]
<div data-bbox="296 454 1382 566" style="border: 1px solid black; height: 50px; width: 100%;"></div>		



TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
<p>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).</p>		
Characteristics	Example Varieties	Note
<p><b>5.1. Flower: type</b> (28)</p>		
single		1[ ]
semi double		2[ ]
double		3[ ]
<p><b>5.2 Ray floret: attitude</b> (34)</p>		
upwards		1[ ]
horizontal		2[ ]
downwards		3[ ]
<p><b>5.3. Ray floret: shape of apex</b> (36)</p>		
acute		1[ ]
rounded		2[ ]
emarginate		3[ ]
dentate		4[ ]
lacinate		5[ ]
aristate		6[ ]
cuspidate		7[ ]
<p><b>5.4 Ray floret: main color of upper side</b> (37)</p>		
white		1[ ]
pink		2[ ]
purple		3[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
<p>6. Similar varieties and differences from these varieties</p> <p><i>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.</i></p>			
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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>	<i>to be provided</i>	<i>to be provided</i>	<i>to be provided</i>
<p>Comments:</p>			

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:								
<p>#7. Additional information which may help in the examination of the variety</p> <p>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?</p> <p>Yes [ ] No [ ]</p> <p>(If yes, please provide details)</p> <p>7.2 Are there any special conditions for growing the variety or conducting the examination?</p> <p>Yes [ ] No [ ]</p> <p>(If yes, please provide details)</p> <p>7.3 Other information</p> <p>7.3.1 Main use</p> <table data-bbox="453 1106 1246 1256"><tr><td>(a) ornamental plant</td><td>[ ]</td></tr><tr><td>(b) seed</td><td>[ ]</td></tr><tr><td>(c) forage</td><td>[ ]</td></tr><tr><td>(d) other (please provide details)</td><td>[ ]</td></tr></table> <p>“A representative color <b>image</b> of the variety should accompany the Technical Questionnaire.”</p>			(a) ornamental plant	[ ]	(b) seed	[ ]	(c) forage	[ ]	(d) other (please provide details)	[ ]
(a) ornamental plant	[ ]									
(b) seed	[ ]									
(c) forage	[ ]									
(d) other (please provide details)	[ ]									
<p>8. Authorization for release</p> <p>(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?</p> <p>Yes [ ] No [ ]</p> <p>(b) Has such authorization been obtained?</p> <p>Yes [ ] No [ ]</p> <p>If the answer to (b) is yes, please attach a copy of the authorization.</p>										

# 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:												
<p>9. Information on plant material to be examined or submitted for examination.</p> <p>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.</p> <p>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:</p> <table data-bbox="284 801 1407 1064"><tr><td>(a) Microorganisms (e.g. virus, bacteria, phytoplasma)</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(b) Chemical treatment (e.g. growth retardant, pesticide)</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(c) Tissue culture</td><td>Yes [ ]</td><td>No [ ]</td></tr><tr><td>(d) Other factors</td><td>Yes [ ]</td><td>No [ ]</td></tr></table> <p>Please provide details for where you have indicated “yes”.</p> <p>.....</p> <p>9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?</p> <p>Yes [ ]</p> <p>(please provide details as specified by the Authority)</p> <p>No [ ]</p>			(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 [ ]
(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 [ ]												
<p>10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:</p> <p>Applicant's name <input data-bbox="539 1682 1426 1742" type="text"/></p> <p>Signature <input data-bbox="424 1760 983 1821" type="text"/> Date <input data-bbox="1136 1760 1426 1821" type="text"/></p>														

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