|  |  |  |
| --- | --- | --- |
|  |  | ETG/88/7(proj.1)**ORIGINAL:** EnglishDATE: 2015-05-20 |
| INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS  |
| Geneva |
| DRAFT |

|  |  |  |
| --- | --- | --- |
|  |  **Cotton** UPOV Code: GOSSY Gossypium L. | [[1]](#footnote-1)\* |

**GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY**

prepared by (an) expert(s) from Spain

to be considered by the

Technical Working Party for Agricultural Crops
at its forty-fourth session

to be held in Obihiro, Japan,

from 2015-07-06

to 2015-07-10

| Alternative Names:\* |
| --- |
| *Botanical name* | *English* | *French* | *German* | *Spanish* |
| Gossypium L., | Cotton | Cotonnier | Baumwolle | Algodón, Algodonero |

|  |
| --- |
| 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.

TABLE OF CONTENTS PAGE

1. Subject of these Test Guidelines 3

2. Material Required 3

3. Method of Examination 3

3.1 Number of Growing Cycles 3

3.2 Testing Place 3

3.3 Conditions for Conducting the Examination 3

3.4 Test Design 3

3.5 Additional Tests 4

4. Assessment of Distinctness, Uniformity and Stability 4

4.1 Distinctness 4

4.2 Uniformity 5

4.3 Stability 5

5. Grouping of Varieties and Organization of the Growing Trial 5

6. Introduction to the Table of Characteristics 6

6.1 Categories of Characteristics 6

6.2 States of Expression and Corresponding Notes 6

6.3 Types of Expression 6

6.4 Example Varieties 6

6.5 Legend 7

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres 8

8. Explanations on the Table of Characteristics 19

9. Literature 26

10. Technical Questionnaire 27

# Subject of these Test Guidelines

 These Test Guidelines apply to all varieties of Gossypium L..

# 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.

* 1. 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:

3 kg of delinted seed.

If requested in the case of hybrids an interspecific hybrid varieties, an additional 2 kg of seed of each component should be sumitted.

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.

# Method of Examination

## 3.1 Number of Growing Cycles

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

## 3.2 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 in Chapter 8.

## 3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 500 plants, which should be divided between at least 2 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 Additional Tests

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

# 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 / Parts of Plants to be Examined

 Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test, disregarding any off-type plants.

### 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 second column of 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.

## 4.2 Uniformity

* + 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 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.

4.2.3 For the assessment of uniformity, a population standard of 1% and an acceptance probability of at least 95 % should be applied. In the case of a sample size of 500 plants, 9 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.

# 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) Flower: color of petal (characteristic 1)

(b) Leaf: shape (characteristic 11)

(c) Leaf: presence of nectaries (characteristic 14)

(d) Boll: shape in longitudinal section (characteristic 20)

(e) Boll:time of opening (when 50% of the plants have at least one boll opened) (characteristic 27)

(f) Fiber: length (characteristic 34)

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”.

# 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

(\*) 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 4.1.5

(a)-(g) See Explanations on the Table of Characteristics in Chapter 8.

(+) See Explanations on the Table of Characteristics in Chapter 8.

# 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 65 (c) (g) |
| **Flower: color of petal** | **Fleur: couleur du pétale** | **Blüte: Farbe des Blütenblatts** | **Flor: color del pétalo** |  |  |
| cream |  |  |  | DP377, Solera | 1 |
| yellow |  |  |  | Armada, Intercott 670 | 2 |
|  |
|  |  |  |  |  |  |
| 2. QN VG 65 (c) (g) |
| **Flower: intensity of spot on petal** |  |  |  |  |  |
| absent or very weak |  |  |  |  | 1 |
| weak |  |  |  |  | 3 |
| medium |  |  |  | Intercott 701 | 5 |
| strong |  |  |  | Sevilla | 7 |
| very strong |  |  |  | Armada, E1 | 9 |
|  |
|  |  |  |  |  |  |
| 3. (\*) PQ VG 65 (c) (g) |
| **Flower: color of pollen** |  |  |  |  |  |
| cream |  |  |  | DP414, Solera | 1 |
| yellow |  |  |  | Alepo, Armada | 2 |
| dark yellow |  |  |  |  | 3 |
|  |
|  |  |  |  |  |  |
| 4. PQ VG 65 (c) (g) |
| **Flower: position of stigma relative to anthers** |  |  |  |  |  |
| below |  |  |  | CS37, Carlota | 1 |
| same level |  |  |  | DP377, DP411 | 2 |
| above |  |  |  | Lanovia, ST478 | 3 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 5. QN MS 65 (b) (g) |
| **Fruiting branch: length** |  |  |  |  |  |
| very short |  |  |  |  | 1 |
| short |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| long |  |  |  |  | 7 |
| very long |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 6. (\*) PQ VG 61-65 (+) (g) |
| **Plant: type of flowering** |  |  |  |  |  |
| clustered |  |  |  | Alepo | 1 |
| semi-clustered |  |  |  | Aphrica, DP411 | 2 |
| non-clustered |  |  |  | CS37, DP332 | 3 |
|  |
|  |  |  |  |  |  |
| 7. QN MG 61-65 (b) (g) |
| **Fruiting branch: number of nodes** |  |  |
| very few |  |  |  |  | 1 |
| few |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| many |  |  |  |  | 7 |
| very many |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 8. QN MS VG 61-65 (b) (g) |
| **Fruiting branch: average internodes length** |  |  |
| short |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| long |  |  |  |  | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 9. QN MG 61-65 (b) (g) |
| **Plant: number of nodes to the lowest fruiting branch** |  |  |  |  |  |
| very low |  |  |  |  | 1 |
| low |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| high |  |  |  |  | 7 |
| very high |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 10. QN VG 50-69 (a) (g) |
| **Leaf: intensity of green color** |  |  |  |  |  |
| light |  |  |  | Corona | 3 |
| medium |  |  |  | Aphrica | 5 |
| dark |  |  |  | Armada, Lagiralda | 7 |
|  |
|  |  |  |  |  |  |
| 11. (\*) PQ VG 50-69 (+) (a) (g) |
| **Leaf: shape** | **Feuille: forme** | **Blatt: Form** | **Hoja: forma** |  |  |
| palmate |  |  |  | Alepo, Solera | 1 |
| palmate to digitate |  |  |  | Intercott 195, Intercott 211 | 2 |
| digitate |  |  |  | Lacta, Roka | 3 |
| lanceolate |  |  |  |  | 4 |
|  |
|  |  |  |  |  |  |
| 12. QN VG 50-69 (a) (g) |
| **Leaf: size** |  |  |  |  |  |
| small |  |  |  |  | 3 |
| medium |  |  |  | DP377, Intercott 670 | 5 |
| large |  |  |  | Alepo, Lagiralda | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 13. QN VG 50-69 (a) (g) |
| **Leaf: pubescense (lower side)** |  |  |
| absent or very weak |  |  |  |  | 1 |
| weak |  |  |  | Celia, DP466 | 3 |
| medium |  |  |  | Armada, Intercott 670 | 5 |
| strong |  |  |  | DP396, ST405 | 7 |
| very strong |  |  |  | Lanovia | 9 |
|  |
|  |  |  |  |  |  |
| 14. (\*) QL VG 50-69 (a) (g) |
| **Leaf: presence of nectaries** | **Feuille: présence de nectaires** | **Blatt: Vorhandensein von Nektarien** | **Hoja: presencia de nectarios** |  |  |
| absent |  |  |  |  | 1 |
| present |  |  |  | DP396, ST488 | 9 |
|  |
|  |  |  |  |  |  |
| 15. QN VG 65-79 (a) (g) |
| **Stem: pubescence in upper part** |  |  |  |  |  |
| absent or very weak |  |  |  | Alepo | 1 |
| weak |  |  |  | E1 | 3 |
| medium |  |  |  | DP332, Fokion | 5 |
| strong |  |  |  | Europa, ST478 | 7 |
| very strong |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 16. PQ VG 65-79 (a) (g) |
| **Stem: color** |  |  |  |  |  |
| light green |  |  |  |  | 1 |
| dark green |  |  |  | ST318 | 2 |
| reddish green |  |  |  | Alepo, Solera | 3 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 17. QN VG 71-75 (g) |
| **Bract: dentation** |  |  |  |  |  |
| fine |  |  |  | E1, Intercott 701 | 3 |
| medium |  |  |  | Elsa, Intercott 670 | 5 |
| coarse |  |  |  | Roka | 7 |
|  |
|  |  |  |  |  |  |
| 18. QN VG 71-75 (g) |
| **Bract: size** |  |  |  |  |  |
| small |  |  |  | DP332, ST478 | 3 |
| medium |  |  |  | DP414, Solera | 5 |
| large |  |  |  | Alepo, E1 | 7 |
|  |
|  |  |  |  |  |  |
| 19. QN VG 71-75 (d) (g) |
| **Boll: size** | **Capsule : taille** | **Kapsel: Größe** | **Cápsula: tamaño** |  |  |
| small |  |  |  | Armada, Lanovia | 3 |
| medium |  |  |  | E1, Solera | 5 |
| large |  |  |  | Intercott 701 | 7 |
|  |
|  |  |  |  |  |  |
| 20. (\*) PQ VG 71-75 (+) (d) (g) |
| **Boll: shape in longitudinal section** |  |  |  |  |  |
| rounded |  |  |  |  | 1 |
| elliptical |  |  |  | DP399, ST478 | 2 |
| ovate |  |  |  | Alepo, Solera | 3 |
| conical |  |  |  | Intercott 195, Intercott 211 | 4 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 21. QN VG 71-75 (d) (g) |
| **Boll: pitting of surface** |  |  |  |  |  |
| absent or very fine |  |  |  |  | 1 |
| fine |  |  |  | VIKY | 3 |
| medium |  |  |  | DP414, Solera | 5 |
| coarse |  |  |  | E1 | 7 |
|  |
|  |  |  |  |  |  |
| 22. (\*) QN MS VG 71-75 (d) (g) |
| **Boll: length of peduncle** |  |  |  |  |  |
| short |  |  |  | DP377, Solera | 3 |
| medium |  |  |  | E1, Intercott 701 | 5 |
| long |  |  |  | Beky, Intercott 211 | 7 |
|  |
|  |  |  |  |  |  |
| 23. QN VG 71-75 (+) (d) (g) |
| **Boll:prominence of tip** |  |  |  |  |  |
| weak |  |  |  |  | 3 |
| medium |  |  |  | DP377, DP414 | 5 |
| strong |  |  |  | E1, Intercott 670 | 7 |
|  |
|  |  |  |  |  |  |
| 24. (\*) PQ VG 75-79 (+) (g) |
| **Plant: shape** | **Plante: forme** | **Pflanze: Form** | **Planta: forma** |  |  |
| cylindrical |  |  |  | Alepo, Armada | 1 |
| conical | conique | kegelförmig | cónica | Fokion, Intercott 670 | 2 |
| globose |  |  |  | E1, Solera | 3 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 25. QN VG 65-69 (g) |
| **Plant: density of foliage** | **Plante : densité du feuillage** | **Pflanze: Dichte des Laubes** | **Planta: densidad del follaje** |  |  |
| sparse | faible | locker | escasa |  | 3 |
| medium | moyenne | mittel | media | E1, Solera | 5 |
| dense | elevée | dicht | densa |  | 7 |
|  |
|  |  |  |  |  |  |
| 26. (\*) QN MG MS 79-89 (g) |
| **Plant: height** | **Plante: hauteur** | **Pflanze: Höhe** | **Planta: altura** |  |  |
| very short | très courte | sehr niedrig | muy baja |  | 1 |
| short | courte | niedrig | baja | Armada, Corona | 3 |
| medium | moyenne | mittel | media | Alepo, Solera | 5 |
| tall | haute | hoch | alta | Intercott 670 | 7 |
| very tall | très haute | sehr hoch | muy alta | Intercott 701 | 9 |
|  |
|  |  |  |  |  |  |
| 27. (\*) QN VG 80-81 (g) |
| **Boll:time of opening (when 50% of the plants have at least one boll opened)** |  |  |
| very early |  |  |  |  | 1 |
| early |  |  |  | ST318, ST402 | 3 |
| medium |  |  |  | Alepo, Solera | 5 |
| late |  |  |  | Abaco, DP332 | 7 |
| very late |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 28. QN VG 85-89 (g) |
| **Boll: degree of opening** |  |  |  |  |  |
| weak |  |  |  |  | 3 |
| medium |  |  |  | Lagiralda, Solera | 5 |
| strong |  |  |  | ST318, ST402 | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 29. (\*) QL VG 99 (e) (g) |
| **Seed: presence of fuzz** |  |  |  |  |  |
| absent |  |  |  |  | 1 |
| present |  |  |  | DP332, Elsa | 9 |
|  |
|  |  |  |  |  |  |
| 30. QN VG 99 (e) (g) |
| **Seed: density of fuzz** |  |  |  |  |  |
| very sparse |  |  |  |  | 1 |
| sparse |  |  |  | Lanovia, Sevilla | 3 |
| medium |  |  |  | DP377, DP414 | 5 |
| dense |  |  |  | Acala sj-2 | 7 |
| very dense |  |  |  |  | 9 |
|  |
|  |  |  |  |  |  |
| 31. PQ VG 99 (e) (g) |
| **Seed: color of fuzz** |  |  |  |  |  |
| white |  |  |  | Armada, Lagiralda | 1 |
| grey |  |  |  | ST318, ST402 | 2 |
| light green |  |  |  | DP414, Solera | 3 |
| light brown |  |  |  | Intercott 670, Lanovia | 4 |
|  |
|  |  |  |  |  |  |
| 32. QN MG 99 (e) (g) |
| **Seed: weight of 100 seeds** |  |  |  |  |  |
| low |  |  |  | DP377, Solera | 3 |
| medium |  |  |  | E1, Elsa | 5 |
| high |  |  |  | Armada, Intercott 701 | 7 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 33. QN MG 99 (e) (g) |
| **Boll: content of lint** |  |  |  |  |  |
| very low |  |  |  | Europa | 1 |
| low |  |  |  | Etna, Sevilla | 3 |
| medium |  |  |  | Helena, Intercott 701 | 5 |
| high |  |  |  | ST318 | 7 |
| very high |  |  |  | DP414, Solera | 9 |
|  |
|  |  |  |  |  |  |
| 34. (\*) QN MG 99 (e) (f) (g) |
| **Fiber: length** |  |  |  |  |  |
| very short |  |  |  |  | 1 |
| short |  |  |  |  | 3 |
| medium |  |  |  | DP414, Solera | 5 |
| long |  |  |  | DP332, Elsa | 7 |
| very long |  |  |  | E1, Intercott 670 | 9 |
|  |
|  |  |  |  |  |  |
| 35. QN MG 99 (e) (f) (g) |
| **Fiber strenght** |  |  |  |  |  |
| very weak |  |  |  |  | 1 |
| weak |  |  |  |  | 3 |
| medium |  |  |  | ST318, ST402 | 5 |
| strong |  |  |  | DP332 | 7 |
| very strong |  |  |  | Alepo, Solera | 9 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 36. QN MG 99 (e) (f) (g) |
| **Fiber: elongation** |  |  |  |  |  |
| very small |  |  |  | Celia, DP411 | 1 |
| small |  |  |  | Elsa, Fokion | 3 |
| medium |  |  |  | Intercott 670, Lanovia | 5 |
| large |  |  |  | Armada, Lagiralda | 7 |
| very large |  |  |  | DP414, Etna | 9 |
|  |
|  |  |  |  |  |  |
| 37. QN MG 99 (e) (f) (g) |
| **Fiber: fineness** |  |  |  |  |  |
| fine |  |  |  | Intercott 195, Intercott 701 | 3 |
| medium |  |  |  | E1, Lagiralda | 5 |
| coarse |  |  |  | Alepo, Solera | 7 |
|  |
|  |  |  |  |  |  |
| 38. QN MG 99 (e) (f) (g) |
| **Fiber: length uniformity** |  |  |  |  |  |
| very low |  |  |  |  | 1 |
| low |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| high |  |  |  | Alepo, Intercott 701 | 7 |
| very high |  |  |  | E1, Elsa | 9 |
|  |
|  |  |  |  |  |  |
| 39. QL VG 99 (e) (g) |
| **Fiber: color** |  |  |  |  |  |
| white |  |  |  | Alepo, Solera | 1 |
| not white |  |  |  |  | 2 |
|  |  |  |  |  |  |

| English | français | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- |
|  |
|  |  |  |  |  |  |
| 40. QN VG 65 (c) (g) |
| **Flower: intensity of yellow color** |  |  |  |  |  |
| light |  |  |  |  | 3 |
| medium |  |  |  |  | 5 |
| dark |  |  |  |  | 7 |

# 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) Unless otherwise indicated, all observations on the leaf and on the stem should be made where leaves are fully extended.

(b) Unless otherwise indicated, all observations on the fruiting branch should be made at flowering stage on the lowest fruiting branch.

(c) All observations on the flower should be made on the first day of flowering.

(d) Unless otherwise indicated, all observations on the boll should be made at green maturity.

(e) All observations on the seed and fiber should be made at full maturity.

(f) Characteristics 34, 35, 36, 37 and 38 should be observed according to:

- Standard Test Methods for Measurement of Cotton Fibres by High Volume Instruments (HVI) (Motion Control Fiber Information System). Designation D-4604-95

- Standard Test Methods for Measurement of Physical Properties of Cotton Fibers by High Volume Instruments (HVI). Designation D-5867-95

- Established by the American Society for Testing and Materials (ASTM)

(g)

|  |
| --- |
| Alternative text |
|  |
| Alternative text |
|  |
| Alternative text |
|  |
| Alternative text |
|  |

*8.2 Explanations for individual characteristics*

Ad. 6: Plant: type of flowering

|  |
| --- |
| Alternative text |
|  |

Ad. 11: Leaf: shape

|  |
| --- |
| Alternative text |
|  |

Ad. 20: Boll: shape in longitudinal section

|  |
| --- |
| Alternative text |
|  |

Ad. 23: Boll:prominence of tip

|  |
| --- |
| Alternative text |
|  |

Ad. 24: Plant: shape

|  |
| --- |
| Alternative text |
|  |

# Literature

American Society for Testing and Materials (ASTM) (1995): Standard Test.

Methods for Measurement of Cotton Fibres by High Volume Instruments (HVI).

American Society for Testing and Materials (ASTM) (1995), Standard Test Methods for Measurement of Physical Properties od Cotton Fiberrs by High Volume INstruments (Designation: D5867-95).

"Cotton", Ed. R.J. kodel and C.F. Lewis, no. 24 in the series "Agronomy", American Society of Agronomy, INC., Crop Science Society of America, Inc., Soil Science Society of America, Inc.,m Publishers Madison, Wiscosin, 1984, US.

Manual de identificación de Variedades Algodón, Ministerio de Agricultura, Pesca y Alimentación, Secretaria General de Agricultura y Alimentación, 1999, ES.

Meier U. 1997: Growth stages of mono and dicotyledoneus plants: BBCH. Monograph. Wien Federal Biological Research Center for Agriculture and Forestry, Blackwell Wissenschafts-Verlag, Berlin, DE.

Munger p., H Bleiholder, H. Hess, R. Stauss, T. van den Boom and E. Weber. 1998. Phenological growth stages of the coton plant (Gossypium hirsutum l.) codification and description according to the BBCH scale. J. Agronomy & Crop Scince. 180: 143-149

"Cotton. Origin, History, Tecnology and Production. "Ed C.W. Smith and J.T. Cothren. Wiley Series in Crop Science. John Wiley & Sons, Inc.. 1999. US.

# Technical Questionnaire

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| --- | --- | --- |
|  |  |  |
|  |  | Application date: |
|  |  | (not to be filled in by the applicant) |
| TECHNICAL QUESTIONNAIREto be completed in connection with an application for plant breeders’ rights |
|  |  |  |
| 1. Subject of the Technical Questionnaire |
| 1.1.1 | Botanical Name | Gossypium L. |  |
| 1.1.2 | Common Name | Cotton |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 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 schemeVariety resulting from:4.1.1 Crossing(a) controlled cross [ ] (please state parent varieties)(…………………..……………..…) x (……………..…………………..…)female parent male parent(b) partially known cross [ ] (please state known parent variety(ies))(…………………..……………..…) x (……………..…………………..…)female parent male parent(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)

|  |
| --- |
|  |

 |
|  |

|  |
| --- |
| 4.2 Method of propagating the variety4.2.1 Other [ ] (please provide details)..................................................................................................................................................: :: ::................................................................................................................................................:  |

|  |
| --- |
| 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)** | **Flower: color of petal** |  |  |
|  | **cream** | DP377, Solera | 1[ ] |
|  | **yellow** | Armada, Intercott 670 | 2[ ] |
| **5.2 (3)** | **Flower: color of pollen** |  |  |
|  | **cream** | DP414, Solera | 1[ ] |
|  | **yellow** | Alepo, Armada | 2[ ] |
|  | **dark yellow** |  | 3[ ] |
| **5.3 (6)** | **Plant: type of flowering** |  |  |
|  | **clustered** | Alepo | 1[ ] |
|  | **semi-clustered** | Aphrica, DP411 | 2[ ] |
|  | **non-clustered** | CS37, DP332 | 3[ ] |
| **5.4 (11)** | **Leaf: shape** |  |  |
|  | **palmate** | Alepo, Solera | 1[ ] |
|  | **palmate to digitate** | Intercott 195, Intercott 211 | 2[ ] |
|  | **digitate** | Lacta, Roka | 3[ ] |
|  | **lanceolate** |  | 4[ ] |
| **5.5 (20)** | **Boll: shape in longitudinal section** |  |  |
|  | **rounded** |  | 1[ ] |
|  | **elliptical** | DP399, ST478 | 2[ ] |
|  | **ovate** | Alepo, Solera | 3[ ] |
|  | **conical** | Intercott 195, Intercott 211 | 4[ ] |
| **5.6 (22)** | **Boll: length of peduncle** |  |  |
|  | **short** | DP377, Solera | 3[ ] |
|  | **medium** | E1, Intercott 701 | 5[ ] |
|  | **long** | Beky, Intercott 211 | 7[ ] |
| **5.7 (27)** | **Boll:time of opening (when 50% of the plants have at least one boll opened)** |  |  |
|  | **very early** |  | 1[ ] |
|  | **early** | ST318, ST402 | 3[ ] |
|  | **medium** | Alepo, Solera | 5[ ] |
|  | **late** | Abaco, DP332 | 7[ ] |
|  | **very late** |  | 9[ ] |
| **5.8 (29)** | **Seed: presence of fuzz** |  |  |
|  | **absent** |  | 1[ ] |
|  | **present** | DP332, Elsa | 9[ ] |
| **5.9 (34)** | **Fiber: length** |  |  |
|  | **very short** |  | 1[ ] |
|  | **short** |  | 3[ ] |
|  | **medium** | DP414, Solera | 5[ ] |
|  | **long** | DP332, Elsa | 7[ ] |
|  | **very long** | E1, Intercott 670 | 9[ ] |

|  |
| --- |
| 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* |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Comments:  |
| 7. Additional information which may help in the examination of the variety7.1 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. |

| TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: |
| --- | --- | --- |
| 9. Information on plant material to be examined or submitted for examination9.1 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 nameSignature Date |

[End of document]

1. \* 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](http://www.upov.int)), for the latest information.] [↑](#footnote-ref-1)