

UPOV

TG/PERILLA proj.1

ORIGINAL: English

DATE: 2003-05-19

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

GENEVA

DRAFT

PERILLA

*(Perilla frutescens (L.) Britton var.  
japonica Hara)*

## GUIDELINES

## FOR THE CONDUCT OF TESTS

## FOR DISTINCTNESS, UNIFORMITY AND STABILITY

*to be considered by the  
Technical Working Party for Vegetables at its thirty-seventh session,  
to be held in Roelofarendsveen, Netherlands, from June 23 to 27, 2003*

Alternative Names: \*

<i>Latin</i>	<i>English</i>	<i>French</i>	<i>German</i>	<i>Spanish</i>
<i>Perilla frutescens</i> (L.) Britton var. <i>japonica</i> Hara	Perilla	Pérille	Perille	Perilla

## 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. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website ([www.upov.int](http://www.upov.int)), for the latest information.]

<u>TABLE OF CONTENTS</u>	<u>PAGE</u>
1. SUBJECT OF THESE TEST GUIDELINES .....	3
2. MATERIAL REQUIRED .....	3
3. METHOD OF EXAMINATION .....	3
3.1 Duration of Tests .....	3
3.2 Testing Place .....	3
3.3 Conditions for Conducting the Examination .....	3
3.4 Test Design .....	4
3.5 Number of Plants / Parts of Plants to be Examined .....	4
3.6 Additional Tests .....	4
4. ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY .....	4
4.1 Distinctness .....	4
4.2 Uniformity .....	5
4.3 Stability .....	5
5. GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL .....	5
6. INTRODUCTION TO THE TABLE OF CHARACTERISTICS .....	6
6.1 Categories of Characteristics .....	6
6.2 States of Expression and Corresponding Notes .....	6
6.3 Types of Expression .....	6
6.4 Example Varieties .....	6
6.5 Legend .....	7
7. TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES .....	8
8. EXPLANATIONS ON THE TABLE OF CHARACTERISTICS .....	15
8.1 Explanations covering several characteristics .....	15
8.2 Explanations for individual characteristics .....	15
9. LITERATURE .....	16
10. TECHNICAL QUESTIONNAIRE .....	17

## 1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Perilla frutescens* (L.) Britton var. *japonica* Hara.

## 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:

25 g, or 6,000 seeds.

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:

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

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

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

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

## 3.4 *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 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 *Number of Plants / Parts of Plants to be Examined*

Unless otherwise indicated, all observations should be made on 20 plants or parts taken from each of 20 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 For cross-pollinated varieties, the assessment of uniformity should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.3 For the assessment uniformity for predominantly self-pollinated varieties, a population standard of 2 % and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 60 plants, 3 off-types are 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 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.

#### 4.4 *Disease characteristics*

When disease resistance characteristics are used for assessing distinctness, uniformity and stability, records must be taken under conditions of controlled infection with a defined pathotype. In the case of resistance to downy mildew each race should be tested separately and the results should also be indicated separately.

### 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) Seed: color of testa (characteristic 2)
- (b) Leaf blade: color of upper side (characteristic 11)
- (c) Leaf blade: color of lower side (characteristic 15)

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. The variety description should always state whether the tests have been made under normal growing conditions or, if not, under which other temperature and humidity conditions.

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) 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

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>1.</b>	<b>Seed: size</b>					
	Small				Bora	3
	Medium				Perro, Saeyeupsil	5
	Large				Daeyeup, Pergro	7
<b>2. (* )</b>	<b>Seed: color of testa</b>					
	White				Daeyeup	1
	Grey					2
	Beige				Pergro	3
	ochre-yellow					4
	Brown				Perro	5
	Purplish					6
<b>3. (* )</b>	<b>Seedling: color</b>					
	Green				Pergro, Perlime	1
	purplish red				Perro, Saeyeupsil	2
<b>4. (a)</b>	<b>Plant: Number of branches (at harvest maturity)</b>					
	absent or very few					1
	Few				Pergro	3
	medium				Perro, Saeyeupsil	5
	many				Perlime	7
	very many					9
<b>5. (a)</b>	<b>Plant: height</b>					
	short				Dasil	3
	medium				Perro, Saeyeupsil	5
	tall				Pergro	7



	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>6.</b>	<b>Stem: cross-section</b>						
(a)	circular					1	
	ribbed				Perlime, Perro	2	
	square				Pergro, Saeyeupsil	3	
<b>7.</b>	<b>Stem: hairiness</b>						
(a)	absent or very weak					1	
	weak				Perro	3	
	medium				Saeyeupsil	5	
	strong				Pergro, Perlime	7	
	very strong					9	
<b>8.</b>	<b>Leaf blade: length</b>						
(a)	short				Perilla red (Sakata)	3	
	medium				Perro, Saeyeupsil	5	
	long				Pergro	7	
<b>9.</b>	<b>Leaf blade: width</b>						
(a)	very narrow					1	
	narrow					3	
	medium				Perro, Saeyeupsil	5	
	broad				Pergro	7	
	very broad				Perlime	9	
<b>10.</b>	<b>Leaf blade: shape</b>						
(a)	lanceolate					1	
	ovate				Perro	2	
	circular					3	
	heart-shaped				Namchun, Pergro	4	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>11. (* )</b>	<b>Leaf blade: color of upper side</b>					
(+ ) (a)	yellowish green				Saeyeupsil	1
	green				Pergro, Perlime	2
	greyish green					3
	purplish				Perro	4
<b>12.</b>	<b>Leaf blade: intensity of green color of upper side</b>					
(a)	light				Ilyeup	3
	medium				Pergro	5
	dark				Perlime	7
<b>13.</b>	<b>Leaf blade: intensity of purplish color of upper side</b>					
(a)	light					3
	medium					5
	dark				Perro	7
<b>14.</b>	<b>Leaf blade: glossiness of upper surface</b>					
(a)	weak				Pergro, Perlime	3
	medium				Perilla red (Sakata)	5
	strong					7
<b>15. (* )</b>	<b>Leaf blade: color of lower side</b>					
(+ ) (a)	greenish				Pergro	1
	purplish				Bora, Hojiso, Perro Perlime	2

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>16.</b>	<b>Leaf blade: intensity of purplish color of lower side</b>					
(a)	absent or very light					1
	light				Perlime	3
	medium					5
	dark				Perro	7
	very dark				Bora, Purple	9
<b>17.</b>	<b>Leaf blade: profile</b>					
(a)	concave				Perro	3
	flat				Pergro, Saeyeupsil	5
	convex					7
<b>18.</b>	<b>Leaf blade: blistering</b>					
(a)	absent or very weak					1
	weak				Pergro, Perlime	3
	medium				Perro	5
	strong					7
	very strong					9
<b>19. (* )</b>	<b>Leaf blade: folding of margin</b>					
(+ ) (a)	absent or very weak				Pergro, Perlime	1
	weak					3
	medium				Perro, Saeyeupsil	5
	strong				Perilla red (Sakata)	7
	very strong					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota	
<b>20.</b>	<b>Leaf blade: incisions of margin</b>						
(a)	absent or very weak					1	
	weak					3	
	medium				Pergro, Saeyeupsil	5	
	strong				Perilla red (Sakata)	7	
	very strong				Purple	9	
<b>21. (a)</b>	<b>Leaf blade: type of incision of margin</b>						
	crenate					1	
	serrate				Pergro, Saeyeupsil	2	
	dentate				Perro, Purple	3	
<b>22.</b>	<b>Leaf blade: depth of incisions of margin</b>						
(a)	shallow				Pergro	3	
	medium				Perlme, Saeyeupsil	5	
	deep				Perilla red (Sakata)	7	
<b>23.</b>	<b>Inflorescence: position</b>						
	terminal					1	
	terminal and axillar				Pergro, Saeyeupsil	2	
	predominantly axillar				Perro	3	
<b>24.</b>	<b>Inflorescence: number of clusters</b>						
	few				Perilla red (Sakata)	3	
	medium				Pergro, Saeyeupsil	5	
	many					7	

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>25.</b>	<b>Inflorescence: length of clusters (if almost all flowers open)</b>					
	short				Perilla red (Sakata)	3
	medium				Pergro, Saeyeupsil	5
	long					7
<b>26.</b>	<b>Flower: size</b>					
	small				Pergro	3
	medium				Saeyeupsil	5
	large					7
<b>27.</b>	<b>Flower: color</b>					
	white				Pergro, Saeyeupsil	1
	reddish purple				Bora	3
<b>28.</b>	<b>Flower: intensity of reddish purple color</b>					
	light					3
	medium					5
	dark				Bora	7
<b>29.</b>	<b>Calyx: anthocyanin coloration</b>					
	absent or very weak					1
	weak				Pergro	3
	medium					5
	strong				Bora	7
	very strong					9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
<b>30.</b>	<b>Time of flowering</b>					
	early				Dasil	3
	medium				Pergro, Saeyeupsil	5
	late				Perlme	7
<b>31.</b>	<b>Time of maturity</b>					
	early					3
	medium				Pergro	5
	late				Perlme	7
<b>32.</b>	<b>Dry seed: weight</b>					
	low					3
	medium				Perro	5
	high				Pergro	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) Plant, Stem, Leaf blade: Unless otherwise indicated, all characteristics on the plant, stem and leaf should be recorded on full-grown plants before opening of the first flowers

8.2 *Explanations for individual characteristics*

Ad. 11 and 15: Leaf blade: color of upper (11) and lower (15) side



green (11) / green (15)



green (11) / purplish (15)



purplish (11) / purplish (15)

Ad. 19 Leaf blade: folding of margin



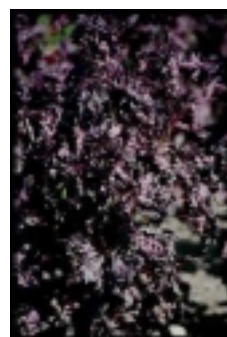
1  
absent or very  
weak

3  
weak

5  
medium

7  
strong

9  
very strong



9. Literature

Brenner, D.M., 1993: "Perilla, Botany, Uses and Genetic Resources," In: J.Janick and J.E. Simon (Eds), *New Crops*, Wiley, New York. pp. 322-328.

Burgmans, J., Scheffer, J.: "Perilla – an Asian Culinary Herb," Ruakura Agric. Research Center, New Zealand.

Koezuka, Y., Honda, G. Tabata, M., 1985: "Genetic control of anthocyanin production," *Shoyakugaku Zasshi* 39: 228-231.

Tanaka, T., 1976: "Tanaka's cyclopedia of edible plants of the world," Keigaku Publishing Co., Tokyo



9. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
<b>TECHNICAL QUESTIONNAIRE</b> to be completed in connection with an application for plant breeders' rights		
1. Subject of the Technical Questionnaire		
1.1 Latin Name	<input type="text" value="Perilla frutescens (L.) Britton var. japonica Hara"/>	
1.2 Common Name	<input type="text" value="Perilla"/>	
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:
-------------------------	-----------------	-------------------

#### 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 Mutation [ ]

(please state parent variety)

4.1.3 Discovery [ ]

(please state where, when and how developed)

4.1.4 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
<b>5.1 Seed: color of testa</b>		
(2)		
white	Daeyeup	1[ ]
grey		2[ ]
beige	Pergro	3[ ]
ochre-yellow		4[ ]
brown	Perro	5[ ]
purplish		6[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
<b>5.2 Seedling: color</b>			
<b>(3)</b>			
green	Pergro, Perlime	1[ ]	
purplish red	Perro, Saeyeupsil	2[ ]	
<b>5.3 Leaf blade: color of upper side</b>			
<b>(11)</b>			
yellowish green	Saeyeupsil	1[ ]	
green	Pergro, Perlime	2[ ]	
greyish green		3[ ]	
purplish	Perro	4[ ]	
<b>5.4 Leaf blade: color of lower side</b>			
<b>(15)</b>			
greenish	Pergro	1[ ]	
purplish	Bora, Hojiso, Perro Perlime	2[ ]	
<b>5.5 Leaf blade: folding of margin</b>			
<b>(19)</b>			
absent or very weak	Pergro, Perlime	1[ ]	
weak		3[ ]	
medium	Perro, Saeyeupsil	5[ ]	
strong	Perilla red (Sakata)	7[ ]	
very strong		9[ ]	

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

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 <b>similar</b> variety(ies)	Describe the expression of the characteristic(s) for <b>your</b> candidate variety
<i>Example</i>		<i>(example to be inserted)</i>	<i>(example to be inserted)</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 Special conditions for the examination of the variety</p> <p>7.2.1 Type of culture</p> <ul style="list-style-type: none"><li>- in glasshouse / as a sprout vegetable [ ]</li><li>- in the open / as an ornamental [ ]</li><li>- in the open / as an oil seed crop [ ]</li></ul> <p>7.2.2 Season of growing</p> <ul style="list-style-type: none"><li>- spring [ ]</li><li>- summer [ ]</li><li>- autumn [ ]</li><li>- winter [ ]</li></ul> <p>7.2.3 Are there any other special conditions for growing the variety or conducting the examination?</p> <p>Yes [ ]                      No [ ]</p> <p>7.2.4 If yes, please give details:</p> <p>7.3 Other information</p> <p>A representative color photograph of the variety should accompany the Technical Questionnaire.</p>		

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.

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