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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

CUCURBITA MOSCHATA

UPOV Code: CUCUR_MOS

Cucurbita moschata Duch.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from France

*to be considered by the Technical Working Party for Vegetables (TWV)
at its fortieth session to be held in Guanajuato, Guanajuato State, Mexico,
from June 12 to 16, 2006*

Alternative Names:*

Botanical name	English	French	German	Spanish
<i>Cucurbita moschata</i> Duch.	Butternut, Butternut Squash, Cheese Pumpkin, China Squash, Cushaw, Golden Cushaw, Musky Gourd, Pumpkin, Winter Crookneck Squash	Citrouille, Courge musquée, Courge noix de beurre	Bisamkürbis, Moschuskürbis	Ayote, Calabaza de Castilla, Calabaza moscada, Calabaza pellejo, Chicamita, Lacayote, Sequaloa, Zapallo

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.

TG/155/3: Pumpkin, 96-10-18 TO UPDATE

TG/119/4: Vegetable Marrow, Squash, 2002-04-17

* 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 *Cucurbita moschata* Duch.

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:

200 g or 1,550 seeds

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

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

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

3. Method of Examination

3.1 *Number of Growing Cycles*

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

3.2 *Testing Place*

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

3.3 *Conditions for Conducting the Examination*

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 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 20 plants, which should be divided between two or more 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 on single plants should be made on 10 plants or parts taken from each of 10 plants and any other observations made on all plants in the test.

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 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.

4.2 *Uniformity*

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:

4.2.1 Cross-pollinated varieties

For the assessment of uniformity of cross-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 20 plants, 2 off-types are allowed.

4.2.2 Hybrid varieties

For the assessment of uniformity of hybrid 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 20 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 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.

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: length of main stem (characteristic 2)
- (b) Fruit: length (characteristic 15)
- (c) Fruit: maximum diameter (characteristic 16)
- (d) Fruit: shape in longitudinal section (characteristic 19)
- (e) Fruit: grooves (characteristic 25)
- (f) Fruit: marbling (characteristic 28)
- (g) Fruit: main color of skin (characteristic 30)
- (h) Fruit: warts (characteristic 33)

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*

(*) Asterisk characteristic – see Chapter 6.1.2

QL: Qualitative characteristic – see Chapter 6.3

QN: Quantitative characteristic – see Chapter 6.3

PQ: Pseudo-qualitative characteristic – see Chapter 6.3

MG: single measurement of a group of plants or parts of plants – see Chapter 3.3.1

MS: measurement of a number of individual plants or parts of plants – see Chapter 3.3.1

VG: visual assessment by a single observation of a group of plants or parts of plants – Chapter 3.3.1

VS: visual assessment by observation of individual plants or parts of plants – see Chapter 3.3.1

(a)-(c) 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/ Beispielssorten/ Variedades ejemplo	Note/ Nota
1.	VG	Seedling: shape of cotyledons	Plantule : forme des cotylédons			
PQ	narrow elliptic	elliptique étroit			Carre, Waltham	1
	medium elliptic	elliptique				2
	broad elliptic	elliptique large			Sunset, Zenith	3
	circular	circulaire				4
	obovate	obovale				5
2. (*)	VG	Plant: length of main stem	Plante: longueur de la tige principale			
QL	(a)	short	courte			1
		medium	moyenne		Butterbush	2
		long	longue		Ponca, Nippon, Nugget, Sunset	3
3.	VG	Stem: color To DELETE-to be discussed	Tige : couleur			
PQ	(a)	light green	vert clair		???	1
		light and dark green	vert clair et vert foncé		Nippon	2
		dark green	vert foncé		???	3
4.	VG	Leaf blade: size	Limbe : taille			
QN	(a)	small	petite		Futsu Kurokawa	3
		medium	moyenne		Muscade	5
		large	grande		Longue de Nice	7
5. (*)	VG	Leaf blade: incisions of the margin	Limbe : incisions du bord		<u>states – to be discussed</u>	
QN	(a)	absent or very shallow	absentes ou très peu profondes		Ponca	1
		shallow	peu profondes		Longue de Nice	2
		medium to deep	moyennes à profondes			3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	VG	Leaf blade: intensity of green color of upper side	Limbe : intensité de la couleur verte de la face supérieure			
QN	(a)	light	faible		Ponca	3
		medium	moyenne		Longue de Nice	5
		dark	forte		Futsu Kurokawa	7
7.	VG	Leaf blade: silver patches	Limbe : taches argentées			
QL	(a)	absent	absentes		Ponca	1
		present	présentes		Longue de Nice	9
8.	VG	Petiole: length	Pétiole : longueur			
QN		short	court		Futsu Kurokawa	3
	(a)	medium	moyen		Ponca	5
		long	long		Longue de Nice	7
9.	VG	Petiole: diameter	Pétiole : diamètre			
QN	(a)	small	petit		Futsu Kurokawa	3
		medium	moyen		Longue de Nice	5
		large	grand			7
10.	VG	Female flower: length of sepal	Fleur femelle : longueur du sépale			
QN	(a)	short	court			3
		medium	moyen		Sucrine du Berry	5
		long	long		Longue de Nice	7
11.	VG	Male flower: length of sepal	Fleur mâle : longueur du sépale			
QN	(a)	short	court		Futsu Kurokawa	3
		medium	moyen		Sucrine du Berry	5
		long	long		Longue de Nice	7
		very long	très long		Pleine de Naples	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12.	VG	Peduncle: length	Pédoncule : longueur			
QN	(b)	short	court		Ponca	3
		medium	moyen		Futsu Kurokawa, Longue de Nice	5
		long	long			7
13.	VG	Peduncle: diameter	Pédoncule : diamètre			
QN	(b)	small	petit		Futsu Kurokawa	3
		medium	moyen		Longue de Nice	5
		large	grand		Muscade	7
14.	VG	Fruit: intensity of green color of skin	Fruit : intensité de la couleur verte de l'épiderme			
QN	(b)	very light	très faible		Shishigatani	1
		light	faible		Ponca, Tancheese	3
		medium	moyenne			5
		dark	forte		Futsu Kurokawa	7
15.	MG / VG	Fruit: length	Fruit : longueur			
QN	(b)	very short	très court			1
		short	court		Ponca	3
		medium	moyen		Muscade	5
		long	long		Aegean Gold	7
		very long	très long		Longue de Nice, Trombolino d'Albenga	9
16.	MG / VG	Fruit: maximum diameter	Fruit : diamètre maximal			
QN	(b)	small	petit		Ponca	3
		medium	moyen		Pleine de Naples	5
		large	grand		Muscade	7

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17.	MG / VG	Fruit : ratio length/ maximum diameter	Fruit : rapport longueur / diamètre maximal			
QN	(b)	very small	très petit		Muscade	1
		small	petit		Futsu Kurokawa	3
		medium	moyen			5
		large	grand		Ponca	7
		very large	très grand		Longue de Nice	9
18.	VG	Fruit : position of maximum diameter	Fruit : position du diamètre maximum			
(*)	(b)	toward stem end	du côté de la tige			1
		at the middle	au milieu		Muscade	2
		toward blossom end	du côté de l'apex		Longue de Nice	3
19.	VG	Fruit: shape in longitudinal section	Fruit : forme en section longitudinale			
(*)	(+)					
PQ	(b)	transverse broad elliptical	elliptique transversale large		Muscade	1
		transverse elliptical	elliptique transversale		Tancheese, Nippon	2
		globular	globuleuse		Buckskin	3
		ovate	ovoïde			4
		quadrangular	quadrangulaire		Hayato	5
		trapezoidal	trapézoïde		Fagtoong	6
		pear shaped	pyriforme		Sucrine du Berry, Nugget	7
		club shaped	en massue		Longue de Nice, Trombolino d'Albenga	8
		cylindrical	cylindrique		Ponca	9
20.	VG	Fruit: neck	Fruit : col			
(*)	(b)	absent	absent			1
QL		present	présent			9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21.	VG	Fruit: curving of neck	Fruit : courbure du col			
QN	(b)	weak	faible		Ponca	3
		medium	moyenne		Longue de Nice	5
		strong	forte		Trombolino d'Albenga	7
22.	VG	Fruit : profile of base	Fruit : profil de la base			
(*)						
(+)						
PQ	(b)	depressed	déprimé		Muscade	1
		flat	plan		Sucrine du Berry	2
		raised	protubérant		Trombolino d'Albenga	3
23.	VG	Only varieties with Fruit:profil of base: depressed: Fruit: depth of depression at base	Seulement pour les variétés avec : Fruit : profil de la base : déprimé : Fruit : profondeur de la dépression à la base			
(+)						
QN	(b)	shallow	faible		Tancheese	3
		medium	moyenne		Futsu Kurokawa	5
		deep	forte		Muscade	7
24.	VG	Fruit: profile of apical part	Fruit : profil de la partie apicale			
(*)						
(+)						
PQ	(b)	depressed	déprimé		Muscade	1
		flat	plan		Sucrine du Berry	2
		raised	protubérant		Trombolino d'Albenga	3
25.	VG	Fruit: grooves	Fruit : cannelures			
(*)						
QL	(b)	absent	absentes		Sucrine du Berry	1
		présent	présentes		Muscade	9

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	VG	Fruit : distance between grooves	Fruit : distance entre les cannelures			
QN	(b)	short	courte		Futsu Kurokawa	3
		medium	moyenne		Tancheese	5
		long	longue		Muscade	7
27.	VG	Fruit: depth of grooves	Fruit: profondeur des cannelures			
QN	(b)	shallow	peu profonde		Tancheese	3
		medium	moyennement profonde		Futsu Kurokawa	5
		deep	profonde		Muscade	7
28.	VG	Fruit: marbling	Fruit : marbrures			
(*)						
QL	(b)	absent	absentes			1
		present	présentes		Ponca	9
29.	VG	Fruit: intensity of marbling	Fruit : intensité de la marbrure			
QN	(b)	weak	faible			3
		medium	moyenne			5
		strong	forte		Ponca	7
30.	VG	Fruit: main color of skin	Fruit : couleur principale de l'épiderme			
(*)						
PQ	(c)	cream	crème		Sunset	1
		yellow	jaune		Aegean Gold	2
		green	verte			3
		orange brown	orange marron		Muscade, Ponca	4
		brown	marron		Hyuga 14	5

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
31.	VG	Fruit: intensity of main color of skin	Fruit : intensité de la couleur principale de l'épiderme			
QN	(c)	light	claire			3
		medium	moyenne			5
		dark	foncée			7
32.	VG	Fruit: waxiness of skin	Fruit : pruine de l'épiderme			
		To DELETE- to be discussed				
QL	(c)	absent	absente			1
		present	présente		Futsu Kurokawa, Muscade	9
33.	VG	Fruit: warts	Fruit : verrues			
(*)						
QL	(c)	absent	absentes		Ponca	1
		present	présentes		Futsu Kurokawa	9
34.	VG	Fruit: number of warts	Fruit : nombre de verrues			
QN	(c)	few	peu nombreuses			3
		medium	moyennement nombreuses			5
		many	nombreuses		Futsu Kurokawa	7
35.	VG	Fruit: main color of flesh	Fruit : couleur principale de la chair			
(*)						
PQ	(c)	cream			???	1
		yellow			Futsu Kurokawa	2
		orange			Ponca, Tancheese	3
		reddish orange			???	4

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
36.	VG	Fruit: intensity of main color of flesh	Fruit : intensité de la couleur principale de la chair			
QN	(c)	light	claire			3
		medium	moyenne			5
		dark	foncée			7
37.	VG	Fruit: thickness of flesh	Fruit : épaisseur de chair			
(+)						
QN	(c)	thin	fine		Trombolino d'Albenga	3
		medium	moyenne		Longue de Nice	5
		thick	épaisse		Muscade	7
38.	VG	Fruit: size of flower scar	Fruit : taille de la cicatrice florale			
QN	(c)	small	petite		Trombolino d'Albenga	3
		medium	moyenne		Longue de Nice	5
		large	grande		Tancheese	7
39.	VG	Seed: length	Graine : longueur			
(*)						
QN	(c)	short	courte		Nugget, Futsu Kurokawa	3
		medium	moyenne		Waltham, Tancheese	5
		long	longue		Pleine de Naples	7
40.	VG	Seed: ratio length / width	Graine : ratio longueur / largeur			
(+)						
QN	(c)	small	petit			1
		medium	moyen			2
		large	grand			3

	English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
41.	VG	Seed: color	Graine : couleur			
PQ	(c)	white	blanche		???	
		cream	crème		Ponca	1
		yellow	jaune		Nippon, Nugget	2
		brown	marron		Longue de Nice	3
		blue-grey	bleu-gris		Sunset	4
42.	VG	Resistance to <i>Spaerotheca fuliginea</i> (Powdery mildew)	Résistance au <i>Spaerotheca fuliginea</i> (oïdium)		To be discussed (+)	
NEW						
QL		absent	absente		---	1
		present	présente		---	9
43.	VG	Resistance to Zucchini Yellow Mosaic Virus (ZYMV)	Resistance to Zucchini Yellow Mosaic Virus (ZYMV)		To be discussed (+)	
NEW						
QL		absent	absente		---	1
		present	présente		---	9
44.	VG	Resistance to Watermelon Mosaic Virus 2 (WMV 2)	Resistance to Watermelon Mosaic Virus 2 (WMV 2)		To be discussed (+)	
NEW						
QL		absent	absente		---	1
		present	présente		---	9
45.	VG	Resistance to Papaya Ring Spot Virus (PRSV)	Resistance to Papaya Ring Spot Virus (PRSV)		To be discussed (+)	
NEW						
QL		absent	absente		---	1
		present	présente		---	9
46.	VG	Resistance to Cucumber Mosaic Virus (CMV)	Resistance to Cucumber Mosaic Virus (CMV)		To be discussed (+)	
NEW						
QL		absent	absente		---	1
		present	présente		---	9

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:

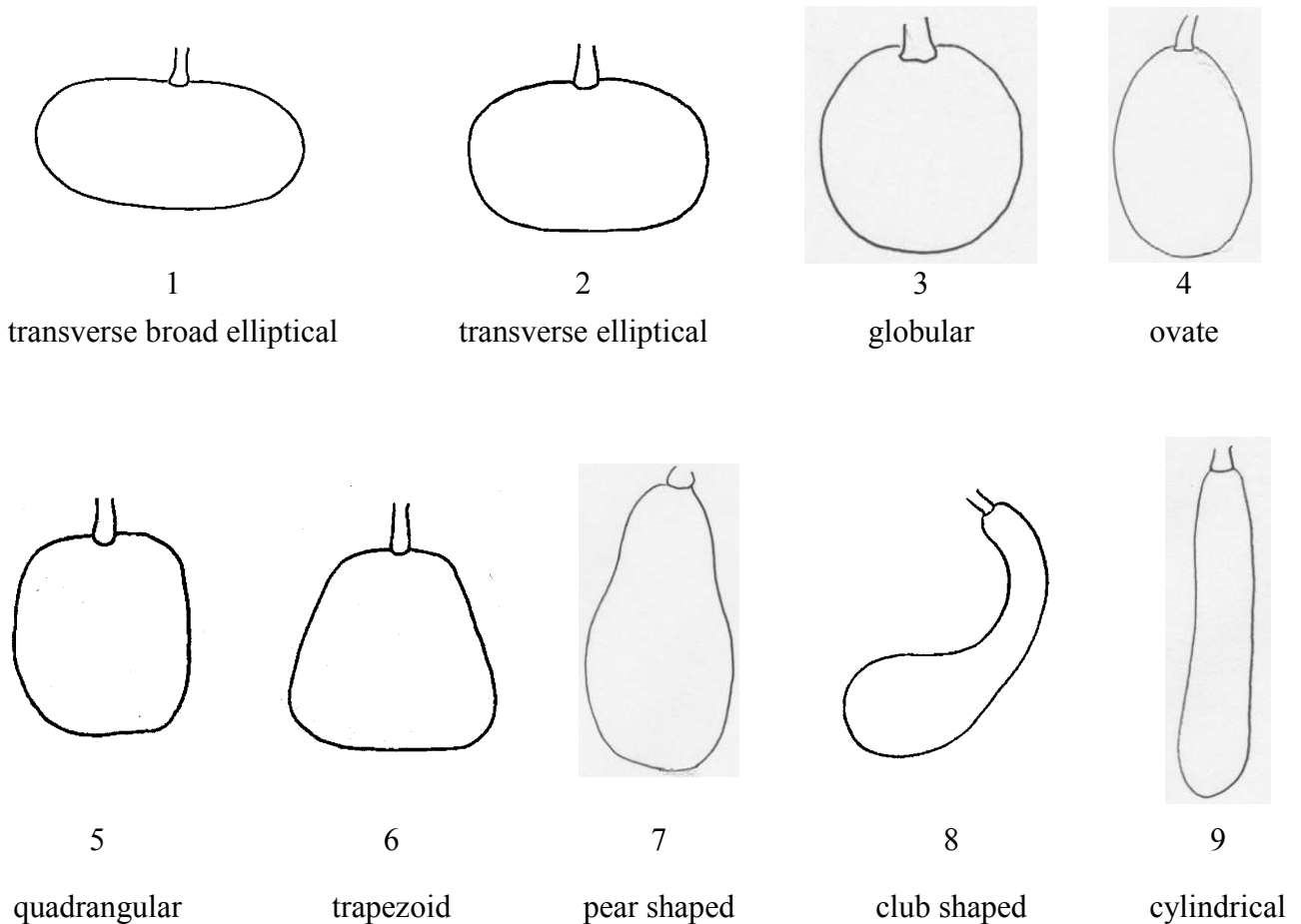
(a) All observations on the leaf should be on fully developed leaves, when the first fruit is fully developed.

(b) Observations realized on fully developed fruits before physiological maturity.

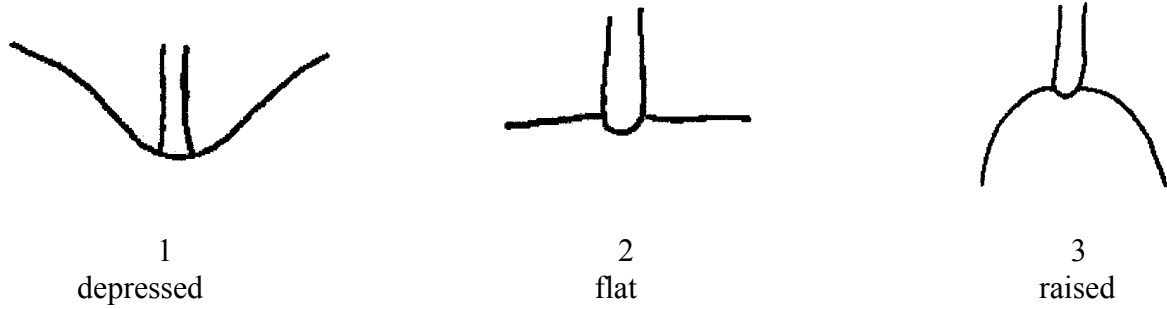
(c) Observations on the fruits should be made on fruits at physiological maturity.

8.2 Explanations for individual characteristics

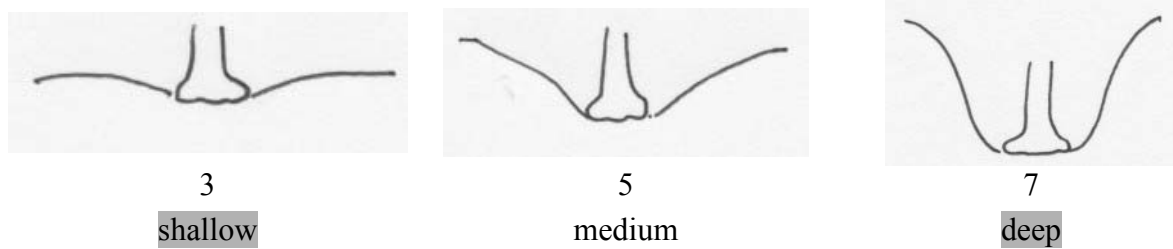
Ad. 19: Fruit: shape in longitudinal section



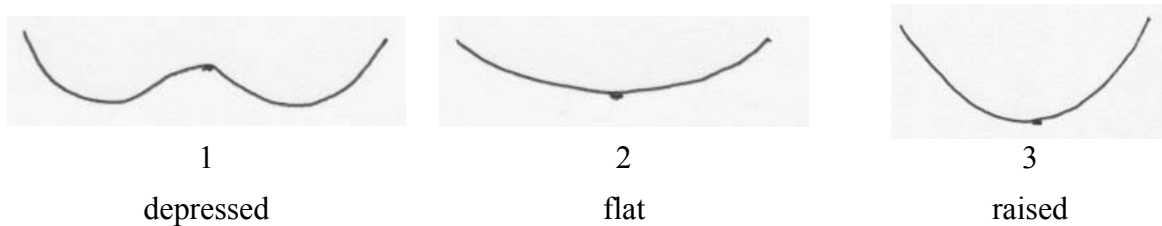
Ad. 22: Fruit: profile of base



Ad. 23: Fruit: depth of depression at base

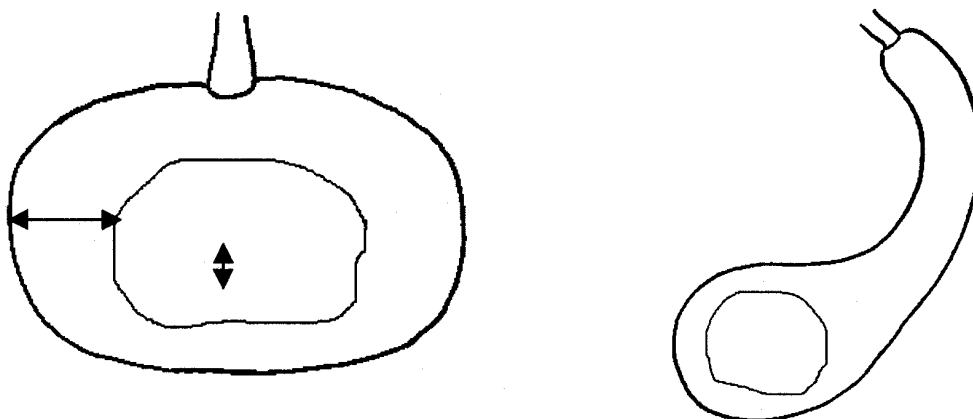


Ad. 24: Fruit: shape of apical part



Ad. 37: Fruit thickness of flesh

Thickness should be measured at the widest part of the flesh, at the level of the seed cavity.



Ad. 40: Seed: ratio length / width

			Width		
			3	5	7
			w ₁	w ₂	w ₃
Length	3	$L_1 = 2 w_1$	0.5	>0.5	>0.5
	5	$L_2 = 2 w_2$	<0.5	0.5	>0.5
	7	$L_3 = 2 w_3$	<0.5	<0.5	0.5

	ratio length / width	ratio length / width
narrow elliptic	is smaller than 0.5	1
elliptic	is close to 0.5	2
broad elliptic	is higher than 0.5	3

9. Literature

Chaux, C., Foury, C., 1994: Productions légumières – Tome 3 Légumineuses Potagères
Légumes fruits. Lavoisier TEC & DOC, Paris, FR, pp. 361 - 384





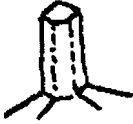

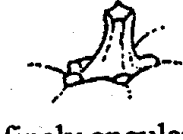

Prades, J. B., Prades, N., Renaud, V., 1995: Le grand livre des Courges. Rustica Edition.
Paris, FR, 183 pp.

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:
		Application date: (not to be filled in by the applicant)
TECHNICAL QUESTIONNAIRE to be completed in connection with an application for plant breeders' rights		
1. Subject of the Technical Questionnaire		
1.1 Botanical name	<input type="text" value="Curcurbita moschata Duch."/>	
1.2 Common name	<input type="text" value="Butternut"/>	
N.B.	The applicant should check that the variety is of <i>Curcurbita moschata</i> Duch. and not another species of <i>Curcurbita</i>	
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"/>	

Keys to distinguish:

Cucurbita pepo
Cucurbita maxima
Cucurbita moschata
Cucurbita ficifolia

	<i>Cucurbita pepo</i>	<i>Cucurbita maxima</i>	<i>Cucurbita moschata</i>	<i>Cucurbita ficifolia</i>
Leaf				
	with coarse hairs, with 5 lobes, often deeply lobed, often marbled	hairy, big and rounded leaf, margin often undulated	slightly lobed	strongly lobed, slightly coarse hairs
Peduncle				
	angular, rough and hard	rounded, soft and corky	finely angular, strongly widened at base	finely angular, thin and hard
Stem	angular, rough and hard	soft, rounded, with few hairs.	rough and hard	hard with grooves
Seed	beige, often small size: 8 to 20mm, flat to bulging, clearly edged. If the seed is without or with a very thin coat, they are brown to dark green.	white to brown, big size: 13 to 30mm, thick, surface generally smooth, sometimes granular	light brown, surface generally felt-covered, clearly edged.	intense black, sometimes brown, slightly granular

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) 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)	[]”	
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>		

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>4.2 Method of propagating the variety</p> <p>4.2.1 Seed-propagated varieties</p> <p>(a) Self-pollination []</p> <p>(b) Cross-pollination (i) population [] (ii) synthetic variety []</p> <p>(c) Hybrid []</p> <p>(d) Other [] (please provide details)</p> <p>4.2.2 Other [] (please provide details)”</p> <div style="border: 1px solid black; height: 36px; width: 461px; margin-left: 200px;"></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	
5.1 Plant: length of main stem (2)			
<input type="checkbox"/> short		1 [...]	
<input type="checkbox"/> medium	Butterbush	2 [...]	
<input type="checkbox"/> long	Ponca, Nippon, Nugget, Sunset	3 [...]	
5.2 Leaf blade: incisions of the margin (5)			
absent or very shallow	Ponca	1 [...]	
shallow	Longue de Nice	2 [...]	
medium to deep		3 [...]	
5.3 Fruit: length (15)			
very short		1 [...]	
short	Ponca	3 [...]	
medium	Muscade	5 [...]	
long	Aegean Gold	7 [...]	
very long	Longue de Nice, Trombolino d'Albenga	9 [...]	
5.4 Fruit: maximum diameter (16)			
small	Ponca	3 [...]	
medium	Pleine de Naples	5 [...]	
large	Muscade	7 [...]	

TECHNICAL QUESTIONNAIRE		Page {x} of {y}	Reference Number:
Characteristics	Example Varieties	Note	
5.5 Fruit: shape in longitudinal section (19)			
transverse broad elliptical	Muscade	1[...]	
transverse elliptical	Tancheese, Nippon	2[...]	
globular	Buckskin	3[...]	
ovate		4[...]	
quadrangular	Hayato	5[...]	
trapezoid	Fagtoong	6[...]	
pear shaped	Sucrine du Berry, Nugget	7[...]	
club shaped	Longue de Nice, Trombolino d'Albenga	8[...]	
cylindrical	Ponca	9[...]	
5.6 Fruit: curving of neck (21)			
weak	Ponca	3[...]	
medium	Longue de Nice	5[...]	
strong	Trombolino d'Albenga	7[...]	
5.7 Fruit: grooves (25)			
absent	Sucrine du Berry	1 [...]	
present	Muscade	9 [...]	
5.8 Fruit: main color of skin (30)			
cream	Sunset	1 [...]	
yellow	Aegean Gold	2 [...]	
green		3 [...]	
orange brown	Muscade, Ponca	4 [...]	
brown	Hyuga 14	5 [...]	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:	
Characteristics	Example Varieties	Note	
5.9 Fruit: warts (33)			
absent	Ponca	1 [...]	
present	Futsu Kurokawa	9 [...]	

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 similar variety(ies)	Describe the expression of the characteristic(s) for your candidate variety
<i>Example</i>	<i>Fruit: main color of skin</i>	<i>yellow</i>	<i>orange</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>A representative color photograph of the variety should accompany the Technical Questionnaire.</p>		
<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:
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9. Information on plant material to be examined or submitted for examination.

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

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

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

Please provide details for where you have indicated “yes”.

.....

9.3 Has the plant material to be examined been tested for the presence of virus or other pathogens?

Yes []

(please provide details as specified by the Authority)

No []

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

Applicant's name			
Signature		Date	