|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
|  |  | **E** |
|  |   |  |
|  | wordml://75.png |

|  |
| --- |
| **TG/VIGNA\_RAD(proj.1)** |
| **ORIGINAL:** English |
| **DATE:** 2023-04-06 |

 |
| **INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS** |
|  | Geneva  |  |
|  |

|  |  |  |
| --- | --- | --- |
|  |   |  |
|  | DRAFT |  |
|  |   |  |

 |  |
|  |   |  |
|  |

|  |
| --- |
|   |
| **MUNG BEAN** |
|   |
|

|  |
| --- |
|  |
|

|  |
| --- |
| UPOV Code(s): VIGNA\_RAD |

 |
|  |

 |
|   |
|

|  |  |
| --- | --- |
|

|  |
| --- |
| *Vigna radiata* (L.) R. Wilczek |

 |
|   |

 |
|   |

 |

|  |
| --- |
| \* |

 |
|  |   |  |
|

|  |
| --- |
| **GUIDELINES** |
|   |
| **FOR THE CONDUCT OF TESTS** |
|   |
| **FOR DISTINCTNESS, UNIFORMITY AND STABILITY** |

 |
|  |   |  |
|

|  |
| --- |
| *prepared by experts from China* |
| *to be considered by the* |
|

|  |
| --- |
| *Technical Working Party for Agricultural Crops* |

 |
| *at its fifty-second session, to be held virtually* |
|

|  |
| --- |
| *from 2023-05-22 to 2023-05-26* |

 |

 |
| *Disclaimer: this document does not represent UPOV policies or guidance* |
|

|  |  |
| --- | --- |
|

|  |
| --- |
| Alternative names:\* |

 |
|

|  |
| --- |
|  |

 |
| *Botanical name* | *English* | *French* | *German* | *Spanish* |
|

|  |
| --- |
| *Vigna radiata* (L.) R. Wilczek |

 |

|  |
| --- |
| Mung Bean |

 |

|  |
| --- |
| Haricot mungo |

 |

|  |
| --- |
| Mungbohne, Mungobohne |

 |

|  |
| --- |
| Frijol mungo |

 |

 |
|  |   |  |
| 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](#Section1) |
|  |   |  |
| 2. | MATERIAL REQUIRED..................................................................................................................... | [3](#Section2) |
|  |   |  |
| 3. | METHOD OF EXAMINATION............................................................................................................... | [3](#Section3) |
|  |   |  |
|  |

|  |  |  |
| --- | --- | --- |
| 3.1 | Number of Growing Cycles................................................................................................................. | [3](#Section3-1) |
| 3.2 | Testing Place................................................................................................................... | [3](#Section3-2) |
| 3.3 | Conditions for Conducting the Examination............................................................................................... | [3](#Section3-3) |
| 3.4 | Test Design................................................................................................................. | [4](#Section3-4) |
| 3.5 | Additional Tests................................................................................................................... | [4](#Section3-5) |

 |
|  |   |  |
| 4. | ASSESSMENT OF DISTINCTNESS, UNIFORMITY AND STABILITY................................................................. | [4](#Section4) |
|  |   |  |
|  |

|  |  |  |
| --- | --- | --- |
| 4.1 | Distinctness.......................................................................................................... | [4](#Section4-1) |
| 4.2 | Uniformity............................................................................................................ | [5](#Section4-2) |
| 4.3 | Stability............................................................................................................... | [5](#Section4-3) |

 |
|  |   |  |
| 5. | GROUPING OF VARIETIES AND ORGANIZATION OF THE GROWING TRIAL................................................ | [6](#Section5) |
|  |   |  |
| 6. | INTRODUCTION TO THE TABLE OF CHARACTERISTICS................................................................................ | [6](#Section6) |
|  |   |  |
|  |

|  |  |  |
| --- | --- | --- |
| 6.1 | Categories of Characteristics...................................................................................................... | [6](#Section6-1) |
| 6.2 | States of Expression and Corresponding Notes........................................................................................ | [6](#Section6-2) |
| 6.3 | Types of Expression............................................................................................................ | [6](#Section6-3) |
| 6.4 | Example Varieties.............................................................................................................. | [6](#Section6-4) |
| 6.5 | Legend................................................................................................................. | [7](#Section6-5) |

 |
|  |   |  |
| 7. | TABLE OF CHARACTERISTICS/TABLEAU DES CARACTÈRES/MERKMALSTABELLE/TABLA DE CARACTERES.................................................................................................................. | [8](#Section7) |
|  |   |  |
| 8. | EXPLANATIONS ON THE TABLE OF CHARACTERISTICS............................................................................... | [15](#Section8) |
|  |

|  |   |  |
| --- | --- | --- |
| 8.1 | Explanations covering several characteristics........................................................................................... | [15](#Section8-1) |
|

|  |
| --- |
| 8.2 |

 | Explanations for individual characteristics................................................................................................. | [16](#Section8-2) |

 |
|  |   |  |
| 9. | LITERATURE................................................................................................................... | [21](#Section9) |
|  |   |  |
| 10 | TECHNICAL QUESTIONNAIRE............................................................................................................ | [22](#Section10) |
|  |   |  |
|  |

|  |
| --- |
|  |

 |  |

 |

 |

|  |  |
| --- | --- |
| 1. | Subject of these Test Guidelines |
|  |   |
|  |

|  |
| --- |
| These Test Guidelines apply to all varieties of *Vigna radiata* (L.) R. Wilczek. |

 |

|  |  |
| --- | --- |
|  |   |
|  |   |
| 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: |

 |
|  |   |
|  |

|  |
| --- |
| 1000 g or at least 10,000 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* |
|  |   |
|

|  |
| --- |
| 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. |
|  |   |
|

|  |
| --- |
| 3.1.3 |

 | The testing of a variety may be concluded when the competent authority can determine with certainty the outcome of the test. |
|  |   |
| *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* |
|  |   |
|

|  |
| --- |
|  |

 | 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. |
|  |   |

|  |  |
| --- | --- |
| *3.4* | *Test Design* |
|  |   |
| 3.4.1 |

|  |
| --- |
| Each test should be designed to result in a total of at least 100 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. |

|  |  |
| --- | --- |
|  |   |
|  |   |

|  |  |
| --- | --- |
| 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.  |
|  |   |
|  |

|  |
| --- |
| To assess distinctness of hybrids, the parent lines and the formula may be used according to the following recommendations: |
|   |
| (i) description of parent lines according to the Test Guidelines; |
|   |
| (ii) check of the originality of the parent lines in comparison with the variety collection, based on the characteristics in Chapter 7, in order to identify similar parent lines; |
|   |
| (iii) check of the originality of the hybrid formula in relation to the hybrids in the variety collection, taking into account the most similar lines; and |
|   |
| (iv) assessment of the distinctness at the hybrid level for varieties with a similar formula. |
|   |
| Further guidance is provided in documents TGP/9 "Examining Distinctness" and TGP/8 "Trial Design and Techniques Used in the Examination of Distinctness, Uniformity and Stability". |

 |
|  |   |
| 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 20 plants or parts of plants 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 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 plantsVS: 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* |
|  |   |
| 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 seed-propagated varietes. 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 | 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. |
|  |   |
| *4.3* | *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: |
|  |

|  |  |  |
| --- | --- | --- |
|  |  |   |
|

|  |  |
| --- | --- |
|

|  |
| --- |
|  |

 |

 |

 |
| 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 | All relevant states of expression are presented in the characteristic. |
|  |   |
| 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 VarietiesExemplesBeispielssortenVariedades 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 8.2 |

 |

 |
|  |   |  |  |
| 6 |

|  |
| --- |
| (a)-(c) |

 |

|  |  |
| --- | --- |
|

|  |
| --- |
| See Explanations on the Table of Characteristics in Chapter 8.1 |

 |

 |
|  |   |  |  |
| 7 |

|  |
| --- |
| Growth stage key See Explanations on the Table of Characteristics in Chapter 8 |

 |

 |

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

|  |  | English | français | deutsch | español | Example VarietiesExemplesBeispielssortenVariedades ejemplo | Note/Nota |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** |  | **QL** | **VG** | **(+)** | **(a), (b), (c)** | **10** |
|  |  |

|  |
| --- |
| **Hypocotyl: anthocyanin coloration** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  | Zhonglv1 C3408 | 1 |
|  |  | present |  |  |  | Dayingelv 925 C5786 | 9 |
| **2.** |  | **QN** | **MG** |  |  | **20** |
|  |  |

|  |
| --- |
| **Time of flowering** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | very early |  |  |  |  | 1 |
|  |  | early |  |  |  | Baolv 942 C5636 | 3 |
|  |  | medium |  |  |  | Zhonglv1 C3408 | 5 |
|  |  | late |  |  |  | Lvdou C2969 | 7 |
|  |  | very late |  |  |  |  | 9 |
| **3.** |  | **PQ** | **VG|A** |  |  | **30** |
|  |  |

|  |
| --- |
| **Stem: color** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | green |  |  |  |  | 1 |
|  |  | greenish purple |  |  |  |  | 2 |
|  |  | purple |  |  |  |  | 3 |
| **4.** |  | **QN** | **VG|A** | **(+)** |  | **30** |
|  |  |

|  |
| --- |
| **Stem: fuzz** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  |  | 1 |
|  |  | few |  |  |  |  | 2 |
|  |  | many |  |  |  |  | 3 |
| **5.** |  | **QN** | **VG|B** | **(+)** |  | **30** |
|  |  |

|  |
| --- |
| **Leaf: type** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | three leaflets |  |  |  |  | 1 |
|  |  | many leaflets |  |  |  |  | 2 |
| **6.** |  | **PQ** | **VG** | **(+)** |  | **30** |
|  |  |

|  |
| --- |
| **Leaf: shape of leaflet** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | split leaf shape |  |  |  |  |  |
|  |  | narrow oval |  |  |  |  | 1 |
|  |  | medium oval |  |  |  |  | 2 |
|  |  | broad oval |  |  |  |  | 3 |
| **7.** |  | **QN** | **VG|B** |  |  | **30** |
|  |  |

|  |
| --- |
| **Leaf: intensity of green color** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | light |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 2 |
|  |  | dark |  |  |  |  | 3 |
| **8.** |  | **QL** | **VG|B** |  |  | **30** |
|  |  |

|  |
| --- |
| **Leaf: anthocyanin coloration at the base of leaflets** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  | Zhonglv1 C3408 | 1 |
|  |  | present |  |  |  | Dayingelv 925 C5786 | 9 |
| **9.** |  | **QN** | **VG|B** |  |  | **30** |
|  |  |

|  |
| --- |
| **Petiole: intensity of anthocyanin coloration** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent or very weak |  |  |  |  | 1 |
|  |  | weak |  |  |  |  | 2 |
|  |  | strong |  |  |  |  | 3 |
| **10.** |  | **PQ** | **VG** |  |  | **30** |
|  |  |

|  |
| --- |
| **Flowers: color of corolla** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | light yellow |  |  |  |  | 1 |
|  |  | medium yellow |  |  |  |  | 2 |
|  |  | yellow with purple |  |  |  |  | 3 |
| **11.** |  | **PQ** | **VG** |  |  | **30** |
|  |  |

|  |
| --- |
| **Flower: keel flap color** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  |  | 1 |
|  |  | present |  |  |  |  | 9 |
| **12.** |  | **PQ** | **VG** |  |  | **30** |
|  |  |

|  |
| --- |
| **Flowers: sepals colored** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  |  | 1 |
|  |  | present |  |  |  |  | 9 |
| **13.** |  | **QN** | **MG** |  |  | **40** |
|  |  |

|  |
| --- |
| **Mature period** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | very early |  |  |  |  | 1 |
|  |  | early |  |  |  | Baolv 942 C5636 | 3 |
|  |  | medium |  |  |  | Zhonglv1 C3408 | 5 |
|  |  | late |  |  |  | Lvdou C2969 | 7 |
|  |  | very late |  |  |  |  | 9 |
| **14.** |  | **PQ** | **VG** | **(+)** |  | **40-50** |
|  |  |

|  |
| --- |
| **Plant:  habit** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | upright |  |  |  | Zhonglv1 C3408 | 1 |
|  |  | semi sprawl |  |  |  | Yinggelvdou C1547 | 2 |
|  |  | sprawl |  |  |  | Lanlvdou C4157 | 3 |
| **15.** |  | **QN** | **MS** |  |  | **40-50** |
|  |  |

|  |
| --- |
| **Pod: length** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | very short |  |  |  | Gaaoyangxiaolvdou C0229 | 1 |
|  |  | short |  |  |  | Dayanglvdou C0385 | 3 |
|  |  | medium |  |  |  | Zhonglv1 C3408 | 5 |
|  |  | tall |  |  |  | Quyangxiaolvdou C1819 | 7 |
|  |  | very tall |  |  |  | Hulvdou C1431 | 9 |
| **16.** |  | **QN** | **MS** |  |  | **40-50** |
|  |  |

|  |
| --- |
| **Plant: number of branches** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | few |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 2 |
|  |  | many |  |  |  |  | 3 |
| **17.** |  | **QN** | **VG** | **(+)** |  | **40-50** |
|  |  |

|  |
| --- |
| **Plant: branches at angles to main stem** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | small |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 2 |
|  |  | large |  |  |  |  | 3 |
| **18.** |  | **QN** | **MS** |  |  | **50** |
|  |  |

|  |
| --- |
| **Plant: number of pod** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | very few |  |  |  | Dayanglvdou C0385 | 1 |
|  |  | few |  |  |  | Gaoyangxiaolvdou | 3 |
|  |  | medium |  |  |  | Youlvdou C3247 | 5 |
|  |  | many |  |  |  | Zhonglv1 C3408 | 7 |
|  |  | very many |  |  |  | Hulvdou C1431 | 9 |
| **19.** |  | **QN** | **VG** |  |  | **50** |
|  |  |

|  |
| --- |
| **Plant: pod-shattering** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent or very weak |  |  |  |  | 1 |
|  |  | weak |  |  |  |  | 2 |
|  |  | strong |  |  |  |  | 3 |
| **20.** |  | **QN** | **MS** |  |  | **40-50** |
|  |  |

|  |
| --- |
| **Stem: number of section** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | few |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 2 |
|  |  | many |  |  |  |  | 3 |
| **21.** |  | **PQ** | **MS|C** |  |  | **50** |
|  |  |

|  |
| --- |
| **Pod: length** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | short |  |  |  | Hulvdou C2185 | 1 |
|  |  | medium |  |  |  | Zhonglv1 C3408 | 2 |
|  |  | long |  |  |  | Dayingelv 925 C5786 | 3 |
| **22.** |  | **QN** | **MS|C** |  |  | **50** |
|  |  |

|  |
| --- |
| **Pod: number of seed** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | few |  |  |  | Fuxinlvdou C3455 | 1 |
|  |  | medium |  |  |  | Zhonglv1 C3408 | 2 |
|  |  | many |  |  |  | Dengxianlvdou C2737 | 3 |
| **23.** |  | **PQ** | **VG|C** | **(+)** |  | **50** |
|  |  |

|  |
| --- |
| **Plant: pod-shattering** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | straight |  |  |  |  | 1 |
|  |  | falciform |  |  |  |  | 2 |
|  |  | claw |  |  |  |  | 3 |
| **24.** |  | **PQ** | **VG|C** |  |  | **40** |
|  |  |

|  |
| --- |
| **Stem: number of section** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | round |  |  |  | Dengxianlvdou C2737 | 1 |
|  |  | oblate |  |  |  | Zhonglv1 C3408 | 2 |
| **25.** |  | **PQ** | **VG|C** | **(+)** |  | **50** |
|  |  |

|  |
| --- |
| **Pod: color** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | yellowish white |  |  |  | Hulvdou C2185 | 1 |
|  |  | brown |  |  |  | Dengxianlvdou C2737 | 2 |
|  |  | black |  |  |  | Zhonglv1 C3408 | 3 |
| **26.** |  | **PQ** | **VG|C** |  |  | **50** |
|  |  |

|  |
| --- |
| **Pod: color of hairiness** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | grey |  |  |  |  | 1 |
|  |  | brown |  |  |  |  | 2 |
| **27.** |  | **QN** | **MG** |  |  | **50** |
|  |  |

|  |
| --- |
| **Seed: weight** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | small |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 3 |
|  |  | large |  |  |  |  | 5 |
| **28.** |  | **PQ** | **VG** | **(+)** |  | **50** |
|  |  |

|  |
| --- |
| **Seed: shape** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | sphere |  |  |  | Pinlvyouzi 88-49 C5234 | 1 |
|  |  | cylindrical |  |  |  | Dayingelv 925 C5786 | 2 |
|  |  | physical |  |  |  | Zhonglv1 C3408 | 3 |
| **29.** |  | **PQ** | **VG** | **(+)** |  | **50** |
|  |  |

|  |
| --- |
| **Seed: ground color of testa** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | green |  |  |  | Zhonglv1 C3408 | 1 |
|  |  | yellow |  |  |  | Suhuang 1 C6402 | 2 |
|  |  | blue |  |  |  | Lanlvdou C4157 | 3 |
|  |  | brown |  |  |  | Hulvdou C2185 | 4 |
|  |  | black |  |  |  | Heizhengzhu C5503 | 5 |
| **30.** |  | **QN** | **VG** |  |  | **50** |
|  |  |

|  |
| --- |
| **Suitable only for green seedcoat variety: Seed: intensity of green color** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | light |  |  |  |  | 1 |
|  |  | medium |  |  |  |  | 2 |
|  |  | dark |  |  |  |  | 3 |
| **31.** |  | **QL** | **VG** |  |  | **50** |
|  |  |

|  |
| --- |
| **Seed: seed coat luster** |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |  |  |
|  |  | absent |  |  |  |  | 1 |
|  |  | present |  |  |  |  | 9 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| 8. | Explanations on the Table of Characteristics |
|   |
| *8.1* | *Explanations covering several characteristics* |
|  |

|  |
| --- |
|  |

 |
|  |   |  |  |
|  | Characteristics containing the following key in the Table of Characteristics should be examined as indicated below: |
|   |
|

|  |
| --- |
| (a) |

 |

|  |
| --- |
| Observe the middle and upper parts of the main stem. |

 |
|   |  |  |  |
|

|  |
| --- |
| (b) |

 |

|  |
| --- |
| Measured lateral leaflets of compound leaves at segments 8 to 10 in the middle and upper parts of the plant.  |

 |
|   |  |  |  |
|

|  |
| --- |
| (c) |

 |

|  |
| --- |
| Measure the pod in the upper part of the plant.  |

 |
|   |  |  |  |

 |
|

|  |
| --- |
|   |
|

|  |
| --- |
| *8.2* |

 | *Explanations for individual characteristics* |
|   |
|

|  |
| --- |
| Ad. 1: Hypocotyl: anthocyanin colorationwordml://76.png |

 |
|

|  |
| --- |
| Ad. 4: Stem: fuzzwordml://77.png |

 |

 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
|

|  |
| --- |
| Ad. 5: Leaf: typewordml://78.png |

 |
|

|  |
| --- |
| Ad. 6: Leaf: shape of leafletwordml://79.png |

 |
|

|  |
| --- |
| Ad. 14: Plant: habitwordml://80.png |

 |

 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
|

|  |
| --- |
| Ad. 17: Plant: branches at angles to main stemwordml://81.png |

 |
|

|  |
| --- |
| Ad. 23: Plant: pod-shatteringwordml://82.png |

 |

 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
|

|  |
| --- |
| Ad. 25: Pod: colorwordml://83.png |

 |
|

|  |
| --- |
| Ad. 28: Seed: shapewordml://84.png |

 |
|

|  |
| --- |
| Ad. 29: Seed:  ground color of testawordml://85.png |

 |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |
| --- |
|   |
|

|  |
| --- |
| 8.3 |

 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   *Decimal Code for the Growth Stages of* *Vigna radiate*

|  |  |  |
| --- | --- | --- |
| Code | Growth stages | General Description |
| 10 | Seedling stage | Opposite simple leaves fully spread |
| 20 | Initial flowering period | Ten percent of the plants in the plot have their first flower |
| 30 | Full-bloom stage | Seventy percent of the plants in the plot are flowering |
| 40 | Maturity stage | In the cell, 50% of the pods are mature, the pods are mature and the seeds are hard |
| 50 | Ull ripe stage | More than 90% of the pods in the cell were mature, the pods showed mature color, and the beans hardened |

   |

 |

 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
|

|  |  |
| --- | --- |
| 9. | Literature |

 |
|   |

|  |
| --- |
| 2013: Guidelines for the Conduct of Test for Distinctness, Uniformity and Stability of Mungbean (Vigna radiata L. Wilczek). Chinese standard, in Chinese.Lixia Wang, et al. 2014: Adaptability and Phenotypic Variation of Agronomic Traits in Mungbean Core Collection under Different Environments in China. Beijing, CN. |

 |

 |

|  |  |  |
| --- | --- | --- |
|

|  |  |
| --- | --- |
| 10. | 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 |

 | Botanical name |

|  |
| --- |
| *Vigna radiata* (L.) R. Wilczek |

 |

|  |
| --- |
|  |

 |
|  |   |  |   |  |
|  |

|  |
| --- |
| 1.2 |

 | Common name |

|  |
| --- |
| Mung Bean |

 |  |
|  |   |   |

|  |
| --- |
|  |

 |  |
|  |   |  |   |  |

 |
|

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |   |  |  |
| 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 variety)(…………………..……………..…)                          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) | [ ] |
|  |      |
|  |   |

 |

 |

|  |  |  |  |
| --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
| 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** |

|  |
| --- |
| **(1)** |

 |

|  |
| --- |
| **Hypocotyl: anthocyanin coloration** |

 |  |  |
|  |

|  |
| --- |
| absent |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| present |

 |

|  |
| --- |
| Dayingelv 925 C5786 |

 |

|  |
| --- |
| 9 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.2** |

|  |
| --- |
| **(6)** |

 |

|  |
| --- |
| **Leaf: shape of leaflet** |

 |  |  |
|  | split leaf shape |  |  |
|  |

|  |
| --- |
| narrow oval |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| medium oval |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| broad oval |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.3** |

|  |
| --- |
| **(8)** |

 |

|  |
| --- |
| **Leaf: anthocyanin coloration at the base of leaflets** |

 |  |  |
|  |

|  |
| --- |
| absent |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| present |

 |

|  |
| --- |
| Dayingelv 925 C5786 |

 |

|  |
| --- |
| 9 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.4** |

|  |
| --- |
| **(9)** |

 |

|  |
| --- |
| **Petiole: intensity of anthocyanin coloration** |

 |  |  |
|  |

|  |
| --- |
| absent or very weak |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| weak |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| strong |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.5** |

|  |
| --- |
| **(10)** |

 |

|  |
| --- |
| **Flowers: color of corolla** |

 |  |  |
|  |

|  |
| --- |
| light yellow |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| medium yellow |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| yellow with purple |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.6** |

|  |
| --- |
| **(13)** |

 |

|  |
| --- |
| **Mature period** |

 |  |  |
|  |

|  |
| --- |
| very early |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| early |

 |

|  |
| --- |
| Baolv 942 C5636 |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |

|  |
| --- |
| medium |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 5 [   ] |

 |
|  |

|  |
| --- |
| late |

 |

|  |
| --- |
| Lvdou C2969 |

 |

|  |
| --- |
| 7 [   ] |

 |
|  |

|  |
| --- |
| very late |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 9 [   ] |

 |
|  |  |  |  |

|  | Characteristics | Example Varieties | Note |
| --- | --- | --- | --- |
|  |  |  |  |
|

|  |
| --- |
| **5.7** |

|  |
| --- |
| **(14)** |

 |

|  |
| --- |
| **Plant: habit** |

 |  |  |
|  |

|  |
| --- |
| upright |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| semi sprawl |

 |

|  |
| --- |
| Yinggelvdou C1547 |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| sprawl |

 |

|  |
| --- |
| Lanlvdou C4157 |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.8** |

|  |
| --- |
| **(15)** |

 |

|  |
| --- |
| **Pod: length** |

 |  |  |
|  |

|  |
| --- |
| very short |

 |

|  |
| --- |
| Gaaoyangxiaolvdou C0229 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| short |

 |

|  |
| --- |
| Dayanglvdou C0385 |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |

|  |
| --- |
| medium |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 5 [   ] |

 |
|  |

|  |
| --- |
| tall |

 |

|  |
| --- |
| Quyangxiaolvdou C1819 |

 |

|  |
| --- |
| 7 [   ] |

 |
|  |

|  |
| --- |
| very tall |

 |

|  |
| --- |
| Hulvdou C1431 |

 |

|  |
| --- |
| 9 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.9** |

|  |
| --- |
| **(23)** |

 |

|  |
| --- |
| **Plant: pod-shattering** |

 |  |  |
|  |

|  |
| --- |
| straight |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| falciform |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| claw |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.10** |

|  |
| --- |
| **(25)** |

 |

|  |
| --- |
| **Pod: color** |

 |  |  |
|  |

|  |
| --- |
| yellowish white |

 |

|  |
| --- |
| Hulvdou C2185 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| brown |

 |

|  |
| --- |
| Dengxianlvdou C2737 |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| black |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.11** |

|  |
| --- |
| **(27)** |

 |

|  |
| --- |
| **Seed: weight** |

 |  |  |
|  |

|  |
| --- |
| small |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| medium |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |

|  |
| --- |
| large |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 5 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.12** |

|  |
| --- |
| **(29)** |

 |

|  |
| --- |
| **Seed: ground color of testa** |

 |  |  |
|  |

|  |
| --- |
| green |

 |

|  |
| --- |
| Zhonglv1 C3408 |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| yellow |

 |

|  |
| --- |
| Suhuang 1 C6402 |

 |

|  |
| --- |
| 2 [   ] |

 |
|  |

|  |
| --- |
| blue |

 |

|  |
| --- |
| Lanlvdou C4157 |

 |

|  |
| --- |
| 3 [   ] |

 |
|  |

|  |
| --- |
| brown |

 |

|  |
| --- |
| Hulvdou C2185 |

 |

|  |
| --- |
| 4 [   ] |

 |
|  |

|  |
| --- |
| black |

 |

|  |
| --- |
| Heizhengzhu C5503 |

 |

|  |
| --- |
| 5 [   ] |

 |
|  |  |  |  |
|  |  |  |  |
|

|  |
| --- |
| **5.13** |

|  |
| --- |
| **(31)** |

 |

|  |
| --- |
| **Seed: seed coat luster** |

 |  |  |
|  |

|  |
| --- |
| absent |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 1 [   ] |

 |
|  |

|  |
| --- |
| present |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
| 9 [   ] |

 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
| 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* |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |

|  |
| --- |
|  |

 |
|     |   |   |   |
|   |   |   |   |
|   |   |   |   |

 |
|  | 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 |
|  |  |   |  |  |

 |

|  |  |  |  |
| --- | --- | --- | --- |
|

|  |  |  |
| --- | --- | --- |
| 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] |