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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

AMARANTH

(*Amaranthus* spp.)*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

to be considered by the
Technical Working Party for Agricultural Crops at its thirty-second session
to be held in Tsukuba, Japan, from September 8 to 12, 2003

Alternative Names:*

Latin	*English*	*French*	*German*	*Spanish*
Amaranthus spp.	Amaranth	Amarante	Amarant, Fuchsschwanz	Amaranto

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), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Amaranthus* spp.

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:

100 g

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.

3.4 Test Design

3.4.1 In the case of inbred lines, each test should be designed to result in a total of at least 50 plants, which should be divided between two or more replicates.

3.4.2 In the case of cross-pollinated varieties, each test should be designed to result in a total of at least 150 plants, which should be divided between two or more replicates.

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

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations determined by measuring 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 the assessment of uniformity of inbred lines, a population standard of 1 % and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 50 plants, two off-types are allowed.

4.2.3 The assessment of uniformity for cross-pollinated varieties 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.

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:

{…}

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.

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) – (c) 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

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.		**Species**			**Especie**		
		A. hypochondriacus			*A. hypochondriacus*		1
		A. cruentus			*A. cruentus*		2
		A. caudatus			*A. caudatus*		3
		A. hybridus			*A. hybridus*		4
		other: state species			otra: indique		5
2.		**Cotyledon: anthocyanin pigmentation**			**Cotiledones: pigmentación de antocianinas**		
		absent			ausente		1
		present			presente		9
3.		**Seedling: anthocyanin pigmentation of hypocotyl**			**Plántula: pigmentación antociánica del hipocótilo**		
		absent			ausente		1
		present			presente		9

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
4.		**Leaf blade: distribution of pigmentation at beginning of growth (30 days)**			**Limbo: distribución de la pigmentación al inicio del crecimiento (30 días)**		
		completely purple			completamente púrpura		1
		completely red			completamente roja	Nutrisol	2
		completely pink			completamente rosada		3
		colored basal area			área basal pigmentada	Rojita	4
		central spot			mancha central		5
		2 V shaped stripes			dos franjas en forma de “V”		6
		one V shaped stripe			una franja en forma de “V”		7
		colored margin and venation			margen y venas pigmentadas		8
		one pale green or chlorotic strip on green			una franja verde pálido o clorótica en verde normal	Revancha	9
		green			verde normal		10
		dark green			verde oscuro		11
		purple lower side			envés púrpura		12
		other: state distribution			otra: indique		
5.		**Seedling: intensity of anthocyanin pigmentation of hypocotyl**			**Plántula: intensidad de la pigmentación por antocianinas del hipocótilo**		
		weak			débil		3
		medium			media		5
		strong			fuerte		7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.		**Plant: growth habit**			**Planta: porte**		
	(a)	upright			erecto		1
		spreading			extendido		2
		decumbent			decumbente		3
		drooping			colgante		4
7.		**Plant: growth type**			**Planta: crecimiento**		
		determinate			determinado	Rojita, Revancha	1
		indeterminate			indeterminado	Nutrisol	2
8.		**Leaf: incisions of margin**			**Hoja: incisiones**		
	(a)	absent			ausente	Nurisol, Rojita	1
		crenated			crenado		2
		undulate			ondulado	Revancha	3
		other: state type			otra: indique		4
9. **(+)**		**Leaf: shape**			**Hoja: forma**		
	(a)	lanceolate			lanceolada		1
		elliptic			elíptica		2
		cuneate			cuneiforme		3
		abovate			abovada		4
		ovate			ovada		5
		rhombic			rómbica		6
		ovoid			ovalada		7
		other: state shape			otra: indique		8

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.		**Leaf: length**			**Hoja: longitud**		
	(a)	short			corta		3
		medium			media		5
		long			larga		7
11.		**Leaf: width**			**Hoja: anchura**		
	(a)	narrow			estrecha		3
		medium			media		5
		broad			ancha		7
12.		**Leaf: anthocyanin pigmentation of blade**			**Hoja: pigmentación antociánica del limbo**		
	(a)	absent			ausente		1
		present			presente		9
13.		**Leaf: intensity of anthocyanin pigmentation on petiole**			**Hoja: intensidad de la pigmentación antociánica del pecíolo**		
	(a)	absent			ausente	Rojita	1
		weak			débil		3
		medium			media		5
		strong			fuerte		7
		very strong			muy fuerte	Nutrisol	9
14.		**Leaf: prominence of veins (at 6-8 leaf stage)**			**Hoja: prominencia de nervaduras (etapa de 6-8 hojas)**		
	(a)	weak			débil	Rojita	3
		medium			media		5
		strong			fuerte	Revancha, Nutrisol	7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
15.		**Leaf: basic color**			**Hoja: color base**		
	(a)	green			verde		1
		orange			anaranjado		2
		red			rojo		3
16.		**Leaf: presence of spot**			**Hoja: presencia de mancha**		
	(a)	absent			ausente		1
		present			presente		9
17.		**Leaf: size of spot in relation to blade**			**Hoja: tamaño de la mancha con relación al tamaño del limbo**		
	(a)	small (< 1/3 of the leaf)			pequeña (< 1/3 de la hoja)		3
		medium (2/3 of the leaf)			intermedia (2/3 de la hoja)		5
		large (> 2/3 of the leaf)			grande (> 2/3 de la hoja)		7
18.		**Leaf: color of spot**			**Hoja: color de la mancha**		
	(a)	silvery			plateada		1
		red			roja		2
		purple			púrpura		3
19.		**Leaf: shape of distribution of spot**			**Hoja: forma de la distribución de la mancha**		
	(a)	ovoid			ovalada		1
		‘V’ shaped			en forma de “V”		2
20.		**Plant: time of flowering**			**Planta: época de floración**		
		early 60 - 70 days			precoz 60-70 días		3
		medium 70 - 80 days			media 70- 80 días		5
		late >80 days			tardía > 80 días		7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21.		**Stem: color (at anthesis)**			**Tallo: color (en antesis)**		
		green			verde	Revancha	1
		orange			anaranjado		2
		pink			rosa		3
		red			rojo	Nutrisol, Rojita	4
		stripped (green as main color, and red or purple stripes)			estriado (color verde principal y las estrías en rojo o púrpura)		5
		other: state color			otro: indique		6
22.		**Stem: anthocyanin pigmentation on base (at maturity)**			**Tallo: pigmentación antociánica de la base (en madurez)**		
		absent			ausente		1
		present			presente		9
23.		**Stem: margin in cross section (at maturity)**			**Tallo: borde de la sección transversal (en madurez)**		
		flat entire			entero		1
		undulate			ondulado		2
24. **(+)**		**Inflorescence: attitude**			**Inflorescencia: porte**		
	(b)	upright			erecto		3
		spreading			abierto		5
		drooping			colgante		7
25.		**Inflorescence: length**			**Inflorescencia: longitud**		
	(b)	short			corta < 60 cm	Rojita	3
		medium			media 60 – 100 cm		5
		long			larga > 100 cm		7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.		**Inflorescence: color**			**Inflorescencia: color**		
	(b)	green			verde	Revancha	1
		pink			rosa		2
		brown			pardo		3
		red			rojo	Rojita	4
		purple			púrpura	Nutrisol	5
		other: state color			otro: indique		6
27.		**Inflorescence: density**			**Inflorescencia: densidad**		
	(b)	lax			laxa		3
		medium			media	Revancha	5
		dense			densa	Nutrisol, Rojita	7
28. **(+)**		**Inflorescence: shape (clustering)**			**Inflorescencia: forma (agrupamiento)**		
	(b)	amaranth form			amarantiforme	Nutrisol	1
		glomerule form			glomerulada	Rojita, Revancha	2
29.		**Inflorescence: number of female flowers per glomerule**			**Inflorescencia: número de flores femeninas por glomérulo**		
	(b)	few			pocas		3
		medium			medias		5
		many			muchas		7
30.		**Inflorescence: size of bract relative to utricle**			**Inflorescencia: tamaño de las brácteas con relación al utrículo**		
	(b)	smaller			más pequeñas		1
		same size			del mismo tamaño		2
		larger			más grandes		3

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31.		**Inflorescence: time of emergence of inflorescence**			**Inflorescencia: época de aparición de inflorescencia**		
	(b)	early < 59 days			precoz < 59 días		3
		medium 59 - 75 days			media 59 - 75 días		5
		late > 75 days			tardía > 75 días		7
32. **(+)**		**Root: color at emergence of inflorescence**			**Raíz: color en emergencia de inflorescencia**		
		white			blanca		1
		red			roja		2
33.		**Plant: height (at maturity). From base of the plant to tip of the inflorescence**			**Planta: altura (en madurez) desde la base de la planta a la punta de la inflorescencia**		
		short < 1.5 m			baja < 1.5 m		3
		medium 1.5 – 2.5 m			media 1.5 – 2.5 m		5
		tall > 2.5 m			alta > 2.5 m		7
34.		**Plant: time of maturity**			**Planta: época de madurez**		
		early < 120 days			precoz < 120 días		3
		medium 120 - 140			media 120 – 140 días		5
		Late > 140			tardía > 140 días		7
35.		**Seed: weight per 1000 grains**			**Semilla: peso 1000 semillas al 10 % de humedad**		
	(c)	low < 0.6 gr.			bajo < 0.6 gr.		3
		medium 0.6 – 1 gr.			medio 0.6 – 1 gr.		5
		high > 1. gr.			Alto > 1 gr.		7

Char. No.	Method of Examination	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
36.		**Seed: color**			**Semilla: color**		
	(c)	white			blanco		1
		yellow			amarillo		2
		brown			café		3
		pink			rosa		4
		black			negro		5
		other: state color			otro: indique		6
37.		**Seed: shape**			**Semilla: forma**		
	(c)	spheroid			esferoide		1
		ellipsoid			elipsoidal	Nutrisol, Revancha	2
		discoid			discoide (aplanada tipo lenteja)	Rojita	3
38.		**Seed: type**			**Semilla: tipo**		
		translucent			traslúcido	Rojita, Nutrisol	1
		opaque			opaco	Revancha	2
39.		**Seed: pop percent (relative increase of volume)**			**Semilla: porcentaje de reventado (aumento relativo de volumen)**		
	(c)	low < 3			bajo < 3		3
		medium 3 - 4			medio 3 – 4		5
		high > 4			alto > 4		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) All observations of the growth habit, leaf and root should be made at full flowering (50% of the plants).

(b) All observations of inflorescence should be made on main inflorescence.

(c) All observations on the seed should be made on dry seed at harvest time.

8.2 Explanations for individual characteristics

Ad. 1: Species

CODE TO IDENTIFY SOME FOOD SPECIES OF FAMILY AMARANTHACEAE

A. UNISEXUAL FLOWERS.

B. Three tepals.

C. Tepals at same level or longer than utricle
circumscissile……..……..……..1. *Amarantus tricolor*

C. Tepals shorter than utricle: utricle indehiscent.

D. Utricle smooth…….. 2. *A. blitum*

D. Utricle rough ……..…..3. *A. viridis.*

B. Five Tepals.

B. Tepals almost equal length and curved to the utricle.

F. Thorny plants; inflorescence with upper staminate cyme and lower pistillate cymes……4. *A. spinosus.*

F. Plants without thorn cymes, with first staminate flower and the rest pistillate ……..……5. *A. dubius*

B. Inside tepals shorter than external, tepals straight or curved to the utricle.

G. Brats longer than style branches; inflorescences are small and thick or moderately developed; the seed is always dark.

H. Tepals as long as utricle, internal with obtuse or emarginated apex; utricle is not tower shaped, and the inflorescence is small and thick…….……6. *A. retrofiexus*

H. Tepals shorter than utricle, internal with acute apex; utricle has a narrowing in the apex, like tower shaped; inflorescence moderately developed……7. *A. hybridus.*

G. Bracts shorter than style branches; inflorescence very developed, reach a long size (typical in cultivated species); seeds usually of light colors, some times dark.

I. Bracts at same level than style branches; stiff inflorescence: the style branches makes a kind of split at base; tepals has an acuminated apex ……..……8.*A. hipochondriacus.*

I. Bracts shorter than style branches, drooping inflorescence.

J. Utricle with a narrowing in the apex, like a tower shape; upright style branches; tepals with acute apex…9. *A. cruentus.*

J. Utricle unlike tower shape; style branches are very sparse, grouping at base; broad tepals and frequently superimposed, internal has obtuse apex ……..……10. *A. caudatus.*

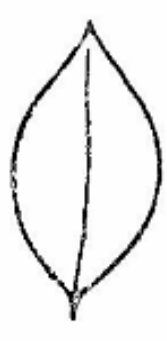
A. PERFECT FLOWER

K. Broad flowers at apex; like a cock comb ……11. *Celosia cristata*

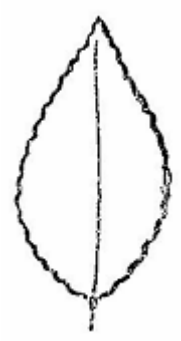
K. Flower forming simple ears……12. *C. argentea*

* Feine L. B. from Kaufman & Belder. 1984.

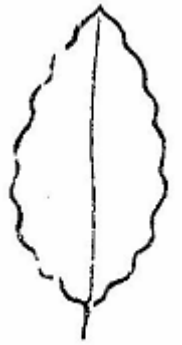
Ad. 8: Leaf: incisions of margin



1
absent



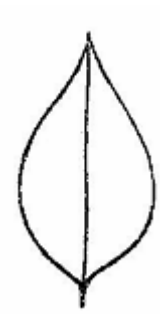
2
crenated



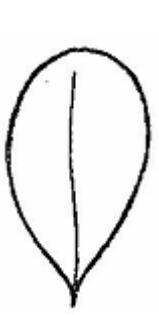
3
ondulate

Ad. 9. Leaf: shape

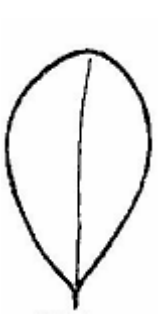
1
lanceolate



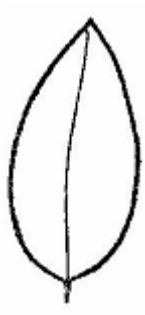
2
elliptic



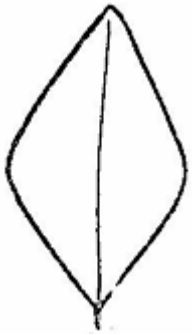
3
cuneate



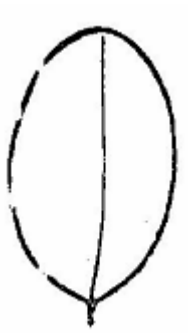
4
obovate



5
ovate



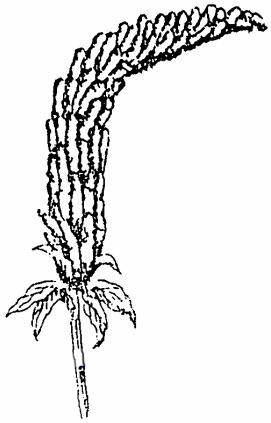
6
rhombic



7
ovoid

Ad: 24: Inflorescence: attitude

3
upright



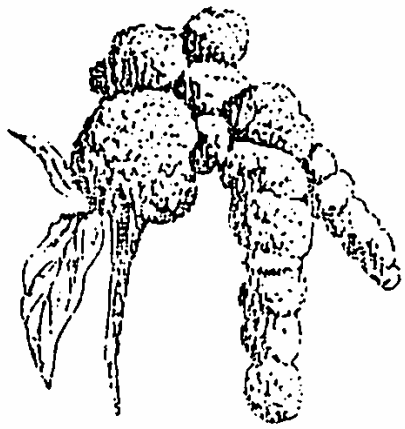
5
spreading

7
drooping

Ad. 27: Inflorescence: density

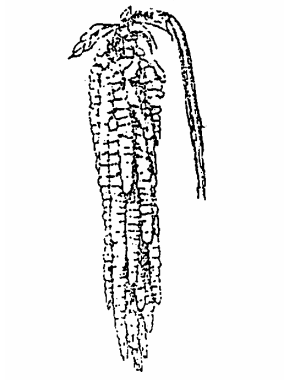
3
lax

5
medium



7
dense

Ad 28: Inflorescence: shape



1
amaranth form

2
glomerule form

Ad. 32: Root: color at emergence of inflorescence

The root should be extracted for the observations of color on root.

Ad. 35: Seed: weight per 1000 seeds

The seed weight should be measured on eight samples of 100 seeds, at moisture of 10%.

Characteristic 39. Seed: pop percent (relative increase of volume)

Determinate previously the moisture content (it must be between 14 and 16%); if it is necessary, should be soaked.

9. Literature

Mexican Experts in *Amaranth*: Carballo, Aquiles, e-mail: carballo@colpos.colpos.mx, Coordinator. Bernal, Roberto, Instituto Tecnológico Agropecuario (ITA) 29. Barrales, Sergio, Universidad Autónoma Chapingo (UACh). Sandoval, Humberto y Trinidad, José Antonio, Colegio de Postgraduados (CP). Espitia, Eduardo, INIFAP.

Figures from “Descriptores del germoplasma de Kiwicha”. Programa de Investigación de Cultivos Andinos, Instituto Nacional de Investigación Agraria. Universidad Nacional del Cusco, Perú.

Descriptors used by OMNI-Hungary (provided by COBORU)

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 *Latin Name*	*Amaranthus* spp.
1.2 Common Name	Amaranth

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

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

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 **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example		*(example to be inserted)*	*(example to be inserted)*

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 Special conditions for the examination of the variety

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

Yes [ ] No [ ]

7.2.2 If yes, please give details:

7.3 Other information

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.

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

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

[End of document]