TG/SESAME(proj.3)
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UPOV

INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

GENEVA

DRAFT

SESAME

UPOV code: SESAM_IND

(*Sesamum indicum* L.)

*

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Israel

to be considered by the
Technical Working Party for Agricultural Crops at its thirty-sixth session,
to be held in Budapest, Hungary, from May 28 to June 1, 2007

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Sesamum indicum L.	Sesame	Sésame	Sesam	Sésamo

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.

* 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.]

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Sesamum indicum* L.

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:

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

3.3.3 Type of observation – visual or measurement

The recommended method of observing the characteristic is indicated by the following key in the second column of the Table of Characteristics:

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants]

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

A: spaced plants
B: row plot

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 50 plants, which should be divided between at least two replicates.

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

3.5 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, all observations should be made on 20 plants or parts taken from each of 20 plants.

3.6 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The 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

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, a population standard of 2% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 50 plants, 3 off-types are allowed.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be tested, either by growing a further generation, or by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the previous material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: growth habit (characteristic 1)
(b) Leaf blade: length/width ratio (characteristic 10)
(c) Flowering stem: number of flowers per leaf axil (characteristic 17)
(d) Capsule: number of carpels (characteristic 22)
(e) Capsule: dehiscence at ripening (characteristic 27)
(f) Seed coat: color (characteristic 28)

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, MS, VG, VS: See Chapter 3.3.3

A, B: See Chapter 3.3.4

(+) See Explanations on the Table of Characteristics in Chapter 8.1

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**	**Plant: growth habit**					
QL	**A**	indeterminate				Arawaka	1
		determinate					2
2. (*)	**VG**	**Plant: branching**					
QL	**A**	absent				Teras	1
		present				Jori	9
3.	**VG**	**Plant: position of branches**					
PQ	**A**	basal only				Rush	1
		basal and upper half				Mafaza Light	2
		upper half only				Jori	3
4.	**MS**	**Stem: number of nodes to 1st flower**					
QN	**A**	few					3
		medium				Suke No. 5	5
		many				Adi	7
5.	**VG**	**Stem: pubescence**	**IL: propose to keep as it is**				
QN	**A**	absent or very weak				Zirra	1
		weak				Yaefuh	3
		medium				Jori	5
		strong				Anna	7
		very strong					9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
6.	**MS**	**Stem: length (at start of flowering)**					
QN	**A**	short					3
		medium					5
		long					7
7.	**VG**	**Stem: fasciation**					
QL	**A**	absent				Jori	1
(*)		present				Adi	
8.	**MS**	**Leaf blade: length**					
QN	**A**	short					3
		medium					5
		long					7
9.	**MS**	**Leaf blade: width**					
QN	**A**	narrow					3
		medium					5
		broad					7
10. (*)	**MS**	**Leaf blade: length/width ratio**					
QN	**A**	small				Gouri	3
		medium				Venezuela 51	5
		large				Margo Short	7
11. (+)	**VG**	**Leaf blade: degree of lobing**	**IL: there is no further explanation; the TWA proposed to delete**			**TO BE DISCUSSED (see explanation)**	
QN	**B**	weak					3
		medium					5
		strong					7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
12.	**VG**	**Leaf blade: intensity of green color**					
QN	**B**	light					3
		medium					5
		dark					7
13. (*)	**VG**	**Leaf blade: anthoycyanin coloration**					
QL	**B**	absent					1
		present					9
14. (*)	**VG**	**Leaf blade: enations on lower side**	**IL: the right word is enations, not venation. Enation=outgrowing from the surface**				
QL	**A**	absent					1
		present					9
15.	**MS**	**Petiole: length**					
QN	**A**	short					3
		medium					5
		long					7
16. (*)	**VG**	**Petiole: anthocyanin coloration**					
QL	**B**	absent				Glauca	1
		present				Dalamit	9
17. (*)	**MS**	**Flowering stem: number of flowers per leaf axil**					
QL	**A**	one					1
		more than one					2

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
18. (*)	**VG**	**Flowering stem: nectaries**	**IL: for explanation see ex. varieties**				
QL	**A**	absent				Maporal	1
		present				Exute	9
19.	**VG**	**Flower: intensity of pink color at outer side of corolla**					
QN	**B**	light				Arawaka	3
		medium				Abusnduk	5
		dark				Segaranten	7
20.	**VG**	**Flower: intensity of pink color at inner side of lower lip**	**IL: with intensity it is weak/medium/strong; without intensity it is light/medium/dark**				
QN	**B**	absent or very light					1
		light					3
		medium					5
		dark					7
		very dark					9
21.	**VG**	**Flower: pubescence of corolla**	**IL: possible to use density, but then the states are sparse/medium/dense**				
QN	**B**	absent or very weak	I prefere to keep as it is				1
		weak					3
		medium					5
		strong					7
		very strong					9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
NEW (21a)	**MS**	**Plant: number of capsules**	IL: only possible for determinate varieties. A lot of work Plant characteristic: not here				
		few	proposed by TWA				
		medium					
		many					
22. (*)	**VG**	**Capsule: number of carpels**					
QL	**A**	two				Teras	1
		more than two				Adi	2
23. (*)	**MS**	**Capsule: length**					
QN	**A**	short				Arawaka	3
		medium				Aceitera	5
		long					7
24. (*)	**MS**	**Capsule: maximum width**	**TWA: Capsule: with**				
QN	**A**	narrow	IL: keep maximum			Aceitera	3
		medium	this makes it clear where to measure				5
		broad				Adi	7
25.	**VG**	**Capsule: pubescence**	**IL: see 21**				
QN	**B**	absent or very weak					1
		weak					3
		medium					5
		strong					7
		very strong					9

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
26.	**VG**	**Capsule: anthocyanin coloration**					
QL	**B**	absent				Arawaka	1
		present				Maporal	9
27. (*)	**VG**	**Capsule: dehiscence at ripening**	**IL: splitting apart of the carpels. Is explanation necessar?**				
QL	**B**	absent				Yaefuh	1
		present				Maporal	9
NEW (27a)	**VG**	**Capsule: color at ripening**	IL: better before char 27				
PQ	**B**	yellowish green					1
		green					2
		dark green					3
		purple					4
28. (*)	**VG**	**Seed coat: color**	**TWA: PQ**				
QL		white	IL: keep QL?				1
		grey				Jasbrouk	2
		yellow				Zirra	3
		green				?	4
		brown				Exute	5
		black				Gomi	6
29.	**VG**	**Excludind varieties with white or black seed coat: Seed coat: intensity of color**					
QN		light					3
		medium					5
		dark					7

		English	français	deutsch	español	Example Varieties/ Exemples/ Beispielssorten/ Variedades ejemplo	Note/ Nota
30. (*)	**VG**	**Seed coat: relief**					
QL		smooth				Karipucha	1
		rough				Exute	2
NEW (30a)	**MG**	Seed: weight of 100 seeds	TWA: weight of 100 grains				
QN		low	IL: o.k.				3
		medium					5
		high					7
31. (*)	**VG**	**Time of beginning of flowering**					
QN	**B**	early					3
		medium					5
		late					7
32.	**VG**	**Time of ripening**	**IL: color change and dehiscence of capsule**				
QN	**B**	early	Could be defined as: 10% pf plants with at least one ripening capsule				3
		medium					5
		late					7
NEW (32a)	**VG**	**Stem: color at ripening**	IL: prefer to have this char at green stage, after char 4				
PQ		light green					1
		medium green					2
		purple					3

8. Explanations on the Table of Characteristics

8.1 Explanations for individual characteristics

Ad. 11: Leaf blade: degree of lobing

Description of the leaf shape is very difficult because of the gradual change of shape along the stem. Leaves become narrower towards the apex of the plant. The use of a fixed leaf (for instance the 5th leave from the bottom) was found impossible. The only way seems to be to give a general impression in terms of "degree of lobing" of a "typical" leaf in the middle of the stem.

Possible additional characteristics to be considered:

- Stem: shape in cross section

- Seed: 1000-seed weight

9. Literature

Descriptors for Sesame. International Board for Plant Genetic Resources, Rome, 1981.

Joshi A.B., 1961. Sesamum. Indian Central Oilseeds Committee.Hyderabad-1, India, pp. 109.

Bar-Tel, B. & Zwia Goldberg, 1985. Descriptors for Sesame - A Modified Approach. Sesame and Safflower : Status and Potentials. FAO Plant Production and Protection Paper 66,Rome.

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	*Sesamum indicum* L.
1.2 Common name	Sesame

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	

Breeder (if different from applicant)

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

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

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(b) partially known cross [ ]
(please state known parent variety(ies))

(c) unknown cross [ ]

4.1.2 Discovery and development [ ]
(please state where and when discovered
and how developed)

4.1.3 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

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

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]

(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]

(c) Hybrid [ ]

(d) Other [ ]
(please provide details)"

4.2.3 Other [ ]"
(please provide details)

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

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: growth habit**		
	indeterminate	Arawaka	1 [ ]
	determinate		2 [ ]
5.2 (17)	**Flowering stem: number of flowers per leaf axil**		
	one		1 [ ]
	more than one		2 [ ]
5.3 (22)	**Capsule: number of carpels**		
	two	Teras	1 [ ]
	more than two	Adi	2 [ ]
5.4 (27)	**Capsule: dehiscence at ripening**		
	absent	Yaefuh	1 [ ]
	present	Maporal	9 [ ]
5.5 (28)	**Seed coat: color**		
	white		1 [ ]
	grey	Jasbrouk	2 [ ]
	yellow	Zirra	3 [ ]
	brown	Exute	4 [ ]
	black	Gomi	5 [ ]

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

Yes [ ] No [ ]

(If yes, please provide 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.

[#] 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]