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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

SOYA BEAN*

UPOV Code(s): GLYCI_MAX

Glycine max (L.) Merr.

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by experts from Argentina
to be considered by the
Technical Working Party for Agricultural Crops
at its forty-seventh session, to be held in Naivasha, Kenya,
from 2018-05-21 to 2018-05-25

Disclaimer: this document does not represent UPOV policies or guidance

Alternative names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Glycine max (L.) Merr., *Soja hispida* Moench	Soya Bean, Soybean	Soja	Sojabohne	Soja

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.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Glycine max* (L.) Merr..

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:

1 kg.

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

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

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

3. Method of Examination

3.1 Number of Growing Cycles

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

3.1.2 The two independent growing cycles should be in the form of two separate plantings.

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 Table of Characteristics. The stages of development denoted by each number are described in Chapter 8.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 300 plants, which should be divided between at least 2 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 Additional Tests

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

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

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

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants or Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 300 plants or parts of plants taken from each of 60 plants and any other observations made on all plants in the test, disregarding any off-type plants.

In the case of observations of parts taken from single plants, the number of parts to be taken from each of the plants should be 60.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

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

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.1.6 See: TGP/14/3: SECTION 2: BOTANICAL TERMS
Subsection 2: Shapes and Structures: I. Shape
page 15

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 These Test Guidelines have been developed for the examination of Glycine max varieties. For varieties with other types of propagation, the recommendations in the General Introduction and document TGP/13 "Guidance for new types and species" Section 4.5 "Testing Uniformity" should be followed.

4.2.3 For the assessment of uniformity of self-pollinated varieties, a population standard of 0.5% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 300 plants, 4 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 further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

5. Grouping of Varieties and Organization of the Growing Trial

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

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

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: growth type (characteristic 4)
(b) Plant: color of hairs on stem (characteristic 6)
(c) Flower: color (characteristic 12)
(d) Seed: peroxidase reaction (characteristic 18)
(e) Seed: hilum (characteristic 19)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	*Note*
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	*Note*
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1	**2**	**3**	**4**	**5**	**6**	**7**			
		Name of characteristics in English		**Nom du caractère en français**		**Name des Merkmals auf Deutsch**	**Nombre del carácter en español**		
		states of expression		types d’expression		Ausprägungsstufen	tipos de expresión		

1 Characteristic number

2 (*) Asterisked characteristic – see Chapter 6.1.2

3 Type of expression
QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

4 Method of observation (and type of plot, if applicable)
MG, MS, VG, VS – see Chapter 4.1.5

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

6 Not applicable

7 Not applicable

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

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1.	**QL VG**		**10**			
	Hypocotyl: anthocyanin coloration					
	absent				Castetis, Davis, Oac Erin	1
	present				Córdoba, Es Mentor, Essex, RGT Shouna	9
2.	**QN MG**	**(+)**	**19**			
	Plant: time of beginning of flowering					
	very early				Adsoy, Carla, Paradis, Sito, Sultana, Trump	1
	very early to early				Arcade, Es Gladiator, Essor, Labrador, RGT Speeda, Sigalia	2
	early				Canton, Imari, Queen, Safrana, Sphera	3
	early to medium				Alaric, Ecudor, Kador, Niva, Steara	4
	medium				Williams	5
	medium to late					6
	late					7
	late to very late					8
	very late					9

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
3.	**(*)**	**QN**	**MG**			**89**			
		Time of maturity							
		000						Adsoy, Laulema, Sultana	1
		00						Es Mentor, Sigalia	2
		0						Es Gladiator, RGT Speeda	3
		I						Goriziana, Isidor, RGT Sinfonía, Steara	4
		II						Ayelen 22, Blancas, Ecudor, Mitsuko	5
		III						Don Mario 3700	6
		IV						CH 4308 RG	7
		V						Champaquí 5.7, Don Mario 5.2, Nidera A5209 RG	8
		VI						Don Mario 6.2I	9
		VII						A 7118 RG, Don Mario 7.0I, RA 728, RA 732	10
		VIII						Nidera A 8087 RG	11
		IX						A 9000RG	12
		X							13
4.	**(*)**	**QN**	**VG**	**(+)**		**66-89**			
		Plant: growth type							
		determinate						A 5777 RG, A 8000 RG, RA 538	1
		semi determinate						Es Mentor, NS 6448, RA 625, RMO 75, Suedina, Sultana	2
		semi determinate to indeterminate						Isidor, SG Eider, Sigalia, Solena	3
		indeterminate						A 4505 RG, Don Mario 5.9I, Ecudor, Oac Erin, RA 728, RGT Shouna	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
5.		**QN VG**	**(+)**	**66 80**			
		Plant: attitude of branches					
		erect					1
		erect to semi erect					2
		semi erect					3
		semi erect to horizontal					4
		horizontal					5
6.	**(*)**	**PQ VG**	**(+)**	**65-85**			
		Plant: color of hairs on stem					
		grey				Ayelen 22, Es Gladiator, Oac Erin, Protéix	1
		light brown				A 3901RG, Nidera A5209 RG, RA 728	2
		dark brown				A 4505 RG, ADM 4800, Don Mario 3700	3
7.	**(*)**	**QN VG**		**85**			
		Plant: height					
		short				Carla, Paradis, Spot	3
		short to medium				Essor, Trump	4
		medium				Alaric, Chandor	5
		medium to tall				Kador	6
		tall				Tirol, Toreador	7
8.		**QN VG**		**65**			
		Leaf: blistering					
		absent or very weak				Arpège, Bayou, Chandor	1
		weak				Kador, Quito	3
		medium				Imari, Paoki	5
		strong				Matador	7
		very strong					9

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
9.	**(*)**	**QL VG**		**65**			
		Leaf: shape of the lateral leaflet					
		ovate				Champaquí 5.7, Es Gladiator, RGT Speeda	1
		trullate				A 7118 RG, Aldana, Sponsor	2
		lanceolate				Astafor, Crina F, Opaline, SP 7X0	3
		elliptic				A 3550 RG, Córdoba, Es Mentor, RGT Shouna	4
10.		**QN VG**		**65**			
		Leaf: size of lateral leaflet					
		small				Arcade, Baron, Labrador, Trump	3
		medium				Alaric, Kushiro, Talon	5
		large				Williams	7
11.		**QN VG**		**65**			
		Leaf: intensity of green color					
		light				Arcade, Chandor, Junior	3
		medium				Alaric, Apache, Imari	5
		dark				Ardir, Cresir, Jedor, Spot	7
12.	**(*)**	**QL VG**		**66**			
		Flower: color					
		white				Blancas, Castetis, Don Mario 5.9I, Oac Erin	1
		violet				Córdoba, Es Mentor, RGT Shouna, SP 7X0	2
13.	**(*)**	**PQ VG**		**85**			
		Pod: color					
		grey					1
		yellow brown					2
		brown				A 3901 RG, Don Mario 7.0I, Geumjeongkong-2ho, NS 4009	3
		black				ALM 4650, AS 4402, Ayelen 22, Don Mario 6.2I	4

	English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
14.	**QN VG**		**89**			
	Seed: size					
	small				Alba, Astafor, Aurelia, Flusk GT 512, Oac Erin, Protina	3
	medium				Coraline, Ecudor, Goldor, Queen, Sigalia	5
	large				Cervin, Clédor, Isidor, Mondor, Obelix, Safrana	7
15.	**PQ VG**	**(+)**	**89**			
	Seed: shape					
	globouse				Astafor, Ecudor, Es Gladiator, Es Mentor	1
	globouse flattened				RGT Shouna, Sigalia	2
	elongated				Gallec, Naya, Obelix, SY Elliot, SY Livius	3
	obloid					4
16.	**PQ VG**	**(+)**	**89**			
	Seed: color of testa					
	green					1
	yellow green					2
	yellow				Córdoba, Es Mentor, Paoki, Queen, RGT Shouna	3
	light brown					4
	medium brown					5
	dark brown					6
	purple					7
	black					9
17.	**QN VG**		**89**			
	Seed: glossiness					
	opaque				CH 4308 RG	1
	bright				RA 732	2
18.	**QL MG**	**(+)**	**89**			
	Seed: peroxidase reaction					
	absent				Bragg	1
	present				Hood, Hood 75	9

		English		français		deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
19.	**(*)**	**PQ**	**VG**	**(+)**		**89**			
		Seed: hilum							
		grey						Annushka, Apache, Castetis, Major, RGT Stumpa, Spot	1
		yellow						Es Mentor, Imari, Maple Arrow, Naya, Oac Erin, Talon	2
		light brown						Argenta, Astafor, Baron, Ecudor, Kingsoy, Opale, Santana	3
		dark brown						Aurélia, Fransoy 242, Léman, Solena, Sultana, Sunrise, Tourmaline	5
		imperfect black						Choco, Folio, GI Hermine, Kador, Regir, Wells	6
		black						Atlantic, Cantoya, Chandor, Isidor, Paoki, Queen, Sigalia, Srielia	7
		imperfect yellow							9
20.		**QL**	**VG**			**89**			
		Seed: color of hilum funicle							
		same as testa						Córdoba, Es Mentor, Queen, RGT Shouna	1
		different to testa						Amarok, Gieso, SY Livius	2
21.		**QN**	**MS**			**85**			
		Plant: stem length							
		short							3
		medium							5
		long							7

8.1 Explanations for individual characteristics

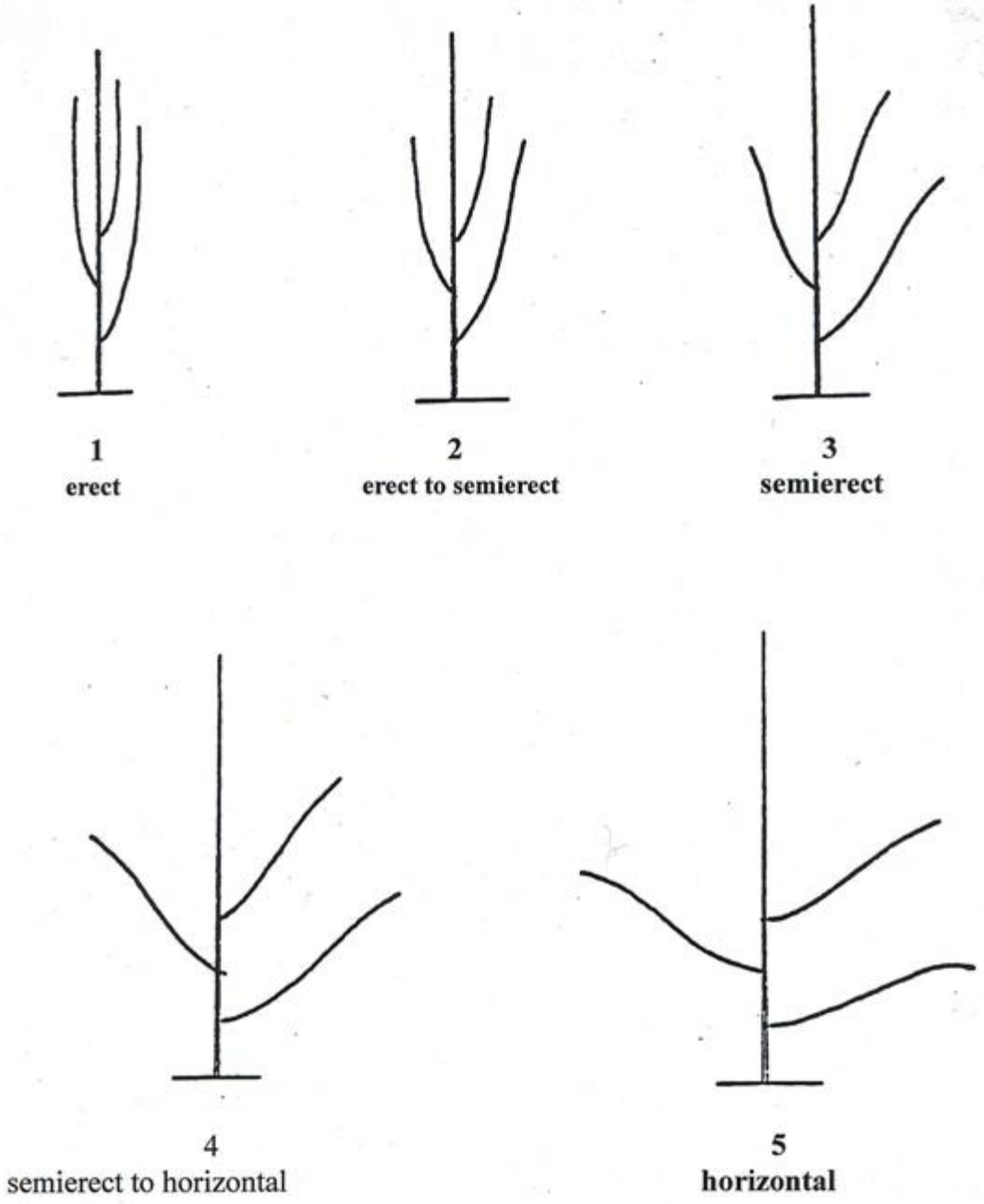
Ad. 2: Plant: time of beginning of flowering

"time of beginning of flowering is reaching when 50% of plants have at least one flower open"

Ad. 4: Plant: growth type

Test design: This characteristic should preferably be assessed in a special trial with al least 2 replicate (preferable 3 or 4 replicates no more than 300 plants in total) of 30 plants each with about 9 cm between plants in the rows. Any border effect must be avoided. – Plant material: Candidate and example varieties must be grown in groups according to their earliness at flowering or maturity (characteristic 15 or 16). – Observation: At the beginning of flowering time (1 flower at any level of the main stem), the apex of the plant must be identified with a mark. At maturity (free kernels in the pod), the number of nodes between the mark and the top of the plant is counted. The average number per variety gives–in comparison with standard varieties–the state of expression of the characteristics. In addition, the characteristic “Size of the terminal leaf” could also be considered to separate more clearly the state of expression “determinate” (Note 1) from other states. The terminal leaf on the main stem of determinate varieties is more or less equal to other leaves at lower levels. For other types, the terminal leaf is clearly smaller.

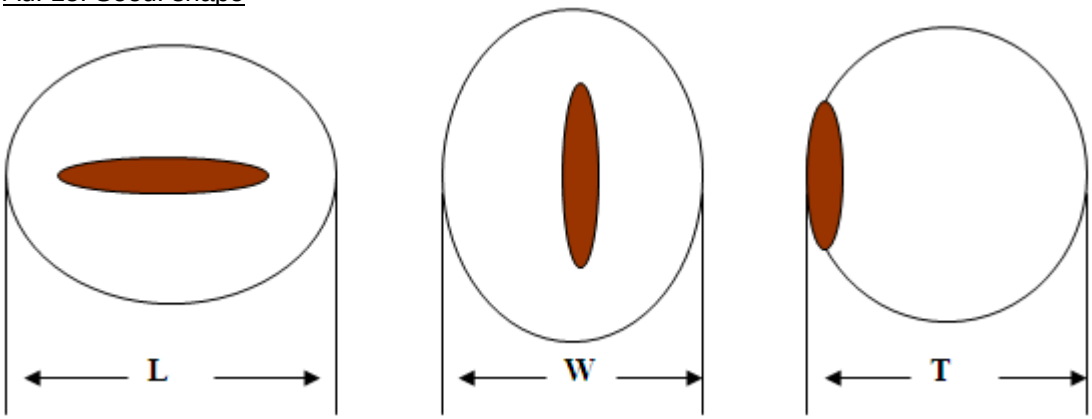
Ad. 5: Plant: attitude of branches



Ad. 6: Plant: color of hairs on stem

Observation should be made on the middle third of the plant

Ad. 15: Seed: shape



1 - spherical: W/L ≥ 0.90, T/W ≥ 0.85
2 - spherical flattened: W/L ≥ 0.90, T/W ≤ 0.84
3 - elongated: W/L ≤ 0.89, T/W ≥ 0.85
4 - obloid: W/L ≤ 0.89, T/W ≤ 0.84

Ad. 16: Seed: color of testa

"Observation should exclude hilum"

Ad. 18: Seed: peroxidase reaction

Seed: coloration due to peroxidase activity in seed coat

20 seeds per variety should be tested.

The seed coat of the seed should be removed carefully so that no piece of cotyledon remains. To facilitate this procedure, the seed should be placed in water for 2 hours.

The seed coat should be placed in a cell box or in tubes (one tube per seed) and 3 to 4 cm^3 of 0,5% Guayacol solution should be added. The 0.5% Guayacol solution should be stored in the refrigerator for a period of not longer than 2 months. After having left it at room temperature for one day or more, it can no longer be used.

After 10 minutes waiting time, one drop of 0,1% H_2O_2 solution should be added.

The solution changes to dark red/brown color for a positive reaction or remains without color for a negative reaction. In order to check the 0,5% Guaycacol solution, it is advisable to include some seeds of a reference variety with a positive reaction. The recording of this reaction must be done not longer than 60 seconds after the H_2O_2 was added. It is very important that the observation must not be done longer than 60 seconds because it could lead to wrong results.

The cell box or the tubes could be softly shaken for a better reaction. For a better recording of the observation, the tubes or the cell box should be placed over a white surface.

Ad. 19: Seed: hilum

Imperfect: the hilum center is always darker than its surrounding (halo)
Imperfect black: dark center that can vary from black to brown , surrounded by a light brown halo
Imperfect yellow: dark center, surrounded by light halo

9. Literature

Taylor, B.H, Caviness C.E, MAY - JUNE 1982, Hilum color variation in soybean seed with Imperfect Black genotype, Crop Science Vol. 22. Pioli R.N, Morandi E.N. 2003 Morphologic, molecular, and pathogenic characterization of Diaphorthe phaseolorum viariability in the core soybean-producing area of Argentina. Vol 93, Nº 2 136-146. Dorrance A., Berry S.A.. 2008. Isolation, Storage, Pathotype Characterization, and Evoluation of Resistance for Phytophthora sojae in soybean. Plant Management Network.
J.R Wilcox - 1987. Soybeans: Improvement, Production, and Uses.
Objective Description of variety. Soybean (Glycine max (L.) Merr.). US Department of Agriculture Agricultural Marketing Service Science and Technology Plant Variety Protection. Beltsville, MD.

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	*Glycine max* (L.) Merr.
1.2	Common name	Soya Bean, Soybean

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 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 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 (3)	**Time of maturity**		
	000	Adsoy, Laulema, Sultana	1 [ ]
	00	Es Mentor, Sigalia	2 [ ]
	0	Es Gladiator, RGT Speeda	3 [ ]
	I	Goriziana, Isidor, RGT Sinfonía, Steara	4 [ ]
	II	Ayelen 22, Blancas, Ecudor, Mitsuko	5 [ ]
	III	Don Mario 3700	6 [ ]
	IV	CH 4308 RG	7 [ ]
	V	Champaquí 5.7, Don Mario 5.2, Nidera A5209 RG	8 [ ]
	VI	Don Mario 6.2I	9 [ ]
	VII	A 7118 RG, Don Mario 7.0I, RA 728, RA 732	10 [ ]
	VIII	Nidera A 8087 RG	11 [ ]
	IX	A 9000RG	12 [ ]
	X		13 [ ]
5.2 (4)	**Plant: growth type**		
	determinate	A 5777 RG, A 8000 RG, RA 538	1 [ ]
	semi determinate	Es Mentor, NS 6448, RA 625, RMO 75, Suedina, Sultana	2 [ ]
	semi determinate to indeterminate	Isidor, SG Eider, Sigalia, Solena	3 [ ]
	indeterminate	A 4505 RG, Don Mario 5.9I, Ecudor, Oac Erin, RA 728, RGT Shouna	4 [ ]
5.3 (6)	**Plant: color of hairs on stem**		
	grey	Ayelen 22, Es Gladiator, Oac Erin, Protéix	1 [ ]
	light brown	A 3901RG, Nidera A5209 RG, RA 728	2 [ ]
	dark brown	A 4505 RG, ADM 4800, Don Mario 3700	3 [ ]
5.4 (12)	**Flower: color**		
	white	Blancas, Castetis, Don Mario 5.9I, Oac Erin	1 [ ]
	violet	Córdoba, Es Mentor, RGT Shouna, SP 7X0	2 [ ]

	Characteristics	Example Varieties	Note
5.5 (17)	**Seed: glossiness**		
	opaque	CH 4308 RG	1 [ ]
	bright	RA 732	2 [ ]
5.6 (18)	**Seed: peroxidase reaction**		
	absent	Bragg	1 [ ]
	present	Hood, Hood 75	9 [ ]
5.7 (19)	**Seed: hilum**		
	grey	Annushka, Apache, Castetis, Major, RGT Stumpa, Spot	1 [ ]
	yellow	Es Mentor, Imari, Maple Arrow, Naya, Oac Erin, Talon	2 [ ]
	light brown	Argenta, Astafor, Baron, Ecudor, Kingsoy, Opale, Santana	3 [ ]
	dark brown	Aurélia, Fransoy 242, Léman, Solena, Sultana, Sunrise, Tourmaline	5 [ ]
	imperfect black	Choco, Folio, GI Hermine, Kador, Regir, Wells	6 [ ]
	black	Atlantic, Cantoya, Chandor, Isidor, Paoki, Queen, Sigalia, Srielia	7 [ ]
	imperfect yellow		9 [ ]

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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	*Flower color*	*White*	*Violet*

Comments:

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

#7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

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

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

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

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

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

9. Information on plant material to be examined or submitted for examination

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

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

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

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

.....

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

Applicant’s name

Signature Date

[End of document]