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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

*

PUMPKIN

UPOV Code: CUCUR_MAX

Cucurbita maxima Duch.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from South Africa and 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*
Cucurbita maxima Duch.	Pumpkin	Potiron		

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/---/---: *Cucurbita moschata*, 2006?

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 maxima* 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 1,500 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

The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction.

4.2.2 Hybrid varieties, pure lines, parental lines

For the assessment of uniformity of hybrid varieties, pure lines and parental 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 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 11)
c) Fruit: maximum diameter (characteristic 12)
d) Fruit: general shape in longitudinal section (characteristic 14)
e) Fruit: main color of skin (characteristic 22)
f) Fruit: number of colors of skin (characteristic 24)

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 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		elliptical	elliptique			Uchiki Kuri	1
		broad elliptical	elliptique large			Bush Prince, Jaune gros de Paris	2
		obovate	obovale			Big Max, Pacifica	5
2. (*)	**VG**	**Plant: length of main stem**	**Plante: longueur de la tige principale**				
QN	**(a)**	very short				Golden Nugget	1
		short				Sweet Mama	3
		medium					5
		long				Jaune gros de Paris	7
		very long				Green Hubbard	9
3.	**VG**	**Stem: color**	**Tige : couleur**				
PQ	**(a)**	light green	vert clair				1
(+)		light and dark green	vert clair et vert foncé			Pacific King	2
		dark green	vert foncé				3
4.	**VG**	**Leaf blade: size**	**Limbe : taille**				
QN	**(a)**	very small	très petite			Earli Dri-Crown, Royal Crown	1
		small	petite			Baby Blue, Bush Grey, Star 7025,	3
		medium	moyenne			Delica, Marlbourough Grey	5
		large	grande			Jaune gros de Paris, Star 7020, Star 7024	7
		very large	très grande				9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
5. (*)	**VG**	**Leaf blade: intensity of green color of upper side**	**Limbe : intensité de la couleur verte de la face supérieure**				
QN	**(a)**	light	claire			Elza	3
		medium	moyenne			Delica, Jamboree, Royal Crown	5
		dark	foncée			Japan Cup, Star 7020	7
6. ***NEW***	**VG**	**Leaf blade: silvery patches**	**Limbe : taches argentées**				
QL	**(a)**	absent	absentes			Malborough Grey	1
		present	présentes				9
7.	**VG**	**Petiole: length**	**Pétiole : longueur**				
QN	**(a)**	short	court			Crown Prince, Doux d'Okkaïdo, Earli-Dri Crown	3
		medium	moyen			Bush Prince, Sweet Mama	5
		long	long			Star 7020, Uchiki Kuri	7
8.	**VG**	**Petiole: diameter (at base)**	**Pétiole : diamètre (à la base)**				
QN	**(a)**	small	petit			Crown Prince, Maxi Prince, Uchiki Kuri	3
		medium	moyen			Bush Prince, Delica	5
		large	grand			Gladiator, Star 7020	7
9.	**VG**	**Female flower: length of sepal**	**Fleur femelle : longueur du sépale**				
QN	**(a)**	short	court			Uchiki Kuri	3
		medium	moyen			Jaune gros de Paris, Pacifica	5
		long	long			Crown Prince, Elza	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
10.	**VG**	**Male flower: length of sepal**	**Fleur mâle : longueur du sépale**				
QN	**(a)**	short	courte			Delica, Turks Turban	3
		medium	moyenne			Hubbard Blue	5
		long	longue			Big Moon	7
11. (*)	**MG / VG**	**Fruit: length**	**Fruit : longueur**				
QN	**(b)**	very short	très court			Golden Nugget	1
		short	court			Uchiki Kuri	3
		medium	moyen			Golden Hubbard	5
		long	long			Big Moon	7
		very long	très long			Banana Pink Jumbo	9
12. (*)	**MG / VG**	**Fruit: maximum diameter**	**Fruit : diamètre maximal**				
QN	**(b)**	small	petit			Uchiki Kuri	3
		medium	moyen				5
		large	grand			Big Max, Rouge vif d'Etampes	7
		very large	très grand			Prizewinner	9
13. ***NEW***	**MG / VG**	**Fruit : ratio length/ maximum diameter**	**Fruit : rapport longueur / diamètre maximal**				
QN	**(b)**	very small	très petit				1
		small	petit				3
		medium	moyen				5
		large	grand				7
		very large	très grand				9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
14. (*) (+)	**VG**	**Fruit: general shape in longitudinal section**	**Fruit : forme générale en section longitudinale**				
PQ	**(b)**	capped	en turban			Giraumon Turban, Turks Turban	1
		transverse elliptical	elliptique transverse			Sweet Mama	2
		broad transverse elliptical	elliptique transversale large			Jaune gros de Paris, Mammouth	3
		circular	circulaire			Big Mama	4
		trapezoïd	trapézoïdale			Buttercup	5
		heart shape	cordiforme			Golden Delicious	6
		obovate	obovale			Doux d'Okkaïdo, Green Baby	7
		pear shape	piriforme			Golden Hubbard	8
		narrow elliptical	elliptique étroit			Banana	9
		elliptical	elliptique			Banana Pink Jumbo	10
		rectangular	rectangulaire				11
15. (*) ***NEW***	**VG**	**Fruit : position of maximum diameter**	**Fruit : position du diamètre maximum**				
PQ		towards the base	du coté de la base			Golden Delicious	1
		in the middle	au milieu			Rouge vif D'Etampes	2
		towards the apex	du coté de l'apex			Golden Hubbard	3
16. (*) (+)	**VG**	**Fruit :profile of base**	**Fruit : profil de la base**				
PQ	**(b)**	depressed	déprimé			Rouge vif d'Etampes	1
		flat	plan			Delica	2
		raised	protubérant			Doux d' Okkaïdo	3

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
17. **(+)** ***NEW***	**VG**	**<u>Only for varieties with a depressed base</u>: Fruit: depth of depression at base**	**<u>Seulement pour les variétés à la base déprimée</u> : Fruit : profondeur de la dépression à la base**				
QN	**(b)**	shallow	faible				3
		medium	moyenne				5
		deep	forte				7
18. **(*)** **(+)**	**VG**	**Fruit: profile of apical part (flower scar included)**	**Fruit : profile de la partie apicale (cicatrice florale incluse)**				
PQ	**(b)**	depressed	déprimé			Rouge vif d'Etampes	1
		flat	plan				2
		raised	protubérant			Hubbard Blue	3
19. **(*)**	**VG**	**Fruit: grooves**	**Fruit : cannelures**				
QL	**(b)**	absent	absent			Jaune gros de Paris	1
		present	présent			Big Moon, Rouge vif d'Etampes	9
20.	**VG**	**<u>Only varieties with Fruit grooves present</u>: Fruit : distance between grooves**	**<u>Seulement pour les variétés avec fruits avec des cannelures :</u> Fruit : distance entre les cannelures**				
QN	**(b)**	short	court				3
		medium	moyen			Regal Early	5
		long	long			Big Moon	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
21.	**VG**	**Only varieties with Fruit grooves present: Fruit: depth of grooves**	**Seulement pour les variétés avec fruits avec des cannelures : Fruit: profondeur des cannelures**				
QN	**(b)**	shallow	peu profonde				3
		medium	moyennement profonde				5
		deep	profonde				7
22. (*)	**VG**	**Fruit: main color of skin**	**Fruit : couleur principale de l'épiderme**				
PQ	(c)	white	blanc			Valenciano	1
		cream	crème				2
		yellow	jaune			Jaune gros de Paris	3
		orange	orange			Regal Early	4
		red	rouge			Rouge vif d'Etampes	5
		pink	rose			Giraumon Turban	6
		green	vert			Delica, Pacifica	7
		grey green	gris vert			Japan Cup, Star 7024	8
		grey	gris			Baby Blue, Early Jarrah Grey, Hubbard Blue	9
23.	**VG**	**Fruit: intensity of main color of skin (except for white and cream main color of skin)**	**Fruit : intensité de la couleur principale de l'épiderme (sauf pour les couleurs principales d'épiderme blanc et crème)**				
QN	**(c)**	light	claire				3
		medium	moyenne				5
		dark	foncée			Star 7024	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
24. (*)	**VG**	**Fruit: number of colors of skin**	**Fruit: nombre de couleurs de l'épiderme**				
QN	**(c)**	one	une			Gladiator	1
		two	deux			Uchiki Kuri	2
		more than two	plus de deux			Turks Turban	3
25. (*)	**VG**	**Fruit: secondary color of skin**	**Fruit: couleur secondaire de l'épiderme**				
PQ	**(c)**	white	blanc				1
		cream	crème				2
		yellow	jaune				3
		orange	orange				4
		red	rouge				5
		pink	rose				6
		green	vert				7
		grey green	gris vert				8
		grey	gris			Delica	9
26. (*)	**VG**	**Fruit : distribution of secondary color**	**Fruit: répartition de la couleur secondaire**				
QL	**(c)**	only patches	tâches uniquement			Atlantic Giant	1
		only stripes	rayures uniquement			Turks Turban	2
		patches and stripes	tâches et rayures			Delica	3
27.	**VG**	**Fruit: texture of surface**	**Fruit : texture de la surface**				
QL	**(c)**	smooth	lisse			Rouge vif d'Etampes, Uchiki Kuri	1
		rough	rugueuse			Blue Hubbard, Delica	2
		warted	verruqueuse			Chicago Warted Hubbard	3
		bubbled	boursouflée			Marina di Chioggia	4

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
28. (*)	**VG**	**Fruit: cork formation**	**Fruit : formation de liège**				
QL	**(c)**	absent	absent			Rouge vif d'Etampes	1
		in dots	en points			Jaune gros de Paris	2
		netted	en filet			Brodée galeuse d'Eysine	3
29. ***NEW***	**VG**	**Fruit: thickness of cork**	**Fruit : épaisseur du liège**				
QN	**(c)**	thin	faible			Jaune gors de Paris	3
		medium	moyenne				5
		thick	forte			Brodée galeuse d'Eysine	7
30. ***NEW***	**VG**	**Fruit: size of flower scar**	**Fruit : taille de la cicatrice florale**				
QN	**(c)**	small	petite			Blue Hubbard, Pondorosa	3
		medium	moyenne			Buttercup, Pacific King	5
		large	grande			Crown Prince, Turks Turban	7
31. (*)	**VG**	**Fruit: main color of flesh**	**Fruit : couleur principale de la chair**				
PQ	**(c)**	cream	crème				1
		yellow	jaune			Giraumon Turban, Pondorosa, Star 7024	2
		orange	orange			Jamboree, Uchiki Kuri	3
		reddish orange	orange rouge			Rouge vif d'Etampes, Uchiki Kuri	4
32.	**VG**	**Fruit: intensity of main color of flesh**	**Fruit : intensité de la couleur principale de la chair**				
QN	**(c)**	light	claire			Star 7024	3
		medium	moyenne				5
		dark	foncée			Jamboree	7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
33. *NEW*	**VG**	**Peduncle: length**	**Pédoncule : longueur**				
QN	**(b)**	short	court				3
		medium	moyen				5
		long	long				7
34. *NEW*	**VG**	**Peduncle: diameter**	**Pédoncule : diamètre**				
QN	**(b)**	small	petit				3
		medium	moyen				5
		large	grand				7
35. (*)	**VG**	**Seed: size**	**Graine: taille**				
QN		small	petite				
		medium	moyenne				
		large	grande				
36. (*)	**VG**	**Seed: shape**	**Graine: forme**				
PQ		very narrow elliptique	elliptique très étroite				
		narrow elliptic	elliptique étroite				
		elliptic	elliptique				
37. (*)	**VG**	**Seed: color**	**Graine : couleur**				
PQ	**(c)**	whithish	blanchâtre			Jaune gros de Paris	1
		yellowish	jaunâtre				2
		brownish	brunâtre			Uchiki Kuri	3

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 which should be on fully developed leaves, when the first fruit is fully developed.

(b) Observations which should be on fully developed fruit, before physiological maturity.

(c) Observations which should be on fruit at physiological maturity.

8.2 Explanations for individual characteristics

Ad. 3: Stem: color

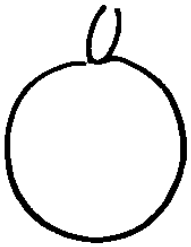
[Explanation still to be provided]

Ad. 14: Fruit: shape in longitudinal section

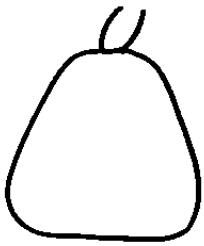
1
capped

2
transverse elliptical

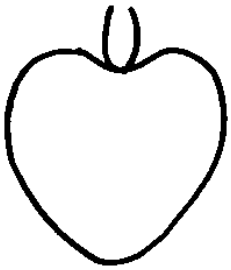
3
broad transverse elliptical



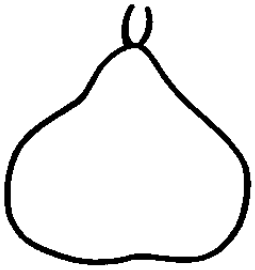
4
circular



5
trapezoid

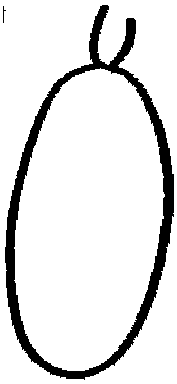


6
heart shape

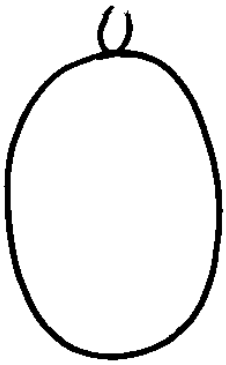


7
obovate

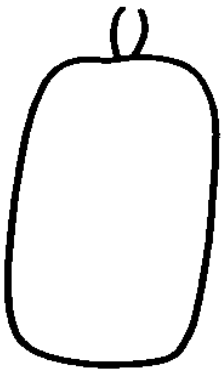
8
pear shape



9
narrow elliptical



10
elliptical

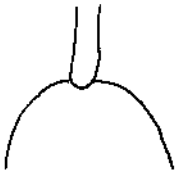


11
rectangular

Ad 16: Fruit: profile of base

1
depressed

2
flat



3
raised

Ad. 17: Only for varieties with a depressed base: Fruit: depth of depression at base

3
shallow

5
medium

7
deep

Ad. 18: Fruit: profile of apical part (flower scar included)

1
depressed

2
flat

3
raised

9. Literature

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

Brancucci, M., Bänziger, E., Das grosse Buch vom Kürbis. Midena & FONA Verlag GmbH, Aarau/Küttigen, Oldenburg, D, 173 pp.

Higgins, J., 1980: Species Identification of some Curcurbita Cultivars, J. Natn. Inst. Agric. Bot., 15, 281-287.

Tapley, William T., Enzie, Walter D., Van Eseltine, Glen P., 1937: The Vegetables of New York, Vol. 1, Part IV The Cucurbits, Albany, New York.

Whitaker, T.W., Bohn, G.W., 1950: The Taxonomy, Genetics, Production and Uses of the Cultivated Species of Curcurbita, Econ. Bot., 4, 52-81.

Whitaker, T.W., Davis, G.N., 1962: Curcurbits, Botany, Cultivation and Utilization, World Crop Books, London, New York.

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	*Cucurbita maxima* Duch.
1.2 Common name	Pumpkin
1.3 Advisory Note:	The applicant should check that the variety is of *Cucurbita maxima* Duch and not another species of *Cucurbita*.

Sources: Brancucci *et al*. (2000), Chaux *et al.* (1994)

2. Applicant

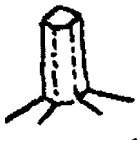
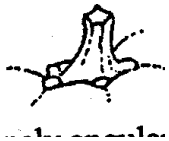
Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

Keys to distinguish:

Cucurbita pepo
Cucurbita maxima
Cucurbita moschata
Cucurbita ficifolia

	Cucurbita pepo	*Cucurbita maxima*	*Cucurbita moschata*	*Cucurbita ficifolia*
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 discoveredand how developed)

4.1.4 Other [ ]
(please provide details)"

4.2 Method of propagating the variety

Seed-propagated varieties

(a) Cross-pollination [ ]

(b) Hybrid [ ]

(c) 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:

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		Note
5.1 (2)	**Plant: length of main stem**		
	very short	Golden Nugget	1 […]
	short	Sweet Mama	3 […]
	medium		5 […]
	long	Jaune gros de Paris	7 […]
	very long	Green Hubbard	9 […]
5.2 (11)	**Fruit: length**		
	very short	Golden Nugget	1 […]
	short	Uchiki Kuri	3 […]
	medium	Golden Hubbard	5 […]
	long	Big Moon	7 […]
	very long	Banana Pink Jumbo	9 […]
5.3 (12)	**Fruit: maximum diameter**		
	small	Uchiki Kuri	3 […]
	medium		5 […]
	large	Big Max, Rouge vif d'Etampes	7 […]
	very large	Prizewinner	9 […]

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

	Characteristics		Note
5.4 (14)	**Fruit: general shape in longitudinal section**		
	capped	Giraumon Turban, Turks Turban	1 […]
	transverse elliptical	Sweet Mama	2 […]
	broad transverse elliptical	Jaune gros de Paris, Mammouth	3 […]
	circular	Big Mama	4 […]
	trapezoïd	Buttercup	5 […]
	heart shape	Golden Delicious	6 […]
	obovate	Doux d'Okkaïdo, Green Baby	7 […]
	pear shape	Golden Hubbard	8 […]
	narrow elliptical	Banana	9 […]
	elliptical	Banana Pink Jumbo	10 […]
	rectangular		11 […]
5.5 (19)	**Fruit: grooves**		
	absent	Jaune gros de Paris	1 […]
	present	Big Moon, Rouge vif d'Etampes	9 […]
5.6 (22)	**Fruit: main color of skin**		
	white	Valenciano	1 […]
	cream		2 […]
	yellow	Jaune gros de Paris	3 […]
	orange	Regal Early	4 […]
	red	Rouge vif d'Etampes	5 […]
	pink	Giraumon Turban	6 […]
	green	Pacifica, Delica	7 […]
	grey green	Japan Cup, Star 7024	8 […]
	grey	Baby Blue, Early Jarrah Grey, Hubbard Blue	9 […]

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

	Characteristics		Note
5.7 (24)	**Fruit: number of colors of skin**		
	one	Gladiator	1 […]
	two	Uchiki Kuri	2 […]
	more than two	Turks Turban	3 […]
5.7 (28)	**Fruit: cork formation**		
	absent	Rouge vif d'Etampes	1 […]
	in dots	Jaune gros de Paris	2 […]
	netted	Brodée galeuse d'Eysine	3 […]

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	*Fruit: main color of skin*	*yellow*	*orange*

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

A representative color photograph of the variety should accompany the Technical Questionnaire.

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.

[#] 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:

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]