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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

ELYTRIGIA

UPOV Code(s): ELTRG_PON

Elytrigia pontica (Podp.) Holub

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Argentina
to be considered by the
Technical Working Party for Agricultural Crops
at its forty-sixth session, to be held in Hanover, Germany,
from 2017-06-19 to 2017-06-23

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Elytrigia pontica (Podp.) Holub, *Thinopyrum ponticum*				

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.

Other associated UPOV documents:

Elytrigia pontica (Podp.) Holub
Synonyms: Elytrigia elongata (Host) Nevski;; Elytrigia pontica subsp. pontica (Podp.) Holub; Thinopyrum ponticum (Podp.) Barkworth & D.R. Dewey; Agropyron elongatum (Host) P. Beauv., in part; Elymus Elymus ponticus (Podp.) N. Snow elongatus (Host) Runemark var. ponticus (Podp.) Dorn

* 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 *Elytrigia pontica* (Podp.) Holub.

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:

1000 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

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

3.1.2 The two independent growing cycles may be observed from a single planting, examined in two separate 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

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 optimum stage of development for the assessment of each characteristic is indicated by a number in the second column of the Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

3.3.3 The recommended type of plot in which to observe the characteristic is indicated by the following key in the second column of the Table of Characteristics:

A: Single plant with 60 plants separtes by 1.5 m.
B: 2 replicate pots with 6 m. long and 200 pl/m.

3.3.4 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. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 60 plants.

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.

3.4.3 Each test should be designed to result in a total of at least 60 spaced plants, wich should be diveded between at least 2 replicates. In addition, the test may include 6 meters of row plot wich should be divided between at least 2 replicates. The density of the seed should be such that around 200 plants/meter can be expected.

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.

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 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: growth habit (characteristic 1)
(b) Plant: development of rhizomes (characteristic 2)
(c) Leaf color (characteristic 3)
(d) Time of infloresence emergence (characteristic 8)

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 8.1

6 Not applicable

7 Growth stage key See Explanations on the Table of Characteristics in Chapter 8

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

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**(*)**	**QN VG|A**	**(+)**	**29**			
		Plant: growth habit					
		semi-erect				Hercules	3
		intermediate				Atahualpa INTA	5
		semi-postrate				Hulk	7
2.	**(*)**	**QL VG|A**		**29-35 31**			
		Plant: development of rhizomes					
		absent				Atahualpa INTA, Rayo INTA	1
		present				Hulk, Hercules	9
3.		**PQ VG|B**		**29**			
		Leaf color					
		very light green					1
		light green					2
		medium green				Hulk, Rayo INTA	3
		dark green					4
		grey-green				Atahualpa INTA	5
4.		**QL VS**	**(+)**	**25-29**			
		Leaf sheath: hairiness					
		absent				Hulk	1
		present				Atahualpa INTA, Rayo INTA	9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.	**(*)**	**QN MS|A**	**(+)**	**52-56**			
		Flag leaf: length					
		very short					1
		short				Hulk	3
		medium					5
		long				Atahualpa INTA	7
		very long					9
6.	**(*)**	**QN MS|A**	**(+)**	**52-56**			
		Flag leaf: width					
		very narrow					1
		narrow				Hulk	3
		medium				Atahualpa INTA	5
		wide				Pucará PV-INTA, Hercules	7
		very wide					9
7.	**(*)**	**QN MS|A**	**(+)**	**60-68**			
		Stem: length					
		very short					1
		short				Hercules	3
		medium				Pucará PV-INTA	5
		long				Atahualpa INTA, Hulk	7
		very long					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8.	**(*)**	**QN VG|B**	**(+)**	**49-50**			
		Time of infloresence emergence					
		very early					1
		early				Atahualpa INTA	3
		medium				Pucará PV-INTA	5
		late				Hulk	7
		very late					9
9.	**(*)**	**QN MS|A**	**(+)**	**68**			
		Inflorescence: length					
		very short					1
		short				Pucará PV-INTA	3
		medium				Hulk	5
		long				Atahualpa INTA	7
		very long					9
10.	**(*)**	**QN MS|A/VS|A**	**(+)**	**60-68**			
		Inflorescence: density					
		sparse				Rayo INTA	1
		medium					2
		dense				Atahualpa INTA, Hulk, Pucará PV-INTA	3

8. Explanations on the Table of Characteristics

8.1 Explanations for individual characteristics

Ad. 1: Plant: growth habit

The observation should be made vissually from the attitude of the leaves throughout the plant. The angle formed by the imaginary line through the region of greatest leaf density should be used.

Ad. 4: Leaf sheath: hairiness

Should be observe before flowering time at the upper third at the main stems leaves.

Ad. 5: Flag leaf: length

The flag leaf is the first leaf that is below the inflorescence The time of observation is within two to three weeks after heading (52-56), and the measurements shall be made from the union between the sheet and the sheath until the end of the sheet

Ad. 6: Flag leaf: width

The flag leaf is the first leaf that is below the inflorescence
The time of observation is within two to three weeks after heading (DC 52-56), and the measurements shall be made on the same sheet at 1 cm from the ligule.

Ad. 7: Stem: length

The length of the longest stem (inflorescence included) is measured from the ground.

Ad. 8: Time of infloresence emergence

To determine the time of inflorescence emergence should be observe when 50% of plants has reached stage of growth 49.

Ad. 9: Inflorescence: length

Observation should be made when the spike is fully expressed at the stage of growth 68.

Ad. 10: Inflorescence: density

Observation should be made during the growth period 68, spike is fully formed.
Density of inflorescence is calculated by dividing the length of inflorescence (char. 10) by number of spikelets.

8.2 *Growth stages*

Seedling development (seedling: one shoot)

DC 10 Emergence of the first leaf through coleoptile
DC 15 Five leaves unfolded
DC 19 Nine or more leaves unfolded

Tillering

DC 20 Only the main bud (early tillering)
DC 23 Main shoot and three tillers
DC 25 Main shoot five tillers
DC 29 Main shoot nine or more tillers

Stem elongation

DC 30 Erecting the pseudostem (formed by sheaths of leaves)
DC 31 First node detectable (early stem extention across all stems)
DC 35 Fifth node detectable (50% extension across all stems)
DC 39 Ligule / flag leaf collar just visible (state preswelling)

Swelling

DC 41 Extension flag leaf sheath (slight enlargement of the inflorescence, early boot)
DC 45 Pod swollen (late stage swelling)
DC 47 Sheath opening of the first sheet
DC 49 First awns visible (only in forms with beards)

Emergence of inflorescence (mainly asynchronous cultures)

DC 50 First spikelet of inflorescence just visible
DC 52 25% of the inflorescence emerged (across all stems)
DC 54 50% of the inflorescence emerged (across all stems)
DC 56 75% of the inflorescence emerged (across all stems)
DC 58 Inflorescence fully visible

Anthesis (mainly asynchronous cultures)

DC 60 Beginning of anthesis
DC 64 Half anthesis
DC 68 Anthesis complete

9. Literature

DIMITRI, M. J., PARODI, L., 1972 Enciclopedia Argentina de Agricultura y Jardinería Vol. I Descripción de plantas cultivadas 2º Ed. Editorial ACME S.A.C.I. Buenos Aires pp. 150-152.

CABRERA, A., et al, Flora de la Provincia de Buenos Aires Parte II Gramíneas Colección Científica del INTA Buenos Aires 1970 p. 169.

LATOUR, M. C., et al, Identificación de las principales gramíneas forrajeras del Noroeste de la Patagonia por sus caracteres vegetativos Colección Científica del INTA Buenos Aires 1970 p. 30-76 77. INASE Descriptor provisorio de la especie Agropryon (Elytrigia) spp.

MEIER, U., 1997. Growth stages of mono- and dicotyledonous plants: BBCH-Monograph Blackwell Science, Berlin, Vienna, a.o., pág. 622.

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	*Elytrigia pontica* (Podp.) Holub
1.2	Common name	

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

#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

4.2.1 Seed-propagated varieties

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

4.2.2 Other [ ]
(Please provide details)

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: growth habit**		
	semi-erect	Hercules	3 [ ]
	intermediate	Atahualpa INTA	5 [ ]
	semi-postrate	Hulk	7 [ ]
5.2 (3)	**Leaf color**		
	very light green		1 [ ]
	light green		2 [ ]
	medium green	Hulk, Rayo INTA	3 [ ]
	dark green		4 [ ]
	grey-green	Atahualpa INTA	5 [ ]
5.3 (8)	**Time of infloresence emergence**		
	very early		1 [ ]
	early	Atahualpa INTA	3 [ ]
	medium	Pucará PV-INTA	5 [ ]
	late	Hulk	7 [ ]
	very late		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			

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]