|  |  |  |
| --- | --- | --- |
|  |  | **E** |
|  |  |  |
|  | 75 | |  | | --- | | **TG/335/1** | | **ORIGINAL:** English | | **DATE:** 2020-12-17 | |
| **INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS** | | |
|  | Geneva |  |
|  |  |  |
|  |  |  |
|  | |  | | --- | |  | | **BROWN MUSTARD** | |  | | |  | | --- | |  | | |  | | --- | | UPOV Code(s):  BRASS\_JUN | | |  | | |  | | |  |  | | --- | --- | | |  | | --- | | *Brassica juncea* (L.) Czern. | | | |  | | |  | | --- | | \* | |
|  |  |  |
| |  | | --- | | **GUIDELINES** | |  | | **FOR THE CONDUCT OF TESTS**  **FOR DISTINCTNESS, UNIFORMITY AND STABILITY** | | | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | Alternative names:\* | | | | | | | *Botanical name* | *English* | *French* | *German* | *Spanish* | | |  | | --- | | *Brassica juncea* (L.) Czern. | | |  | | --- | | Brown mustard,  Indian mustard, Oriental mustard | | |  | | --- | | Moutarde brune | | |  | | --- | | Sareptasenf | | |  | | --- | | Mostaza de Sarepta, Mostaza india | | | | |
|  |  |  |
| 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................................................................................................................................................ | [3](#Section3-4) | | 3.5 | Additional Tests......................................................................................................................................... | [3](#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................................................ | [5](#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............................................................................... | [18](#Section8) | |  | |  |  |  | | --- | --- | --- | | 8.1 | Explanations covering several characteristics........................................................................................... | [18](#Section8-1) | | |  | | --- | | 8.2 | | Explanations for individual characteristics................................................................................................. | [18](#Section8-2) | | 8.3 | Key for the stages of development............................................................................................................ | [26](#Section9) | | 8.4 | Other names of the example varieties....................................................................................................... | 27 | | | |  |  |  | | 9. | LITERATURE......................................................................................................................................................... | [28](#Section9) | |  |  |  | | 10. | TECHNICAL QUESTIONNAIRE............................................................................................................................ | [29](#Section10) | |  |  |  | |  | |  | | --- | |  | |  | | |

|  |  |
| --- | --- |
| 1. | Subject of these Test Guidelines |
|  |  |
|  | |  | | --- | | These Test Guidelines apply to all varieties of *Brassica juncea* (L.) Czern.. | |

|  |  |
| --- | --- |
|  |  |
| 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: | |
|  |  |
|  | |  | | --- | | 3,000 seeds for single spaced plants  or  20,000 seeds for drilled plots. | |
|  |  |
|  | 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 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* |
|  |  |
| |  | | --- | | 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. |
|  |  |
| *3.4* | *Test Design* |
| |  |  | | --- | --- | | |  | | --- | | 3.4.1 | | |  | | --- | | In the case of single spaced plants, each test should be designed to result in a total of at least 60 plants which should be divided between at least 2 replicates. | | | |  | | --- | | 3.4.2 | | |  | | --- | | In the case of drilled plots, each test should be designed to result in a total of at least 200 plants which should be divided between at least 2 replicates. | | |  |  | | |
| |  | | --- | |  |   *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 30 plants or parts of plants taken from each of 30 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 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* |
|  |  |
| 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 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 | | The assessment of uniformity for cross-pollinated varieties should be according to the recommendations for cross-pollinated varieties in the General Introduction. |
|  |  |
| 4.2.4 | |  | | --- | | For the assessment of uniformity of self-pollinated varieties, a population standard of 2% and an acceptance probability of at least 95% should be applied. In the case of a sample size of 60 plants, 3 off-types are allowed. In the case of a sample size of 200 plants for drilled plants, 7 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) |   (b) |  | |  | | --- | | Seed: color (characteristic 1) | | Leaf: type (characteristic 5) | | | |  | | --- | | (c) |   (d) |  | |  | | --- | | Only varieties with leaf: type: entire or lobed: Leaf blade: density of incisions of margin (characteristic 18) | | Only varieties with leaf: type: entire or lobed: Leaf blade: blistering (characteristic 19) | | | |  | | --- | | (e) | |  | |  | | --- | | Only varieties with leaf: type: entire: Leaf blade: width of midrib (characteristic 20) | | | |  | | --- | | (f) | |  | |  | | --- | | Plant: head formation (characteristic 21) | | |

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

|  |  |
| --- | --- |
| 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 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 8.2 | | | | |  |  |  |  | | 6 | |  | | --- | | (a)-(b) | | |  |  | | --- | --- | | |  | | --- | |  | |   See Explanations on the Table of Characteristics in Chapter 8.1 | | |  |  |  |  | | 7 | |  | | --- | | Growth stage key See Explanations on the Table of Characteristics in Chapter 8.3 | | | | | |

|  |  |
| --- | --- |
| 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** |  |  | **00** | | | |
|  |  | |  | | --- | | **Seed: color** | | | |  | | --- | | **Graine : couleur** | | | |  | | --- | | **Samen: Farbe** | | |  | | --- | | **Semilla: color** | |  |  |
|  |  | yellow | | jaune | | gelb | amarillo | Kigarashina | 1 |
|  |  | blackish brown | | brun noirâtre | | schwärzlich braun | marrón negruzco | Akaoba Takana, Esperance, Miike Takana, Terrafit, Terraplus | 2 |
| **2.** |  | **QN** | **VG** |  |  | **10** | | | |
|  |  | |  | | --- | | **Hypocotyl: anthocyanin coloration** | | | |  | | --- | | **Hypocotyle : pigmentation anthocyanique** | | | |  | | --- | | **Hypokotyl: Anthocyanfärbung** | | |  | | --- | | **Hipocótilo: pigmentación antociánica** | |  |  |
|  |  | absent or weak | | nulle ou faible | | fehlend oder gering | ausente o débil | Jarangi, TTK456,  Zasai FM-58 | 1 |
|  |  | medium | | moyenne | | mittel | media | Jarami, Shinkoku Seisai | 2 |
|  |  | strong | | forte | | stark | fuerte | Kigarashina | 3 |
| **3.** |  | **QN** | **MS/VG** | **(+)** |  | **10** | | | |
|  |  | |  | | --- | | **Cotyledon: length** | | | |  | | --- | | **Cotylédon : longueur** | | | |  | | --- | | **Keimblatt: Länge** | | |  | | --- | | **Cotiledón: longitud** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta |  | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Junkei Yamashiona, Vittasso | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Katsuona, Terraplus | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga | Scala | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |
| **4.** |  | **QN** | **MS/VG** | **(+)** |  | **10** | | | |
|  |  | |  | | --- | | **Cotyledon: width** | | | |  | | --- | | **Cotylédon : largeur** | | | |  | | --- | | **Keimblatt: Breite** | | |  | | --- | | **Cotiledón: anchura** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha |  | 2 |
|  |  | narrow | | étroite | | schmal | estrecha | Junkei Yamashiona, Vittasso | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Katsuona, Pacific Gold, Terraplus | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha |  | 6 |
|  |  | broad | | large | | breit | ancha | Minaret, Terminator | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha muy ancha |  | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha |  | 9 |
| **5.** | **(\*)** | **PQ** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: type** | | | **Feuille : type** | | **Blatt: Typ** | **Hoja: tipo** |  |  |
|  |  | entire | | entier | | ganzranding | entero | Akaoba Takana,  Kekkyu Takana,  Miike Takana,  Sagami Green,  Shinkoku Seisai | 1 |
|  |  | lobed | | lobé | | gelappt | lobulado | Hagarashina, Kigarashina, Terrafit | 2 |
|  |  | divided | | découpé | | geteilt | dividido | Akariasu, Flaming Frills, Riasu Karashina,  Scarlet Frills | 3 |
| **6.** | **(\*)** | **PQ** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: shape** | | | |  | | --- | | **Feuille : forme** | | | |  | | --- | | **Blatt: Form** | | |  | | --- | | **Hoja: forma** | |  |  |
|  |  | ovate | | ovale | | eiförmig | oval | Serihon | 1 |
|  |  | circular | | circulaire | | rund | circular | Kekkyu Takana | 2 |
|  |  | elliptic | | elliptique | | elliptisch | elíptica | Akariasu | 3 |
|  |  | oblong | | oblongue | | länglich | oblonga | Etamine, Zasai FM-58 | 4 |
|  |  | obovate | | obovale | | verkehrt eiförmig | oboval | Esperance, Katsuona | 5 |
|  |  | spatulate | | spatulée | | spatelförmig | espatulada | Kigarashina | 6 |
| **7.** | **(\*)** | **QN** | **VG** | **(+)** |  | **19** | | | |
|  |  | |  | | --- | | **Leaf: attitude** | | | |  | | --- | | **Feuille : port** | | | |  | | --- | | **Blatt: Haltung** | | |  | | --- | | **Hoja: porte** | |  |  |
|  |  | erect | | dressé | | aufrecht | erecto | Energy, Vittasso, Wasabina | 1 |
|  |  | erect to semi-erect | | dressé à demi-dressé | | aufrecht bis halbaufrecht | erecto a semierecto |  | 2 |
|  |  | semi-erect | | demi-dressé | | halbaufrecht | semierecto | Esperance,  Shinkoku Seisai | 3 |
|  |  | semi-erect to horizontal | | démi-dressé à horizontal | | halbaufrecht bis waagerecht | semierecto a horizontal |  | 4 |
|  |  | horizontal | | horizontal | | waagerecht | horizontal | Etamine, Miike Takana | 5 |
| **8.** |  | **QN** | **MS/VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: length** | | | |  | | --- | | **Feuille : longueur** | | | |  | | --- | | **Blatt: Länge** | | |  | | --- | | **Hoja: longitud** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta |  | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Chirimen Hakarashina | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Miike Takana, Terraplus | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga | Akaoba Takana, Vittasso | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |

|  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **9.** |  | **QN** | **MS/VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: width** | | | |  | | --- | | **Feuille : largeur** | | | |  | | --- | | **Blatt: Breite** | | |  | | --- | | **Hoja: anchura** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha |  | 2 |
|  |  | narrow | | étroite | | schmal | estrecha | Chirimen Hakarashina | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Miike Takana, Terraplus | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha |  | 6 |
|  |  | broad | | large | | breit | ancha | Katsuona, Vittasso | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha muy ancha |  | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha |  | 9 |
| **10.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: length of petiole** | | | |  | | --- | | **Feuille : longueur du pétiole** | | | |  | | --- | | **Blatt: Länge des Blattstiels** | | |  | | --- | | **Hoja: longitud del pecíolo** | |  |  |
|  |  | absent or very short | | absente ou très courte | | fehlend oder sehr kurz | ausente o muy corta | Serihon | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Miike Takana | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Junkei Yamashiona | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga |  | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |
| **11.** |  | **QN** | **MS/VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf: width of petiole** | | | |  | | --- | | **Feuille : largeur du pétiole** | | | |  | | --- | | **Blatt: Breite des Blattstiels** | | |  | | --- | | **Hoja: anchura del pecíolo** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha |  | 2 |
|  |  | narrow | | étroite | | schmal | estrecha | Kigarashina | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Katsuona | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha |  | 6 |
|  |  | broad | | large | | breit | ancha | Shinkoku Seisai | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha muy ancha |  | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha |  | 9 |

|  |  | English | | français | | deutsch | español | Example Varieties Exemples Beispielssorten Variedades ejemplo | Note/ Nota |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **12.** |  | **QN** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with leaf: type: lobed or divided: Leaf blade: size of terminal lobe** | | | |  | | --- | | **Seulement les variétés avec feuille : type : lobée ou découpés : Limbe : taille du lobe terminal** | | | |  | | --- | | **Nur Sorten mit Blatt: Typ: gelappt oder geteilt: Blattspreite: Größe des Endlappens** | | |  | | --- | | **Solo variedades con Hoja: tipo: lobulada o dividida: Limbo: tamaño del lóbulo terminal** | |  |  |
|  |  | very small | | très petite | | sehr klein | muy pequenõ |  | 1 |
|  |  | very small to small | | très petite à petite | | sehr klein bis klein | muy pequenõ a pequenõ |  | 2 |
|  |  | small | | petite | | klein | pequenõ | Akariasu | 3 |
|  |  | small to medium | | petite à moyenne | | klein bis mittel | pequenõ a medio |  | 4 |
|  |  | medium | | moyenne | | mittel | medio | Kigarashina | 5 |
|  |  | medium to large | | moyenne à grande | | mittel bis groß | medio a grande |  | 6 |
|  |  | large | | grande | | groß | grande | Pacific Gold, Perm Green | 7 |
|  |  | large to very large | | grande à très grande | | groß bis sehr groß | grande a muy grande |  | 8 |
|  |  | very large | | très grande | | sehr groß | muy grande |  | 9 |
| **13.** | **(\*)** | **QN** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf blade: number of lateral lobes** | | | |  | | --- | | **Limbe : nombre de lobes latéraux** | | | |  | | --- | | **Blattspreite: Anzahl der Seitenlappen** | | |  | | --- | | **Limbo: número de lóbulos laterales** | |  |  |
|  |  | absent or very few | | nul ou très petit | | fehlend oder sehr wenige | ausentes o muy bajo | Akaoba Takana, Sagami Green | 1 |
|  |  | very few to few | | très petit à petit | | sehr wenige bis wenige | muy bajo a bajo |  | 2 |
|  |  | few | | petit | | wenige | bajo | Minaret | 3 |
|  |  | few to medium | | petit à moyen | | wenige bis mittel | bajo a medio |  | 4 |
|  |  | medium | | moyen | | mittel | medio | Esperance, Kigarashina | 5 |
|  |  | medium to many | | moyen à élevé | | mittel bis viele | medio a alto |  | 6 |
|  |  | many | | élevé | | viele | alto | Akariasu, TTK456 | 7 |
|  |  | many to very many | | élevé à très élevé | | viele bis sehr viele | alto a muy alto |  | 8 |
|  |  | very many | | très élevé | | sehr viele | muy alto |  | 9 |
| **14.** |  | **QN** | **VG** |  | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf blade: pubescence on lower side** | | | |  | | --- | | **Limbe : pubescence sur la face inférieure** | | | |  | | --- | | **Blattspreite: Behaarung der Unterseite** | | |  | | --- | | **Limbo: pubescencia en envés** | |  |  |
|  |  | absent or weak | | nulle ou faible | | fehlend oder gering | ausente o débil | Miike Takana | 1 |
|  |  | medium | | moyenne | | mittel | media | Oba Takana | 2 |
|  |  | strong | | forte | | stark | densa | Kigarashina | 3 |
| **15.** | **(\*)** | **QN** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Leaf blade: anthocyanin coloration** | | | |  | | --- | | **Limbe : pigmentation anthocyanique** | | | |  | | --- | | **Blattspreite: Anthocyanfärbung** | | |  | | --- | | **Limbo: pigmentación antociánica** | |  |  |
|  |  | absent or very weak | | nulle ou très faible | | fehlend oder sehr gering | ausente o muy débil | Kekkyu Takana, Vitamine | 1 |
|  |  | very weak to weak | | très faible à faible | | sehr gering bis gering | muy débil a débil |  | 2 |
|  |  | weak | | faible | | gering | débil |  | 3 |
|  |  | weak to medium | | faible à moyenne | | gering bis mittel | débil a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Miike Takana | 5 |
|  |  | medium to strong | | moyenne à forte | | mittel bis stark | media a fuerte |  | 6 |
|  |  | strong | | forte | | stark | fuerte | TTK456 | 7 |
|  |  | strong to very strong | | forte à très forte | | stark bis sehr stark | fuerte a muy fuerte |  | 8 |
|  |  | very strong | | très forte | | sehr stark | muy fuerte |  | 9 |
| **16.** |  | **QN** | **VG** |  | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with anthocyanin coloration: absent or very weak: Leaf blade: intensity of green color** | | | |  | | --- | | **Seulement les variétés avec pigmentation anthocyanique : nulle ou très faible : Limbe : intensité de la couleur verte** | | | |  | | --- | | **Nur Sorten mit Anthocyanfärbung: fehlend oder sehr gering: Blattspreite: Intensität der grünen Farbe** | | |  | | --- | | **Solo variedades con pigmentación antociánica: ausente o muy débil: Limbo: intensidad del color verde** | |  |  |
|  |  | very light | | très claire | | sehr hell | muy clara |  | 1 |
|  |  | very light to light | | très claire à claire | | sehr hell bis hell | muy clara a clara |  | 2 |
|  |  | light | | claire | | hell | clara | Wasabina | 3 |
|  |  | light to medium | | claire à moyenne | | hell bis mittel | clara a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Etamine, Golden Streaks, Katsuona | 5 |
|  |  | medium to dark | | moyenne à foncée | | mittel bis dunkel | media a oscura |  | 6 |
|  |  | dark | | foncée | | dunkel | oscura | Terratop | 7 |
|  |  | dark to very dark | | foncée à très foncée | | dunkel bis sehr dunkel | oscura a muy oscurs |  | 8 |
|  |  | very dark | | très foncée | | sehr dunkel | muy oscura |  | 9 |
| **17.** |  | **QN** | **VG** |  | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with leaf: type: entire or lobed: Leaf blade: undulation of margin** | | | |  | | --- | | **Seulement les variétés avec feuille : type : entière ou lobée : Limbe : ondulation du bord** | | | |  | | --- | | **Nur Sorten mit Blatt: Typ: ganzrandig oder gelappt: Blattspreite: Wellung des Randes** | | |  | | --- | | **Solo variedades con Hoja: tipo: entera o lobulada: Limbo: ondulación del borde** | |  |  |
|  |  | absent or very weak | | nulle ou très faible | | fehlend oder sehr gering | ausente o muy débil |  | 1 |
|  |  | weak | | faible | | gering | débil | Akaoba Takana | 2 |
|  |  | medium | | moyenne | | mittel | media | Katsuona | 3 |
|  |  | strong | | forte | | stark | fuerte | Chirimen Hakarashina | 4 |
|  |  | very strong | | très forte | | sehr stark | muy fuerte |  | 5 |
| **18.** | **(\*)** | **QN** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with leaf: type: entire or lobed: Leaf blade: density of incisions of margin** | | | |  | | --- | | **Seulement les variétés avec feuille : type : entière ou lobée : Limbe : densité des incisions du bord** | | | |  | | --- | | **Nur Sorten mit Blatt: Typ: ganzrandig oder gelappt: Blattspreite: Dichte der Randeinschnitte** | | |  | | --- | | **Solo variedades con Hoja: tipo: entera o lobulada: Limbo: densidad de las incisiones del borde** | |  |  |
|  |  | absent or very sparse | | nulle ou très lâche | | fehlend oder sehr locker | ausente o muy laxa |  | 1 |
|  |  | very sparse to sparse | | très lâche à lâche | | sehr locker bis locker | muy laxa a laxa |  | 2 |
|  |  | sparse | | lâche | | locker | laxa | Etamine, Katsuona | 3 |
|  |  | sparse to medium | | lâche à moyenne | | locker bis mittel | laxa a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Opaleska | 5 |
|  |  | medium to dense | | moyenne à dense | | mittel bis dicht | media a densa |  | 6 |
|  |  | dense | | dense | | dicht | densa | Oportuna | 7 |
|  |  | dense to very dense | | dense à très dense | | dicht bis sehr dicht | densa a muy densa |  | 8 |
|  |  | very dense | | très dense | | sehr dicht | muy densa |  | 9 |
| **19.** | **(\*)** | **QN** | **VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with leaf: type: entire or lobed: Leaf blade: blistering** | | | |  | | --- | | **Seulement les variétés avec feuille : type : entière ou lobée : Limbe : cloqûre** | | | |  | | --- | | **Nur Sorten mit Blatt: Typ: ganzrandig oder gelappt: Blattspreite: Blasigkeit** | | |  | | --- | | **Solo variedades con Hoja: tipo: entera o lobulada: Limbo: ampollado** | |  |  |
|  |  | absent or weak | | absente ou faible | | fehlend oder schwach | ausente o débil | Etamine, Kigarashina | 1 |
|  |  | medium | | moyenne | | mittel | medio | Akaoba Takana | 2 |
|  |  | strong | | forte | | stark | fuerte | Katsuona | 3 |
| **20.** | **(\*)** | **QN** | **MS/VG** | **(+)** | **(a)** | **19** | | | |
|  |  | |  | | --- | | **Only varieties with leaf: type: entire: Leaf blade: width of midrib** | | | |  | | --- | | **Seulement les variétés avec feuille : type : entière : Limbe : largeur de la nervure médiane** | | | |  | | --- | | **Nur Sorten mit Blatt: Typ: ganzrandig: Blattspreite: Breite der Mittelrippe** | | |  | | --- | | **Solo variedades con Hoja: tipo: entera: Limbo: anchura del nervio central** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha |  | 2 |
|  |  | narrow | | étroite | | schmal | estrecha | Sagami Green | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Katsuona | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha |  | 6 |
|  |  | broad | | large | | breit | ancha | Shinkoku Seisai | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha muy ancha |  | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha |  | 9 |
| **21.** | **(\*)** | **QL** | **VG** | **(+)** |  | **19** | | | |
|  |  | |  | | --- | | **Plant: head formation** | | | |  | | --- | | **Plante : formation d’une pomme** | | | |  | | --- | | **Pflanze: Kopfbildung** | | |  | | --- | | **Planta: formación de repollo** | |  |  |
|  |  | absent | | absente | | fehlend | ausente | Kigarashina | 1 |
|  |  | present | | présente | | vorhanden | presente | Kekkyu Takana | 9 |
| **22.** |  | **QN** | **MS/VG** |  |  | **19** | | | |
|  |  | |  | | --- | | **Head: height** | | | |  | | --- | | **Pomme : hauteur** | | | |  | | --- | | **Kopf: Höhe** | | |  | | --- | | **Repollo: altura** | |  |  |
|  |  | short | | basse | | kurz | corta |  | 1 |
|  |  | medium | | moyenne | | mittel | media | Kekkyu Takana,  Unzen Kekkyu Takana | 2 |
|  |  | tall | | haute | | hoch | alta |  | 3 |
| **23.** |  | **QN** | **MS/VG** |  |  | **19** | | | |
|  |  | |  | | --- | | **Head: width** | | | |  | | --- | | **Pomme : largeur** | | | |  | | --- | | **Kopf: Breite** | | |  | | --- | | **Repollo: anchura** | |  |  |
|  |  | narrow | | étroite | | schmal | estrecha |  | 1 |
|  |  | medium | | moyenne | | mittel | media | Kekkyu Takana,  Unzen Kekkyu Takana | 2 |
|  |  | broad | | large | | breit | ancha |  | 3 |
| **24.** |  | **QN** | **MS/VG** |  |  | **19** | | | |
|  |  | |  | | --- | | **Head: number of leaves** | | | |  | | --- | | **Pomme : nombre de feuilles** | | | |  | | --- | | **Kopf: Anzahl Blätter** | | |  | | --- | | **Repollo: número de hojas** | |  |  |
|  |  | very few | | très petit | | sehr wenige | muy bajo |  | 1 |
|  |  | very few to few | | très petit à petit | | sehr wenige bis wenige | muy bajo a bajo |  | 2 |
|  |  | few | | petit | | wenige | bajo |  | 3 |
|  |  | few to medium | | petit à moyen | | wenige bis mittel | bajo a medio |  | 4 |
|  |  | medium | | moyen | | mittel | medio | Kekkyu Takana,  Unzen Kekkyu Takana | 5 |
|  |  | medium to many | | moyen à élevé | | mittel bis viele | medio a alto |  | 6 |
|  |  | many | | élevé | | viele | alto |  | 7 |
|  |  | many to very many | | élevé à très élevé | | viele bis sehr viele | alto a muy alto |  | 8 |
|  |  | very many | | très élevé | | sehr viele | muy alto |  | 9 |
| **25.** |  | **PQ** | **VG** |  |  | **19** | | | |
|  |  | |  | | --- | | **Head: internal color** | | | |  | | --- | | **Pomme : couleur intérieure** | | | |  | | --- | | **Kopf: Innenfarbe** | | |  | | --- | | **Repollo: color interno** | |  |  |
|  |  | yellowish white | | blanc jaunâtre | | gelblich weiß | blanco amarillento | Unzen Kekkyu Takana | 1 |
|  |  | light green | | vert clair | | hellgrün | verde claro |  | 2 |
|  |  | medium green | | vert moyen | | mittelgrün | verde medio | Kekkyu Takana | 3 |
| **26.** |  | **PQ** | **VG** | **(+)** |  | **20-29** | | | |
|  |  | |  | | --- | | **Main stem: shape** | | | |  | | --- | | **Tige principale : forme** | | | |  | | --- | | **Haupttrieb: Form** | | |  | | --- | | **Tallo principal: forma** | |  |  |
|  |  | narrow conic | | conique étroite | | schmal kegelförmig | cónica estrecha | Kigarashina | 1 |
|  |  | broad conic | | conique large | | breit kegelförmig | cónica ancha | Zasai FM-58 | 2 |
|  |  | rounded | | arrondie | | abgerundet | redondeada | Umino | 3 |
|  |  | branched | | ramifiée | | verzweigt | ramificada | FE-K226 | 4 |
| **27.** |  | **QN** | **MG** |  |  | **31** | | | |
|  |  | |  | | --- | | **Time of beginning of bolting** | | | |  | | --- | | **Époque de début de montaison** | | | |  | | --- | | **Zeitpunkt des Schossbeginns** | | |  | | --- | | **Época del comienzo de la floración** | |  |  |
|  |  | very early | | très précoce | | sehr früh | muy temprana |  | 1 |
|  |  | very early to early | | très précoce à précoce | | sehr früh bis früh | muy temprana a temprana |  | 2 |
|  |  | early | | précoce | | früh | temprana | Junkei Yamashiona, Scala | 3 |
|  |  | early to medium | | précoce à moyenne | | früh bis mittel | temprana a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Terraplus | 5 |
|  |  | medium to late | | moyenne à tardive | | mittel bis spät | media a tardía |  | 6 |
|  |  | late | | tardive | | spät | tardía | Akaoba Takana | 7 |
|  |  | late to very late | | tardive à très tardive | | spät bis sehr spät | tardía a muy tardía |  | 8 |
|  |  | very late | | très tardive | | sehr spät | muy tardía |  | 9 |
| **28.** |  | **QN** | **MG/MS** |  |  | **50** | | | |
|  |  | |  | | --- | | **Time of flowering** | | | |  | | --- | | **Époque de floraison** | | | |  | | --- | | **Zeitpunkt der Blüte** | | |  | | --- | | **Época de floración** | |  |  |
|  |  | very early | | très précoce | | sehr früh | muy temprana |  | 1 |
|  |  | very early to early | | très précoce à précoce | | sehr früh bis früh | muy temprana a temprana |  | 2 |
|  |  | early | | précoce | | früh | temprana | Terrafit | 3 |
|  |  | early to medium | | précoce à moyenne | | früh bis mittel | temprana a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Minaret, Terraplus | 5 |
|  |  | medium to late | | moyenne à tardive | | mittel bis spät | media a tardía |  | 6 |
|  |  | late | | tardive | | spät | tardía | Brons | 7 |
|  |  | late to very late | | tardive à très tardive | | spät bis sehr spät | tardía a muy tardía |  | 8 |
|  |  | very late | | très tardive | | sehr spät | muy tardía | Vittasso | 9 |
| **29.** |  | **QN** | **MS/VG** |  | **(b)** | **70-79** | | | |
|  |  | |  | | --- | | **Plant: height** | | | |  | | --- | | **Plante : hauteur** | | | |  | | --- | | **Pflanze: Höhe** | | |  | | --- | | **Planta: altura** | |  |  |
|  |  | very short | | très basse | | sehr niedrig | muy baja |  | 1 |
|  |  | very short to short | | très basse à basse | | sehr niedrig bis niedrig | muy baja a baja |  | 2 |
|  |  | short | | basse | | niedrig | baja | Pacific Gold, Terminator | 3 |
|  |  | short to medium | | basse à moyenne | | niedrig bis mittel | baja a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Terraplus | 5 |
|  |  | medium to tall | | moyenne à haute | | mittel bis hoch | media a alta |  | 6 |
|  |  | tall | | haute | | hoch | alta | Minaret | 7 |
|  |  | tall to very tall | | haute à très haute | | hoch bis sehr hoch | alta a muy alta |  | 8 |
|  |  | very tall | | très haute | | sehr hoch | muy alta | Vittasso | 9 |
| **30.** |  | **QN** | **MS/VG** | **(+)** | **(b)** | **70-79** | | | |
|  |  | |  | | --- | | **Silique: length** | | | |  | | --- | | **Silique : longueur** | | | |  | | --- | | **Schote: Länge** | | |  | | --- | | **Silicua: longitud** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta |  | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Terraplus, Vittasso | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Pacific Gold | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga | Minaret | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |
| **31.** |  | **QN** | **MS/VG** | **(+)** | **(b)** | **70-79** | | | |
|  |  | |  | | --- | | **Silique: length of beak** | | | |  | | --- | | **Silique : longueur du bec** | | | |  | | --- | | **Schote: Länge der Spitze** | | |  | | --- | | **Silicua: longitud de la punta** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta |  | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Terraplus, Vittasso | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Terrafit | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga |  | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |
| **32.** |  | **QN** | **MS/VG** | **(+)** | **(b)** | **70-79** | | | |
|  |  | |  | | --- | | **Silique: width** | | | |  | | --- | | **Silique : largeur** | | | |  | | --- | | **Schote: Breite** | | |  | | --- | | **Silicua: anchura** | |  |  |
|  |  | very narrow | | très étroite | | sehr schmal | muy estrecha |  | 1 |
|  |  | very narrow to narrow | | très étroite à étroite | | sehr schmal bis schmal | muy estrecha a estrecha |  | 2 |
|  |  | narrow | | étroite | | schmal | estrecha | Vittasso | 3 |
|  |  | narrow to medium | | étroite à moyenne | | schmal bis mittel | estrecha a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Energy, Terrafit | 5 |
|  |  | medium to broad | | moyenne à large | | mittel bis breit | media a ancha |  | 6 |
|  |  | broad | | large | | breit | ancha | Oba Takana | 7 |
|  |  | broad to very broad | | large à très large | | breit bis sehr breit | ancha muy ancha |  | 8 |
|  |  | very broad | | très large | | sehr breit | muy ancha |  | 9 |
| **33.** |  | **QN** | **MS/VG** | **(+)** | **(b)** | **70-79** | | | |
|  |  | |  | | --- | | **Silique: length of peduncle** | | | |  | | --- | | **Silique : longueur du pédoncule** | | | |  | | --- | | **Schote: Länge des Stiels** | | |  | | --- | | **Silicua: longitud del pedúnculo** | |  |  |
|  |  | very short | | très courte | | sehr kurz | muy corta |  | 1 |
|  |  | very short to short | | très courte à courte | | sehr kurz bis kurz | muy corta a corta |  | 2 |
|  |  | short | | courte | | kurz | corta | Vittasso | 3 |
|  |  | short to medium | | courte à moyenne | | kurz bis mittel | corta a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Energy | 5 |
|  |  | medium to long | | moyenne à longue | | mittel bis lang | media a larga |  | 6 |
|  |  | long | | longue | | lang | larga | Minaret | 7 |
|  |  | long to very long | | longue à très longue | | lang bis sehr lang | larga a muy larga |  | 8 |
|  |  | very long | | très longue | | sehr lang | muy larga |  | 9 |
| **34.** |  | **QN** | **VG** | **(+)** |  |  | | | |
|  |  | |  | | --- | | **Tendency to form inflorescences** | | | |  | | --- | | **Tendance à former des inflorescences** | | | |  | | --- | | **Neigung zur Bildung von Blütenständen** | | |  | | --- | | **Tendencia a formar inflorescencias** | |  |  |
|  |  | absent or very weak | | nulle ou très faible | | fehlend oder sehr gering | ausente o muy débil | Brons, Vittasso | 1 |
|  |  | very weak to weak | | très faible à faible | | sehr gering bis gering | muy débil a débil |  | 2 |
|  |  | weak | | faible | | gering | débil |  | 3 |
|  |  | weak to medium | | faible à moyenne | | gering bis mittel | débil a media |  | 4 |
|  |  | medium | | moyenne | | mittel | media | Terraplus | 5 |
|  |  | medium to strong | | moyenne à forte | | mittel bis stark | media a fuerte |  | 6 |
|  |  | strong | | forte | | stark | fuerte |  | 7 |
|  |  | strong to very strong | | forte à très forte | | stark bis sehr stark | fuerte a muy fuerte |  | 8 |
|  |  | very strong | | très forte | | sehr stark | muy fuerte | Energy, Minaret, Terrafit | 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) |   (b) | |  | | --- | | Observations should be made on the largest fully developed leaf. | | Observations should only be made on varieties without head formation. | | |
| |  | | --- | |  | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | |  | | --- | | *8.2* | | *Explanations for individual characteristics* | |  | | | |  | | --- | | Ad. 3: Cotyledon: length  Observations should be made on cotyledons of 30 seedlings. If the two cotyledons differ in size, the biggest one should be measured. The length is defined as distance between the inclination at top of the cotyledon and the point where the width of the petiole is about 4 mm. The width of the cotyledon should be measured at the widest point of the cotyledons.  80  a = Cotyledon: width (characteristic 4)  b = Cotyledon: length (characteristic 3) | | | | |  | | --- | | Ad. 4: Cotyledon: width  See Ad. 3 | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 5: Leaf: type   |  |  |  | | --- | --- | --- | |  | 葉タイプ１ | 葉タイプ２の2 | | 1 | 2 | 3 | | entire | lobed | divided |   Ad. 6: Leaf: shape   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  | ←          broadest part                 → | | | |  |  | below middle | at middle | above middle | | relative  width |  |  |  |  | | narrow |  |  | 81  4  oblong | 82  6  spatulate | | medium |  | 83  1   ovate | 84  3  elliptic | 85  5  obovate | | broad |  |  | 86  2  circular |  | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 7: Leaf: attitude   |  |  |  | | --- | --- | --- | | 87 | 88 | 89 | | 1 | 3 | 5 | | erect | semi-erect | horizontal |  |  |  |  | | --- | --- | --- | |  |  |  | | | | |  | | --- | | Ad. 8: Leaf: length  ad_8_leaf_length  a = Leaf: length (characteristic 8)  b = Leaf: width (characteristic 9)  c = Leaf: length of petiole (characteristic 10)  d = Leaf: width of petiole (characteristic 11)  e = Leaf blade: width of midrib (characteristic 20) | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | |  | | --- | | Ad. 9: Leaf: width  See Ad. 8 | | | |  | | --- | | Ad. 10: Leaf: length of petiole  See Ad. 8 | | | |  | | --- | | Ad. 11: Leaf: width of petiole  See Ad. 8 | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  | | --- | --- | --- | --- | --- | | Ad. 12: Only varieties with leaf: type: lobed or divided: Leaf blade: size of terminal lobe  Parts of the leaf blade are considered as lobes if their length is at least equivalent to the width of the leaf petiole at their point of attachment and if the upper notch of the blade has at least half the length of the lobe itself.  The terminal lobe is the top lobe of the leaf, which is the No. 1 lobe in the following figure.  The lateral lobes are the lobes excluding the terminal lobe (numbers 2, 3, 4, etc. in the following figures)   |  |  | | --- | --- | | 91 | 92 | | lobed | divided |   The size of terminal lobe should be assessed by the ratio of the terminal lobe size/the leaf size. The terminal lobe size and the leaf size are the size of the area which was surrounded by each outline of them.  93  a = Terminal lobe size  b = Leaf size | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | |  | | --- | | Ad. 13: Leaf blade: number of lateral lobes  See Ad. 12 | | | |  | | --- | | Ad. 15: Leaf blade: anthocyanin coloration  The strongest intensity of anthocyanin should be observed (not the extent). | | |  | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 18: Only varieties with leaf: type: entire or lobed: Leaf blade: density of incisions of margin   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Observations should be made on the distal part of the leaves.   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | 97 | | 3 | | sparse | | |  | | --- | | 98 | | 5 | | medium | | |  | | --- | | 99 | | 7 | | dense | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 19: Only varieties with leaf: type: entire or lobed: Leaf blade: blistering   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | 100 | | 1 | | absent or weak | | |  | | --- | | 101 | | 2 | | medium | | |  | | --- | | 102 | | 3 | | strong | | | | | | |  | | --- | | Ad. 20: Only varieties with leaf: type: entire: Leaf blade: width of midrib  See Ad. 8  The width of midrib should be measured at the widest point. | | |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 21: Plant: head formation   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | 103 | | 1 | | absent | | |  | | --- | | 104 | | 9 | | present | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Ad. 26: Main stem: shape  Observations on the shape of the main stem should be made after removing the leaves, excluding lateral stems which are located at the base of main stem.   |  |  |  |  | | --- | --- | --- | --- | | 105 | 106 | 107 | 108 | | 1 | 2 | 3 | 4 | | narrow conic | broad conic | rounded | branched | | | | |  | | --- | |  | | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | Ad. 30: Silique: length  Observations on the silique should be made on the middle third of the inflorescence of the main stem.  Observations should be made on the length of the silique from attachment of peduncle to top, excluding beak.   |  |  | | --- | --- | | 109 | a = Silique: width (characteristic 32)  b = Silique: length of beak (characteristic 31)  c = Silique: length (characteristic 30)  d = Silique: length of peduncle (characteristic 33) | | | | |  | | --- | | Ad. 31: Silique: length of beak  See Ad. 30 | | | |  | | --- | | Ad. 32: Silique: width  See Ad. 30 | | | |  | | --- | | Ad. 33:  Silique: length of peduncle  See Ad. 30 | | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | |  | | --- | | Ad. 34: Tendency to form inflorescences  Observations should be made in the year of sowing under long day conditions.  The observation of the tendency to form inflorescence (proportion of plants below bud stage, in bud stage, in flowering stage, in stage of silique formation) should be made in autumn, when the development stagnates.  Alternatively, the beginning of flowering may be observed in this trial; early flowering would mean strong tendency, late flowering would mean weak tendency. | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | *8.3* |   *8.4* | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *Key for the stages of development*   |  |  | | --- | --- | | Key | General description | | 0   01   03   05   07   08   09 | Principal growth stage 0: Germination  Beginning of seed imbibition  Seed imbibition complete  Radicle emerged from seed  Hypocotyl with cotyledons emerged from seed  Hypocotyl with cotyledons growing towards soil surface  Emergence: cotyledons emerge through soil surface | | 1   10   11   12   13   14   15   16   17   18   19 | Principal growth stage 1: Leaf development  Cotyledons completely unfolded  First leaf unfolded  2 leaves unfolded  3 leaves unfolded  4 leaves unfolded  5 leaves unfolded  6 leaves unfolded  7 leaves unfolded  8 leaves unfolded  9 or more leaves unfolded | | 2   20   21   22   23   24   25   26   27   28   29 | Principal growth stage 2: Formation of side shoots  No side shoots  First side shoot detectable  2 side shoots detectable  3 side shoots detectable  4 side shoots detectable  5 side shoots detectable  6 side shoots detectable  7 side shoots detectable  8 side shoots detectable  9 or more side shoots detectable | | 3   30   31   32   33   34   35   36   37   38   39 | Principal growth stage 3: Stem elongation  no internodes(“rosette”)  1 visibly extended internode  2 visibly extended internodes  3 visibly extended internodes  4 visibly extended internodes  5 visibly extended internodes  6 visibly extended internodes  7 visibly extended internodes  8 visibly extended internodes  9 or more visibly extended internodes | | 4   40   41   42   43   45   47   49 | Principal growth stage 4: Inflorescence emergence  Flower buds present, still enclosed by leaves  Flower buds visible from above (“green bud”)  Flower buds free, level with the youngest leaves  Flower buds raised above the youngest leaves  Individual flower buds (main inflorescence) visible but still closed  Individual flower buds (secondary inflorescence) visible but still closed  First petals visible, flower buds still closed by (“yellow bud”) | | 5   50   51   52   53   54   55   57   59 | Principal growth stage 5: Opening of flowers  First flowers open  10% of flowers on main raceme open, main raceme elongating  20% of flowers on main raceme open  30% of flowers on main raceme open  40% of flowers on main raceme open  Full flowering: 50% flowers on main raceme open, older petals falling  Flowering declining: majority of petals fallen  End of flowering | | 6   61   62   63   64   65   66   67   68   69 | Principal growth stage 6: Development of silique  10% of siliques have reached final size  20% of siliques have reached final size  30% of siliques have reached final size  40% of siliques have reached final size  50% of siliques have reached final size  60% of siliques have reached final size  70% of siliques have reached final size  80% of siliques have reached final size  Nearly all siliques have reached final size | | 7   70   71   72   73   74   75   76   77   78   79 | Principal growth stage 7: Ripening  seed green, filling silique cavity  10% of siliques ripe, seeds dark and hard  20% of siliques ripe, seeds dark and hard  30% of siliques ripe, seeds dark and hard  40% of siliques ripe, seeds dark and hard  50% of siliques ripe, seeds dark and hard  60% of siliques ripe, seeds dark and hard  70% of siliques ripe, seeds dark and hard  80% of siliques ripe, seeds dark and hard  Fully ripe: nearly all siliques ripe, seeds dark and hard | | 8   87   89 | Principal growth stage 8: Senescence  Plant dead and dry  Harvested product |   *Other names of the example varieties*   |  |  | | --- | --- | | TTK456(1) | Chaplin(2) | | Akaoba Takana(3) | Red Giant(4) |   (1) official denomination registered under the law in Japan in 2011.  (2) official denomination of TTK456 registered under the law in European Union in 2014.  (3) commercial name in Japan.  (4) commercial name of Akaoba Takana in European Union. | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | 9. | Literature | | |  |  |  | | --- | | Fujishiro, T., 1996: Breeding processes and characteristics of a newly bred leaf mustard (*Brassica Juncea* Coss.). Kanagawa, JP  Joy Larkcom, 1991: Oriental Vegetables (The Complete guide for Garden and Kitchen). London, GB, pp. 39 to pp. 45  Meier, U., 2001: Growth stages of mono-and dicotyledonous plants. BBCH Monograph Federal Biological Research Centre for Agriculture and Forestry  Ministry of Agriculture, Forestry & Fisheries of Japan., 1994: National Test Guideline for Karashina  Phillips, R., Rix, M., 1993: Vegetables (The Pan Garden Plants Series). pp. 44  Tsukamoto, Y., 1994: The Grand Dictionary of Horticulture Volume 1. The Shogakukan Ltd., Tokyo, JP, pp. 520 to pp. 522  Takasi A., 2004: Yasai-engei-daihyakka 17. Shadanhojin Nousan-gyoson-bunkakyokai. Tokyo, JP. pp. 169 to pp. 233 | | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | 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 | |  | | --- | | *Brassica juncea* (L.) Czern. | | |  | | --- | |  | | |  |  |  |  |  | |  | |  | | --- | | 1.2 | | Common name | |  | | --- | | Brown mustard, Indian mustard, Oriental mustard | |  | |  |  |  | |  | | --- | |  | |  | |  |  |  |  |  | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | | 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 | | [ ] | | |  | | --- | | (b) | | |  | | --- | | partially known cross | | [ ] | | |  | | --- | | (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 | | |  | | --- | | Seed-propagated varieties | |  | | |  | | --- | | (a) | | |  | | --- | | Cross-pollination | | [ ] | | |  | | --- | | (b) | | |  | | --- | | Other (please provide details) | | [ ] | |  |  |  | |  |  |  | |  |  |  | | |  | | --- | | 4.2.2 | | 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)** | | |  | | --- | | **Seed: color** | |  |  |
|  | |  | | --- | | yellow | | |  | | --- | | Kigarashina | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | blackish brown | | |  | | --- | | Akaoba Takana, Esperance, Miike Takana, Terrafit, Terraplus | | |  | | --- | | 2 [   ] | |
| |  | | --- | | **5.2** |  |  | | --- | | **(5)** | | |  | | --- | | **Leaf: type** | |  |  |
|  | |  | | --- | | entire | | |  | | --- | | Akaoba Takana, Kekkyu Takana,  Miike Takana, Sagami Green,  Shinkoku Seisai | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | lobed | | |  | | --- | | Hagarashina, Kigarashina, Terrafit | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | divided | | |  | | --- | | Akariasu, Flaming Frills, Riasu Karashina, Scarlet Frills | | |  | | --- | | 3 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.3** |  |  | | --- | | **(6)** | | |  | | --- | | **Leaf: shape** | |  |  |
|  | |  | | --- | | ovate | | |  | | --- | | Serihon | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | circular | | |  | | --- | | Kekkyu Takana | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | elliptic | | |  | | --- | | Akariasu | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | oblong | | |  | | --- | | Etamine, Zasai FM-58 | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | obovate | | |  | | --- | | Esperance, Katsuona | | |  | | --- | | 5 [   ] | |
|  | |  | | --- | | spatulate | | |  | | --- | | Kigarashina | | |  | | --- | | 6 [   ] | |
|  |  |  |  |
|  |  |  |  |
| |  | | --- | | **5.4** |  |  | | --- | | **(7)** | | |  | | --- | | **Leaf: attitude** | |  |  |
|  | |  | | --- | | erect | | |  | | --- | | Energy, Vittasso, Wasabina | | |  | | --- | | 1 [   ] | |
|  | |  | | --- | | erect to semi-erect | | |  | | --- | |  | | |  | | --- | | 2 [   ] | |
|  | |  | | --- | | semi-erect | | |  | | --- | | Esperance, Shinkoku Seisai | | |  | | --- | | 3 [   ] | |
|  | |  | | --- | | semi-erect to horizontal | | |  | | --- | |  | | |  | | --- | | 4 [   ] | |
|  | |  | | --- | | horizontal | | |  | | --- | | Etamine, Miike Takana | | |  | | --- | | 5 [   ] | |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | TECHNICAL QUESTIONNAIRE | Page {x} of {y} | Reference Number: | | | | | |
|  | | | | |
|  | | Characteristics | Example Varieties | Note |
|  | |  |  |  |
| |  | | --- | | **5.5** |  |  | | --- | | **(18)** | | | |  | | --- | | **Only varieties with leaf: type: entire or lobed: Leaf blade: density of incisions of margin** | |  |  |
|  | | |  | | --- | | absent or very sparse | | |  | | --- | |  | | |  | | --- | | 1 [   ] | |
|  | | very sparse to sparse |  | |  | | --- | | 2 [   ] | |
|  | | |  | | --- | | sparse | | |  | | --- | | Etamine, Katsuona | | |  | | --- | | 3 [   ] | |
|  | | sparse to medium |  | |  | | --- | | 4 [   ] | |
|  | | |  | | --- | | medium | | |  | | --- | | Opaleska | | |  | | --- | | 5 [   ] | |
|  | | medium to dense |  | |  | | --- | | 6 [   ] | |
|  | | |  | | --- | | dense | | |  | | --- | | Oportuna | | |  | | --- | | 7 [   ] | |
|  | | dense to very dense |  | |  | | --- | | 8 [   ] | |
|  | | very dense |  | |  | | --- | | 9 [   ] | |
|  | |  |  |  |
|  | |  |  |  |
| |  | | --- | | **5.6** |  |  | | --- | | **(19)** | | | |  | | --- | | **Only varieties with leaf: type: entire or lobed: Leaf blade: blistering** | |  |  |
|  | | |  | | --- | | absent or weak | | |  | | --- | | Etamine, Kigarashina | | |  | | --- | | 1 [   ] | |
|  | | |  | | --- | | medium | | |  | | --- | | Akaoba Takana | | |  | | --- | | 2 [   ] | |
|  | | |  | | --- | | strong | | |  | | --- | | Katsuona | | |  | | --- | | 3 [   ] | |
|  | |  |  |  |
|  | |  |  |  |
| |  | | --- | | **5.7** |  |  | | --- | | **(20)** | | | |  | | --- | | **Only varieties with leaf: type: entire: Leaf blade: width of midrib** | |  |  |
|  | |  |  |  |
|  | | very narrow |  | |  | | --- | | 1 [   ] | |
|  | | very narrow to narrow |  | |  | | --- | | 2 [   ] | |
|  | | |  | | --- | | narrow | | |  | | --- | | Sagami Green | | |  | | --- | | 3 [   ] | |
|  | | narrow to medium |  | |  | | --- | | 4 [   ] | |
|  | | |  | | --- | | medium | | |  | | --- | | Katsuona | | |  | | --- | | 5 [   ] | |
|  | | medium to broad |  | |  | | --- | | 6 [   ] | |
|  | | |  | | --- | | broad | | |  | | --- | | Shinkoku Seisai | | |  | | --- | | 7 [   ] | |
|  | | broad to very broad |  | |  | | --- | | 8 [   ] | |
|  | | very broad |  | |  | | --- | | 9 [   ] | |
|  | |  |  |  |
|  | |  |  |  |
| |  | | --- | | **5.8** |  |  | | --- | | **(21)** | | | |  | | --- | | **Plant: head formation** | |  |  |
|  | | |  | | --- | | absent | | |  | | --- | | Kigarashina | | |  | | --- | | 1 [   ] | |
|  | | |  | | --- | | present | | |  | | --- | | Kekkyu Takana | | |  | | --- | | 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* | |  | | --- | | *Leaf: shape* | | |  | | --- | | *ovate* | | |  | | --- | | *oblong* | | |  |  |  |  | |  |  |  |  | |  |  |  |  | | | |  | 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 | | | | | |  |  | | --- | --- | | Main use:  Vegetable                              [   ]  Oilseed                                  [   ]  Condiment                             [   ]  Green manure                       [   ]  Other                                    [   ]   |  | | --- | |  | | | | | | | |  |  |  |  |  | |

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

|  |
| --- |
|  |